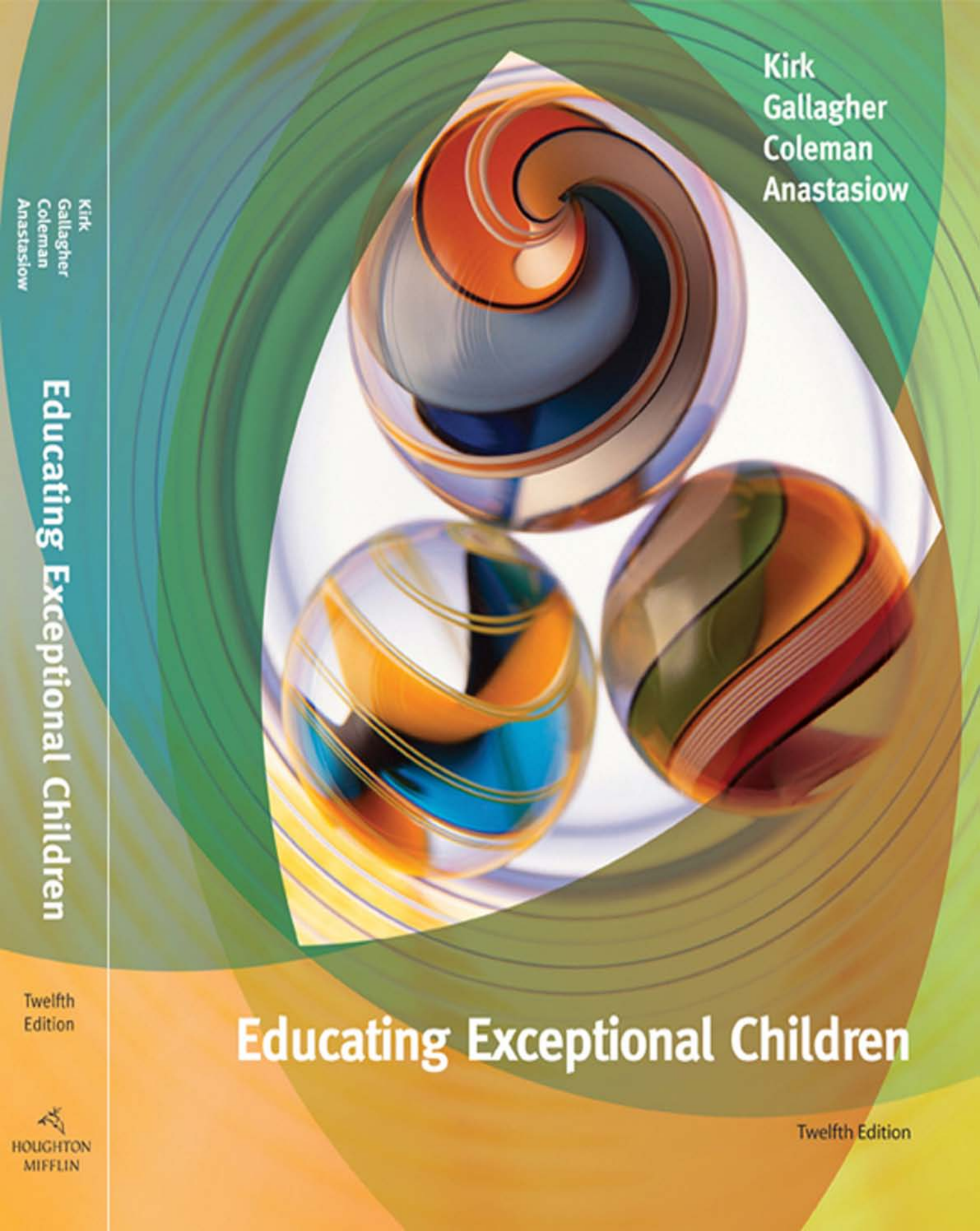
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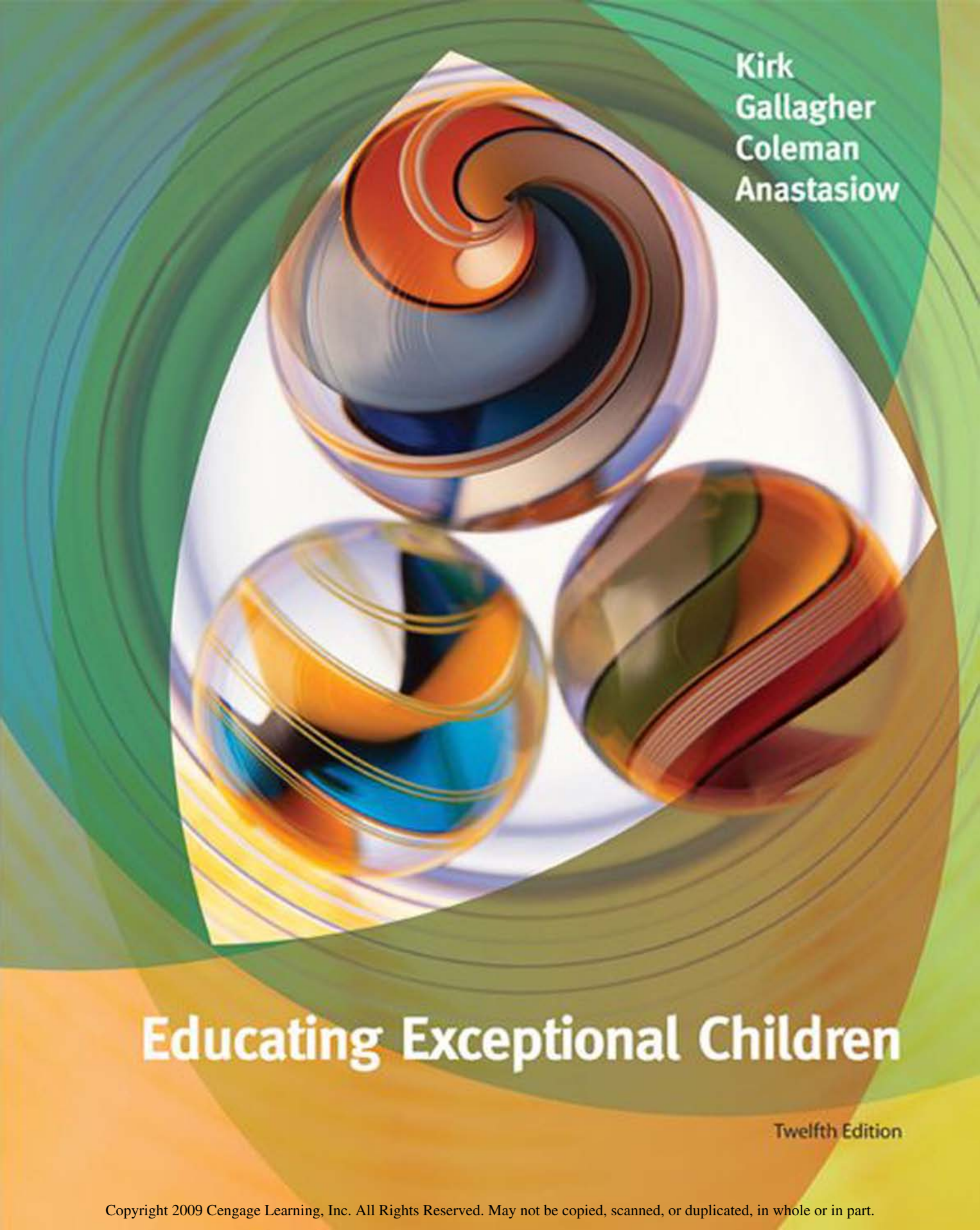

As students, you are on a journey to gain the knowledge and skills needed to work with children who have exceptional learning needs, their families, and others who are concerned with their education and wellbeing. As part of this journey, you are joining a group of practitioners who have dedicated themselves to making the world a better place for individuals with exceptionalities. You are, in short, joining the profession of special education. Like most professions, special education has defined a body of information, standards for the field, that prepare practitioners for their work and has established a code of ethics. This information provides the foundation for what each practitioner needs to know and how to carry out these duties.

This information has been drawn from the **Council for Exceptional Children (www.cec.sped.org)**, the largest professional organization in special education. This information is continued on the back inside cover of this book so that you will have easy access to it as you move through the chapters. You will find:

1. description of CEC
2. summary of how these standards have been used within this text and accompanying materials
3. CEC Code of Ethics
4. list of primary standards for special educators

We welcome you to the world of special education where working together we can make a difference in the lives of children with exceptionalities.

Council for Exceptional Children

The Council for Exceptional Children (CEC) is the largest international professional organization dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and the gifted. CEC advocates for appropriate governmental policies, sets professional standards, provides continual professional development, advocates for newly and historically underserved individuals with exceptionalities, and helps professionals obtain conditions and resources necessary for effective professional practice.

How the CEC Standards Relate to This Text

As you read this text you will notice that the content and information directly relate to the standards. This is no accident! In addition to the foundational information in Chapters 1 and 2, each subsequent chapter reflects on historical roots; looks carefully at the characteristics of children and their learning differences; examines the child's overall development (language, social, etc.); presents information on instructional planning and methods and strategies; addresses the assessment needs of children; and discusses the role of collaboration and ethical practice. As an introductory text, we do not expect that all of the knowledge and skills needed for a practicing special education teacher will be mastered with this one text and course—but we do hope that a solid foundation will be built for future learning. In addition to using the standards as guidelines as we wrote the text, here are other ways that they are incorporated:

- The test bank of questions provided with the text has been designed to look at the knowledge identified for each standard;
- Activities that accompany each chapter are set up to facilitate the development of the skills needed within each standard;
- Your professor may request a portfolio as part of your assessment (or you may choose to create one for your own use). Suggestions have been given on how to show your accomplishments within the standards;
- We have also developed a self-reflections log based on the CEC Standards (see the student website) to help you monitor your learning.

As you grow professionally you will continue to draw on the standards for the field, expanding your knowledge and skills and enhancing your ability to meet the needs of your students. We encourage you to connect with other professionals who share your same commitment as a first step in your journey toward professionalism.

Educating Exceptional Children

TWELFTH EDITION

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PART THREE

Preface

The institution of special education is now over fifty years old. During that time, its emphasis on individual children and their special needs has changed the face of American education. We are entering a new phase where the approaches and educational adaptations from special education will no longer be reserved for the 10 percent of children identified with disabilities. Knowledge from the special education field can now be applied to many other children who are having difficulty in school. This text will chart this new approach and also continue to focus on children with exceptionalities.

A Brief History of this Text

Originally published over 40 years ago, *Educating Exceptional Children* maintains its deep historical roots. The vision of first author, Samuel A. Kirk, can still be detected across the book's pages. The text also captures what is happening in today's world of special education–where the intensity and range of our children's special needs seems to be growing. Throughout the chapters, we share how to meet these needs and support children so that they will be successful both in school and across their lives.

While we are rooted in our long history of service and offer concrete ideas for the present, we have also tried to envision a better future. In this new edition, we offer ideas for how to work collaboratively with others and ensure a bright future for teachers and families of children with exceptionalities, and most importantly for the children themselves.

The Twelfth Edition: Key Themes and Emphases

This twelfth edition reflects a substantial revision. The changes we have made reflect the dynamic field of special education as it continues to evolve. The twelfth edition is built around two main themes: *the importance of collaborative approaches to providing supports and services;* and *the importance of focusing on the student's strengths as we work to meet his or her individual needs*. These two main themes inform our discussion and coverage of every topic. The twelfth edition also emphasizes the following key themes and issues which are also some of the "cornerstones" of the special education field.

Response to Intervention

For the first time, *Educating Exceptional Children* incorporates a new approach to educational services, the Response to Intervention (RTI) model. RTI presents a three tiered approach to services that includes special education, but addresses other students who are having trouble adapting to school as well. A special introduction to the RTI model will follow this Preface so that students can begin to understand the model and see how it is changing the way we meet the needs of children with exceptionalities.

The Interface Between Special and General Education

As we think about the increased collaboration between general and special education, it is still important to address *what is special about special education*. We have covered this theme repeatedly throughout the text. We explain, for pre-service teachers, the differences between general and special education—especially the way in which supports and services are delivered. The foundation of this text, however, is coverage of the specialized knowledge and skills required to work with students who have intensive special needs.

The Council for Exceptional Children's Professional Standards

The Council for Exceptional Children's (CEC) standards for special education teacher preparation are provided in the inside covers of this text to remind us of this specialized body of knowledge and skills and a full set of the CEC standards is also available on the textbook's website. Each chapter was revised using these standards as guidelines for the selection of content. The instructor's materials, which accompany this text, have also been aligned with the CEC standards. Dr. Doreen Fairbanks, the author of the instructor's materials, has developed several instructional activities and assessments which reflect the knowledge and skills found in the CEC standards. We have provided matrixes to help students "track" their increasing confidence in their knowledge-base to meet the needs of children with exceptionalities. We have also provided a portfolio format, with a scoring rubric, so that students can show their mastery of the knowledge and skills as they move through the course.

Meeting Many Exceptional Children

To help bring the text to life, we have included a large number of stories and personal examples of individuals with exceptionalities and their families. Each chapter features a section called "Exceptional Lives, Exceptional Stories" that shares the actual stories of individuals and their families. We have also incorporated in each chapter, examples of individual students showing profiles of their strengths and challenges. These profiles illustrate the range of students who can be found within each area of exceptionality. This careful look at an individual student's profile is the basis for all we do in special education. Since each of these individual students lives within the context of families, peers, and cultural backgrounds, we include extended discussions of these broader contexts to help us understand the child.

Inclusion

The topic of inclusion receives thorough coverage throughout the new edition. A major historical trend in special education is the attempt to create a true integration of children with exceptionalities into the regular education program. Such a movement is not without its costs, both financial and social, and careful account has to be made as to how such integration can be a benefit to all students.

Educational Infrastructures and Engines of Change

Just as physical infrastructures represent supports for our transportation and communication systems, the educational infrastructure (such as schools, courts, and the legal system) represents supports for the educational service delivery that we hope to provide. The infrastructure in education is only partly formed, and its needs will be a topic in many chapters. For the first time, we have also included discussion of the four engines of change; legislation, court decisions, administrative rules, and professional initiatives as a way of showing how we can move forward as a field.

Genetic-Environmental Interaction

The newest information from the rapidly expanding field of genetics, following the Human Genome Project, has many potential applications to children with exceptionalities and these are highlighted in individual chapters.

Ecology of the Child

We pay attention to the cultural context in which the exceptional child lives. So family, peers, culture, and community play a continuing role regardless of the specific children under discussion. The ecology of the child is one of the elements that can be productively changed to aid the adaptation of the child with special needs.

What's New In the Twelfth Edition?

As stated above, this new edition represents a thorough and substantial revision. We have updated the text with hundreds of new references and sources of information. In addition to the key themes listed above, we have expanded our discussion of the continued disproportionate representation of children from culturally and linguistically diverse and economically disadvantaged families. We have also provided more information on how professionals and families can work together to meet the child's needs.

Expanded and Improved Text Features

We have tried to make the twelfth edition more "user-friendly" for both instructors and students. To this end, we have incorporated the following new and improved pedagogical features in each chapter:

- **Focus Questions** begin each chapter and preview key chapter topics
- **Key words** are bold within the text, listed at the end of each chapter, and included in the glossary at the end of the book.
- **HM Video Case Boxes (New!)** are incorporated within each text chapter. Each video case box highlights a relevant HM Video Case that can be viewed on the student website, and includes reflective content for students. These video case boxes can be used to spark discussions about critical issues that are covered in the chapter.

- **Exceptional Stories of Exceptional Lives Boxes (New!)** spotlight true stories of children and families living with various disabilities. It is our hope that these stories will give a "face" and a voice to the specific disability categories described within each text chapter. We know that student readers will find these stories engaging.
- **Profiles of Two Students Boxes (Improved!)** provide written case studies about two or three students alongside data about their developmental and academic profiles. These profiles allow pre-service students to gain hands-on experience in examining and evaluating student data and information.
- **Educational Responses to Students (Improved!)** are special sections within each chapter that focus on practical strategies for working with each specific population of exceptional children. Pre-service students will refer back to these special sections when they enter the real world of teaching. The pages for this feature are color-shaded to make it easy for readers to find and reference. Within this section, we have incorporated suggestions for adapting the environment and the instruction for students with special needs. We also cover the development of Individual Education Plans (IEPs) and how we work to structure support for students with special needs. We also incorporate the use of technology to address the needs of students and how supports and services can be provided across the three tiers of RTI. We hope that this practical focus will provide prospective teachers with useful information on meeting the needs of their students.
- **Moral Dilemma Boxes (New!)** Exceptional children have ways of stimulating some very difficult discussions that force us to reflect on our own values and beliefs. These issues embedded within special education are often ignored because they can be difficult to deal with. At the close of each chapter, we have included a moral dilemma relevant to the area addressed in the chapter. We hope this will stimulate discussion and reflection among the students studying this text.
- **Summary Sentences** in the margins highlight critical information and themes throughout the chapter.
- **New Figures, Graphs, and Tables** illustrate key pieces of information described within the text.
- **Extensive End of Chapter Features** include a **Chapter Summary;** a set of **Future Challenges**, a list of **Key Terms**, and **Additional Resources** provide **key websites** and sources for additional information.

User-Friendly Organization of the Twelfth Edition

The book is divided into three major sections. Part One provides the history and foundations of special education. The first chapter represents an introduction to children with exceptionalities and their families and why they present a challenge to education in the United States whereas the second chapter deals with the social systems and institutions in our society that are relevant for these families; government, schools, and the courts.

Part Two deals with high incidence exceptionalities (those which include more than 1 percent of the population). This section begins with a chapter on Early Intervention addressing children birth–five years of age. Part Three addresses students who make-up less than 1 percent of the general population. They will appear more rarely in the general classroom but their needs may be even more pressing and demanding of the attention of school personnel.

Chapter Revisions in the Twelfth Edition

We have revised and updated each of the chapters in this twelfth edition. Here are the highlights of these chapters:

Chapter 1, Educating the Exceptional Children. An emphasis is placed on the family and the interaction of siblings and parents related to the child with special needs. We begin a discussion on the interaction of the exceptional child with the education system that will continue in each of the chapters.

Chapter 2, Exceptional Children and Social Institutions, Government, Schools and the Courts. Included here are discussions of IDEA 2004 and the No Child Left Behind legislation and its effect on children with special needs. The role played by a number of court decisions and their impact on the children with special needs and the reorganization of the schools is also discussed. The continuing impact of the policy of inclusion in the public school system is presented.

Chapter 3, Early Intervention Supports and Services. Early intervention has seen the rapid development of preschool programs for both exceptional children and children of typical development. It is now widely accepted by both professionals and the general public that education in the early years is needed for subsequent development. This chapter addresses how early intervention supports and services can meet the needs of young children and their families.

Chapter 4, Children with Learning Disabilities. The largest group of children in special education are those with learning disabilities. The distinctive nature of the individual's needs creates educational challenges for the teacher. The RTI model stressed in this text emerged out of concern for children with learning disabilities and the shortcomings of historical definitions. The RTI model also serves as a guide to planning effective educational responses to meet the needs of students with learning difficulties. The information-processing model presents a method to review the student's needs and to determine strategies to meet these needs.

Chapter 5, Children with Intellectual and Developmental Disabilities (IDD). Even the name *mental retardation* has been changed to *intellectual and development disabilities*, as has the name of the professional associations and journal associated with the condition. The reasons for these changes are discussed as well as the strategies to be applied in the education setting. Appropriate transition services to help the graduate into the community are discussed.

Chapter 6, Children with Emotional and Behavior Disorders. Children with emotional and behavioral disorders have been given special public attention partly due to aggressive outbursts in the community that have highlighted what can happen without effective early and continuing attention. Aggressive behavior does not go away with increasing age and schools are attempting to cope with approaches like 'positive behavior supports,' realizing that punishment is only a short term solution. The issues of emotional disturbance and special topics such as suicide are also examined.

Chapter 7, Children with Communication, Language, and Speech Disorders. This chapter has been completely reorganized from the previous editions in order to take into account new discoveries and approaches for children with these difficulties. Of special note are those children for whom English is a second language.

Chapter 8, Children with Autism Spectrum Disorders. Autism is the fastest growing disorder in the population of children with special needs. Emphasis is placed on a number of theoretical models for treatment that have been marketed in the recent past. The rapid political development of support for these students is noted. The special condition of Asperger's syndrome, a related disorder, is touched upon. Applied behavior analysis is one effective strategy.

Chapter 9, Children with Gifts and Talents. Students with gifts and talents also require social education because their needs are so different form the average student. Many students with special gifts who come from impoverished circumstances and who have been traditionally ignored are given special note here. Also the importance of differential curriculum to meet these students with special gifts is stressed. The continuing battle between equity and excellence in U.S. education is discussed.

Chapter 10, Children who are Deaf or Hard of Hearing. The special problems of early linguistic development are discussed together with the challenges for the teacher in communicating with young child who are deaf or hard of hearing. New medical and technological advances are discussed along with the need for multiple supports and services. Attention to the Deaf culture and to the need for family supports are also discussed.

Chapter 11, Children with Visual Impairments. The adaptation of children with visual impairments to the general classroom often depends on assistive technology tools and the availability of specially trained personnel. Students often learn braille and receive special instruction in orientation and mobility to encourage active exploration of their environment. Combating the tendency to passivity is one challenge discussed.

Chapter 12, Children with Physical Disabilities, Health Impairments, and Multiple Disabilities. This chapter is a combination of two chapters in the previous edition, one on multiple disabilities and one on physical disabilities. The relatively new category of 'traumatic brain injury' is included here as is the multidisciplinary approach needed for many of the students with multiple disabilities. This chapter provides students with an opportunity to reflect on all that they have learned about other areas of disability as they focus on students with some of the most intense challenges.

Supplemental Materials to Aid Teaching and Learning

This edition offers an expanded and enhanced package of support material for instructors and students as follows:

- **Instructor's Resource Manual** This is an all-purpose tool for reference and ideas when teaching this book. This manual, offered at the instructor's website, provides chapter-by-chapter resources that include chapter learning objectives, focus questions, key terms, PowerPoint lecture outlines, class activities and exercises, student take-home activities, and student handouts.

- **HM Testing Computerized Test Bank** This is a full test bank for instructors in electronic format for ease of use. Assessment materials include both essay and multiple-choice questions. This bank of test questions is compatible with both PC and Macintosh computers.
- **Student and Instructor Websites.** Students and instructors can access valuable content any time via the companion websites (go to www .college.hmco.com/PIC/kirk12e.) Some content may be passkey protected. The student website is developed to help students practice and better absorb the learning they get from their book and classroom experiences. To this end, we offer questions for thought, interactive flashcards of key terms with definitions, ACE self-quizzes, weblinks, Video Cases (described fully in the next section), student portfolio activities, CEC standards info, an interactive version of the Moral Dilemma features from the text, and much more. The instructor's website includes the *Instructor's Resource Manual,* a full set of PowerPoint slides for each chapter, and a sample syllabus.
- **Award winning HM Video Cases**. Available online (and also in a DVD to adopters on request), each "case" is a 4- to 6-minute module consisting of video and audio files presenting actual classroom scenarios that depict the complex problems and opportunities teachers face every day. The video and audio clips are accompanied by "artifacts" to provide background information and allow preservice teachers to experience true classroom applications in their multiple dimensions.
- **Eduspace** For instructors who use a course management system, Eduspace, Houghton Mifflin's Course Management System, offers a flexible, interactive online platform to help them communicate with students, organize material, evaluate student work, and track results in a powerful gradebook. In addition to the grade book and other course management tools, Eduspace includes special interactive components such as videos, a discussion board, reflective journal questions, test items, and additional materials to aid students in studying and reflecting on what they have learned.

As we revised this text and accompanying materials, we maintained the history of solid scholarship, while utilizing current practice and knowledge and offering our vision for the future. We have done our best to take the complex ideas and share them in ways that are understandable and interesting. We hope that you find this text useful, informative, and challenging as you learn how to meet the needs of children with exceptionalities.

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James G. Gallagher
Mary Ruth Coleman
Nicholas J. Anastasiow

Introduction to RTI: Response to Intervention

It's your first day teaching. As you look out at your new class, you are nervous and excited to see who your students are. You know that it may take some time to get to know your students as individuals, but you have already started to learn about their needs. In preparation for today, when you would see them for the first time, you reviewed each student's folder. This was helpful because you learned that five of your students have disabilities and you know that they will need special attention while another four of your students have been identified as gifted and talented. The other eighteen students do not have any specific identification, but, you are certain that they will have their own special needs as well.

You have already heard that two of your students were considered for retention last year and they will certainly need extra support. You also know that one of your students has just lost her mother to cancer—and thinking of this breaks your heart. With all of these needs, it is hard not to wonder how the year will go.

During teacher orientation, you meet the special education teachers, the gifted education specialist, the reading support teacher, the guidance counselor, and most importantly, your mentor teacher. You know that you have the support of this team to help you meet your students' needs. The orientation director kept reminding the new teachers that with the RTI approach used in their schools, teams of teachers collaborate to meet students' needs. She asked the new teachers to remember this and even had them repeat together, "I'm not expected to do this alone."

Now facing your class for the first time, you find yourself silently repeating the mantra that you heard during your teacher orientation: "I'm not expected to do this alone!"

Introducing the Response to Intervention Model (RTI)

One of the major challenges teachers face in schools today is meeting the wide range of student needs. In any given classroom, teachers will have students who struggle to learn sitting beside students who learn easily. Most classes will have students who have been formally diagnosed with disabilities, and other students who just seem to need more support in order to achieve success. Some students will have emotional difficulties and behavior problems, while others may have social adjustment needs. The range of students' needs can feel overwhelming to a teacher. But the good news is that in today's schools teachers are not expected to do the job alone. Teams of teachers can work collaboratively to address their student's strengths and needs. In fact this collaborative approach is catching on across the country through a movement called **RTI**.

RTI is an emerging educational approach created to meet the needs of children. It brings together important information about the child (e.g. data on the child's strengths and challenges) with evidence-based instructional approaches so that teachers and related service providers can recognize and respond to student's needs (Brown-Chidsey & Steege, 2005; Division for Learning Disabilities, 2007; Bradley, Danielson, & Doolittle, 2007).

RTI is the approach used throughout this text to describe supports and services for children with exceptionalities. We have chosen RTI as the anchor for this text because it reflects our belief in the collaborative approach needed to

meet the needs of today's students (Gallagher, 2006). RTI approaches are being implemented in a variety of ways in school districts across the country. While we believe that RTI holds promise for the future we know that it must continue to evolve through further research and experience in the coming years and we look forward to this evolution.

RTI Coverage Within This Text

Through this text, when RTI is discussed, you will find a small RTI triangle icon in the margin.

Each time you see this icon, you may wish to refer back to this introduction to remind yourself what RTI is and to refresh your understanding of the key components of the RTI approach.

Why RTI?

It can be difficult to support children who are struggling to learn, but who do not qualify for special education service. What we have often created are two groups of children, the "regular education children" and the "special education children." This is an artificial dichotomy, there are not two groups of children, there are just children and many of the children we teach will have special needs. The two major difficulties that are created when we divide children in these groups are:

- Teachers get assigned to one or the other group and often do not pool their expertise to meet the needs of all children;
- The children who are struggling with some aspect of learning, *but who do not meet the eligibility criteria for special education* often fall through the cracks getting very little extra help to be successful.

Does this mean that we should do away with general and special education? Of course not. What we need to do away with is the artificial structure that keeps us from working together collaboratively combining resources and expertise to meet the needs of children. The tiered approach to services that RTI offers (see below) provides the structure needed to support the collaboration between general and special education and it offers a way that we can address the needs of children who need some extra support to be successful but who do not need the intense and full services we provide through special education.

We believe that, RTI represents an educational approach that moves us toward a better future. A future where children's needs are addressed by *multidisciplinary teams* (professionals from various domains such as special education, speech pathology, occupational therapy, etc.) working collaboratively to address children's special needs (Gallagher, 2006). Resources are focused on meeting children's needs, and families work in partnership with professionals (Kame'enui, 2007).

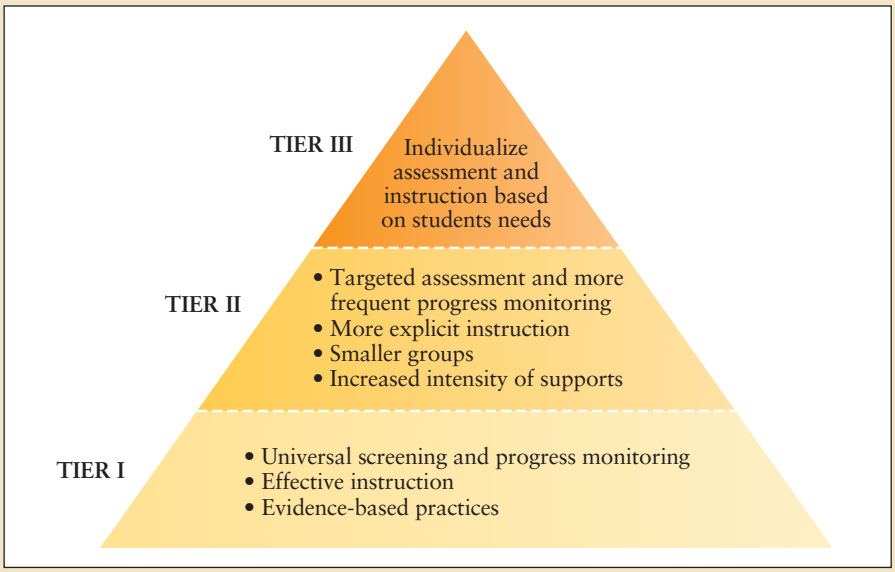
Key Components of RTI

RTI can be implemented in many ways, but all RTI approaches share some key components:

- evidence-based instructional practices;
- a tiered hierarchy of supports and services;

- comprehensive assessments and progress monitoring used to make informed decisions about a child's strengths and needs;
- standard protocols for intervention when children need more support; and
- problem-solving approaches that include parents to plan supports and services (Fuchs & Fuchs, 2007; Bender & Shores, 2007).

The figure below (see this also in Chapter 4 on page 129) shows the RTI approach visually, using three tiers.



The Response to Intervention Model

Explaining the RTI Model

This visual representation of the RTI approach should help you understand the relationships between each of the key components that we mentioned above. As you look at the RTI triangle carefully, you will see that the shading deepens as you move from the bottom to the top. This shading indicates that the supports and services offered at each tier increase in intensity—with Tier III being the most intense level of service. *The RTI triangle shows that as the intensity of the child's needs increase, our response to these needs also increases in intensity.*

Tier I supports and services in a general education setting are typically provided for all children. This tier incorporates universal screening to detect if children need any additional support to meet with success, and progress monitoring to ensure that the support being provided is actually helping the child (you will learn more about progress monitoring in Chapters 3 and 4). Screening and progress monitoring are ways to collect data on students' needs and provide appropriate instruction and document the progress the students are making. Progress monitoring is critical because it allows educators to see very quickly when a child needs additional support to achieve success. For children who need more support, we can move to Tier II.

Tier II includes supports and services that are provided collaboratively, drawing on general and special educational resources, and personal expertise. A full implementation of Tier II will likely require additional personnel. In Tier II, the supports become more targeted and they are based on the documented needs of the children. These services may include more intensive and explicit instruction provided in smaller groups, and will involve more frequent progress monitoring. If the supports and services provided in Tier II are not sufficient, the child may need to receive additional help through Tier III.

At Tier III, the most intensive and specialized supports and services are provided. These supports and services include the formal identification of students for special education (Council for Exceptional Children, 2007). Supports and services provided at Tier III are tailored specifically to the child's needs and will require individualized educational programming. Most of the children you will meet in this text will receive supports and services at the Tier III level.

You may also notice, as you examine the RTI triangle, that there are dashed lines between each tier. The dashed lines are important because as children develop and their needs change, our educational services must also change. The dashed lines further show that each child may have needs at all three tiers, simultaneously. You will meet several children in this text and learn through them that our educational supports and services must remain flexible in order to meet the ever-changing needs of our students. It is also important to note that children with intense needs may be referred for the services provided at Tier III at any time from the other tiers.

Two Additional Components of RTI

Two important components of RTI which are not reflected in the figure are the use of standard protocols for instruction, and the problem-solving approach to collaborative planning. Standard protocols for instruction are designed to help the teacher provide additional support for students who are struggling to master the material presented. These are used at Tier II to guide the instruction, and are developed from evidence-based practices. These practices have a documented track record of success that comes from research, practitioners experience or wisdom, and an acceptance of the practice by the families and community. Evidence-based practice also means that as teachers we must reflect on our instructional methods and curriculum choices to make sure that these are working well for our students. How does this work for a child?

For a student who is struggling with reading, for example, a standard protocol might include targeted small group instruction and practice with phonics, matching letters and sounds. This standard protocol is evidence-based because it is supported by research (teachers have used it successfully) and it is acceptable to families and the community. Specific protocols must be created to meet the needs of students in each content area and across each grade-level. Standard protocols for instruction are useful because they provide the teacher with clear guidelines in supporting children who are struggling, but there is no guarantee that the standard protocol will be effective for all children.

The use of a collaborative planning process must also be part of an RTI approach because this allows a multidisciplinary team to work together to address the child's needs. This team should include teachers, related service providers, and parents. Throughout the text, the importance of the multidisciplinary team

will be discussed. The importance of the parents or caregivers as members of the multidisciplinary team, described as the family-centered approach, is a cornerstone of special education and is critical to RTI. Throughout this text you will learn more about all of these ideas.

Taken as a whole, the RTI approach attempts to bring together the best of general and special education to create a bright future for children with exceptionalities.

Resources for RTI

References of Special Interest

Bender, W., & Shores, C. (2007). *Response to intervention: A practical guide for every teacher.* Arlington, VA: Joint Publication Council for Exceptional Children; Thousand Oaks, CA: Corwin Press. This is a comprehensive guide for the implementation of RTI in the classroom. Examples of RTI in action for a variety of grade levels and content areas are given. This book also contains several lists of resources and validated curriculum that can be used for interventions with students who are struggling.

Division for Learning Disabilities. (2007). *Thinking about response to intervention and learning disabilities: A teachers guide.* Arlington, VA: Author. This publication of the Council for Exceptional Children's Division for Learning Disabilities is a brief user-friendly guide to how the RTI approach can be used with students who have learning disabilities. It provides an excellent overview for teachers who will be working to implement RTI in their schools and classrooms.

Professional Organizations

The Division for Learning Disabilities, Council for Exceptional Children

www.TeachLD.org

National Center for Learning Disabilities RTI Action Network

www.ncld.org

Learning Disabilities Association (LDA)

www.ldanatl.org

PART ONE

Introduction, History, and Social Forces in Special Education

In this first part we begin with a look at the rich history of special education over the past five decades and at the social forces that have played a significant role in establishing special education in the schools. In Chapter 1 we focus on children with exceptionalities and their immediate families. In Chapter 2 we explore the impact of three major social institutions on children with exceptionalities: the government, the public schools, and the courts.

We, as authors, feel that we must know where we have come from in order to adequately plan for the future. Or, as the old philosopher put it, "You can't know where you are going if you don't know where you've been." Each chapter begins with a series of Focus Questions that provide a preview of the major issues to be covered. If, after reading the chapter, you can give a coherent answer to these questions, then you have mastered the essence of the chapter.

CHAPTER

1

Children with Exceptionalities

FOCUS QUESTIONS

- Who are the children with exceptionalities, and how do we find them?
- What are some of the major causes of exceptionalities?
- How many U.S. children are considered exceptional, and how does that affect the schools?
- What are some of the interindividual and intraindividual differences that face the teacher of the exceptional child?
- How does the child with exceptionalities affect the immediate family—the parents and the siblings?
- How do cultural differences in families affect children with exceptionalities?
- How does the ecological approach help us understand the family and the exceptional child?
- Can cultural factors cause an exceptionality or can they only contribute to it?

It's not easy being different. We have all felt the sting of not belonging, of not feeling a part of the group. We have all felt overwhelmed when asked to do things beyond our skills and capabilities or bored when asked to do simple things that do not challenge us. Of course, being different is not always negative: it is what makes us interesting people. But it also forces us to adapt to meet social expectations that are often designed for the person who is average. When being different means that a child is not able to receive information through the normal senses, is not able to express himself or herself, or processes information too slowly or too quickly, special adaptations in the education program are necessary. This book will provide you with a variety of information about how schools and communities adapt to support individuals with special needs.

The standard fourth-grade class photo (with one teacher and thirty children) contains an important message for teachers. If abilities and disabilities are divided according to U.S. figures, then at least three of these children may have disabilities, and another four or five would be eligible for Tier II services in the response to intervention (RTI) model mentioned in the Introduction to RTI on page xxiii.

This means that, whether you are studying for general education certification or training to be a special educator, you have a major stake in understanding children with special needs and adapting your teaching strategies accordingly. These children are not always easy to identify. Many types of learning disabilities or emotional problems do not show up in a child's appearance, so part of the teacher's role is to be sensitive to individual differences, to locate children in trouble, and to provide some guidance for them. Sometimes the guidance consists of calling "Help!" and hoping that some school specialists will respond. The reality is that public education today requires all teachers to have major interactions with children with special needs.

Socialization and collaboration are two important goals in special education.
(© Ellen Senisi).

A New Model for Special Education

The discipline of special education has received a good amount of attention at the beginning of the twenty-first century. A strong state and federal legislative base has been established, and a history of favorable court decisions supporting a "free and appropriate public education" (FAPE) for all citizens has resulted in several decades of established special education practice. (See Chapter 2 for more details about FAPE.) The interest of the government, the courts, and the schools in these exceptional children is a clear indication of the general support of the larger society.

The Story of Max: A Historical Case Study

Let us now gain some historical perspective about society's treatment of exceptional children. Consider the case of Max, who is a short, stocky boy of 8 who has been diagnosed with autism, a condition that seriously affects his ability to communicate and form relationships with others. He is receiving special services to strengthen his social skills and build his academic achievement. An interesting question, though, is: what would have happened to Max if he had been born in 1850, or 1900, or 1925, or 1950, or 1975?

In 1850, only a smattering of physicians were interested in such cases. Two doctors, Jean-Marc Itard and Edouard Seguin, were the first individuals who tried to teach mentally retarded children. In all likelihood, Max would have dropped out of school early, if he had any schooling at all. At this same point in history, several individuals were interested in helping children who were deaf. Dr. Thomas Gallaudet and others were experimenting with various models of communication for children with hearing disabilities. However, this would not have been much help to Max.

Council on Exceptional Children
cec.sped.org

In 1900, there were some isolated stirrings in urban communities about starting classes for children with disabilities. These would have been unlikely to help Max, who would probably have been called mentally retarded if he had received any attention at all.

In 1922, the Council for Exceptional Children was founded in order to organize teachers who were working to help children with exceptionalities. A few classes had begun in urban settings, but they still would not have been much help to Max.

In 1950, the post–World War II era saw the beginnings of special programs for children with exceptionalities (in such states as California and Illinois). If Max had been in the right place, he might have received some help in a special classroom.

By 1975, the federal government had enacted legislation designed to provide real help for children such as Max. The courts were validating parents' claims to a free and appropriate education. Still, autism was not a well-known disorder, and the well-meaning efforts might not have been sufficient for Max's needs.

Today, there is much more likelihood that Max will be seen by a multidisciplinary team of specialists who are aware of his condition and of special adaptations that could better maximize Max's strengths and abilities.

This brief historical note reveals that organized and multidisciplinary efforts are a new development for children with disabilities. For good reasons, the medical profession was the first to become interested in the children that we refer to as *exceptional*. Many of those children had physical and health problems that brought them to the attention of physicians. The terminology relating to such problems was dominated by medical labels, such as *phenylketonuria, Down syndrome, mental deficiency, blindness,* and *deafness*.

The medical community is still deeply involved in the prevention and discovery of causes. However, even though a disability might have a medical cause, we in education have gradually realized that we are the professionals who handle the unusual and atypical development of children with disabilities. Developmental patterns are usually the province of educators, social scientists, and therapists rather than of medical practitioners. This book, therefore, focuses on the atypical development of the child in cognition, language and communication, social and behavioral processes, and the like. Each chapter of *Educating Exceptional Children* discusses the child's development and educational needs, regardless of the cause of the disability.

The Child with Exceptionalities: An Overview

Who is the child with exceptionalities? The term *exceptional* is generally used to include both the child with developmental disabilities and the child who is gifted. Here we define an **exceptional child** as a child who differs from the average child in (1) mental characteristics, (2) sensory abilities, (3) communication abilities, (4) behavior and emotional development, and/or (5) physical characteristics. (These areas of difference are fully explained in Table 1.1.) These differences must occur to such an extent that the child requires either a modification of school practices or special educational services to develop his or her unique capabilities.

We consider a child to be exceptional when his or her differences or disabilities occur to such a degree that school practices must be modified to serve the child's needs.

Of course, this definition is general and raises several questions. What do we mean by "the *average* child"? How extensive must the differences be for the child to require special education? What is special education? What role does the child's environment play in the definition? We ask these questions in different forms throughout this text as we discuss each group or category of exceptional children.

Exceptional individuals tell us something important about human development. By studying and teaching children who are remarkably different from the norm, we learn about the many ways in which children develop and learn, and we inform ourselves more thoroughly about the developmental processes of all children; in this way, we develop our teaching skills and strategies for all students.

Categories of Exceptional Children

If we define a child with exceptionalities as one who differs in some way from a group norm, then many children are exceptional. A child with red hair is "exceptional" if all the other children in the class have brown or blond hair. A child who is a foot taller than his or her peers is "exceptional." But these differences,

though interesting to a geneticist, are of little concern to the teacher. Educationally speaking, these students are not considered "exceptional" because the educational program does not have to be modified to serve their needs. If their exceptionalities leave them unable to read or to master learning in the traditional way, or place them so far ahead that they are bored by what is being taught or are unable to socially fit into the classroom, then special educational methods become necessary.

The standard groupings or categories of exceptional children are:

- *intellectual differences,* including children who are intellectually superior (gifted) and children who are slow to learn (have intellectual and developmental disabilities)
- *communication differences,* including children with learning disabilities, speech and language disabilities, or autism
- *sensory differences,* including children with auditory or visual impairments
- *behavioral differences,* including children who are emotionally disturbed or socially maladjusted
- *multiple and severe handicapping conditions,* including children with combinations of impairments (such as cerebral palsy and mental retardation, or deafness and blindness)
- *physical differences,* including children with nonsensory impairments that impede mobility and physical vitality

A child with disabilities can be placed as *exceptional* in thirteen different legal categories, as shown in Table 1.1. These categories are outlined in the Individuals

A disability is not always easily observed by teachers or by peers.
(© Elizabeth Crews).

TABLE 1.1
Definitions of Children with Disabilities

Autism	Developmental disability that significantly affects verbal and nonverbal communication and social interaction, generally evident before age 3, and that adversely affects a child's educational performance
Communication impairment	Significantly limited, impaired, or delayed capacity to use expressive and/or receptive language, exhibited by difficulties in one or more of the following areas: speech, such as articulation and/or voice; conveying, understanding, or using spoken, written, or symbolic language
Developmental delay	Significantly limited, impaired, or delayed learning capacity of a young child (3–9 years old), exhibited by difficulties in one or more of the following areas: receptive and/or expressive language cognitive abilities; physical functioning; social, emotional, or adaptive functioning; and/or self-help skills
Emotional impairment	One or more of the following characteristics exhibited over a long period of time and to a marked degree that adversely affects educational performance: an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behavior or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal or school problems
Health impairment	Chronic or acute health problem such that the physiological capacity to function is significantly limited or impaired and that results in limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, resulting in limited alertness with respect to the educational environment
Intellectual impairment	Significant limitation or impairment in the permanent capacity for performing cognitive tasks, functions, or problem solving, exhibited by more than one of the following: a slower rate of learning, disorganized patterns of learning, difficulty with adaptive behavior, and/or difficulty understanding abstract concepts
Neurological impairment	Limitation or impairment in the capacity of the nervous system, with difficulties exhibited in one or more of the following areas: the use of memory, the control and use of cognitive functioning, sensory and motor skills, skills in speech and language, organizational skills, information processing, affect, social skills, or basic life functions
Physical impairment	Significant limitation, impairment, or delay in physical capacity to move, coordinate actions, or perform physical activities, exhibited by difficulties in one or more of the following areas: physical and motor tasks, independent movement, performing basic life functions. The term shall include severe orthopedic impairments or impairments caused by congenital anomaly, cerebral palsy, amputations, and fractures if such impairment adversely affects a student's educational performance.
Sensory impairment	1. *Hearing.* Limitation, impairment, or absence of the capacity to hear with amplification, resulting in one or more of the following: reduced performance in hearing acuity tasks, difficulty with oral communication, and/or difficulty in understanding auditorally presented information in the education environment. The term includes students who are deaf and students who are hard of hearing.

(continued)

TABLE 1.1
Definitions of Children with Disabilities (*continued*)

	2. *Vision.* Limitation, impairment, or absence of capacity to see after correction, resulting in one or more of the following: reduced performance in visual acuity tasks, difficulty with written communication, and/or difficulty with understanding information presented visually in the education environment. The term includes students who are blind and students with limited vision. 3. *Deafblind.* Concomitant hearing and visual impairments, the combination of which causes severe communication and other developmental and educational needs
Specific learning disability	Disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia *Disorders not included:* Learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage

Source: www.doe.mass.edu/sped/definitions.html

Internet Resources for Special Children
www.irsc.org.

with Disabilities Education Act (IDEA, 2004), an important piece of federal legislation (discussed in detail in Chapter 2). The definitions in the table are given in technical language, but they are the best descriptors that we have of these conditions. Through case studies and vignettes in the chapters ahead, we will meet students who live with these disabilities.

Early Identification of Children with Exceptionalities

Classification of students under one of the definitions in Table 1.1 is taken quite seriously by educators—especially because it may lead to productive treatment. There is an economic reason for proper identification as well. Those children who are identified as having disabilities are eligible for special services and special personnel provided by funds from the federal and state governments.

There is increasing pressure to begin treatment as soon as the disability is discovered, which means our attention on some children begins at birth, not at kindergarten or even prekindergarten. The increasing importance placed on early childhood in recent times has affected many of the disciplines that provide services for exceptional children. All of the professions that serve the special needs of children with exceptionalities (medicine, education, social work, psychology, speech pathology, and so forth) agree on one major proposition: the earlier you intervene in the developmental sequence of the child, the better. In this case *better* means more substantial results with less effort (Gallagher, 2006).

HM VIDEO CASE

Students with Special Needs: The Referral and Evaluation Process

Watch this Video Case at the student website. What steps did teacher Mike Costello take when he felt that his student Caitlyn needed more support than he could give her? Also, the school's Teacher Assistance Group gave Mike some suggestions as "pre-referral" strategies that Mike could use to try and meet Caitlyn's needs. How does the pre-referral process fit with the RTI approach?

Until recently, the American public school system had not been involved with the education and care of young children because of its extensive K–12 responsibilities and its unwillingness to take on the additional responsibilities of prekindergarten programs. The needs of the child from birth to 5 years had therefore been in the hands of a wide variety of persons representing a variety of disciplines. Programs such as day care, early intervention, Head Start, Title I (Improving the Academic Achievement of the Disadvantaged), and Children with Disabilities early intervention program all contributed to helping families who had young children with disabilities (Cryer & Clifford, 2004).

In the past decade a modern social movement called the *prekindergarten movement* has emerged, and more than forty states now have some state-supported provisions for helping these younger children develop well. This shift was due to new information about the development of the child that found the following:

1. The brain develops through interaction with the environment; therefore, it is in our interest to create a favorable environment (Plomin, Defries, Craig, & McGuffin, 2003).
2. What happens to the infant and toddler casts long shadows ahead in his or her development. If child abuse or neglect is present, it will take a great effort to counteract their effects later (Thompson, 2005).
3. The rapid increase in mothers in the work force has made it important that the child experience positive interactions and environments outside the home (Haskins, 2007).

Accordingly, a flurry of activity and interest now surrounds the preschool child, often from birth on. Chapter 3 in this text is devoted to young exceptional children. In addition, we comment on the special issues that involve the preschool child in each chapter, as we too believe that the earlier the intervention the better.

Intraindividual Differences

By definition, exceptional children are different from children of the same life age. These differences present educators with many challenges. What sometimes goes unnoticed is that some students differ substantially from others not only along key dimensions of development (*interindividual differences*—the general gap in ability or performance between a child with disabilities and her peers) but also within their own developmental abilities (**intraindividual differences**—such as the gap between motor skills and visual perception in the same child). Since a child may have the intelligence of an 11-year-old but the social behavior of a 6-year-old, both interindividual and intraindividual differences are of concern to special educators.

Yes I Can! Foundation for Exceptional Children
http://yesican.sped.org

Understanding a child's intraindividual differences can help us develop individualized programs of instruction. These programs are tailored to the strengths and weaknesses of the individual child. They do not necessarily consider how that child compares with other children.

Intraindividual differences can show up in any area: intellectual, psychological, physical, or social. A child may be very bright but unable to see or hear. Or a child may be developing normally physically but be unable to relate socially to his or her agemates. It is just as important for teachers to know the child's unique pattern of strengths and weaknesses as it is to know how the child compares with other children. One reason for the development of the individualized education program (IEP), of which much will be said throughout this text, is that these intraindividual differences pose unique problems for educators to solve.

PROFILES OF THREE STUDENTS

Characteristics of Students with Diverse Developmental Backgrounds

How can educators monitor and explore interindividual and intraindividual differences? Developmental profiles provide one way to track the range of an individual's differences. The Profiles box and graphs given here (and throughout the book) show the diverse developmental profiles of various children.

Joan: Joan is an intellectually gifted 10-year-old. Her mental ability tests at age 14; her achievement in reading and arithmetic tests at one to four grades beyond her fifth-grade classmates (see Figure 1.1). These are the interindividual differences between Joan and her classmates. But notice that Joan's performance shows many *intraindividual differences*. Although mentally she has the ability of a 14-year-old, her physical development is about average for a girl her age, and her social maturity is only slightly higher. If her parents or teachers expect her to behave like a 14-year-old in every dimension of development because her mental development is at that level, they are going to be disappointed.

Charles: Charles is a child with intellectual and developmental disabilities. His profile shows him to be behind in development and performance in almost every dimension. Although he is 10 years old, his mental ability and academic performance are at first- and second-grade levels. These interindividual differences distinguish Charles from his same-age peers. In addition, Charles shows substantial intraindividual differences, ranging from the 6- and 7-year-old levels in

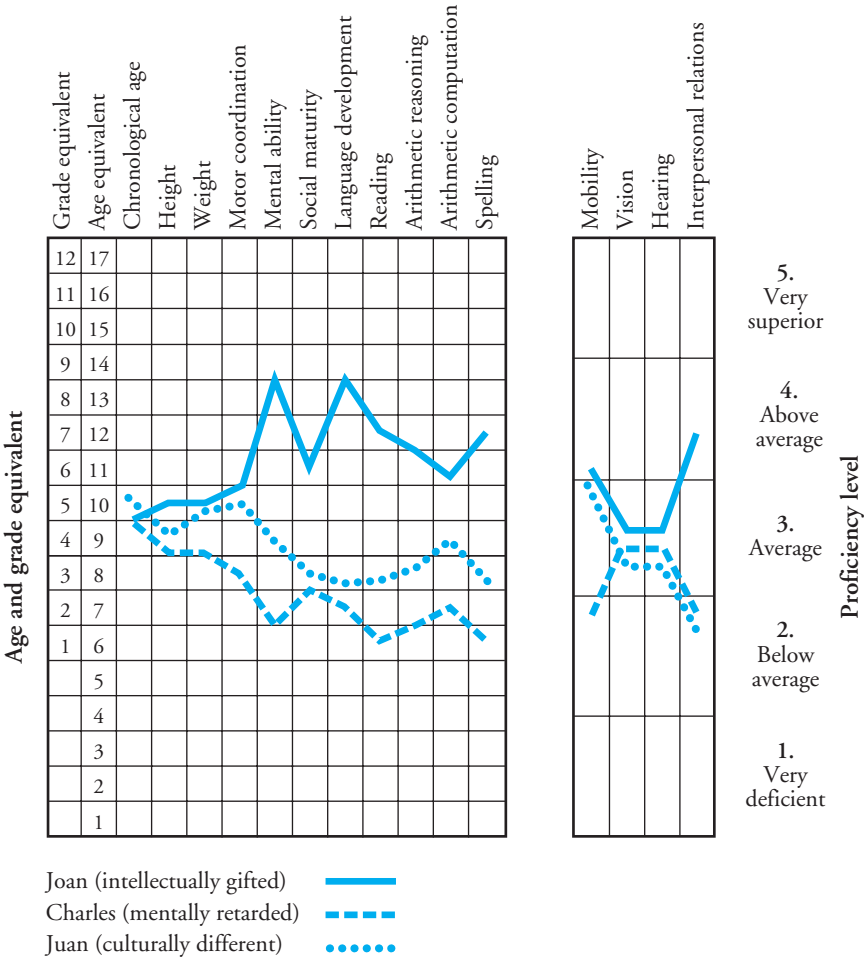


FIGURE 1.1
Profiles of a Child with Intellectual Gifts, a Child with Mental Retardation, and a Child from a Different Cultural Background

academic achievement to the 9- and 10-year-old levels in physical development and life age.

Joan and Charles have very different exceptionalities. Yet both present challenges for their teachers and schools: their interindividual and intraindividual differences set them apart from their classmates and require special educational attention.

Juan: The past decade has seen a marked increase in children from culturally different backgrounds attending U.S. schools. Juan comes from a family that has been in the United States for four years, and they have had serious problems in adapting to American schools and procedures.

From the graph, one can see that Juan is not performing at grade level in language development, reading, arithmetic, or spelling. Even though his academic profile roughly parallels that of Charles, we must be especially cautious in reaching conclusions about Juan's cognitive abilities. We may underestimate his abilities because the different culture Juan has lived in has not given him the experiences that other American children his age have had. Actually, his measured mental ability seems to be in the normal range. Although special adaptations should be made for him in the school program, he should *not* be considered a candidate for special education until a careful assessment is made.

Causation of Exceptionalities

Each succeeding chapter devotes some space to the many potential causes of the conditions discussed. Consideration of these causes will draw us into another discussion of the roles of heredity and environment in such causation.

It is important to consider the values of the culture and community as a major factor in how the exceptional child will adjust to education.

The Interaction of Heredity and Environment

Few topics stimulate more fascination than the question of how we become who and what we are. What forces shape our development and sequentially create a confident and complex adult from an apparently helpless infant? For many decades, we have been aware of the effects that both heredity and environment have on the developing child. Because it is the role of educators to change the environment of the child through instruction, we have often ignored the role of heredity.

But the recent dramatic progress in the field of genetics makes heredity impossible to ignore. Educators have been through three major stages in our belief systems about the relative influence of heredity and environment, and each stage has had a profound effect on how we have behaved as educators. Up until about 1960, it was strongly believed that heredity drove and determined various conditions related to intelligence, such as *mild* mental retardation (retardation without

obvious neurological insult), giftedness, or mental illness. Those beliefs about the potency of heredity led us to consider it more or less impossible to change such conditions, and the role of educators was seen as to help individuals adapt as well as possible to their hereditary roll of the dice (Plomin & Petrill, 1997).

Starting around 1960, there was a major movement to discover the important role played by *environment,* which suggested that many exceptionalities can be created or intensified by various environmental conditions. Researchers reasoned that mild developmental disabilities could be caused by lack of early stimulation or that giftedness emerged only because the environment for some children was incredibly favorable. Educators were encouraged to try to find ways to reverse unfavorable effects or accentuate favorable outcomes through education.

Around 1990, a similar shift in the view of the relative roles of heredity and environment took place. The emphasis came to be on the progressive interaction of heredity and environment and the resulting effects of those interactions. Gottlieb (1997) proposed that by changing the environmental conditions of early childhood, we can activate different patterns of genes, which then can result in behavioral changes.

The growing sophistication of genetic research, however, has made it clear that many conditions that lead to children with special needs are linked to an intertwining of genetics and environment. Conditions such as fragile X syndrome, intellectual and developmental disabilities (IDD), attention-deficit hyperactivity disorder (ADHD), and dyslexia all seem to have genetic components (McGuffin, Riley, & Plomin, 2001).

Human Genome Project
www.ornl.gov/hgmis

One of the most dramatic recent scientific breakthroughs has been made by the Human Genome Project. The goals of this international project were to determine the complete sequence of the three billion DNA subunits (bases) and to identify all human genes and make them accessible for further biological study (Tartaglia, Hansen, & Hagerman, 2007). The U.S. Department of Energy and the National Institutes of Health were the U.S. sponsors. The initial goals were reached in 2003. The many research projects fanning out from these basic discoveries include a number that relate to exceptional children. The results are reported for individual disability categories throughout the rest of the book.

What is important is that the complex interaction between heredity and environment urges the educator to seek out the most stimulating environmental conditions to apply to the needs of children but always with an eye toward the contributions of heredity.

Prevalence: How Many Children with Exceptionalities Are There?

Educational policy makers, those who make the decisions about how we should spend societal resources on education, want to know just how many exceptional children there are in the United States. Those numbers will tell us how big an issue this is and how much we, as a society, will have to spend on it.

A reasonable estimate is that more than six million children in the United States can be classified among the categories of exceptional children. This estimate is obtained by aggregating the reports of the fifty states. This means that approximately one out of about every ten children can be labeled *exceptional,* which is one reason for the extensive attention given to exceptional children in our school systems today.

The children with disabilities in the thirteen categories are not distributed equally in these categories; far from it. Figure 1.2 gives a breakdown of the six high-incidence categories of disabilities. High-incidence refers to composing at least 1 percent of the school population. The prevalence of children in the gifted category is not included here, because giftedness is not included in the federal legislation from which these figures are derived.

The category of *learning disability* far outnumbers the other categories, with almost 50 percent of all children called *exceptional* currently being identified as learning disabled (Twenty-sixth Annual Report to Congress, 2005). Children with speech and language disorders make up the next-highest category, at about 20 percent of the disability categories; children with mental retardation (IDD), about 10 percent; and those with behavioral or emotional disturbances, about 8 percent. Children with autism have been rapidly increasing, to about 5 percent of the disability group. Whether the reason is that there has been a true increase in autism or that professionals have now had their attention directed to the condition is discussed in more depth in Chapter 6. Is there an epidemic of learning disabilities in this country affecting schoolchildren, or is something else happening? Obviously, there has been some important change in our perceptions of students with learning disabilities (Chapter 4 discusses this trend and its implications). The other categories of high-incidence disabilities seem

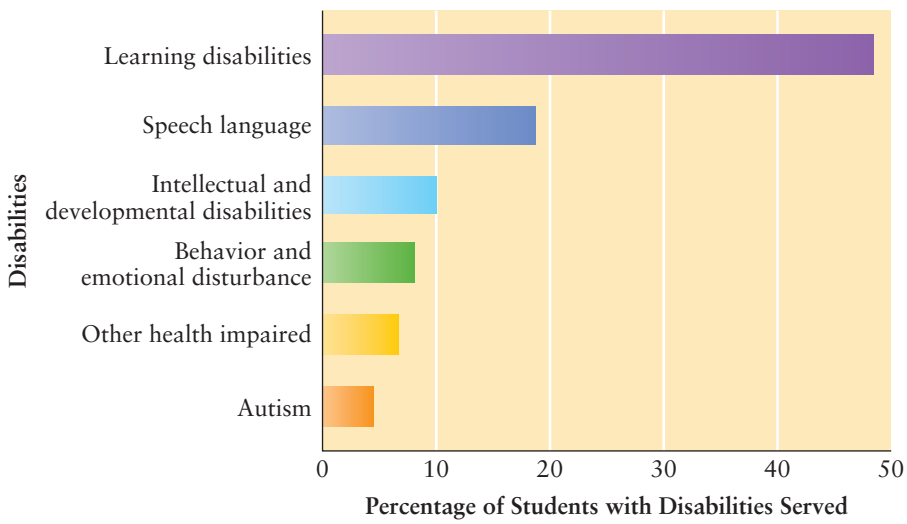


FIGURE 1.2

High-Incidence Disabilities: Percentage of Students Served in Category

Source: U.S. Department of Education (2005). *Twenty-sixth Annual Report to Congress.* Washington, DC: Office of Special Education Programs.

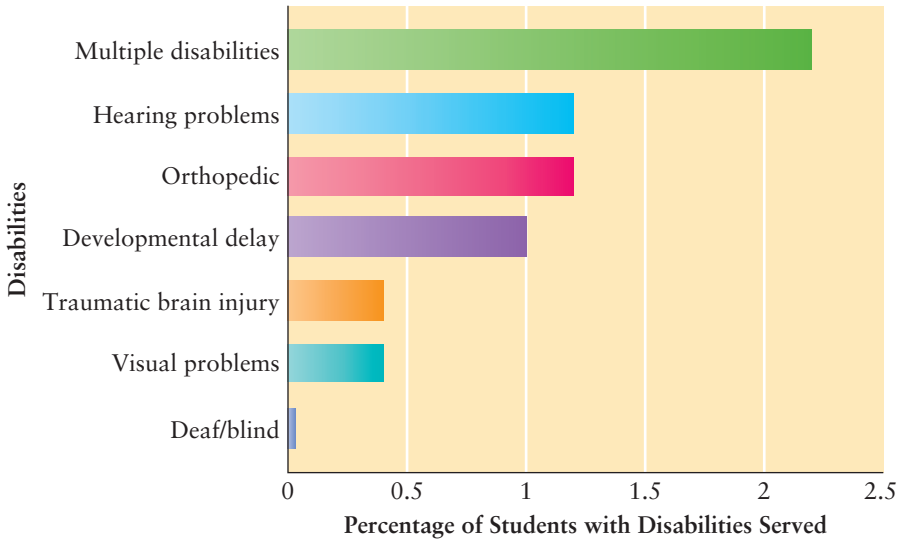


FIGURE 1.3
Percentage of Total Disability Population of Low Incidence Children

to have been relatively stable over the same time period, with the exception of autism, as noted.

The remaining low-incidence categories are less than 1 percent of the school population, including children with hearing impairments, with visual impairments, with orthopedic impairments, and with multiple disabilities (see Figure 1.3). Note that the percentages reported here are not percentages of the general population but of the total population with disabilities. Other chapters discuss the characteristics of these children and the educational adaptations made for them.

Students with attention-deficit hyperactivity disorder (ADHD) have difficulty maintaining attention, which can affect their academic success.

As researchers learn more about children and various conditions, we have a tendency to establish more categories. Children with traumatic brain injuries and children with attention-deficit hyperactivity disorders (ADHD) are two additional categories of children with exceptionalities that are not included in the tables here because of overlap with existing conditions. Children with ADHD have many similarities with other groups of exceptional children, notably children with learning disabilities or behavior disorders, and therefore they appear in a number of chapters within this text.

The Importance of Family

When we first meet a child with disabilities at age 4 or 8 or 9, we tend to believe that his or her unusual or atypical behavior is the result of whatever disability the child possesses. However, such behaviors could well be the cumulative

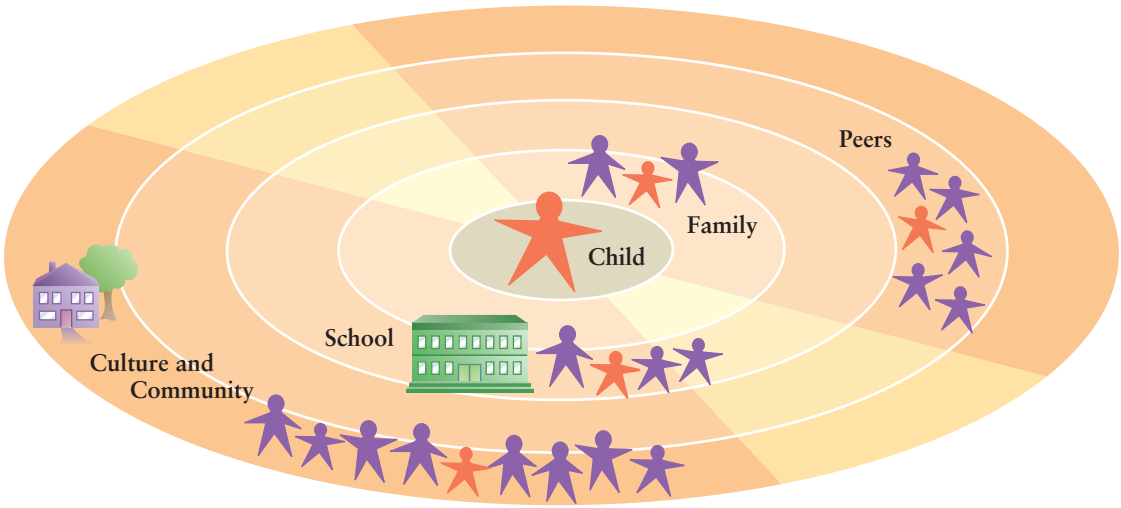


FIGURE 1.4
The Context/Ecology of the Exceptional Child

Source: U.S. Department of Education (2003). *Twenty-fourth Annual Report to Congress*. Washington, DC: Office of Special Education Programs.

response of the child to the reactions of peers, family, and neighborhood to his or her disability. If the child is aggressive, hyperactive, and noncommunicative, the chances are strong that such behavior will be met with counteraggression and hostility, which can tend to make the child's original behaviors worse. If we help to change or modify these responses of peers and family members in a constructive way, we may be able to substantially reduce the atypical behavior of some children with disabilities (Rutter, Galler, & Hagell, 1998).

Families who are reacting to a child with disabilities have a natural tendency to respond in a nonproductive way to the overt behaviors being shown by that child. For example, parents tend to speak less or not at all to the child who does not speak back, or they will respond to the child's aggression with aggression of their own. Such reactions tend to compound and extend the original problem, and this means that families need to be aware of more productive responses to the original behavior of the child. Increasingly, the approach that educators are taking to coping with the milder forms of exceptionality is to try to aid the child's adjustment by modifying the life circles around the child (see Figure 1.4), in addition to attempting to attack the child's developmental delay problem.

Environment, or ecology, plays a major role in the initial development of an exceptional child. Some atypical behaviors can be a response to the reactions of family and friends.

The Family System

One of the major forces that influence the child with exceptionalities, as well as any child, is the family system. Because it is a system, we expect that anything that happens to one member of that family will have an impact on all the other members of the family (Cox & Paley, 1997). If we expect to be effective in special education, we need to work with the members of the family in which the child lives, not just with the child. The trend toward early

Families of exceptional children play an important role in early intervention. Parents can teach their children some of the skills and learning tools that will later be reinforced in a school setting.
(© Peter Hvizdak/The Image Works)

intervention (before the age of 5) increases the importance of the family. Much of the intervention with young children is directed toward changing the family environment and preparing the parent or parents or caretakers to care for and teach the child with disabilities. At the very least, intervention tries to generate more constructive parent-child interactions. (Chapter 3 focuses specifically on early childhood intervention from a variety of perspectives.)

Years of experience and study have led to the following principles regarding the family:

1. Children and families are inextricably intertwined. Intentional or not, intervention with children almost invariably influences families; likewise, intervention and support with families almost invariably influence children.
2. Involving and supporting families is likely to be a more powerful intervention than one that focuses exclusively on the child.
3. Family members should be able to choose their level of involvement in program planning, decision making, and service delivery.
4. Professionals should attend to family priorities for goals and services, even when those priorities differ substantially from professional priorities (Turnbull & Turnbull, 2004).

Family Response to a Child with a Disability

Families often react strongly (positively or negatively) to the birth of an exceptional child. And it is important to consider those responses, because they happen to every parent of an exceptional child, regardless of his or her educational background or socioeconomic level.

Most parents who must cope with a child with serious disabilities face two major crises. The first is the "symbolic death" of the child who was to be. When their child is first diagnosed as having a serious disability, most parents feel shock and then denial, guilt, anger, and sadness before they finally adjust. A few parents react with severe depression. Support groups composed of parents of children with similar disabilities can be quite effective in helping new parents by sharing ways in which they have coped with these problems in their own families.

The second, quite different crisis that many parents of exceptional children face is the problem of providing daily care for the child. The child who has cerebral palsy or is emotionally disturbed is often difficult to feed, dress, and put to bed. It is the continual, day-by-day responsibilities of care that often weigh families down (see the Exceptional Lives, Exceptional Stories box). Parents and family members therefore require sympathetic professional attention. The realization that their child may not go through the normal developmental process or may never become an independent adult often weighs heavily on the parents.

Parents of a child with serious disabilities must face two crises: the symbolic death at birth of the child-who-could-have-been and the difficulty of providing daily care for the child-who-is.

Roger's Case

The responsibilities of two-parent working families are difficult enough without adding the special condition of a child with disabilities. Roger's father and mother are awakened at 6:30 in the morning by the cries of Roger's younger sister. Roger has to be washed and dressed, a task of considerable difficulty because of his cerebral palsy. Meanwhile Roger's mother is setting out breakfast while beginning to think about her own workday as a teacher at a local school.

Roger's father gets Roger washed and dressed and down to the breakfast table and then begins to think about a shower and shave before going to the construction company where he works. Before work, he must deliver Roger to the developmental day-care program, where he is in an integrated program with his same-age peers. The family is fortunate in that Roger's sister goes to the school where the mother teaches, so one transportation problem is solved.

Breakfast is often a chaotic affair with no one sitting down at the same time. Roger needs extra help from one of the adults because of his inability to totally control the tools needed to bring cereal and milk to the proper resting place. Mother puts the breakfast dishes in the dishwasher, and father is off with Roger while mother makes the beds before going off to school.

In the late afternoon and evening, the same procedure is reversed. This time mother has to pick up Roger because father is at a construction site on the other side of town. She is delayed further by the teacher describing an incident that involved Roger's conflict with another child over possession of some toy. There is still dinner to prepare and baths to give and stories to read before the children are tucked in. Is it any wonder that the parents are weary at the end of the day and are not looking forward to tomorrow, when Roger is to receive a medical checkup on top of the normal daily activities? Which parent is going to take Roger to the doctor's office?

The perception that each partner in a two-parent family is taking responsibility for the family in an acceptable way determines *family harmony.* The important factor in family harmony is whether the mother and father can come to an understanding about the roles and responsibilities that each holds in the family.

Now imagine this type of routine with only one parent present to do all the tasks required. How much more harried and tired would such a mother (most of

Family support is one of the most important strengths for a child with disabilities.
(© Ellen Senisi/The Image Works)

the time the "one parent") be at the end of the day? Imagine further what would happen if there were not some agreement between the parents about responsibilities, or if there were interpersonal tensions between them regarding discipline, or just because their own personal needs continually take second place to the requirements of the child. It is easy to see that the family is key to positive experiences for the exceptional child.

When considering basic family responsibilities, it is important to realize the enormous diversity of families. There has been a substantial increase in the number of single-parent families. Because many single mothers live in poverty, their children are less likely to receive good prenatal and postnatal care, which increases the chances of the child having physical, academic, and emotional problems.

There are many stresses in the lives of families who have children with disabilities, but their lives are also filled with joy, laughter, and fun. These children can light up your heart with a smile just as any child can, and parents of children with disabilities, just like other parents, have their favorite stories of their young child's adventures in development. The child is always a child first and a child with problems second. The task of the professional is to help the family to allow that child to bloom and grow to his or her capabilities.

Pivotal Issues

Imagine what happens in this family routine when a parent or sibling becomes ill. What are some of the ways we could provide help for this family?

Family-Professional Relationships

Over the past few decades, the relationship between professionals and families in the field of exceptional children has been shifting. Originally, the professionals' role was to interpret the special needs of the child to the parents and to give them directions or training for the proper treatment of the child. The mother was the traditional contact, with other family members playing a lesser role.

Now those family members are being encouraged to assume a more significant role in the planning and execution of a program for their own child. Further, the child is viewed as part of a larger society, and professionals believe that successful treatment consists of their trying to modify those ecological elements in the life of the child, doing so in concert with the family.

Turnbull and Turnbull (2002) have described the **family-centered model** as the latest of the various family-professional models:

> First, the family-centered model primarily attempted to honor family choice by changing the power relationship between professionals and family.
>
> Second, the family-centered model abandoned a pathology orientation and adopted a strengths orientation.
>
> Third, the entire family is the unit of support, not just the child with a disability and the child's mother (p. 92).

These three principles can change dramatically the relationship between family and professional, particularly by motivating special educators to look for the strengths in the child and family instead of focusing on the shortcomings of both.

The purpose of this **family-focused** (or family-centered) **approach** is to help parents become more autonomous and less dependent on professionals, to be able to form their own support networks as appropriate instead of being told by "experts" how to raise their children.

Whenever the helping professions (such as medicine, education, and social work) make a major shift from an almost exclusive emphasis on the child to an emphasis on the family, a lot of professionals find themselves in unfamiliar territory. These are the teachers, psychologists, occupational therapists, and others who have been trained under the old "treat the child" model. They now have to

change their accustomed practices if the family-focused approach is to become a reality. Many professionals have not felt adequately prepared for this shift.

Emotional Development and the Family

We have become increasingly aware that the emotional repertoire of the child is not only the natural consequence of constitutional makeup but is also socially constructed (Shonkoff & Phillips, 2000). The inability to grasp and interpret the behavior and communication of others can create long-term social problems (Flavell & Miller, 1998). But because the emotional repertoire of the child is socially constructed, in part, it can be socially modified, and that is one of the major objectives of special education.

There is a natural tendency to try and quantify those concepts that are important to exceptional children. One such effort to quantify family quality of life has been led by Ann and Rud Turnbull at the Beach Center on Disability at the University of Kansas. Their Family Quality of Life Scale is provided in Table 1.2.

TABLE 1.2
Family Quality of Life Scale: Scoring and Items

Items	The FQOL Scale uses satisfaction as the primary response format. The anchors of the items rated on satisfaction are rated on a 5-point scale, where 1 = *very dissatisfied*, 3 = *neither satisfied nor dissatisfied*, and 5 = *very satisfied*. There are 25 items in the final FQOL Scale. Below are the items keyed to each of the first subscale domains:
Family Interaction	• My family enjoys spending time together. • My family members talk openly with each other. • My family solves problems together. • My family members support each other to accomplish goals. • My family members show that they love and care for each other. • My family is able to handle life's ups and downs.
Parenting	• Family members help the children learn to be independent. • Family members help the children with schoolwork and activities. • Family members teach the children how to get along with others. • Adults in my family teach the children to make good decisions. • Adults in my family know other people in the children's lives (i.e., friends, teachers). • Adults in my family have time to take care of the individual needs of every child.
Emotional Well-being	• My family has the support we need to relieve stress. • My family members have friends or others who provide support. • My family members have some time to pursue their own interests. • My family has outside help available to us to take care of special needs of all family members.

(continued)

TABLE 1.2
Family Quality of Life Scale: Scoring and Items (*continued*)

Physical/Material Well-being	• My family members have transportation to get to the places they need to be. • My family gets dental care when needed. • My family gets medical care when needed. • My family has a way to take care of our expenses. • My family feels safe at home, work, school, and in our neighborhood.
Disability-Related Support	• My family member with special needs has support to make progress at school or work. • My family member with special needs has support to make progress at home. • My family member with special needs has support to make friends. • My family has a good relationship with the service providers who work with our family member with a disability.

Source: www.beachcenter.org/resource_library/beach_resource_detail_1.brain_page. Reprinted by permission of Beach Center on Disability

It is the result of questioning many parents and professionals about what is "important for families to have a good life together."

This scale can be used to determine the current status of the family, to measure progress as a result of family programs, and as a dimension that can be taken into account when discussing the situation of a particular exceptional child. The scale includes the emotional well-being of the family and the key element of parenting, as well as the degree of help provided for the support of the child with disabilities. You might want to fill out the scale for your own family to see how the scale can target special needs.

Families from Diverse Cultures

Respect for the breadwinner, attitudes toward religion, child-rearing practices, and even political choices or tendencies may reflect the attitudes of the cultural group to which the family belongs. So it is important to consider cultural factors as one more dimension needing study and understanding if we as teachers are to be effective in helping these children fulfill their capabilities.

Here are some examples of how cultural values might affect the child with special needs: If a family comes from a culture that emphasizes a dominant masculine role, how will the father of a child with disabilities respond to a female professional? Will he reject her advice and suggestions just to maintain his own masculine self-image? And what does he feel about his son who has disabilities that are so serious that the father despairs of the boy ever being able to play that masculine role? Such issues are not easy to discuss but can rest at the heart of parental concerns for many years.

One of the first challenges that children from diverse cultures present to educators is whether they can be correctly identified as exceptional children in the first place. Obviously, giving a child who doesn't speak English an IQ test in English is a bad idea. But the problem is more complicated than that.

How can we determine whether immigrant children are learning disabled, mentally retarded, or merely developing in a typical way for their cultural backgrounds? All too often, immigrant or minority children are inappropriately referred to special education services when, in fact, they need a very different set of experiences and grounding in the nature of the school program.

The disparities of race and poverty related to categories of children with disabilities have led many to think that there are two separate categories of special education students. The first involves neurological and biological problems that result in children with special needs (for example, children with Down syndrome, cerebral palsy, autism, and so forth). The second involves socially constructed categories such as intellectual and developmental disabilities (IDD), emotional disturbance, and learning disabilities. As Harry (2007) points out, special education needs to be reconceptualized as a point on the continuum of instruction, rather than requiring a redefinition of struggling learners as "disabled."

Family Empowerment

Family empowerment refers to the parents' taking action to get what their child needs. Parents are no longer expected to unthinkingly take advice from a professional or a team of professionals about the education of their child with special needs. Parents of children with exceptionalities are now expected to play a major and determining role in their child's care, and the professionals are to provide needed counsel and specialized advice.

To help empower parents, teachers might refer parents to any one of the many parent support groups for children with disabilities.

There is general agreement on the need to form partnerships with parents, but the real question is how that partnership is forged and how that changes the traditional professional-parent relationship (Roberts, Rule, & Innocenti, 1998). Teaching the professional to respect the family as an equal partner and helping parents carry out an action plan for their child requires a different kind of training than has been the style in education or special education.

The current approach has the family actively seeking and collecting information from many different sources, particularly other parents of children with disabilities who have had experiences similar to their own. In this approach, the parents draw on the expertise of the professional community but make many of their own decisions about what is best for their child.

Family as Advocate

The recognition that culture and community, as well as schools, have a responsibility for caring for exceptional children stemmed in large measure from the activities of some of those children's parents. Parents who were unable to get help for their children from local governments created their own programs in church basements, vacant stores, and any place that would house them. These informal groups, loosely formed around the common needs of the children, often provided important information to new parents struggling to find help for their children with disabilities. They were also a source of emotional support for parents, a means of sharing and solving the problems of accepting and living with exceptional children.

These parent groups quickly realized that fundamental changes were needed in the allocation of educational resources at local, state, and federal levels. A casual, haphazard approach was not going to provide the kind of help or progress that parents or their children with exceptionalities needed. Accordingly, large parents' groups, such as the National Association of Retarded Citizens (now the Association of Retarded Citizens, ARC); the United Cerebral Palsy Association in

Advocates realize that they must bring their issues and needs to the public's attention.

The ARC
www.thearc.org
Learning Disabilities of America
www.ldaamerica.org

the 1940s and 1950s; and the Association for Children with Learning Disabilities in the 1960s (now the Learning Disabilities Association of America, LDA) began to form. Parents of children with Down syndrome, autism (Autism Society of America), and other specific conditions have also formed groups to ensure attention to their children's special needs. These parent organizations have successfully stimulated legislation at the state and federal levels that has provided additional trained personnel, research, and equipment. Other programs stimulated by parent groups have brought children with disabilities to the attention of the general public and have attracted more qualified people into the field.

Organized parents' groups for children who are gifted have not yet had the same political influence as the national organizations for children with disabilities. Still, these groups are helping the parents of children who are gifted cope with the problems of precocious development (Gallagher, 2002).

Siblings

We now know enough about the family environment to dismiss the proposition that two children experience the *same* environment when they are growing up merely because they live in the same household. Obviously the home environment is not the same for a child with disabilities as it is for his or her nondisabled sibling or for an older daughter as it is for a younger daughter.

Assumptions often made about families with a child with a disability are that the nondisabled sibling is inevitably neglected because the parents must pay so much attention to the child with disabilities and that, as a result, the sibling becomes resentful of the child with disabilities. It is now clear that although

this set of events may happen, it certainly does not have to happen, particularly when the parents are sensitive to sibling rivalry and the needs for attention for the siblings, as well as of the child with disabilities.

Siblings of the child with a disability can spend at least the same amount of time with their mother and receive the same type of discipline that their brother or sister with disabilities receives, although they do perform a greater amount of household tasks. The sibling who appears most vulnerable to special adjustment problems seems to be the older sibling to whom the parents have given special child-care responsibilities. As in other family situations, it is not so much the actions of the parents that count as how the sibling interprets those actions. If the sibling is sure of being loved and cared for by the parent, then being given additional responsibilities for the child with disabilities does not seem to matter.

Parents often worry about the effect that the child with disabilities has on his or her siblings. Will they grow resentful of the child with special needs or of the attention that the parents inevitably have to spend on him or her? When the parents grow old and are no longer able to take care of the child (now an adult) with disabilities, will the siblings pitch in and help, or will they turn their backs on the affected sibling?

Although each situation is different from one family to another, there does not seem to be any tendency for the siblings of children with disabilities to be more disturbed or stressful than the siblings of children without disabilities.

The goal of most American parents is for their child with disabilities to become an independent and self-sufficient adult living away from home, but many siblings appear willing to assume the role of protector if that is necessary (Krauss, Seltzer, Gordon, & Friedman, 1996). As noted earlier, there can be substantial cultural differences that affect such a decision.

Answering the siblings' questions is an important part of the parents' responsibilities. For example, consider the following questions, which are examples of what lies just below the surface in the concerns of siblings:

- Why does he behave so strangely?
- Can she grow out of this?
- Will other brothers and sisters also have disabilities?
- Will he ever be able to live on his own?
- Will I be expected to take care of her as an adult?
- Am I loved as much as my brother?
- How can I tell my best friends about my sister?
- What am I supposed to do when other children tease my brother?
- Will my own children be more likely to have a disability?

The fact that a sibling may not verbalize such questions does not mean that he or she is not thinking about them. It is the parents' responsibility to try to answer even unverbalized questions that the brother or sister may have about the child with disabilities and how that special child is affecting and will affect the family system.

The number of questions that the sibling has does not diminish over time, and the content of and the concerns evident in the questions reflect developmental

George's Sister

What happens when a sibling begins to surpass a brother or sister with disabilities or begins to be ashamed of his or her deviant behavior? One sister described the guilt and love like this:

> I have a short story to tell. It is one of many stories of happiness and sorrow. It is a story of which I am not very proud, and one I have never told my parents. I will tell it now because it is time, and I have learned from my mistakes, as all people can.
>
> George is 21 years old today. He is a frequently happy, often troubled young man who has grown up in a society reluctant to accept and care for him even though he cannot care for himself.
>
> I am very lucky. My crime was easily forgiven by someone who loved me very much, without reservation. George and I were very young. I was his frequent babysitter. As an older sister more interested in ponies and playing outdoors, I felt a great deal of resentment toward George and, of course, toward my persecutors, my mother and father. It was a day like any other day when I had been told to take care of George. They always seemed the same, those days, because I had no choice in the matter, and if I had one, I would have refused. It was that simple for me. I had better things to do.
>
> We were waiting in the car for our mother to come with the groceries. The recurring memory breaks my heart every time I think of it. He was antagonizing me again. Those unbearable, unreal sounds that haunted and humiliated me. They were the nonsense noises that made the neighborhood children speculate he was from Mars. I could hear their taunts, and rage welled up in me. How could I have a brother like this? He was not right at all. He was a curse. I screamed at him to "shut up." He kept on. He wouldn't stop. My suppressed anger exploded. I raised my hand and slapped him again and again across his soft, round baby face. George began to cry, low, mournful whimpers. He never once raised a hand to protect himself.
>
> Shaking with fear and anger, unable to think clearly, I just looked at him. In that swift instance I felt more shame and revulsion for myself than I have ever felt toward anyone. The rude ugliness of it will never leave me. I hugged him to me, begging for forgiveness. And he gave it to me unconditionally. I shall never forget his sweet, sad face as he accepted my hugs.
>
> In that instance I learned something of human nature and the nature of those who would reject people like George. I had been one of them: sullen, uncaring, unwilling to care for someone who came into the world with fewer advantages than I myself had. Today, I am a better person for having lived through both the good times and the bad times that our family experienced as a result of my brother's autism. I have a sense of understanding and compassion that I learned from growing up with George. Best of all, I have my brother, who loves me with all the goodness in his heart.
>
> My message is simple. Look into your hearts and into the hearts of all people to see what is real, what makes them real people. For we are all the same. Accept people for what they are and work to make the world a receptive place—not just for those who are perceived as normal.

From Turnbull, A. R., and Turnbull, A. (1985). *Parents speak out: Then and now*. Boston: Allyn and Bacon. Copyright © 1985 by Pearson Education. Reprinted with permission of the publisher.

Pivotal Issues

- Can you share a similar experience that you have had with a child with special needs?
- How would you behave differently given another chance?

changes. For example, an illness or death of one of the parents may heighten the sibling's concern about his or her own responsibilities. If the parents are gone or are no longer able to care for the special child, will the sibling be expected to share in the care of the child with disabilities throughout his or her lifetime? Each family has to answer those questions in its own way, but the answers must be clear and unambiguous for all family members. What kind of questions would you have if your brother or sister was a child with disabilities?

Efforts are increasing to provide organized help for siblings, such as, for example, The Sibling Support Project, which conducts workshops for parents and professionals and peer support (The Kindering Center, Bellevue, Washington).

The Social Context of Children with Exceptionalities and Their Families

When discussing the child as learner, it's important to paint a complete portrait of the child, including the social context in which he or she lives. Even as the lead actor on the stage captures our attention, we are aware of the importance of the supporting players and the sets to the play itself. Once we recognize the individuality of each child and the complex and unique forces and circumstances that act on and surround him or her, it is easier to choose or create the most appropriate instructional strategies and the most suitable learning environment.

Interaction between the child and his or her surroundings begins at birth and continues and increases as time passes. Figure 1.4 (on page 15) provides a schematic showing the major components that are in continual interaction.

Many changes are taking place in society that also have an impact on young children with disabilities. One of the most important has been the rapid shift in the number of mothers in the work force in a period of two to three generations. From just after World War II, when the number of working mothers with young children was less than 10 percent, to the current figure of over 50 percent, this shift has caused many readjustments (U.S. Bureau of the Census, 2005).

The rapid increase of women in the work force seems due to (1) more acceptance of women working outside the home and (2) the need to have two incomes to support a desired life style. This change also raises such issues as who cares for the young child when the parents are at work. This is particularly a problem when the child in question creates many problems for the caretaker. Sometimes the mother of a child with disabilities is forced to give up her work to care for the child at home, creating additional psychological and economic consequences.

Alternative Families

These family issues are complicated by the large number of one-parent families in U.S. society. The number of divorces is obviously one reason for the existence of one-parent families. Also, in a growing number of families, parents were never married, and the biological fathers appear to take no significant role in income producing or child rearing. One of the clear consequences of the one-parent family is poor economic circumstances. Many of these families exist at or near the poverty line, a circumstance that would make expensive care for a child with special needs unlikely or unfeasible. So, during the developmental period when the child most needs special help, he or she is not likely to receive it.

A disproportionate number of such families come from racial or ethnic minority backgrounds in which knowledge about these children with special needs may be limited, and cultural values may prevent the seeking of assistance outside the family. The recent public policy movement toward welfare reform (Haskins, 2007) has forced many mothers into the work force again, but it does not provide an answer for the child with special needs.

However, positive forces in larger society are trying to cope with these problems. A rapidly growing trend toward establishing prekindergarten programs in the

public schools (Cryer & Clifford, 2003) will allow the child with special needs to be identified at age 4 or even 3 and to receive important care earlier. Also a diverse set of child-care and day-care institutions have been established to try to meet the needs of the working families. It is important that such programs are of high quality so that children with disabilities can be appropriately cared for. Some current evidence shows that all too often the quality of child care in the United States is not high (Early et al., 2007). The result of such uneven care for young children is that too many children enter kindergarten unprepared for the experience, and the consequences for increased school failure become predictable (Lee & Burkam, 2002).

The Ecological Approach

Perhaps one of the most dramatic changes in educators' views of how to teach young children has resulted from the adoption of the ecological approach to child development. With this recognition of the role of the environment, the field moved from a **medical model** of exceptionality, which assumes that the physical condition or disease exists within the patient, to an **ecological model**, in which we see the child with exceptionalities in complex interaction with many environmental forces.

The ecological approach seeks to modify the child's behavior directly by improving the context in which the child lives, learns, and plays.

The ecological approach tries not only to modify the exceptional child's learning and behavior but also to improve the environment surrounding the child, including the family and the neighborhood—the entire context of the child's life. This ecological approach became the strategy of Head Start and other programs targeted at children from economically disadvantaged families. Head Start pays much attention to the family, in addition to the child (Zigler & Styfco, 2004). The ecological model also helps us understand what we can realistically expect to accomplish through intervention programs.

The Influence of Culture and Community

Culture refers to the attitudes, values, customs, and language that family and friends transmit to children. These attitudes, values, customs, and language have been passed down from generations of ancestors and have formed an identifiable pattern or heritage. The child is embedded in the family, its habits, and its traditions; this is as true for the child with special needs as for one who does not have special needs. Although the child may be only dimly aware of these cultural influences, it makes a world of difference to the child's experiences if his or her family is fourth-generation American or first-generation Mexican, Italian, Nigerian, or Taiwanese.

Cultural differences are often apparent in religious views, child-rearing practices, and attitudes toward authority.

We can easily assume that the differences between school and family are due to family idiosyncrasies, when in fact they reflect the long history of that family in the cultural background of parents and grandparents. Families' religious beliefs, child-rearing practices, attitudes toward authority, and so forth can often be traced to their cultural identity. Therefore, the schools should understand that cultural background in order to form good relationships with the families

of exceptional children. Children from diverse cultural backgrounds often may encounter conflicting expectations and values in the home and in the school. Teachers can help these children by becoming aware of the wide range of norms represented in their classrooms. When values honored by the school, such as competitiveness and willingness to work at a desk with a minimum of talking, conflict with a minority subculture's preference for cooperation and for lively discussion about problems, then tensions arise between families and school. Such tensions are often increased by the presence of an exceptional child.

One of the responsibilities of teachers and teachers-to-be trying to be culturally aware is *self-awareness* (Turnbull & Turnbull, 2002). Teachers need to be aware of what factors shape their own cultural views. In particular, they need to understand that although their cultural beliefs and traditions may work well for them, they do not necessarily work for others. Cultural differences change and modify special education for individual exceptional children, and adjustments have to be made in each instance.

It is helpful to identify the strengths of the culture of the family. Whatever the immediate problems the family and the exceptional child may have, they also have many strengths, such as their ability to make the child feel loved and accepted, a willingness to seek support from friends and counselors, a strong religious faith, and a caring extended family (Turnbull & Turnbull, 2002). Such strengths are to be respected and used as a foundation on which to build an educational strategy for the child.

It is important for teachers to identify the strengths of students and their families who are from diverse cultures.

The strength of environmental forces varies as the child grows: initially the family is predominant in caring for the child and acts as a link between the child and the larger environment. Children from diverse cultural backgrounds may be confused by differences between family values and school or societal values, an issue that the child often confronts for the first time when entering school. The support of the family continues to be important but is joined by other factors as the child enters school.

Developmental Factors

As the child grows older, the peer group becomes a major force. Adolescence, with its focus on social development and career orientation, is a special challenge for the exceptional child. Potential rejection by the peer group can have a powerful influence on the adaptation of the child with disabilities or the child with special talents, as it can on any vulnerable and self-conscious adolescent.

Finally, society, which includes the culture and community along with the work environment, influences the adult who is trying to make the transition from school to a relatively independent lifestyle. Throughout their lives, many adults with exceptionalities will be in contact with a support system that includes advocates, educators, friends, and service providers. In addition, representatives of the larger society (such as government leaders) often make rules that determine whether the exceptional person receives needed resources or is given an opportunity to succeed at some level of independence. (We discuss these environments further in Chapter 2.) All these forces contribute to the full picture of the exceptional individual.

Differences in family attitudes, actions, and support result in variations in how children with special developmental problems, such as autism, visual impairments, or cerebral palsy, adjust to education or cope with their special conditions. It is essential to consider familial and societal variables, in addition to

The support of the family in caring for the child continues to be important as the child grows, but it is joined by other factors, especially the school, peers, and the community.
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assessing children's developmental profiles, to better understand what they experienced in their family lives before they entered school or even what is happening in their lives now beyond the school environment. Interviews with family can provide important information about the context of the child's life.

Community Resources

The type and number of resources available within your own community to assist families who have a special problem are often quite extensive but are usually hidden from the casual observer. Suppose you have been approached by a neighbor whose 3-year-old has just been diagnosed with a learning disability. He now asks you as the person who knows about special education and related subjects where he can go to get some help.

Track down and report on all of the currently available community agencies or individuals who might be able to provide some help for your neighbor and his family.

Be sure and note the search techniques (e.g., Internet) that you used in your search.

Assessment and Culture

Each of the succeeding chapters contains a discussion of how a child who has disabilities *and* who comes from another culture can be properly assessed. It is easy to understand that a child who does not have English as a first language can be poorly assessed with an achievement test written in English. In the Peabody Picture Vocabulary Test, a child may be asked to identify which of four pictures shows a *wiener.* The child may know very well what a *hot dog* is yet never have heard the term *wiener.* What are we testing in such a situation, the child's vocabulary or his or her cultural experience (Salvia & Ysseldyke, 2007)?

A number of attempts have been made to promote a nonbiased assessment for children from different cultures, including the use of interpreters, "culture fair" tests, separate norms, and so on, all of which have their drawbacks. Trends have been toward replacing standardized tests with alternative assessment, informal procedures, or the use of a mix of formal and informal measures to try to capture the child's range of abilities. The real problem may lie not in the tests themselves but in their interpretations (McLaughlin & Lewis, 2001; Salvia & Ysseldyke, 2007).

Consider Jorge, a 10-year-old Hispanic child with learning disabilities that prevent him from grasping the reading process. Jorge comes from a rich tradition of a close-knit family with common interests and loyalty. The family is wary about the Anglo schools that Jorge is attending. When teachers and psychologists who are of a culture different from that of the family tell the family that something is wrong with Jorge's approach to school, are they reflecting a prejudice against Jorge because of his Hispanic background and his bilingual family? Are they going to help Jorge, or is this a way to prevent Jorge from getting a proper education? Will Jorge's father, misunderstanding the school's message, put even *more* pressure on Jorge to do well in school, assuming that his son is not giving proper effort to his school lessons? The opportunities for misunderstanding from one culture to another are great and can substantially complicate the original learning problems faced by the exceptional child.

Observers of special education programs have long pointed to a disproportionately large number of minority students in them, except in programs for gifted students, in which the number of minority students has been disproportionately small.

Disproportionate Number of Minorities in Special Education

One specific way in which culture appears to spill over into education is in the seemingly disproportionate number of minority students assigned to special education observed by many persons.

Such observations came to the attention of the Office of Civil Rights (OCR) in the U.S. Department of Education, and OCR mounted a major national survey to determine whether such observations were true (Donovan & Cross, 2002). Figure 1.5 provides a summary of the results in three categories of exceptional children: mental retardation (now intellectual and developmental disabilities), learning disabilities, and emotional disturbance. In the area of intellectual and developmental disability, the percentage of black students is more than twice that of white students in those programs, whereas the percentages of Hispanic and Asian students are somewhat less.

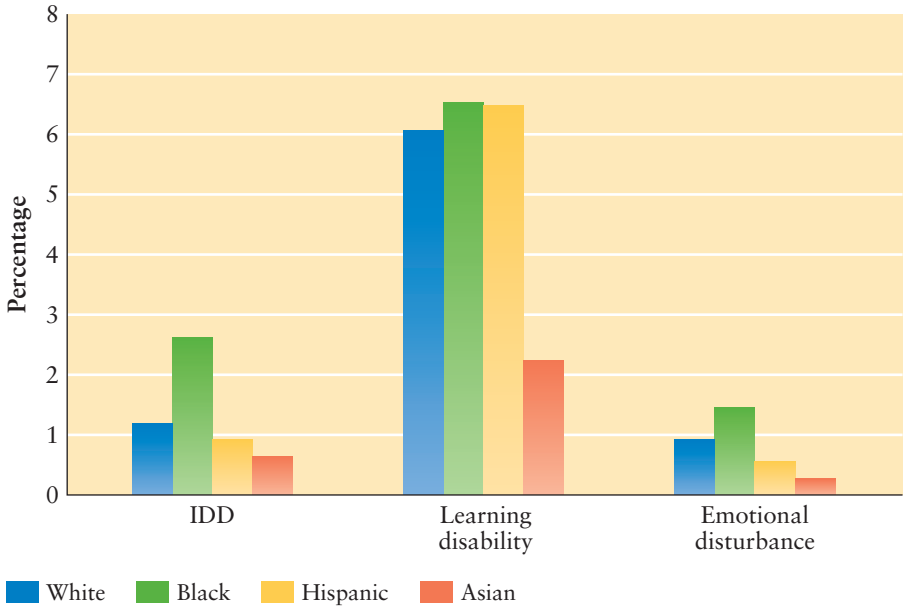

FIGURE 1.5
National Special Education Percentages by Race and Ethnicity

Source: U.S. Department of Education (2002). *Fall 1998 Elementary and Secondary School Civil Rights Compliance Report.* Washington, DC: Office for Civil Rights.

In contrast, the learning disabilities category contains high percentages (6 percent or more) of white, black, and Hispanic students, but the unusual figure is the small percentage of Asian students. Perhaps the strong emphasis in the Asian populations on education has lessened the number of students in academic trouble.

Finally, in the category of emotional disturbance, there again appear to be more black students than white and Hispanic, whereas the Asian population is very small. But finding disproportion in these programs by race does not explain why such disproportion exists. There are at least three possible explanations.

1. The tests and measurements employed in diagnosing the conditions are biased against the minority students and provide inaccurate information about them.
2. Many minority family situations have unfavorable ecological conditions that can cause the inadequate development of abilities in early life. This disadvantage can be seen in the lower performance of their school-age children.
3. The schools are discriminating against minority students by removing them from the regular classes and placing them in special programs away from the other students.

The third explanation has energized the Office of Civil Rights to look at many individual school districts in which disproportionate membership in special education programs has occurred in order to determine whether this possibility is true in those schools.

The presence of exceptional children in our families and our communities can raise any number of moral and ethical questions. We present for your consideration one of these in each chapter.

moral dilemma

The Cost of Educating Children with Disabilities

The education of children with disabilities inevitably costs more than the education of children without disabilities. This is true because of the smaller teacher-student ratio in many cases and because of the need for more support personnel and technology to meet the needs of those students. This extra expenditure is a point of contention with some parents and citizens. Their view may be summed up this way.

1. Why should the school be spending more tax dollars for these students when my own child has many unmet needs?
2. Why spend this extra money on those students, many of whom will have to struggle to maintain themselves in the society and may never be able to contribute to that society?
3. Why not spend the money on the brightest students? They will be the leaders who will discover new cures for diseases or improve our economy.

Write a paragraph on your views on this issue.

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- The exceptional child differs from the average child to the extent that he or she needs special educational services to reach full potential.
- The major categories of exceptionality include children with intellectual differences, communication differences, learning disabilities, sensory differences, behavioral differences, multiple and severe disabilities, physical and health differences, attention-deficit hyperactivity disorder (ADHD), and autism.
- Special educators have moved from a medical model, which stresses that the physical condition exists within the child, to an ecological model, which focuses on the individual's interaction with the environment. Genetics research suggests that environmental changes can activate previously inactive genes, creating new heredity-environment interactions and affecting behavior.

- Exceptional children show both interindividual (among children) and intraindividual (within a child) differences. Both kinds of differences require special adaptation by the teacher at school.
- The success of a family-focused approach depends on its acceptance by professionals. Families from diverse cultures may have differing values and child-rearing practices, which compound the issues of adaptation for the child with special needs.
- The adjustment of siblings of children with disabilities depends in large measure on parental sensitivities to those siblings' needs.
- Family empowerment gives parents more influence on the special programs established for their child and requires rethinking of the traditional roles played by professionals.
- Cultural attitudes, values, customs, and language are often embedded in a family and must be taken into account when educators and other professionals work with exceptional children from a variety of cultural backgrounds.

Future Challenges

Every generation leaves, as its legacy to the next generation, certain problems for which solutions have not been found. There are many issues in the field of special education that today's professionals have been unable to resolve. The end-of-chapter sections titled "Future Challenges" briefly describe widely debated topics as a beginning agenda for the current generation of students, who will face these issues in their professional or private lives.

1 ***Who is identified as exceptional?***

The boundary line separating exceptional children from nonexceptional children has become blurred where children with mild disabilities are concerned. Yet legislation and the courts call for eligibility standards to clearly separate those who should receive special education from those who should not. How do we distinguish, for example, between the child who is emotionally disturbed and the child who is experiencing a temporary behavior problem? The RTI model may help with these students who are having difficulties but who do not require special educational placement.

2 ***What is the impact of the family system?***

For many years, special educators focused on the exceptional child and excluded the child's environment. Increasingly we have become aware that the child is only one component in a complex family and ecological system and that many elements within that system can have a positive or negative impact on the child. A new objective of special education that has begun to be incorporated into our personnel preparation or educational programs is to interact constructively with the family system.

3 ***How can we develop a comprehensive program for young children with special needs?***

There are few public school programs on which to model adaptations for preschool-age children with special needs. Are we to model our programs

after Head Start or various prekindergarten programs? Should we take a developmental approach from child psychology? How will people be recruited to become professionals in the early childhood field—and where will they be trained? We have made a start on these issues, but much more remains to be done.

4 ***How do cultural differences modify the educational approach to children with disability?***

We have only begun to consider how to provide an appropriate education for large numbers of Hispanic students. It is certain that some of them have been inappropriately assigned to special education. With few bilingual teachers available who also have had training in special education, we have the recipe for continued problems. One potential solution would be to recruit teachers via scholarships from the Hispanic populations to take work in special education.

Key Terms

culture p. 26
ecological model p. 26
exceptional child p. 5
family-centered model p. 18
family empowerment p. 21
family-focused approach p. 18
intraindividual differences p. 9
medical model p. 26
response to intervention (RTI) p. 3

Resources

References of Special Interest

Cross, C., & Donovan, M. (2002). *Minority students in special and gifted education.* Washington, DC: National Research Council. A report from a special panel brought together by the National Academy of Sciences to address the disproportionate numbers of minority students in special education programs for children with disabilities and also for children who are gifted. The panel explores whether such disproportions in fact exist; if so, why they exist; and what can be done about this issue. The panel concludes that such disproportions do exist and proposes better integrated general education and special education programs, increased teacher training in sensitivity to cultural differences, high-quality early childhood intervention programs, and increased research.

Odom, S., Horner, R., Snell, M., & Blacher, J. (Eds.) (2007). *Handbook of developmental disabilities*. New York: Guilford Press. A collection of experts from multidisciplinary backgrounds have assembled a synthesis of current research on developmental disabilities as a prelude to more effective action. The topics range from infancy to adulthood and from education to genetics. A valuable sourcebook for those working in this field.

Salvia, J., Ysseldyke, J. & Bolt S. (2007). *Assessment* (10th ed.). Boston: Houghton Mifflin. One of the problems in identifying children with special needs is the lack of knowledge about acceptable measuring instruments. This volume provides a wide variety of informal and formal methods of assessment and several chapters discussing the broad topic of general assessment itself. The authors include developmental appraisals of infants, toddlers, and preschoolers. Also included is a chapter on outcomes-based accountability assessment, which is a topic of growing interest in education.

Shonkoff, J., & Phillips, D. (Eds.) (2000). *From neurons to neighborhoods*. Washington, DC: National Academy Press. An update from the National Academy of Sciences on the current state of the science of early childhood development by a distinguished multidisciplinary panel. The book includes the latest

information on nature versus nurture, the developing brain, and the latest trend toward studying the ecology of the developing child. A series of recommendations for scientists and public policy makers is provided based on current knowledge.

Turnbull, A., & Turnbull, H. R. (2006). *Families, professionals and exceptionality: A special partnership* (4th ed.). Upper Saddle River, NJ: Pearson/Merrill-Prentice Hall. A comprehensive portrait of the relationship of families to professionals in the tasks of helping children with disability reach levels of self-determination. The authors argue that there should be a true partnership between parents and professionals in planning and executing special education plans for children with special developmental problems.

Turnbull, A., Brown, I., Turnbull, H. R., & Braddock, D. (Eds.) (2004). *Mental retardation and quality of life: International perspectives*. Washington, DC: American Association of Mental Retardation. A review of how the concept of "quality of life" becomes interpreted in five separate cultures. A special insight into the life of individuals with disabilities and their families' search for ways of maximizing the social and learning environment of persons with disabilities.

Journals

Exceptional Children
Council for Exceptional Children (CEC)
www.cec.sped.org

Journal of Special Education
www.proedinc.com

Teaching Exceptional Children
www.cec.sped.org

Disability Resources Monthly
www.disabilityresources.org

Professional Organizations

Council for Exceptional Children (CEC)
www.cec.sped.org

Visit our website for additional Video Cases, information about CEC standards, study tools, and much more.

CHAPTER

2

Exceptional Children and Social Institutions

Government, Schools, and the Courts

FOCUS QUESTIONS

- What roles do social institutions play in the lives of exceptional children?
- What government legislation supports and protect students with disabilities?
- What assessment strategies are used to design programs for exceptional children?
- What are some ways in which schools can modify programs for children with special needs?
- How does the Individualized Education Program (IEP) shape special education practice?
- How do inclusion policies impact children with disabilities and their classmates and classrooms?
- How have the courts influenced the development of educational services for children with disabilities?

Council for Exceptional Children
www.cec.sped.org

In Chapter 1, we discussed the nature of exceptional children and their surrounding ecology of family, peers, and culture. In this chapter, we look at the responses of three major social institutions—government, schools, and the courts—to the needs of exceptional children. How a society feels about its diverse membership, particularly about citizens who are different, is expressed through such institutions. See Figure 2.1, which briefly explains the impact of each social institution on the exceptional child.

Government, schools, and courts are social institutions that have a major impact on the education of children with special needs.

Each of the social institutions depicted in Figure 2.1 has its own rules and traditions that influence how decisions are made and how conclusions are reached. This chapter touches briefly on how each of them affects the child who is exceptional in our society. Take, for example, Sam.

Sam is a 5-year-old with Down syndrome, a genetic but not hereditary condition that will affect his entire life. He has developmental disabilities and other problems caused by this genetic accident. Yet how Sam will fare in life will depend to a large degree on the environmental circumstances around him—family, school, community, and other societal forces such as government and legislation.

Will Sam do better in a loving, rather than a rejecting, family? Will he do better in a neighborhood with some comfort and resources than he would do in a low-income housing project? Will Sam do better in a school program that recognizes his problems and adapts the program to his needs instead of unfairly expecting him to meet some kind of "normal" standard? Of course!

The ecology of the child refers to the influence of outside factors—family, school, peers, and community.

No matter what the degree of exceptionality, how the child will eventually adapt to life is determined in large measure by how the environmental forces outside the child facilitate or inhibit his or her development. That is why we spend so much time studying these outside forces, which we refer to as the **ecology of the child**, or the **context of the child.**

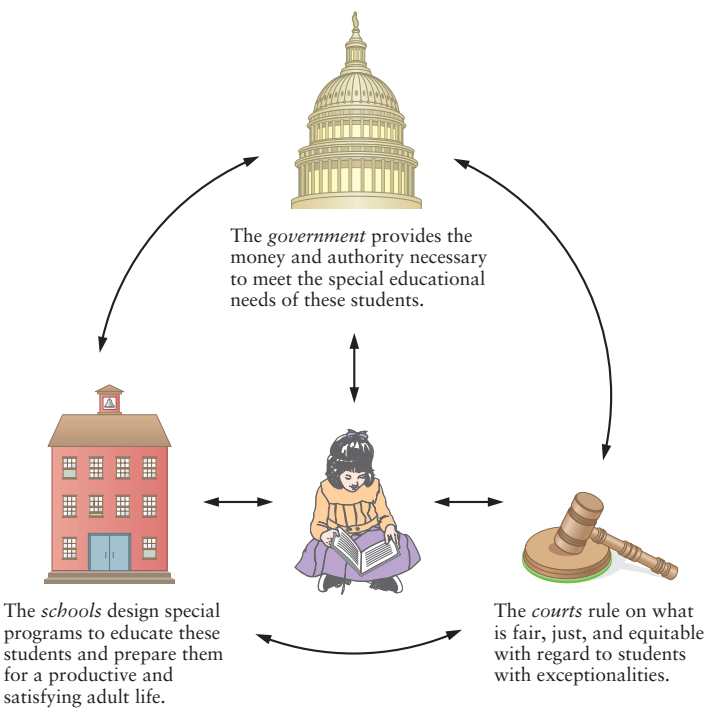

FIGURE 2.1
The Exceptional Child and Social Institutions

How the exceptional child adjusts to adulthood is determined in large measure by his or her interactions with these social institutions and the way in which they are mediated by family and by the child's unique characteristics. It is difficult, if not impossible, to predict the outcome of special education services for a specific individual because of the range of each child's response and potential and the differing environments in which they may be placed.

Each child's responses to outside forces is very individual.

We begin this chapter with an overview of society's attitudes toward the education of exceptional individuals so that we can better understand how schools have treated these youngsters and what is expected of them.

Societal Responses to Exceptional Children

During the past century, enormous changes took place in the way society treats exceptional children, moving from rejection, to the charitable isolation of children with disabilities, to the acceptance of them as contributing members of society. The current level of acceptance has few precedents, representing a much more enlightened view than was evident even in the immediate past. The notion of educating *every* child to achieve his or her greatest potential is a relatively new idea.

In the mid-1900s, individual states became involved in a limited way in subsidizing programs in public schools for children with sensory disabilities (blindness, deafness) and physical impairments. Some states helped organize and support classes for children who had mental retardation or behavioral problems. After World War II, many states expanded their involvement, providing financial support for special classes and services to local schools for children with all types of disability. This expansion caused two problems that many believed could be solved only by federal legislation.

First, these new and larger programs created a personnel scarcity in the late 1940s and early 1950s. Professional special educators were in short supply, and the field of special education was not firmly established. Second, because not all states expanded their involvement in special education, organized parents' groups began asking why children with disabilities and their parents should be penalized through the accident of birth in a particular state or a particular region of a state. Were not U.S. citizens (in this case, the parents of children with disabilities) entitled to equal treatment anywhere in the United States? Should parents, in addition to the burdens of having children with special needs, be forced to move their families to a community in which special education resources were available because no local resources existed? The blatant unfairness of the situation called for attention.

The Role of Government

For more than 150 years, we have relied on our public school systems to educate about 90 percent of our school-age children (National Center for Educational Statistics, 2004). Public schools have been supported by the

nation's taxpayers as a commitment to the future of our society ("Public Education in the United States," Microsoft® Encarta® Online Encyclopedia 2007).

Major social institutions that have had a long-lasting effect on the education of exceptional children have been the state and federal governments. The executive branches and the legislatures have the responsibility to create policies, draft laws, and find the necessary money for the special services and extra expenses involved in educating exceptional children. Legislation as a vehicle for change (Gallagher, 2006) has a way of shortening discussions and disputes. If you do not perform as the legislation states, you are no longer just showing your disagreement, you are breaking the law.

Federal legislation clearly was needed, both to bring qualified people into special education and to equalize educational opportunities across the country. But that legislation was not easy to obtain. It violated the strong American tradition that education is a state and local responsibility. Still, organized parents' groups, with the support of other interested citizens, convinced Congress that they needed help.

A Summary of Special Education Legislation

Public Law 88–164

In 1963, Public Law (PL) 88-164 authorized funds for training professionals to work with children with special needs and for research and demonstration (the illustration of best practices) for students with IDD and deafness. The law represented a

Lisa Marie Presley is sworn-in to testify before the US House Committee on Government Reform and Oversight on *Attention Deficit/Hyperactivity Disoder—Are We Over-Medicating Our Children?*

(© Ron Sachs/CNP/Corbis)

strong initiative by President John F. Kennedy, whose interest was heightened by his sister's mental retardation. Those first efforts were followed by many others, and from that small beginning emerged thirty years of legislation to ensure that all children with disabilities have access to an appropriate education.

Public Law 94–142

That flood of legislation served notice that the federal government accepted responsibility for providing support and resources for children with disabilities and for encouraging the states to carry out their basic responsibilities.

Congress in 1975 passed PL 94–142, the Education for All Handicapped Children Act. The measure, which took effect in 1977, was designed "to assure that all handicapped children have available to them a free appropriate public education which emphasizes special education and related services designed to meet their unique needs" (U.S. House of Representatives, 1975, p. 35). See the box on "Six Key Provisions of the Education for All Handicapped Children Act" for the key provisions of this legislation.

To carry out the provisions of this law, the federal government authorized the spending of up to $3 billion by 1982, promising much larger sums of money

Six Key Provisions of the Education for All Handicapped Children Act

Six key principles at the heart of PL 94-142 have shaped special as well as general education during the past three decades:

- **Zero reject.** All children with disabilities must be provided a free and appropriate public education.
- **Nondiscriminatory evaluation.** Each student must receive a full individual examination before being placed in a special education program, with tests appropriate to the child's cultural and linguistic background.
- **Individualized education program.** An individualized education program (IEP) must be written for every student with a disability who is receiving special education. The IEP must describe the child's current performance and goals for the school year, the particular special education services to be delivered, and the procedures by which outcomes are evaluated.
- **Least restrictive environment.** As much as possible, children who have disabilities must be educated with children who are not handicapped.
- **Due process.** Due process is a set of legal procedures to ensure the fairness of educational decisions and the accountability of both professionals and parents in making those decisions.
- **Parental participation.** Parents are to be included in the development of the IEP, and they have the right to access their child's educational records.

to aid the states than had previously been provided. By 1990, the government was still spending about $1 billion a year. In return for that aid, states are required to show evidence that they are doing their best to help children with disabilities receive needed services. Specific provisions in the law placed substantial pressure on public school systems, demanding more in the way of **assessment**, parental contact, and student evaluation than most school systems had been accustomed to providing.

Not surprisingly, many educators have protested the burden that these new laws placed on them. But this law has become part of the educational landscape. In the past three decades, the federal government moved from little involvement in special education to becoming a major partner in local and state programs for students who have disabilities, expanding the reach of PL 94–142 through additional legislation.

Public Law 99–457

The Education for All Handicapped Children Act (PL 94-142) was, in fact, misnamed. It was not meant for all children of *all ages*. It became increasingly evident that early intervention was important, both for the exceptional child and for his or her family, and pressure increased for the law to include younger children.

PL 99–457 (Education of the Handicapped Act Amendments of 1986), provided that opportunity by allocating federal funds for the states to develop plans and programs for children and their families *from birth on*. The title of the Education of the Handicapped Act was changed to the Individuals with Disabilities Education Act, or IDEA. The impact of IDEA is discussed throughout the text.

Federal legislation insures that young children with special needs receive the intervention that they need.
(©Susie Fitzhugh)

IDEA 2004

IDEA 2004 represents the reauthorization of the basic legislation to strengthen and improve earlier versions. Some of the major changes in IDEA 2004 involve the following:

- *Quality of personnel.* Special education specialists must hold full state certification as special education teachers and have a license to teach. They must demonstrate subject-matter competence in the academic programs they teach.
- *IEP standards (section 1400).* Individualized education programs (IEPs; see later in the chapter) must reflect scientifically based instructional practices, cognitive behavioral interventions, and early intervention services, as appropriate. They must include plans for the use of assistive technology and short-term objectives for children with disabilities who take alternative assessments.
- *Transition services.* A transition plan must be included in all IEPs for students at age 16 and for younger students if appropriate. **Transition services** must include instruction, community experiences, development of employment, and other postschool adult-living objectives.

Two other important pieces of legislation play a role in the life of children with disabilities.

Section 504 of the Rehabilitation Act of 1973 (PL 93–112)

This legislation has been brought into play when the rights of individuals with disabilities have been denied or interfered with. The key provision of the act says that it is illegal to deny participation in activities or programs solely because of a disability. Individuals with disabilities must have equal access to programs and services. One of its advantages is that children who might not meet the stringent criteria for IDEA may still be judged eligible for services under Section 504.

Problems such as failing grades, a pattern of suspensions, chronic behavior problems, or failure to complete or return homework may qualify a child for additional support under Section 504, but this law can act as a bridge between general and special education and is a first step to the **response to intervention** (RTI) model, mentioned in Part 1, so that the three-tier RTI model can be brought into play.

Americans with Disabilities Act of 1992

The Americans with Disabilities Act of 1992 (PL 101–336) extends civil rights to persons with disabilities. These rights are equal to those guaranteed without regard to race, color, national origin, gender, or religion through the Civil Rights Act of 1964.

These three pieces of legislation—IDEA 2004, Section 504 of the Rehabilitation Act, and the Americans with Disabilities Act—make clear that American society is determined to see that children with disabilities have equal access to educational resources and cannot be discriminated against solely on the basis of their disabilities.

Public Law 107–110: No Child Left Behind

Sometimes a piece of legislation is so important that it affects children with disabilities even if they were not the target of the legislation. The No Child Left Behind (NCLB) Act has had an impact on all schoolchildren and a special impact on children with disabilities. It was the major education legislation by the George W. Bush administration, and its purpose was to hold schools and educators responsible for bringing students to a minimum level of competency.

The NCLB Act requires schools to present test data to prove their effectiveness. This results in some problems for children with disabilities, who have a difficult time gaining a year academically for every year spent in school, and for their teachers, who must deal with such unrealistic expectations.

Imagine a rule that says that every child should be able to run the 100-yard dash in 14 seconds or less. If the school is unable to meet that standard, and if more children every year do not meet that standard, the schools will be disciplined and have their funds removed. But we know that there are children who, for a variety of reasons, can never run the 100-yard dash in 14 seconds no matter what the physical education department does. Yet, if the school is unable to meet this standard, the school will be disciplined and have its funds removed. What then? Perhaps those insisting on accountability would relent and say that children with disabilities would be given an alternate test of abilities more appropriate to their needs.

HM VIDEO CASE

Foundations: Aligning Instruction with Federal Legislation

Watch this Video Case at the student website. In what ways does IDEA support a team approach to meeting the needs of students with exceptionalities? What challenges or frustrations do teachers face when they work to comply with the accountability requirements of NCLB? How prepared do you feel to meet the requirements outlined in IDEA and NCLB?

The No Child Left Behind Act creates several challenges for children with special needs.
(© AP/World Wide photos)

This tale describes reasonably well what happened with NCLB when the standard of 100 percent proficiency on the part of students and schools was proposed. Some students with disabilities just could not meet these standards no matter how hard they tried. An additional question is whether the same academic standards should be applied to every student or whether, for some, vocational education would be more appropriate. Adaptations are still being made to this law, as educators and public policy makers have realized the foolishness of demanding 100 percent proficiency. Several attempts have been made to amend the law and rewrite regulations to bring it more into line with the reality of student populations, but it remains a problem for many students with disabilities.

Federal Actions for Students Who Are Gifted

NCLB creates a different problem with gifted students in that the standards are so low that they create no challenge and can be reached with little or no effort. Because the classroom teachers are spending more time helping students reach basic standards, they often do not have time to stimulate students with gifts and talents through special projects or assignments.

Except for a brief period in the 1970s, there had been little movement at the federal legislative level to provide resources to aid in the education of children who are gifted. The Javits Act (PL 100–297)—named after New York senator Jacob Javits, who showed early interest and support—provided a small sum of money to support research and demonstration programs that focused on the special needs of gifted students from economically disadvantaged circumstances, from different cultures, or with disabilities. The Javits programs have helped with the development of alternative identification methods designed to more adequately measure intellectual ability in minority populations (see Chapter 9 for a discussion of this movement).

Governmental laws and policies have created a favorable atmosphere for special education in the public schools.

The Exceptional Child and the School

Most of us consider ourselves experts on the schools. After all, haven't we spent twelve or more years of our lives in them? Unfortunately, as students, our contact with the schools, in most instances, was limited to specific teachers and classrooms. Sometimes there was a principal to administer "corrective action" if our behavior got out of hand. We were only dimly aware of policies or standards that were influencing the teacher and her or his behavior.

Certainly the schools are one of the most significant of all our social institutions. Schools in large measure are a mirror of our society as a whole. Most of the values taught there reflect the values of the dominant sectors of society. Many of the problems encountered in the schools, such as lack of motivation, drug use, and violence, are part of the larger societal fabric.

In the last part of the twentieth century, there was constant discussion within the education field as to *where* the exceptional child should be placed and what relationship should exist between general education and special education. The struggle for special services and special programming for exceptional children consumed much of the attention of special educators during that time.

Our discussion of schools focuses on the policies that influenced teachers, in particular, of children with disabilities and children who were gifted. Four major tasks face the schools:

1. Finding the child with special needs
2. Identifying these needs in individual cases
3. Organizing special planning to meet those needs
4. Proving that the special planning works

In most instances the policies and standards that are followed to accomplish those four goals are made collaboratively, with many persons involved, including the classroom teacher. Sometimes these rules are made in the state capitals or the executive branch of the federal government.

Also, exceptional children are affected by major trends in the general field of education, just as are all other students. The trend toward *accountability,* a term used to determine whether educators have done what they said they would do for their students, has forced special education to demonstrate not only that exceptional children are receiving special services but also whether the students have profited from a special program as expected.

HM VIDEO CASE

Inclusion: Classroom Implications for the General and Special Educator

Watch this Video Case at the student website. How did the classroom teacher, Chris Colbath-Hess, and the related service providers work together to support the students with exceptionalities? Some of the modifications made for students with exceptionalities will help all the children in the classroom. What strategies did you see being used that will help all the children?

The emphasis on accountability has raised the question of which of two seemingly contradictory purposes should be emphasized. The IDEA of 2004 proposed the need for specially designed instruction (meaning shaping or creating lessons to meet the special needs of the individual who has those needs), which is to be spelled out in the IEP. However, IDEA *also* wishes to ensure the exceptional child access to the general curriculum. This would seem to mean that the exceptional child will be included in regular class activities to the extent that he or she can master the basic facts and knowledge that all students are expected to master. The fact that the vast majority of exceptional children are to be included in statewide testing programs indicates that the schools are expected to attain *both* of these desirable goals—individual plans and access to general curriculum—and that it is the responsibility of the schools to achieve these results in individual circumstances.

The changing social environment of exceptional children has spawned a new and different vocabulary. Two terms that are in common use today are *inclusion* and *continuum of services*. These terms reflect the interest of society in trying to integrate exceptional children and adults more effectively into the school and the community at large.

- **Inclusion** is the process of bringing all, or nearly all, exceptional children into the general classroom for their education, with special educational support.
- **Continuum of services** refers to the range of placements that may constitute the "least restrictive environment" in which the exceptional child learns best.

Finding the Child with Special Needs

A child may be referred for special education services for any of a variety of reasons, but mainly because of observations by school staff that this child differs from same-age children in a significant way that is affecting his or her learning in school.

Sometimes the school will administer screening tests in reading or arithmetic in the early grades in an effort to discover children who need special help before they have identified themselves to their teachers through either failure or extraordinary success in school. For example, Paul, age 8, has been referred for special education services because his third-grade teacher, Mrs. Parker, claims he is insolent, talks back to her, is not mastering his reading and math skills, and is constantly disturbing the other children. Maybe Paul acts that way because he has a serious learning or behavioral disability, but maybe he and the teacher have started off on the wrong foot. He may be reacting in a predictable way to his inability to do the schoolwork (which may seem uninteresting to him anyway), and Mrs. Parker may not know how to cope with Paul's frustrations.

In such a situation, many school systems establish a *prereferral committee,* or a child-study committee, to find ways of coping with a child's behavior short of a referral for special education services. In this case, the assistant principal, a master teacher, and a psychologist met with Mrs. Parker to see what she might be able to do. Not every child having trouble adjusting to school is a candidate for special education. In Paul's case, several weeks went by with no appreciable improvement in his behavior despite the modifications his teacher made, so a full referral was made, calling for a full assessment of Paul and consideration for special education.

The Uses of Assessment

One of the major tasks of special education is to assess both individual students and the effectiveness of the special programs. Student assessment is designed to capture the strengths and weaknesses of individual students and to determine whether the student is eligible for special education services (see Figure 2.2).

Assessment

Assessment becomes a major part of the RTI model presented here. In Tier I there is universal screening of children in the early grades to find those students who may need special help. There is a diagnostic assessment of those students who have been identified by the screening to enable the schools to plan an appropriate program for those students. In addition, there is periodic monitoring of students in Tier II and Tier III to measure progress and determine if the students are in the proper placement.

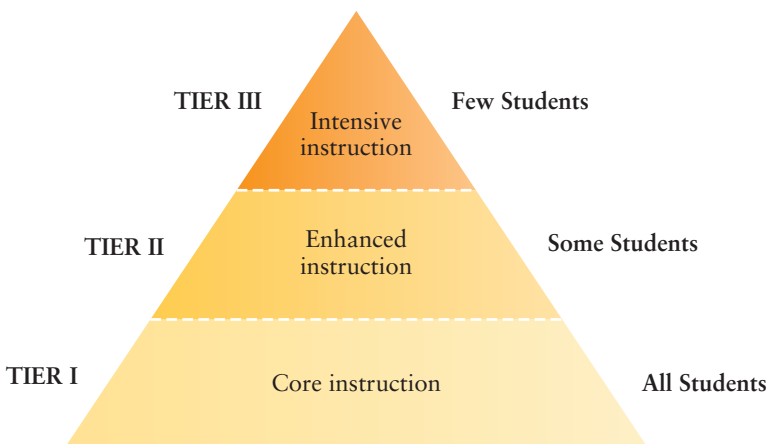

FIGURE 2.2
Response to Intervention (RTI) Model

Source: Salvia, J., Ysseldyke, J. & Bolt, S. (2007). *Assessment: In special and inclusive education.* Reprinted by permission of Houghton Mifflin Harcourt Publishing Company.

Inclusion for Katie

If you saw my 14-year-old daughter Katie enter the middle school lunchroom, you would notice that she bobs the top half of her body a little to one side to gain momentum. You would hear Katie's open-mouth hums and Peter Pan-like "crows" join the cafeteria chaos, followed by, "Hi, Katie" from several of her schoolmates.

Included from the Start

Katie has been in inclusive environments since she was an infant. We lived in a small Rocky Mountain resort community where large city "segregated" programs were unavailable; Katie was "included" as another member of the community in day-care and school services.

When Katie started kindergarten, the transportation director installed a seat belt with a harness so she could ride the big yellow school bus with the rest of the neighborhood children. Each morning the children greeted her, and some even volunteered to sit beside her. However, one blue-eyed boy with rebellious strands of blond hair used to customize his greeting each morning.

"Hi, slobber mouth," he would say, always careful to give his friends a glance before chuckling his way to a seat in the back. Katie would respond with her usual glistening grin, enjoying the laughter.

Time Changes Attitudes

That was at the beginning of the school year. By spring, I noticed a metamorphosis: this bully turned into a peer. He was reading books to Katie in library period and bringing her pictures he made in art marked "TO KATIE" in crayon. The teachers said that although he was discreet about his goodwill, he also stopped making fun of her.

That was also the year Katie used a special wooden chair on wheels with a tray clipped to the front for eating and fine motor skills. The chair helped her support the trunk of her body. The children in school nicknamed Katie's chair "the Ferrari" and would run up alongside it in the hallways like a devoted pit crew, their backpacks bouncing in unison.

Dealing with Doubts

Later in the school year Katie's teacher said, "Let's put Katie in the Christmas music production." At first I was pleased to have her included in the festivities, but eventually reality became painful to watch. She would sit or stand only when physically prompted by a teacher or an older schoolmate. The spotlight would shine on the children as they waved their hands like pine boughs and sang "Jingle Bells." But the bright beam of light seemed to magnify the contrast of Katie's lack of focus and participation. People would say to me, "It's great to

Finally, there is the use of assessment to determine if expected gains are achieved by groups of children as well as the individual children with special programs.

The task of determining how an individual child is different, and along which dimensions, has become a major step in identifying and educating exceptional children. Teachers and other staff members can use five general approaches to provide an assessment of a child: *norm-referenced tests, diagnostic achievement tests, interviews, observations*, and *informal assessments*. We summarize these approaches in Table 2.1. Generally, a combination of tests and procedures is used to detect and thoroughly evaluate a child's interindividual and intraindividual differences. Each method has advantages and disadvantages.

Interindividual Differences

Areas of interindividual differences include academic aptitude, academic performance, language development, and psychosocial development.

As we learned in Chapter 1, **interindividual differences** are substantial differences among children of a similar life age along key dimensions of development. Special educators and school psychologists assess interindividual differences along key dimensions such as academic aptitude, academic performance, language development, psychomotor skills, and psychosocial development. These key

see Katie up there." I just blinked back tears, swallowed the lump in my throat, and quit trying to include her in extracurricular activities.

Rather than the typical fifth-grade curriculum of math, geography, and English, Katie's individualized education plan (IEP) included self-help skills such as feeding herself, dressing herself, and learning to use the toilet. I wondered if she belonged, if her experience was one-sided, if she contributed to the class.

When I discussed this with her teachers, they told me how good it was for the rest of the kids to have Katie in school with them. "It's good for their self-esteem," they said. "Katie always has lots of classmates volunteering to help her, to read to her, or to do the cooking projects with her." It seems to me as though inclusive education naturally promotes what the national movement in schools proposes to teach: universal values.

Adjusting to Meet the Future

Each fall as I go to Katie's class and talk about Katie, I try to answer their questions—try to eliminate some of the fear-of-the-different factor. "What happened to her?" they ask. "Does Katie have any pets? If she can't talk, can she hear?"

I tell them a little about Katie, how she can hear you say "hello" but she cannot say "hi" back. I tell them she was born with a "hurt" brain. "Doctors gave her lots of tests," I always say. "But she is undiagnosed. We don't know what happened or how she'll be when she grows up." I tell them incoming messages get scrambled or have to take detours around the "hurt" parts and sometimes get lost.

When Katie reached fifth grade, we played the same "Fun Game." I start the game by asking the class, "What about Katie is the same as you?" A few children raise their hands.

"She likes to swim," volunteered one little girl.

"She likes horses," said another.

"She dresses the same!"

Suddenly hands were clamoring faster than a recess bell stampede. Then a boy with thick brown hair, who sits across the aisle from Katie and her sometimes-vacant desk, raised his hand. "She's a human being," he said.

I guess different really is the same.

Source: Jodi Buchan, "When Different Is the Same," *Exceptional Parent Magazine* (September 2000). Reprinted with permission.

Pivotal Issues

- What kinds of things did Katie's mother do to help make sure her daughter was accepted?
- How would you handle the situation where Katie was being teased?
- In what ways did Katie's inclusion impact her teachers, her classmates, and the school?

areas provide critical information on the child's strengths and needs and can help us plan for the child.

Academic Aptitude

One area in which interindividual differences appear is **academic aptitude.** The measure of children's aptitudes can tell teachers and schools a great deal about their student population and how students are performing in relationship to their potential.

Intelligence tests are not pure measures of intellectual potential; rather, they are valuable predictors and indicators of academic ability and performance.

For decades, one standard measure of academic aptitude has been the intelligence test. These IQ tests measure the development of memory, association, reasoning, evaluation, and classification—the mental operations so important to school performance. In fact, intelligence tests are accurate predictors of academic performance: those who score high on intelligence tests generally do well in school; those who score low generally do poorly (Salvia & Ysseldyke, 2007).

Any serious developmental delay in the student's mental operations can create major difficulties in school. Intelligence tests assume a common experience base for most children (and the desire of the child to do well). We must be cautious in our interpretation of test results for individuals whose language or experience or both differ from those of the normative and native-born group.

TABLE 2.1
Assessment Strategies: Strengths and Weaknesses

Strategy	Advantages	Disadvantages
Norm-referenced test	It provides a comparison of a particular child's performance against the performance of a reference group of children.	It does not provide reasons for the results; for culturally diverse children, the reference groups used for comparison may be inappropriate.
Diagnostic achievement test	It is designed to provide a profile of strengths and weaknesses, analyses of errors, etc., in arithmetic or reading.	The scores generated by such instruments often have limited or suspect reliability.
Interview	Information from the child, parent, teacher, or others can provide insight into the reasons for the child's current performance.	All interviewees see the child through personal perspectives that may be limited by experience, personal bias, etc.
Observation	It can provide information based on the child's spontaneous behavior in natural settings and a basis for intervention planning.	The child may not reveal significant behaviors during the observation; the meaning of the child's behavior may be unclear.
Informal assessment	Information from teacher-made tests, particular language samples, or descriptions of significant events in the life of the child.	It is rarely possible to match a particular child's performance with the performance of others on these measures or observations.
Portfolio assessment	The student collects items of quality from his or her work. This allows a more direct assessment of student performance.	A problem of rater bias is possible: Did the student create the work included? Also, portfolio assessment is labor-intensive.

Many people now believe that intelligence is multidimensional. Gardner's theory of multiple intelligences (1983) is the best-known proposal of a multifaceted view of intelligence. Gardner has proposed several major dimensions of intelligence, including: *linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, social awareness,* and *self-awareness*. These dimensions provide some basis for differentiating curriculum, and there are continuing efforts to design programming based on Gardner's model of intelligence. A more extensive presentation of Gardner's model of intelligence is found on our website.

Executive Function

Another important dimension of intelligence *not* covered by IQ tests is the **executive function** or *executive processes* (Sternberg, 1997). This internal function regulates thinking processes, behaviors, and performance. It is like a traffic

manager that monitors and controls the flow of thought. The executive function may be referred to as *metacognition* or *self-regulation* and must be activated by the learner. If you are planning what you will do tomorrow, or deciding which things in your environment to pay attention to, or how to respond to a task, you are using your executive function. Some of the serious learning problems faced by exceptional children appear to occur through the individual's inability to use the executive function properly. We meet this concept again in the information processing model in Chapter 4 on learning disabilities.

Academic Performance

Two well-accepted approaches to describing interindividual differences in academic performance are **standard (norm-referenced) achievement tests** and **diagnostic achievement tests** (see Table 2.1).

Language Development

Language, one of the most complex of human functions, is particularly vulnerable to problems that affect the development of children. Because using language effectively is one of the keys to academic and social success, it must be carefully analyzed, particularly when a student is not performing well.

Psychomotor Development

Many children with special needs have associated problems in coordination or mobility, which adds to their basic exceptionality. Some children with learning disabilities, autism, or developmental delays also have problems in the psychomotor areas that need attention. For many children, the IEP should include improved motor performance as one of the objectives and should detail how such improvements will be brought about.

Psychosocial Development

Another area of interindividual difference is the individual child's ability to respond to the social environment, or how well the child is able to adapt. Does the child show aggressive tendencies when frustrated? Is he or she able to work cooperatively with others? How does the child react when things don't go right?

Social adaptation also greatly influences how the exceptional child responds to remediation. Many children who fail to respond to special programs have behavioral and social problems, as well as academic ones. To assess psychosocial development, we often rely on the observations of others—parents, teachers, and caregivers—for information on how the child behaves in different settings. When children are able to articulate, we can ask them about their feelings or perceptions of themselves. These self-reports can be very revealing.

Organizing Special Planning to Meet Needs

Most of the attention of special educators in the latter parts of the twentieth century was devoted to bringing a specially prepared teacher into direct contact with the child with special needs, so that the child could receive an appropriate

PROFILE OF A STUDENT

Characteristics of a Student's IEP Process

Diane: We can see how the assessment process works in the case of Diane, a 7-year-old. Diane was a slim child, somewhat small for her age. She was promoted to second grade mainly because of the hopes of her first-grade teacher; her actual performance was not good. In the second grade, Diane was having trouble with basic reading and arithmetic skills. She was an unhappy child who did not talk a lot and who did not have many friends in the classroom.

In some school systems, screening before kindergarten or at the beginning or end of first grade might have picked up Diane's problems. In this kind of screening, every child is examined quickly for major problems in vision, hearing, and learning ability. If a difficulty shows up, the child is referred for an intensive evaluation. In Diane's school system, academic performance takes the place of the screening process. In fact, most students find their way into special education through academic failure or through the perceptive observation of school personnel.

Diane's second-grade teacher recognized a problem and referred the child for diagnostic evaluation. Diane was given a series of tests and interviews to determine whether she did have a problem and to identify that problem. In the process, the diagnostic team eliminated a number of factors that might have caused Diane's difficulty. They looked for signs of physical disabilities, of serious emotional disturbance, of mental retardation, of environmental disadvantage. The goal of the assessment and referral was to identify the support Diane needed to maximize her potential.

In Diane's case, after the initial diagnosis and classification, a more thorough analysis of specific learning problems or difficulties was

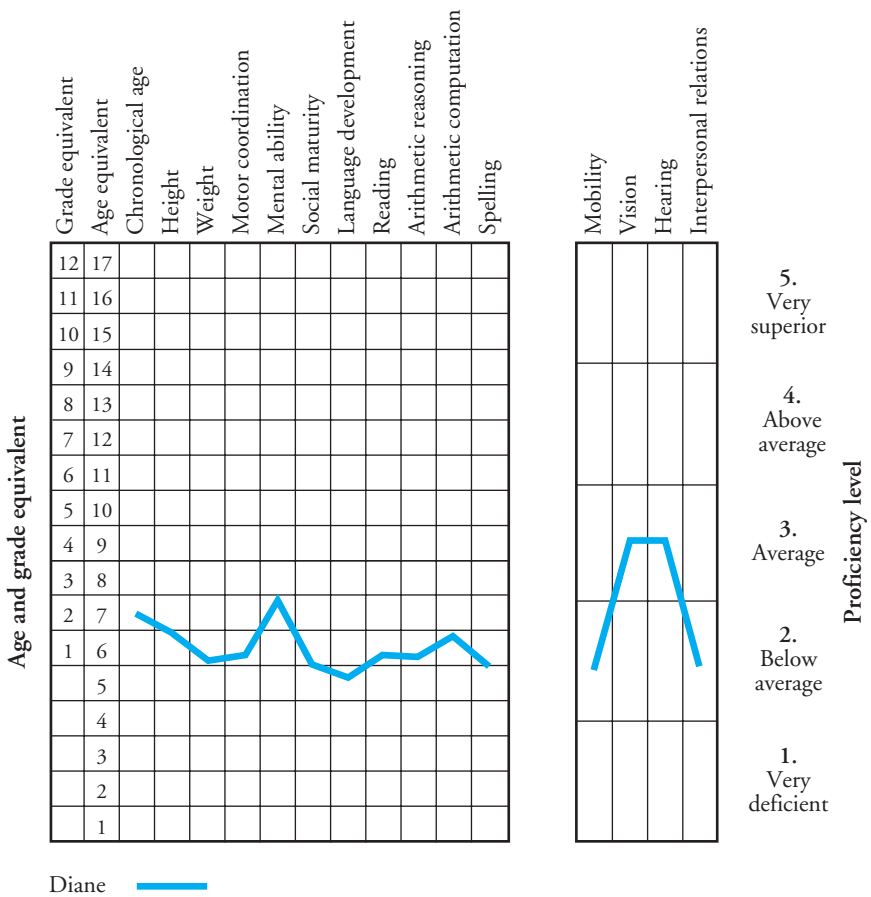

Figure 2.5
Profile of Diane

carried out. Earlier examinations had defined Diane's abilities and disabilities; now the educational team analyzed those abilities and disabilities to design a specialized program and teaching strategies for the child. Once the program goals were set and the individual program was implemented, a plan was set up through the individualized education program (IEP) to measure Diane's progress at subsequent points to see if the objectives had been met.

The graph provides us with a developmental portrait of Diane. While the profile seems unremarkable with few peaks and valleys' it actually tells some important things about Diane to the educators struggling to find a reason for her poor reading. We know that her troubles are *not* due to low intelligence, since she seems average in mental ability. Both her vision and her hearing seem normal, so they cannot be the cause of her problems. Now we have eliminated some key potential causes, yet she is low on reading and related subjects.

What appears to be the cause is that Diane has a problem decoding written symbols and therefore is not reading well. Some specific exercises and practice are needed for Diane to cope with this learning disability. In each of the subsequent chapters, we provide a profile of one or two students to indicate what we have found out and what we need to do about our increased knowledge about individual children.

A planning meeting of professionals of different disciplines is helpful to settle on educational strategies for a child with special needs.
(© Robin Nelson/Photo Edit)

educational experience. In the past decades, we have increasingly recognized that quality education requires more than just well-prepared teachers. A series of support services are needed to help these students with special needs (Gallagher, 2006; Mainzer, Deshler, Coleman, Kozleski, & Rodriguez-Walling, 2003).

In many ways these support services resemble the well-organized system supporting the medical practitioner. Think about how limited your own physician would be without laboratories and x-ray technicians to help with diagnosis, active pharmaceutical enterprises producing new effective drugs, hospitals where special treatments can be applied, or medical schools that do important research on new techniques and produce new generations of qualified physicians. So when some say, "I have a really good doctor," they actually mean "I have a good health-care system."

If we do not provide that hard-working general education or special education teacher with a similar collection of support services, then we are placing our teacher in the same situation the physician would be in if deprived of his or her supports. One version of a quality support system consists of the components listed in Table 2.2.

TABLE 2.2
Special Education Support Systems

Personnel preparation	The importance of programs designed to prepare specialists cannot be overestimated, and many institutions of higher education have cooperated in providing such programming.
Technical assistance	Continued support for the classroom teacher has been achieved through such organizations as regional resource centers and the National Early Childhood Technical Assistance System.
Research and program evaluation	There is a continual need for better techniques for diagnosing children with special needs.
Communication	With the growing use of the Internet, websites can help disseminate information. Selected Internet websites have been placed in the margins throughout this book.
Demonstration	Sometimes it is important for teachers and administrators to actually see new ideas and practices in action. A series of demonstration centers for children with disabilities offer programs that illustrate techniques for teachers and administrators.
Data systems	An often overlooked aid is a system of data collection that provides information about the needs for personnel by cataloguing the number of children and families needing services.
Comprehensive planning	The need for long-range state planning has been well accepted. The issue is how to coordinate the various support elements so that educational resources are available in the right place and at the right time.

Source: From Gallagher, J. & Clifford, R. (2000). The missing support infrastructure in early childhood. *Early Childhood Research and Practices, 2*(1), 1–24.

Educational Responses to Planning for Children with Special Needs

Special education exists to provide exceptional children with services not available to them in the typical education program. It's important to realize that the reason special education exists is *not* that regular education has failed. Classroom teachers and typical educational programs simply cannot respond fully to the special needs of exceptional children without a substantial change in the structure, program, and staffing of the typical classroom. Estimates of state, federal, and local expenditures for special education approach $60 billion dollars for 2004–2005, clearly indicating the extent of the financial commitment made by society on behalf of these children and their families.

Instruction can be adapted to the interindividual and intraindividual differences found in exceptional children in several ways: We can (1) adapt the learning environment to create an appropriate setting in which to learn, (2) change the actual content of lessons or the specific knowledge being taught, (3) adapt teaching strategies, and (4) introduce technology that meets the special needs of exceptional students. All subsequent chapters include a special Educational Responses section that is organized around the four areas listed in Table 2.3.

Within the school environment all of the many forces acting on exceptional children interact and influence each other. Laws regulate who receives services; courts interpret those laws and apply them to specific circumstances; and families most of the time support the child's efforts and provide goals, values, and expectations that generally reflect the family's cultural background. The school is particularly important for exceptional children who may need very special kinds of help to become productive adults.

Special education provides exceptional children with necessary services that are not available in the typical school program.

Building on Developmental Strengths

Children with learning problems used to be presented as having widely varying developmental weaknesses that became the focal point of special education efforts to try to make the developmental patterns more even. The focus was, to a large extent, on correcting the deficit, or what was "wrong with the child." So if a child who was deaf didn't talk, an enormous effort was made to help him or her to talk, and other developmental areas, such as cognition and social processes, were ignored or downplayed.

We now realize that it can be more effective to analyze a child's *strengths* and to focus a therapeutic program around them. Therefore, in the twenty-first century, increased efforts are being made to find the

TABLE 2.3
Educational Adaptations

Adapting the learning environment	One can change the physical setting in which special services are delivered to make the instruction more likely to be effective.
Adapting the curriculum	It is often necessary to modify the curriculum content of the lessons to meet the needs of exceptional children who are performing markedly below or above the rest of the class. Special additional curricula are necessary for some students with exceptionalities. Some examples of these specialized approaches are braille, sign language, and mobility education.
Adapting teaching strategies	Special strategies are needed for coping with attentional problems and for organizing and presenting content to meet the needs of the student with exceptionalities.
Using assistive and instructional technology	Special assistive technology devices help students with exceptionalities to communicate and receive information; instructional technology devices aid them in mastering necessary knowledge and skills.

child's and family's strengths, hoping that they can help offset the deficits.

All of our chapters stress building on strengths. In the earlier story about Katie, we can see her likeability to other students and their willingness to help. Some peer tutoring might be used to take advantage of that strength.

Developing the Individualized Education Program

The **individualized education program (IEP)** emerged from concerns about what was happening in the newly formed special classes for children with disabilities. Although these students had been removed from the inappropriate regular classroom curriculum, concerns arose about what they were getting in its stead in the special classroom. Was it just what the special teacher was able to come up with from her or his own experience?

To counteract this vagueness, Gallagher (1972) proposed a special education contract for each student that stated specific goals for each student, parental participation in the plan, and a means of determining whether the goals had been met. Such procedures were codified in the Education for All Handicapped Children Act (1975), which required that each child must have an individual plan that met his or her needs.

The IEP process remains controversial to this day because of the amount of professional time it takes to produce these plans and concern about the degree to which they have been implemented successfully. Extensive regulations have been written to determine who makes the plans, who carries out the plans, and who determines the success of the plans.

One of the unique features of the IEP is not only the plan itself for each individual student with disabilities but how the plan is constructed. The members of the team, as prescribed by law, include:

1. Parent or guardian of the child
2. One regular educator with responsibility for implementing the plan
3. A special educator with responsibility for implementing the plan
4. A principal or administrator who takes responsibility for seeing to it that the plan is implemented
5. Other personnel whose specialized knowledge can be helpful in constructing a plan (e.g., school psychologist, social worker, and so on; see Figure 2.3)

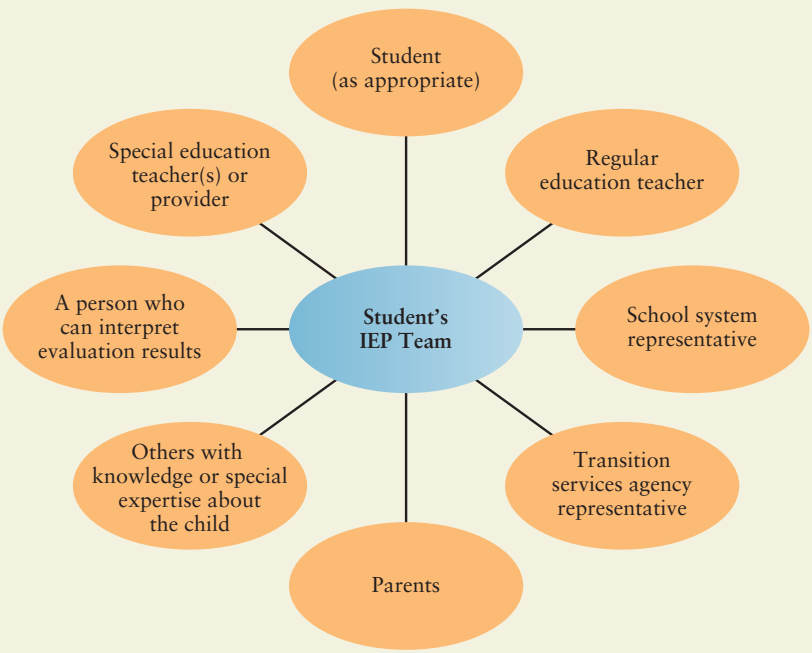

FIGURE 2.3
A Student's IEP Team

The required presence of the parent or guardian is a clear sign that the IEP is expected to take into account the wishes and feelings of those close to the student, as well as the educators involved.

Table 2.4 outlines the major parts of the IEP as provided by the U. S. Department of Education (2004). As a specific example, an IEP sequence for a child who has a reading disability might be as follows:

1. *Present level of performance (PLOP):* Reads first-grade material at 20 to 30 words per minute with between 5 and 10 errors; guesses at all unknown words.
2. *Service to be provided:* One-to-one tutoring in highly structured reading program; five sessions weekly, 45 minutes each; provided in private, quiet area of resource room.
3. *Annual goal:* Given a 500-word story at third-grade reading level, student will read 80 to 100 words per minute with 0 to 2 errors.

The text website contains several full IEPs for those students who wish to see an entire example of an IEP.

Transitions and IEPs

Recent surveys have shown a number of former special education students having problems adjusting in the community (see U.S. Department of Education, 2004), and because of this situation, a section has been added to the IEP for students 16 years and older that addresses *transition planning*. IDEA 2004 requires the IEP team to provide measurable postsecondary goals based on transition assessments that cover education, employment, training, and, when needed, independent living skills. The transition plan should touch on needed instruction, related services, community experiences, and employment and other postschool objectives.

Case Example: Transition Planning Goals for Jim's IEP

Jim, who has a continuing reading disability, has special concerns about getting a driver's license that is necessary to his employment. Therefore, the following will be added to his IEP:

Present Level of Performance (PLOP): Jim has been driving on a learner's permit but worries about passing the written test needed for his license.

Special Education: Jim will seek from the Division of Motor Vehicles any accommodations made for students with disabilities and will take special instruction in map reading and route highlighting.

Goal: By March 1 Jim will be given a practice exam and will score 70 percent or better. Given a city map, Jim will highlight common routes he follows to work and routes to the mall, downtown, and so forth. By March 15th Jim will take the licensing exam.

TABLE 2.4
Individualized Education Program

The individualized education program (IEP) is a written document that is developed for each eligible child with a disability. It includes

- A statement of the child's present levels of academic achievement and functional performance, including:
  - How the child's disability affects the child's involvement and progress in the general education curriculum (i.e., the same curriculum given to nondisabled children) or for preschool children
- A statement of measurable annual goals, including academic and functional goals designed to:
  - Meet the child's needs that result from the child's disability to enable the child to be involved in and make progress in the general education curriculum
  - Meet each of the child's other educational needs that result from the child's disability
- A description of:
  - How the child's progress toward meeting the annual goals will be measured
- A statement of the *special education and related services* and *supplementary aids and services,* based on peer-reviewed research to the extent practicable, that are to be provided to the child, or on behalf of the child, and *a statement of the program modifications or supports* for school personnel that will be provided to enable the child:
  - To advance appropriately toward attaining the annual goals
  - To be involved in and make progress in the general education curriculum and to participate in extracurricular and other nonacademic activities
  - To be educated and participate with other children with disabilities and nondisabled children in extracurricular and other nonacademic activities
- An explanation of the extent, if any, to which the child will *not* participate with nondisabled children in the regular classroom and in extracurricular and other nonacademic activities
- If the IEP team determines that the child must take an alternate assessment instead of a particular regular state or district-wide assessment of student achievement, a statement of why:
  - The child cannot participate in the regular assessment and
  - The particular alternate assessment selected is appropriate for the child
- The projected date for the beginning of the services and modifications and the anticipated frequency, location, and duration of *special education and related services* and *supplementary aids and services* and *modifications and supports*.

Transition Services
Beginning not later than the first IEP to be in effect *when the child turns 16, or younger if determined appropriate by the IEP Team,* and updated annually thereafter, the IEP must include:

- Appropriate measurable postsecondary goals based upon age-appropriate transition assessments related to training, education, employment, and, where appropriate, independent living skills
- The transition services (including courses of study) needed to assist the child in reaching those goals

Source: Office of Special Education Programs, U.S. Department of Education, 2004.

Another addition that can be made to the standard IEP is a behavior intervention plan (BIP) for those students who have been excluded from school for more than ten days for disciplinary reasons. Such students should have a *functional behavior assessment* that looks at events preceding the precipitating cause. The BIP must include positive behavior intervention and strategies to help the student back into the academic community. We would expect a clear statement of the targeted behaviors that are to be increased (e.g., time on task), the intervention strategies that are to be used, and the quantitative outcomes that are to be achieved (Bateman & Linden, 2006). Better IEPs are particularly useful in cataloging the range of positive behavior strategies and the hopeful consequences of those strategies (p. 148).

Adapting the Learning Environment

Often, a special learning environment is necessary to help some exceptional children master particular content and skills. Making changes in the learning environment, however, has repercussions throughout the entire educational system. That may be one reason that environmental modifications are the subject of greater controversy than are changes in either content or skills.

The Inclusion Movement

Inclusion has been the most significant movement in special education over the past two decades. As an educational philosophy, it essentially says that exceptional children should be *a part of, not apart from,* general education. The question that still bothers both special educators and general educators is how the philosophy of inclusion can be made operational in so many different schools in so many different communities. Additional questions include:

Supporters of the full-inclusion movement believe that all children, regardless of ability, should be educated in general education classrooms.

Instruction can be adapted to the differences found in exceptional children in several ways—by varying the learning environment, the content of lessons, and the skills being taught, and by introducing technology that can meet special needs.
(© Bob Daemmrich/ The Image Works)

- Does inclusion mean that the exceptional child is always to be placed in the general education classroom?
- Does inclusion mean that the essential responsibility for the education of the exceptional child is in the hands of the general classroom teacher?

The concept of **least restrictive environment** means that teachers attempt to educate a child in the environmental setting that maximizes the chances that the child with exceptionalities will respond well to the educational goals and objectives set for him or her. It should not be imagined, however, that the emphasis on inclusion has brought all exceptional children back into the general education classroom. About one in every five children with disabilities (usually the more severely impaired) are still educated in separate school, classroom, or resource room settings. The number of children in separate facilities (separate schools or institutions) has been reduced over the same time period from 7 percent to 3 percent (U. S. Department of Education, 2005).

Figure 2.4 reveals the percentages of special needs children receiving help in an inclusive setting. The figure indicates that half of the students with disabilities are in the regular classroom more than 80 percent of the time in a given week. It appears that about 10 percent more children with special needs are being served in an inclusive setting today than was the case in 1988–1989. There are great disparities among students who are included and those who are not. Students with speech and language impairments are in the regular classroom almost universally. On the other hand, many students with intellectual and developmental disabilities or autism or multiple handicaps may spend more than 60 percent of their day in other educational settings. The legislation and court cases supporting inclusion have clearly had an effect (U.S. Department of Education, 2004). With the existing trends there should be even more students in inclusive classrooms today.

Inclusion in Context

Part of the inclusion process depends on what resources will be available to help general education classroom teachers. Will special education teachers be available in the classroom with the general education teacher for a significant amount of time to help with special instruction? Will paraprofessionals be present to provide necessary assistance to the children with special needs, particularly those with physical disabilities? Will general educators receive personnel preparation for their new roles concerning children with special needs?

Those who support inclusion generally believe that supportive resources will be available for the general education teacher, whereas critics point to many situations in which the support forces are not there (Hunt & McDonnell, 2007). More important, such

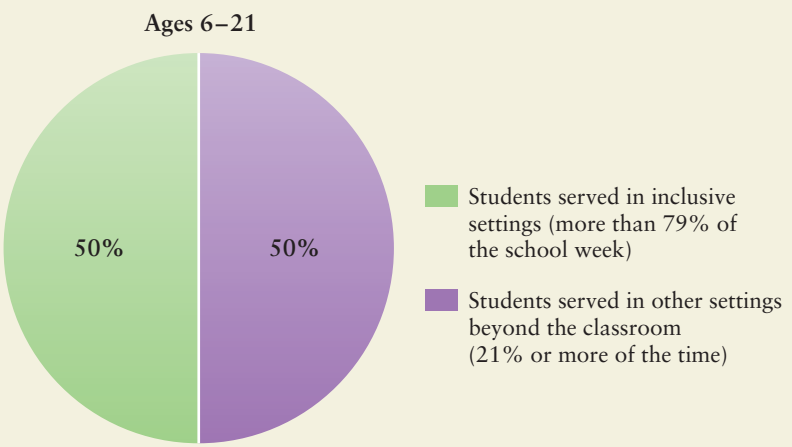

FIGURE 2.4
Students with Disabilities Served in an Inclusive Setting, 2004–2005

Source: U.S. Department of Education (2005). *Twenty-seventh Annual Report to Congress.* Washington, DC: Office of Special Education Programs.

support will likely not be there for some time to come, judging by the attitude of school boards and state legislators regarding the resources they are willing to put into inclusion programs. An alternative to full inclusion emphasizes providing a continuum of services based on each child's individual needs.

A number of attempts have been made to bring together "access to the general education curriculum" and the "meeting of individual needs" in inclusive settings for children with disabilities. A junior-high science program in an inner-city neighborhood was designed to include students with disabilities by establishing teams of special education and general education teachers and constructing a variety of hands-on materials and tasks to aid in comprehension. Crucial to the programs was a 100-hour training program for 15 three-person teams to prepare them for team activities in the classrooms and to aid in bonding personnel to a common purpose and common curriculum. Fifteen students with a diagnosis of severe emotional and behavior disturbance (E/BD) or serious learning disabilities (LD) were included in the 114 students involved.

The results indicated that the students with disabilities had the same passing rate (69 percent) as the general education students (from a neighborhood school in a poverty setting), and the social adjustment during the program was good, with discipline referrals and attendance figures within acceptable limits (Cawley, Hayden, Cade, & Baker-Kroczynski, 2002).

Universal Design for Learning (UDL)

One of the teaching strategies is to build flexibility into the instruction so that the products and environments can be usable by the largest possible number of students. This is called **universal design for learning (UDL)**. In universal design, the assistive supports are built in, rather than added as an afterthought. One of the key examples of UDL flexibility is *closed captioning*, standard on most TV sets, so that persons with hearing problems can read the text at the bottom of the screen; the same message is being delivered through two separate channels, visual and auditory. UDL also allows flexibility in student expression. Instead of giving a paper-and-pencil answer, a student may use drawings or illustrations or respond through a computer.

A careful analysis of four secondary schools illustrates the new UDL approach (Wallace, Anderson, Bartholomay, & Hupp, 2002). These four schools were in different states. As part of the Beacons of Excellence project, they were chosen from a roster of 114 schools nominated by a national advisory panel for their successful inclusion programs. The Beacons of Excellence project was funded by the Office of Special Education Programs in the U.S. Department of Education to increase the understanding of how schools can improve learning results for students with disabilities within the context of efforts to achieve exemplary results for all children. After extensive observations of general education students and special education students, the authors reached the following conclusions:

- Merely including students with disabilities in the general education classroom is not enough to ensure their success.
- The school administration in each of the schools must support team teaching with special and general education teachers.
- A significant amount of time must be spent guiding students in their preparation for learning and teaching them directly, using a variety of strategies, including technology.
- Teachers must know a variety of instructional strategies in order to address the diverse learning needs of students, and they need to know how to work with each other to effectively implement the strategies (p. 357).

In short, success in inclusion is not an accident, nor attributed to good luck. It requires extensive planning, preparation, and teamwork.

Social Relationships in the Inclusive Classroom

Social relationships seem to be the overarching concern for those supporting the inclusion movement, in addition to mastery of certain academic and technical skills. This is the position of The Association for Persons with Severe Handicaps (TASH). The policy of full inclusion follows this path of reasoning: if we are to have, as a major goal, the *social integration* of persons with disabilities into adult society, then the school environment should foster the development of such skills, personal friendships, and relationships among children with disabilities.

The Association for Persons with Severe Handicaps
www.tash.org

These skills are available to nondisabled persons in the natural course of their educational experiences.

Do friendships result from merely placing students in proximity to one another? Does the fact that some students are modeling appropriate behavior mean that the exceptional child will imitate such behavior? Probably not. Friendships generally grow between students who perceive similarities with each other. Students who are withdrawn gravitate toward others who are shy; an aggressive student often chooses another aggressive student to bond with (Bloomquist, August, Cohen, & Doyle, 1997). Reflect on your own youth. Did you always form friendships with peers with whom your parents wished you to be friends in the hope that they would be good role models for you? Or were your parents occasionally horrified to see whom you brought home, which friends stirred in you some bond of interest or some common feeling about the school or world around you?

It has long been recognized that the nature of exceptional children requires the knowledge and skills of a large number of disciplines to devise a comprehensive plan for a particular child. In medicine alone, pediatricians, geneticists, orthopedists, neurologists, and many other specialists may be helpful in individual cases. Then there are educators, psychologists, sociologists, social workers, special educators, speech/language therapists, occupational therapists, and others who may have needed knowledge and skills to add to a plan. Think of Larry, who may have a mild physical impairment with suspected brain injury, a hearing loss, and a communication problem, and who is not learning at his age level. How will we address his problems except in some form of collaborative services?

It has always been difficult to bring all of these various specialists together to chart out a plan such as an IEP because they work in different areas and institutions: hospitals, schools, universities, and so forth. But the need for collaborative services is made clear throughout this text, and many persons are seeking strategies to bring them together to make use of the totality of special skills that no one person could possibly master. A similar problem exists with the individual family service plan (IFSP) designed for preschool-age children with disabilities. The family plays an even stronger role in the IFSPs (Dunst, 2007).

Group discussion in an inclusive classroom.
(© Ellen Senisi/The Image Works)

With a growing number of students with exceptionalities being included in general education classrooms, the roles and responsibilities of teachers have changed. General education teachers find themselves faced with exceptional students who have a range of needs and who require program modifications. Special education teachers are now expected to collaborate with general education teachers in planning and implementing lessons for exceptional students in the general education classroom.

The results of a survey conducted by the Council for Exceptional Children indicate that although the expectations of what teachers will be doing have changed dramatically, not enough is being done to prepare and support teachers as they attempt to make these changes (Coleman, 2001). The report contains the following findings:

- General education teachers are working with greater numbers of children with exceptionalities, yet they have little to no time for collaborating with special educators in planning.
- Both general and special educators feel underprepared for their new roles, yet little is being done to provide additional preparation to address this gap.
- Teacher education programs have not kept pace in preparing graduates for their new roles, so the problem continues to grow.
- Although the range and intensity of students' needs continue to increase, little is being done to provide additional support to teachers working to meet these needs (Coleman, 2001).

Proving That Special Planning Works

Accountability and Standardized Tests

The word *accountability* throws a mild chill into every educator. The general public tells us that we are to be held responsible for the students whom we release from the educational system. No longer will the general public take the educator's word about what progress is being made in education; it wants to be shown. The public wants proof that education and special education produce good results, and it does not react well when told how difficult it is to produce that proof, however valid the reasons (Gallagher, 2006).

In the field of educating exceptional children, the goals of the IEPs might be quite different from one child to another, and so aggregating results into a total report on the special education program may be difficult. For example, if Mary is trying to achieve social acceptance goals and Sam is working on spelling, it would be hard to assess Sam's progress with a social acceptance scale or Mary's progress with a spelling test or to add up all the scores of the special students on these measures as a way of judging progress.

As currently constructed, standard achievement tests do not adequately measure the attainments of many exceptional children. The child with intellectual and developmental disabilities (IDD) may be learning many practical sets of skills and knowledge that are not covered by the standard curriculum and standard tests, and the abilities and attainments of the gifted child will surely be underestimated because of the lack of depth and conceptual complexity of most of these measures.

Currently, most standard achievement tests don't accurately measure the knowledge and skills gains of the exceptional child.

The increasing use of **high-stakes testing** has created special problems for children with exceptionalities because important decisions are based on the results of such tests—decisions as to whether the student receives a diploma or passes from one grade to the next. The Council for Exceptional Children, the major professional association for children with special needs, wants policies that hold programs for exceptional children accountable, as long as the measures used are appropriate:

> a. All students with exceptional learning needs shall be included in all assessment and accountability systems and shall have available the opportunity to participate in general assessments.
> b. Only assessment processes and instruments that have been developed and validated on student samples that included students who have exceptionalities and that validly demonstrate their performance shall be used. (Council for Exceptional Children, 2003, sec. 4, pt. 3, p. 137)

Some new approaches have appeared to supplement the standard achievement tests. They bear such names as *performance assessment, authentic assessment,* and *real-life assessment.* Because performance is

knowledge put to use, **performance assessment** is a measure of the applications of knowledge. If a student is asked to write an essay on a particular topic, that essay could form the basis for a type of performance assessment. If a student is asked to conduct a research project or produce an oral presentation on a topic, that assignment could be a basis for performance assessment (Wiggins, 1992).

Authentic assessment involves the typical classroom performance of the student, rather than a contrived task. Quite typically, it might be an examination of a student portfolio providing evidence of student performance over time. In this way, we have an assessment in real time, using classroom work and assignments as the basis for evaluation.

These forms of evaluation still leave the task of determining just what level of performance is acceptable or outstanding. Often such judgments are rather crude 3-point or 4-point scales ranging from *excellent* to *unacceptable*. Added to that would be a substantive critique of writing style or scientific procedures revealed through the authentic assessment.

Cultural Differences and Assessment

As the student population becomes more diverse, the schools have a special responsibility to appropriately assess students who come from various cultures. A student whose primary language is not English is liable to have his or her abilities or aptitudes underestimated by a standard assessment measure, unless some attention is paid to the individual's special circumstances (National Research Council, 2002). Special attention should be paid to the possible test biases caused by the assumption that the student has had a set of standard experiences in the mainstream culture (Klingner, Blanchett, & Harry, 2007).

As the number of children from Hispanic backgrounds rapidly increases, so does concern about the relationship of special education to such students. As pointed out by Klingner and Harry (2006), the RTI three-tier model noted earlier does seem to have the potential for more appropriate placement and planning.

RTI Model and Minority Students

Many of these students, for whom English is a second language, have difficulty learning in American schools and may be referred to special education as a result. The RTI model Tier II, which allows for remedial work short of referral to special education, should be effective in this situation. The major problem, according to Klingner and Harry (2006), is the RTI assumption that instruction was being adequately provided in Tiers I and II. Their qualitative study of twelve schools through observation in the classroom and in child study teams (CST) did not confirm that good instruction was provided in either tier; consequently, some of these children were referred to special education anyway.

Furthermore, when an assessment of Hispanic students is called for, then someone with demonstrated expertise in bilingual assessment is needed. The many individual cases brought up in this study made it clear that we have a long way to go before adequately attending to the needs of Hispanic students, although attention is now being paid to the preparation of teachers and specialists in bilingual education.

There has been such concern about the assessment of minority students that a panel was established by the National Academy of Sciences to answer key questions of assessment (Donovan & Cross, 2002).

1. *Is there a higher incidence of children with special needs or giftedness among some racial and ethnic groups?* Yes. Disproportionate numbers of minority students are living in poverty. Major differences in measured aptitude between groups are documented at kindergarten entry.

2. *Does schooling contribute to these differences found in racial and ethnic groups?* Yes. Schools with higher concentrations of low-income minority students have fewer well-trained teachers and fewer resources.

3. *Does the current referral and assessment process reliably identify students with special needs and gifts, or is it biased by race and ethnicity?* The answer to this is not clear, although it does seem that minority status increases likelihood that the scores on assessment measures may be depressed.

4. *Is placement in special education a benefit or a risk? Is that outcome different by race or ethnic group?* There are insufficient data for answering the question, but there are substantial data that show that early identification and intervention are more effective than later identification and intervention.

The report clearly calls unwise the current policy of "wait to fail" before referring the student for help. Screening mechanisms exist for early identification of children at risk for reading and behavior problems and should be used to help place students in the proper tier or placement.

We address this issue of ethnic and racial groups and their interaction with special education in many of the subsequent chapters concerning individual categories of children with special needs.

Adapting Technology

Special education has often led the way in the acceptance and use of technology in education. That achievement may well be due to the unique problems that special educators face. Because they are educating children with special needs, they have been willing to try new devices that promise help, such as computers adapted to special needs, hearing aids, print magnifiers, and machines that trace eye movements as the student reads.

There are two quite different uses of technology for children with disabilities: assistive and instructional uses.

Assistive Technology

Assistive technology consists of tools that enhance the functioning of people with special disabilities. For the person who is blind, it provides braille readers and typewriters; for the person who is deaf, hearing aids; for the person who cannot speak, communication boards for pointing to and composing messages. Assistive technology can be as sophisticated as a device that translates print into oral language or as simple as a headband and a pointer that allow students who have cerebral palsy to point to text or communication boards. Such devices have dramatically improved individual children's ability to receive and transmit information effectively and are most often used with children with moderate to severe disabilities that create major barriers to communication. Many of the subsequent chapters include examples of the uses of assistive technology.

Instructional Technology

Instructional technology involves the computer and related tools that support and expand the computer's usefulness. Instructional technology is developed primarily as a means to deliver content and instruction in an appropriate manner to exceptional children. Table 2.5 provides a sample list of assistive and instructional technology devices.

New technologies in the classroom can both assist and instruct the student who is disabled.

Major attempts are being made to go beyond the traditional transmission of knowledge and to use technology as a means to aid exceptional children in thinking and problem solving. Hasselbring (1997) points out that a student may understand how the special characteristics of a camel may help the animal survive desert sandstorms yet fail to understand that this survival illustrates the phenomenon of *adaptation*. When asked about the concept of adaptation, the

The effective use of technology is one important goal for instruction.
(© Purestock/Getty)

TABLE 2.5
Uses of Technology

Assistive Technology	Instructional Technology
Tools for enhancing the routine functioning of people who have physical or sensory disabilities	Computers and related technology for the delivery and support of instruction
• Communication boards • Computer-screen readers • Braille printers • Head pointers • Kurtzweil reading devices for the visually impaired	• Computers and software programs • Phone/fax • Internet • Data compression • CD-ROM • Video discs

Source: Adapted from T. Hasselbring, *Florida's Future in Special Education: Applications of Technology.* Vision 2000 Conference, University of South Florida, Tampa. Reprinted with the permission of the author.

www.abledata.com

student may not realize that his or her knowledge of camels is relevant or is a good illustration of the term.

There is good reason to believe that concept instruction is much more likely than fact-oriented instruction to produce transferable knowledge. That is the reason that major efforts are being made to use technology not just to master specific information but as a tool to help in problem solving. It is especially important for teachers who work with children with exceptionalities to learn how to apply technology to their instruction. For the most part, teachers have been left on their own to learn as best they can, or they have been given short-term training introducing them to the technology but rarely allowing them sufficient time to explore the full potential of these new tools.

For resources, see the book *Computer and Web Resources for People with Disabilities: A Guide to Exploring Today's Assistive Technology;* www.hunterhouse.com

Now, legislation (IDEA, 2004) mandates the mastery of technology on the part of special education teachers. Teachers must now consider the appropriateness of assistive technology as a tool for intervention (Lahm & Nichels, 1999). It can provide access to data and other programs. Even more important, computers allow children to learn at their own rate and provide immediate feedback and reinforcement. The child's learning becomes more active and self-directed. Now the rapid development of the Internet, the World Wide Web, and websites (Grabe & Grabe, 2000) threatens to leave children with special needs behind the rest of their classmates unless special attention is paid to developing these children's skills in accessing and processing the information now available by computer.

Rehabilitation Engineering and Assistive Technology Society of North America www.resna.org

This brief introduction of the four ways the school program can be adapted to meet the needs of children with disabilities—adapting learning environment, adapting curriculum, adapting teaching strategies, and adapting technology—will be repeated for each category of exceptional children.

The Alliance for Technology Access www.ATAccess.org

The Role of the Courts

Another of society's social institutions, the court system, has played a significant role in the lives of exceptional children and their families. It is the duty of the courts to rule on the interpretation of the laws and regulations generated by the executive and legislative branches. If the law says that every child is entitled to a "free and appropriate public education," how does that translate at the community level? Does that mean that a school cannot expel a child with disabilities? Many important court decisions have formed the foundation for special education.

The basic issue here is that children with special needs deserve a free and appropriate public education (FAPE), just as do all children in the United States. If that right is being abridged, or if other inequities are being created, citizens can appeal to the courts for justice and equity. During the past four decades, a series of legal cases solidified the position of exceptional children and their right to FAPE.

Courts have confirmed the right of children with special needs to a free, appropriate public education (FAPE).

A landmark case that began a series of court decisions in favor of exceptional children and their right to FAPE was the *Pennsylvania Association for Retarded Children* (*PARC*) v. *Commonwealth of Pennsylvania* lawsuit and decision. In this case, the court decided that children with mental retardation did have a right to FAPE and that when the state constitution said "*all* children are entitled to a free education," the term *all* did, in fact, refer to *all* children.

The movement toward judicial action was, in part, a recognition of the success of minority groups in using the courts to establish their educational rights. In 1954, with the classic school desegregation case, *Brown* v. *Board of Education*, the courts began to reaffirm the rights of minority citizens in a wide variety of settings. If court decisions could protect the rights of one group of citizens, they should do the same for another group: those with disabilities. Soon, supporters of people with disabilities were working to translate abstract legal rights into tangible social action through the judicial system.

Class action suits have been influential in changing the status of children with disabilities in the United States. A *class action suit* provides that legal action taken as part of the suit applies not only to the individual who brings the particular case to court but also to all members of the class to which that individual belongs. That means the rights of all people with disabilities can be reaffirmed by a case involving just one child. The rulings in several court cases have reaffirmed the rights of those who are handicapped and have defined the limits of those rights.

Rights of Children with Disabilities

- A child with disabilities cannot be excluded from school without careful due process, and it is the responsibility of the schools to provide appropriate programs for children who are different (*Pennsylvania Association for Retarded Children* v. *Commonwealth of Pennsylvania*, 1972; *Goss* v. *Lopez*, 1974; *Hairston* v. *Drosick*, 1974).
- The presumed absence of funds is not an excuse for failing to provide educational services to exceptional children. If sufficient funds are not available, then all programs should be cut back (*Mills* v. *Board of Education*, 1972).

- Children with disabilities who are committed to state institutions must be provided a meaningful education in that setting or their incarceration is considered unlawful detention (*Wyatt* v. *Stickney*, 1972).
- Children should not be labeled "handicapped" or placed into special education without adequate diagnosis that takes into account different cultural and linguistic backgrounds (*Larry P.* v. *Riles*, 1979).
- Bilingual exceptional children need identification, evaluation, and educational procedures that reflect and respect their dual-language background (*Jose P.* v. *Ambach*, 1979).
- An individual with learning disabilities has a right to services whatever his or her age (*Frederick L.* v. *Thomas*, 1980).
- A child with disabilities is entitled to an appropriate, not an optimum, education (*Board of Education* v. *Rowley*, 1982). The *Rowley* decision was the first court decision that suggested that there was a limit to the resources that exceptional children could expect.
- A subsequent case to the *Rowley* decision made it clear that such services, though not optimal, must be more than *de minimus*, that is, must provide sufficient support so the child with disabilities can benefit educationally (*Polk* v. *Central Susquehanna Intermediate Unit 16*, 1988).

Inclusion and Funding Issues

Recently, the attention of the courts has turned to the issues of *inclusion* and *least restrictive environment* and to what an appropriate program for exceptional children should be. The results are a mixture of rulings, some supporting a strong version of inclusion and some supporting a continuum of services (McCarthy, 1994):

- A child with a hearing disability was allowed to attend a school several miles from home instead of a neighborhood school because the centralized program at the special school better met the child's needs (*Barnett* v. *Fairfax County Board of Education*, 1991).
- A child with a serious attention deficit and acting-out behavior should be placed in a special school rather than in the general education classroom (*Clyde & Shela K.* v. *Puyallup School District*, 1994).
- A child with Down syndrome was placed in a general education program rather than in a special education class because of the presumed priority of inclusion in IDEA (*Greer* v. *Rome City School District*, 1991).
- A court ruled that it is the responsibility of the school district to demonstrate that the child's disabilities are so severe that he or she will receive little benefit from inclusion or will be so disruptive as to keep other classmates from learning (*Oberti* v. *Board of Education of the Borough of Clementon School District*, 1993).

Clearly, these rulings reflect the specifics of each individual case and the interpretation of local or district courts. It may take a Supreme Court decision to provide more general guidance on the issue. Nevertheless, when the courts

speak, people listen, because court decisions represent the law as we currently know it and must be obeyed.

The late 1990s saw a much increased set of court cases concerning the provision of services for children with autism, with parents battling the schools for additional services for their children (Lord, 2001). The results of these court cases depended on local circumstances, with both sides (parent or school) prevailing depending on the facts of the case.

There remains a continual flow of court cases dealing with children with special needs (Grzywacz, 2001; Karnes & Marquardt, 2000), but the key decisions appear to have been made in the 1980s and 1990s. The courts have decided that every child is entitled to a free and appropriate education and that education should demonstrate meaningful progress in the development of the child. Current cases appear to deal with refinements of the IDEA regulations, establishment of the minimum required under the *Rowley* decision, various IEP requirements, and so forth (Grzywacz, 2001).

Just as laws have to be enforced and money has to be appropriated, so court decisions have to be executed. The court decisions created the expectation that something would be done, but they did not guarantee it. Closing down state institutions, reorganizing public schools, and providing special services to all children with disabilities were substantial and costly changes. They raised a serious problem for program administrators: where would the money come from for implementation? Ultimately, school and local leaders turned to Washington, pressuring Congress to appropriate funds to help pay for the changes that the courts were demanding. Even with federal assistance, implementation has come slowly.

moral dilemma

The Inclusive Classroom

Two parents are discussing the merits of inclusion (keeping children with disabilities in the regular classroom with their age group). The first parent says, "It is the right thing to do. They should be with their same-age peers. If they are separated, they will get an inferior education. No one will really care what happens to them, and they will feel that they are being segregated and will have bad feelings about themselves as a result."

The second parent nods her head and then says, "Yes, but if they are in the regular class, they will demand the attention of the classroom teacher, who won't be able to give her attention to the other students, and they may well be a disruptive force in the classroom that will downgrade the education of all. We know the schools will say they will have special personnel to help, but we all know it won't be enough."

Write a paragraph on your views on the matter.

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- The social institutions of government, schools, and the courts all have important roles to play in the education of children with special needs.
- Legislation is the vehicle for providing additional resources for children with special needs and also creates the structure that educators must use.
- Instruction can be adapted to the individual needs of exceptional students in several ways: we can vary the learning environment, change the presentation of the curriculum, modify the skills taught, and adapt teaching strategies.
- Many exceptional children come from different cultural backgrounds and have distinctive values, attitudes, and languages. It is the responsibility of special educators to take these differences into account in their special educational plans.
- There is a clear trend for more children with disabilities to be placed in the general education classroom than were so placed ten years ago.
- The response to intervention (RTI) approach, which provides three levels of service rather than two (special education and general education), seems to provide a more effective model for aiding children in need of help in the academic setting.
- Technology can serve two separate purposes for children with disabilities. Assistive technology enhances routine functioning and communication. Instructional technology aids in the delivery and support of instruction.
- An individualized education program (IEP) defines the nature of a child's academic situation, the program's long-term goals and short-term objectives, needed services, and criteria for evaluation.
- *Inclusion* refers to educational situations in which children with disabilities are educated with same-age peers; one major goal is social integration.
- In addition to well-prepared teachers, a support system of educational services is needed to provide continued assistance for those teachers.
- The assessment of exceptional children involves prereferral, screening, diagnosis, classification, placement, instructional planning, and program evaluation.
- Court decisions have validated the right of children with developmental disabilities.
- Courts now require school systems to have strong documentation before moving a child with disabilities from the general education classroom.

Future Challenges

1 ***What is the future role of the courts in protecting the rights of exceptional children?***

During the last part of the twentieth century, the courts played a significant role in affirming the rights of exceptional children to a free and appropriate education. But who is to determine what is "appropriate"? Now that the

courts have ruled, in the *Rowley* case, that it is sufficient for the schools to give reasonable help, clarification is needed as to how much is enough. It is unlikely that the courts have the professional knowledge to make such decisions.

2 ***How should we extend the concept of positive behavior supports?***

Positive behavior supports are designed to replace punishment for inappropriate behavior with the teaching of alternative skills as a means of achieving the desired outcome for the individual student. Such a shift requires modification of training programs to teach functional assessment, which is a way of learning to understand the motivation behind inappropriate behavior. The change in orientation is substantial, and it is not easy to modify existing procedures.

3 ***How do we meet the requirements of No Child Left Behind and the vocational needs of children with intellectual disabilities?***

There seems to be great value in planning a vocational job-oriented program for these children with intellectual disabilities in the secondary schools, perhaps even beginning in the middle school. This requires a different curriculum and activities. But the requirements of NCLB to receive the common curriculum and be tested on it is in conflict with the needs of these students. How will the schools reconcile these differing objectives?

Key Terms

academic aptitude p. 47
assessment p. 40
assistive technology p. 65
authentic assessment p. 63
context of the child p. 36
continuum of services p. 44
diagnostic achievement tests p. 48
ecology of the child p. 36
executive function p. 48
high-stakes testing p. 62
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individualized education program (IEP) p. 53
instructional technology p. 65
interindividual differences p. 46
least restrictive environment p. 57
performance assessment p. 63
standard (norm-referenced) achievement tests p. 49
transition services p. 41
universal design for learning (UDL) p. 59

Resources

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National Research Council (2002). *Minority students in special and gifted education.* Washington, DC: National Academy Press. A comprehensive report examining issues that lead to the disproportionately high representation of culturally and linguistically diverse students in special education and to their disproportionately low representation in gifted education. Complex factors that create additional risk for children living in poverty are presented. These risk factors are discussed in terms of their impact on students' achievement and behavior in school settings. Recommendations for policy and practice are offered.

Paul, J., Lavely, C., Cranston-Gingras, A., & Taylor, E. (Eds.) (2002). *Rethinking professional issues in special education.* Westport, CT: Ablex. The focus of this volume is on the professional preparation of specialists working with children with disabilities. The issues cover everything from high-stakes testing to working with families to professional development partnerships and distance learning. The book emphasizes restructuring university and public school relationships and unique discussions of professional ethics.

Salvia, J., Ysseldyke, J. & Bolt, S. (2007). *Assessment* (10th ed.). Boston: Houghton Mifflin. A comprehensive book that covers all aspects of assessment, including both formal and informal measures, and that provides a basic discussion of measurement and its various problems. A special chapter is provided on how to adapt tests to accommodate children with disabilities. Special chapters are devoted to the assessment of perceptual-motor skills, socioemotional behavior, and adaptive behavior.

Journals

Teaching Exceptional Children
www.cec.sped.org/bk/abtec.htm/

Remedial and Special Education
www.proedinc.com/journals.htm/

Journal of Special Education
www.proedinc.com

Educational Leadership
www.ascd.org

Exceptional Children
www.cec.sped.org

Journal of Special Education Technology
jset.univ.edu

Professional Organizations

Council for Exceptional Children
www.cec.sped.org

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PART TWO

High-Incidence Exceptionalities

The seven chapters in Part 2 are devoted to children who make up more than 1 percent of the population of school-age children in the United States. Chapters 3 through 9 focus on supports and services that are available in early childhood on learning disabilities, intellectual and developmental delays, emotional and behavior disorders, communication disorders, autism spectrum disorders, and gifts and talents. The high numbers of children with these exceptionalities reinforces the critical need for the supports and services that are described in these chapters.

CHAPTER

3

Early Intervention Supports and Services

FOCUS QUESTIONS

- In what ways did research and changing beliefs about child development set the stage for early intervention?
- Why is early intervention so important for infants and toddlers with disabilities ?
- Why is family involvement in early intervention so critical, and what is family-centered early intervention?
- How do we identify children who are in need of early intervention?
- Why is a multidisciplinary team essential in the provision of early intervention services and supports?
- What are the five developmental domain states used to define developmental delays in young children?
- How can early intervention improve the functioning of infants and toddlers with disabilities?
- What are the critical transition points for families and children during early intervention, and how can these be navigated successfully?
- What is an IFSP and how does it help support children with special needs?

The birth of a child is a wondrous event. It is a time filled with expectation, anticipation, and excitement. It can also be an overwhelming time for parents as they learn how to meet the needs of their new little one. The challenges of feeding, changing, and calming a newborn can feel daunting, especially when parents are trying to manage all of this in a sleep-deprived state. Under the best of circumstances, the anxiety of caring for a newborn can be intense (Nugent, Keefer, Minear, Johnson, & Blanchard, 2007a).

Newborns enter the world with a vast array of skills and abilities that will help them negotiate their early lives. The newborn prefers visual stimuli with clearly contrasting patterns; orients early to the mother's face and voice, recognizing these as distinct from a stranger's; and is biologically wired to seek social contact (Nugent et al., 2007a). These early skills and abilities help the newborn and the mother form a bond that is critical to both during the first few weeks of life. The mother and father learn together how to communicate and respond to the needs of the infant. During this process, the mother gains confidence when her baby is happy, calm, and responsive, and the baby begins to thrive within this supportive environment (Quesenberry, Ostrosky, & Corso, 2007). All of this takes place in the greater context of the family and the environmental circumstances within which the family lives.

The newborn and the mother, family, and environment form a set of complex relationships that are an interdependent system and that facilitate the optimal development of the child (Dunst, 2007; Guralnick, 2005; Reis, 2003). When challenges exist within any of these components (the child, the mother and family, or the environment), they can affect the health and well-being of the baby (Dunst, 2007; Guralnick, 2005; Reis, 2003). The purpose of **early intervention** is to provide necessary supports and services to optimize the child's development as early as possible. Each of the chapters that follow also briefly addresses young children with specific disabilities and/or talents, but because of the importance of early development, we have devoted this chapter to young children. In this chapter, we explore the world of early intervention, looking at the supports and services that are available to help ensure that each family has what is needed for the optimal development of their child. We review the history of early intervention, look at early childhood as a developmental period, explore the risk factors and stressors that can lead to difficulties, and examine the roles of families and professionals working together to meet the needs of young children.

The purpose of early intervention is to provide necessary supports and services needed for optimizing the child's development as early as possible.

History of Early Intervention

Although the benefits of early intervention are widely accepted today, this has not always been the case. Early intervention supports and services are a logical extension of early childhood programs, which have a long history in the United States, beginning in the late 1930s (Noonan & McCormick, 2006). Historically, programs known as nursery schools or preschools were an outgrowth of psychologists' concerns for children's mental health (Cairns, 1983), which psychologists believed was fostered by positive child-rearing practices during the first years of life (Anastasiow & Nucci, 1994). Children with disabilities, however, were excluded from most of these programs. The prevailing opinion was that little could be done for a child with disabilities because intelligence and abilities were fixed at birth and therefore could not be changed. As a

In the early 1900s, the belief that a person's abilities were fixed at birth and could not be changed resulted in many children with disabilities being placed in institutions.

result of this belief, parents were encouraged to place children with disabilities in institutions and orphanages, where they often received only custodial care.

In the 1930s, the belief that nothing could be done to improve outcomes for children with disabilities was dramatically challenged when Drs. Harold Skeels and Harold Dye performed a seminal research study (Noonan & McCormick, 2006). These researchers found that children who were placed in foster homes or who were adopted fared much better than did a comparable group of children who remained in an orphanage (Skeels & Dye, 1939). The fostered-adopted group achieved normal intelligence, whereas many of the institutionalized children were classified as mentally retarded. Amazingly, these gains seemed to hold for the fostered-adopted group into adulthood (Skeels, 1966). Samuel Kirk, lead author of this text (1950), further demonstrated that preschool experience could increase the rate of mental development and the social skills of children who were classified as mentally retarded. The belief that children's potential was fixed at birth was beginning to give way to the exciting idea that, with the right supports and services provided early on, we could significantly improve outcomes for children who were "at risk."

The belief that children's potential was fixed at birth was beginning to give way to the exciting idea that we could significantly improve outcomes for children who were "at risk."

One of the longest running studies of the importance of early intervention is the Abecedarian Study that began in 1972 and continues through today. Abecedarian was a prospective randomized trial in which infants were randomly assigned to experimental and control groups and which examined the impact of quality early child care on children from economically disadvantaged families

(Winton & Buysse, 2006). Children entered the study during the first half of their first year (4.4 months on average) and were provided quality child care through the preschool years and included some special curricular opportunities. Both the experimental and control samples have been followed into adulthood.

On measures of intelligence, the two groups differed with the experimental group showing modest gains of 12 IQ points at year four to 4 IQ points at year twenty-one. The differences in IQ scores diminished between measures in early childhood and adulthood but differences in educational attainment remained.

As young adults, the experimental group earned reading scores 1.8 grade levels higher and math scores 1.3 grade levels higher than the control group. They were more than twice as likely to enroll in a four-year college or university (36 percent to 14 percent) and were less likely to have their first child at age eighteen or younger (26 percent versus 45 percent) (Campbell & Ramey, 1995; Campbell, Ramey, Pungello, Miller-Johnson, & Sparling, 2002; Winton & Buysse, 2006). A later study of the groups as adults showed the experimental group less likely to report depressive symptoms (McLauglin, Campbell, Pungello, & Skinner, 2007). A second major longitudinal study of the impact of early intervention is the High/Scope Perry Preschool Study. In this study, 123 African American children, born in poverty and identified as at risk for school failure, were randomly assigned at ages 3 and 4. One-half of the group received the High/Scope participatory learning approach in preschool, whereas the other half did not receive preschool services. The long-term outcomes—looking at these individuals as adults at age 40—showed positive gains for the group that attended preschool (Schweinhart et al., 2005). The reported positive gains included 19 percent fewer arrests, 20 percent more high school graduations, and 20 percent higher earnings for the group who attended preschool (Schweinhart et al., 2005).

One of the best sources of how caregiver practices can influence child development is the Kauai Longitudinal Study, conducted from 1952 to 2000 (Werner & Smith, 1992; 2001). The study followed individuals from their prenatal care through age 40 and demonstrated that many children who were at risk for developmental delays could achieve success (Werner, 2000). The study showed that child-rearing practices, such as providing a home environment of psychological warmth, low physical punishment, responsiveness, verbalness, and intentional encouragement for development, can help at-risk children achieve normal milestones (Werner, 2004). These child-rearing practices help heal the negative effects of a difficult or abnormal birth (Kolvin, Miller, Scott, Gazonts, & Fleeting, 1990; Rutter, 2000; Werner, 2000). These seminal studies paved the way for the acceptance of early intervention as critical for improving outcomes for children with disabilities.

Why Is Early Intervention So Important?

The first years of life are a critical developmental time, laying the foundation for all that is to come. From birth to the age of 3, the brain develops rapidly (Sandman & Kemp, 2007). Information from the environment is stored in pathways in

the brain that are ready to receive it. During this period, the basic "self" emerges through a dynamic relationship with the caregivers and the environment, and this provides the foundation for autonomous emotional functioning (Guralnick, 2005). Language emerges during these early years, and during this time the child learns how to cope with the world. The infant is learning at a staggeringly fast rate, and the rapid development of the brain in these early years sets the stage for all further learning. If information is not provided through experience, the brain's neural pathways are unused; conversely, if enriched experiences are provided, they actually help to build a more efficient brain (Freberg, 2006; Sandman & Kemp, 2007).

We can see, for example, the dramatic impact of early intervention with children who are deaf. When they learn sign language by age 2, children who are deaf are more successful academically than they are if signing is not taught to them until age 6 (Moeller, 2000). The early use of sign language allows children who are deaf to communicate, and this allows them to develop relationships, expand their thinking, and build their self-confidence (Goldin-Meadow, 1998; Moeller, 2000). The ability to communicate one's needs, fears, and desires reduces the frustration a child experiences, and so early sign language instruction also helps prevent secondary social and emotional problems that might develop for the child (Odom, Rogers, McDougle, Hume, & McGee, 2007). We may see a similarly dramatic effect of early intervention with many children who have speech difficulties. When interventions are activated by age 3, many children with speech difficulties are problem free by age 5. The first step in early intervention is identifying children who need additional supports and services.

Assessing the child's strengths and needs is essential to planning appropriate interventions.

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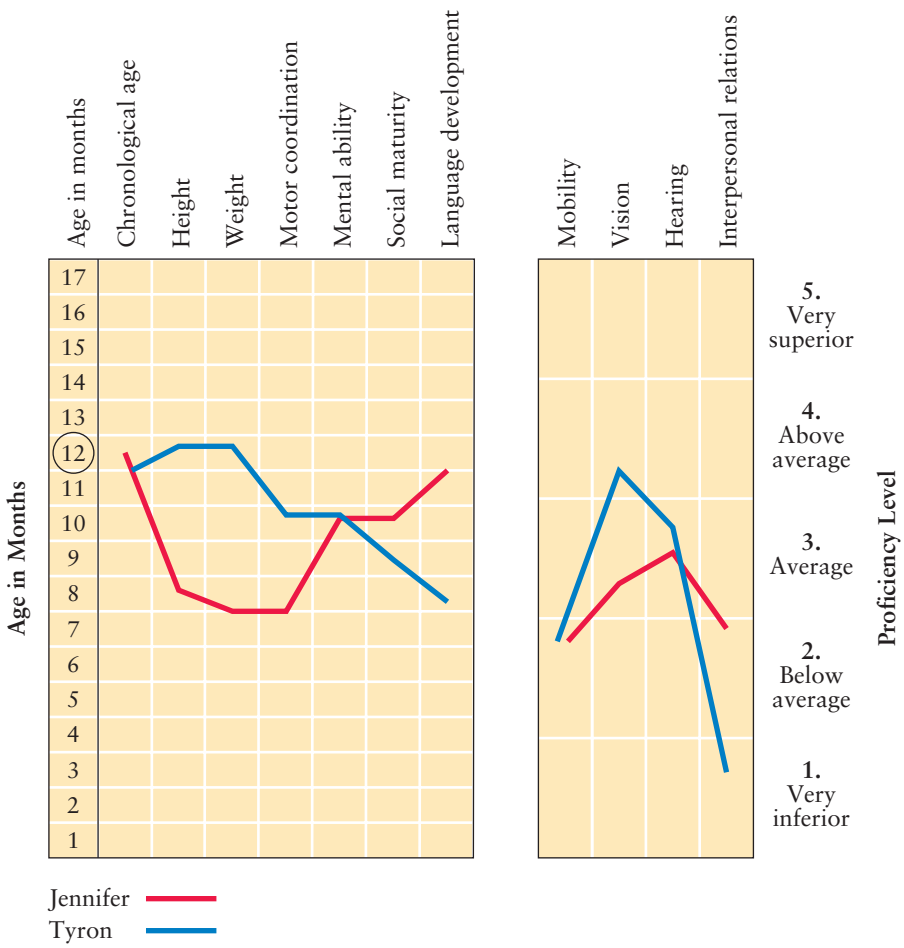
PROFILES OF TWO STUDENTS

Characteristics of Two Students Who Need Early Intervention Supports and Services

Children can need early intervention supports for a wide variety of reasons. We look at two children, Jennifer and Tyron, to see how needs for early intervention can differ from child to child.

Jennifer: Jennifer was born at 28 weeks' gestation and is a preterm infant. Her parents were told that she would need to spend her first few months in the hospital's neonatal care unit with oxygen support because her respiratory system was immature. Jennifer's early birth and prolonged hospital stay have been very stressful for her mother, Sandra, and her father, Tony. Sandra and Tony knew that the pregnancy was considered to be high risk because of Sandra's age and health, and so they had prepared early for their daughter's birth; but no prior knowledge could prepare them for the anxiety and worry they faced as they watched their tiny daughter fight for her life. Sandra and Tony felt helpless, knowing there was little they could do for Jennifer. They visited the hospital every day, and the neonatal care nurses encouraged them to hold and feed Jennifer on these visits. In the early weeks, Sandra often left the hospital in tears, feeling that she had let Jennifer and Tony down by not being able to carry the pregnancy to full term. When they finally were able to take Jennifer home, both parents were concerned that they would not be able to meet her

(*continued*)



Profiles of Jennifer and Tyron

needs. The family was referred to the local early intervention program, and home visits were set up through the visiting nurse's agency. These supports were critical to building Sandra and Tony's confidence in their parenting. We meet Jennifer again later in the chapter to see how she is doing.

Tyron: Tyron's need for early intervention was not recognized until several months after his birth. He had been carried full term, and there were no complications. His early development seemed relatively normal, and, because Tyron was their first child, Michael and Laura were not really sure what to expect. Laura had gone back to work when Tyron was 3 months old, and things had settled down in the family routine. When Tyron was 10 months old, however, Laura started to feel uneasy. Tyron seemed different from some of the other babies in the child care center. When Laura would go to pick him up, he was fine, but he did not seem to know her in the same way that other babies recognized their mothers. She watched as other mothers called out their children's names when they entered the room, and she saw how their children's faces brightened at the sight of their mothers. She also noticed that the other babies responded to their mothers' voices with smiles and "baby talk." Tyron was calm but seemed not to realize that she was there to pick him up. At first Laura kept her worries to herself, reassuring herself that Tyron seemed content and was just quieter than other children. Because Laura had had mixed feelings about going back to work, she also felt that maybe it was somehow her fault that Tyron did not seem to recognize her. When she finally shared these worries with Michael, he reassured her that Tyron seemed fine to him. But Laura continued to feel that something was not right. To reassure her, Michael agreed that they should to talk with Tyron's pediatrician, Dr. Nolan, on their next visit, his one-year well-baby checkpoint.

In preparation for this visit, Laura made a list of her concerns about Tyron: "He does not recognize his name when I call to him; he does not seem to know me when I come to get him; unless he is upset, when his tantrums can be fierce, he's so quiet. And he does not seem to want to play with us; he seems not to hear us when we talk to him–could he be deaf?" As she reviewed her list, she felt that she might be being silly, and she hoped the pediatrician would tell her not to worry. Tyron's health checkup went well. He had gained some weight, and everything seemed normal. Dr. Nolan was surprised when Laura burst into tears after the doctor asked if Laura had any concerns. Laura was also surprised by the intensity of her feelings as she described her fears about her son's behavior. Dr. Nolan listened carefully and jotted down notes into Tyron's file. When Laura had finished, Dr. Nolan shook her head and said, "Well, this is probably all normal, and Tyron is likely just fine, but, Laura, I think we would all feel better if we look into your concerns a bit further." After an initial screening showed some problems, Dr. Nolan recommended

that a full assessment for possible developmental delays be completed with Tyron. Laura left feeling both relieved that her concerns had been validated and that something would be done and more worried that something might be wrong with her son. Laura and Michael met with a multidisciplinary team to help with the assessment. The results from this assessment showed that Tyron did in fact have some developmental delays, confirming Laura's worst fears. The team also recommended that a follow-up assessment be completed when Tyron was 2 years old. The family immediately began working with the multidisciplinary team to develop an individual family service plan (IFSP) to meet Tyron's needs. We will learn more about the multidisciplinary team and the plan they developed for Tyron later in the chapter.

What we can see from Jennifer and Tyron's stories is that the needs for early intervention can vary widely from child to child. The shared theme, however, is that the child and family need additional supports to help them thrive. Later in the chapter we will learn about these supports and how they can be delivered.

Defining Early Intervention

Early intervention consists of sustained and systematic efforts to provide support to the family—as well as caregivers—and to the child in order to promote optimal development for children who have developmental delays and/or disabilities during their early childhood years (Noonan & McCormick, 2006). Early intervention supports and services may address the needs of the child and the child's family during pregnancy, infancy, and/or the prekindergarten years (Rous & Hallam, 2006). A critical component of early intervention is strengthening the parents' capacity to meet their child's needs (Dunst, 2007; Turnbull & Turnbull, 1997). **Family-centered early intervention** means working to ensure that the parents or caregivers are able to meet the child's needs. This is critical because the parents or caregivers are central to the well-being of the child (Dunst, 2007; Turnbull & Turnbull, 1997). In some states the definition of "early childhood" extends to children through age 7, and thus first and second graders are included within this population. In this chapter, however, we focus on children's earliest years, from conception through age 5.

Legislation on Early Intervention

Legislative support for young children with disabilities began in 1968, when Congress passed the Handicapped Children's Early Education Assistance Act

Parents are key to the success of early intervention for the child.
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(HCEEAA; Gallagher, 2000). This act set up twenty model programs across the United States to demonstrate how working with children with disabilities could improve their lives. During the 1970s and 1980s the legal rights of young children with disabilities were addressed in legislation. They were included in Head Start classrooms, and the age range of individuals served by PL 94-142 was extended to encompass children from birth to age 21 (Noonan & McCormick, 2006). You may want to look back at Chapter 2 as you think about the legislation for young children in the context of other laws.

Today, the needs of young children are addressed in two sections of the 2004 Individuals with Disabilities Education Act (IDEA). Infants and toddlers (children from birth to age 2) with disabilities and/or developmental delays are addressed in IDEA, Part C, which encourages states to develop comprehensive, coordinated, multidisciplinary early intervention systems (Council for Exceptional Children, 2007; Guralnick, 2005). Part C also stipulates that early interventions should be provided, to the maximum extent possible, in **natural environments**, or settings that are typical for children who do not have disabilities (Noonan & McCormick, 2006). Children with disabilities age 3 through 5 are addressed in Part B of IDEA, which provides funds for states to ensure that all preschool-age children with disabilities receive special education and related services (Council for Exceptional Children, 2007).

The 2004 reauthorization of IDEA further emphasizes the need to provide services to all members of the family, recognizing the importance of the family in the child's development (Council for Exceptional Children, 2007; Cryer & Clifford, 2003). IDEA 2004 requires transition planning across the early years, because services for children from birth through age 2 and for children age 3 through 5 are addressed in different ways, and families often have to navigate complex networks of agencies as their children move across the age span of early childhood (Rous & Hallam, 2006). Navigating these complex networks is essential, however, because securing the services and supports needed for the family and child can be critical for a child's optimal development.

The needs of young children are addressed in parts B and C of the Individuals with Disabilities Education Act (IDEA) of 2004.

IDEA is also influencing our thinking about how we meet the needs of young children with disabilities and developmental delays in early childhood through the use of response to intervention (RTI) approaches. The philosophy of early intervention is central to the RTI approaches being used with school-age children, and we are now seeing adaptations of RTI for preschool children (Barnett, et al., 2006; Coleman, Buysse, & Neitzel, 2006a). One such adaptation is the recognition and response model (Buysse & Snyder, 2007; Coleman, Buysse, & Neitzel, 2006b). The recognition component of this model focuses on universal screening and progress monitoring to look at the child's needs; the response aspect focuses on providing the child and family with the supports needed to help the child become successful.

The recognition and response approach incorporates the elements of RTI that are most compatible with early intervention for preschool children, including a focus on providing a high-quality learning environment, conducting universal screening for all children, the use of evidence-based curricula, the emphasis on providing supports to children as soon as a difficulty emerges rather than waiting for a formal label, tailoring instruction to meet the child's needs, and working with parents to provide the support (Coleman et al., 2006a). The use of intervening hierarchies, or tiered service delivery, is also compatible with current early childhood approaches (VanDerHeyden & Snyder, 2006; Brown, Odom, & Conroy, 2001). Later in the chapter we look at how early intervention services and support can be provided for young children within the RTI framework. The earliest interventions begin with prenatal and neonatal supports.

The recognition and response approach incorporates the elements of RTI that are most compatible with early intervention for preschool children.

Prenatal and Neonatal Identification of Special Needs

The age span addressed by early intervention typically includes children from birth through age 5, and, as we saw with Jennifer and Tyron, the need for early intervention can be identified at any point during this time. Some disabilities are recognized very early on—at the birth of the child or even prenatally—whereas other needs do not become apparent until later. Table 3.1 shows some of the disabilities that we can identify prenatally and at birth.

A variety of screening procedures help us monitor the progress of the pregnancy and assess the early developmental health of the infant.

Prenatal Blood Screening Tests

Three kinds of blood screenings can be done during early pregnancy: the alpha-fetoprotein test and a test for two maternal hormones. Any of these can indicate increased risk and the need for further screening (March of Dimes, 2008). The **alpha-fetoprotein test** is a blood test that is offered to all pregnant women. The fetus passes substances into the mother's blood, which can be examined to detect some disabilities. The blood sample is taken at around sixteen weeks' gestation and can identify potential problems for the fetus that include neural tube defects (a defect involving the spinal column or brain), Down syndrome, and spina bifida. Because levels of fetal spinal fluid in the mother may vary, the results of these tests may or may not be accurate predictors of a disability; thus two other steps—sonography and amniocentesis—are recommended to further explore whether a potential problem actually exists. Abnormal amounts of two hormones, low levels of estrial, and high levels of human chorionic gonadotropin suggest an increased risk of Down syndrome (March of Dimes, 2008).

Sonography (Ultrasound)

Sonography, or ultrasound, is the use of sound waves to take a picture (similar to an x-ray) of the fetus. This picture allows specialists to determine the position

TABLE 3.1
Examples of Disabilities That Can Be Identified Prenatally and at Birth

Disability	Time Period of Identification	Screening/Assessment Needed	Recommended Interventions
A. Down syndrome (mental retardation) B. Spina bifida C. Tay-Sachs/ Sandhoff	Prenatally (14–16 weeks of gestation)	1. Alpha-fetoprotein blood test 2. Maternal hormone blood test 3. Ultrasound 4. Amniocentesis	A. Family support; medical screening for health needs; early services for language development; related services as needed (e.g., occupational therapy, physical therapy, etc.) B. Early medical treatments; physical therapies as needed C. There is currently no cure for Tay-Sachs, and the disease is fatal.
Serious developmental delays	Immediately after birth	Apgar test	Infants with lower than average Apgar scores should be monitored closely to see whether developmental and/or medical problems exist.
Hypothyroidism	Immediately after birth	Blood test	Thyroid supplement
Phenylketonuria (PKU)	When infant is 1 week old	Blood test	Use breast feeding, or formulas with reduced phenylalanine and monitor protein and vitamin needs
Sickle cell anemia	When infant is 1 week old	Blood test	Dosage of penicillin at 2 months and at 5 years
Galactoseria	When infant is 1 week old	Blood test	Dietary modifications

of the fetus and possibly detect defects such as microcephaly (small head). It also detects the sex of the child and indicates whether there is more than one fetus (March of Dimes, 2008).

Amniocentesis

Amniocentesis is a relatively safe test in which a needle is inserted into the placenta (with the help of ultrasound to ensure that the needle does not damage the fetus) at 14 to 17 weeks' gestation (March of Dimes, 2008). The fluid can be

analyzed to determine a number of (but not all) disabilities, such as Tay-Sachs, Down syndrome, and spina bifida. While having information about the possible disabilities of your unborn child could be very helpful, this information could also cause difficulties if parents-to-be have not thought carefully about their responses to this news.

Detecting Potential Problems Shortly After Birth

Can a physician or other professional tell whether an infant has a disability or is at risk for a disabling condition within the first few minutes of the child's birth? When a child is born, the physician administers the first screening test to determine whether the infant has any identifiable problems or abnormalities (Nugent et al., 2007a). Screening tests are simple tests that are easy to administer and that separate infants without serious developmental problems from those who have a disability or are suspected of being at risk for a disabling condition (Anastasiow, Frankenburg, & Fandall, 1982). The first infant screening is done in the hospital at one minute and five minutes after birth. It is known as the **Apgar test**, after Virginia Apgar, who developed it in 1952. When a child is born, the physician administers the Apgar test to determine whether the infant has any identifiable problems or abnormalities.

In administering the Apgar test, the physician examines the infant's heart rate, respiratory effort, muscle tone, and general physical state, including skin color. A blue cast to the skin, for example, may indicate breathing or heart problems. Jaundice at birth is indicated by a yellow cast to the skin and eyes. A serious disorder, jaundice reflects the failure of the liver to process adequately because of its immaturity; as a result, bilirubin can accumulate. Many infants with jaundice recover in about a week. In more serious cases, the infant is placed under fluorescent lights for a day or two. This light treatment helps the infant process the bilirubin until the liver can function normally (Batshaw & Perret, 1992).

An infant with a below-average Apgar score at one minute or five minutes after birth is monitored by the physician to determine whether a disability or medical problem exists and whether medical intervention is needed. Lower than average Apgar scores are not necessarily predictive of disabilities, but they do serve to alert the physician that the infant may have special needs.

Because hearing impairments should be detected as soon as possible in order for the child to make desired developmental progress, universal hearing assessment is recommended at birth.

More recently the newborn behavioral observations (NBO) approach is being introduced to help parents and professionals understand the preferences and vulnerabilities of the newly born infant (Nugent et al., 2007a). The NBO approach can be used in a variety of settings and helps sensitize parents to the competencies and needs of their baby. This approach builds on naturalistic observations of the caregiver and infant to help create an optimal support system for both the family and the child (Nugent, Blanchard, & Stewart, 2007). Using the NBO, the clinician partners with the parent to understand the infant and models strategies to help the parent gain in confidence and parenting skills (Nugent & Blanchard, 2006). Through a series of observations, an understanding is formed of the infant's unique traits and temperament, and this knowledge allows the parents to better respond to their baby's

Using the newborn behavioral observations approach, professionals and parents can learn together how the infant communicates his or her needs.

The parent and professional work together to observe the infant's strengths and learn how the infant communicates.

needs. The patterns revealed by the NBO approach can also help parents and clinicians decide whether further developmental assessments are needed (Levine, 2006).

Child Find for Children Who Need Early Intervention

Not all disabilities can be recognized prenatally or at birth, and so most states have developed extensive **Child Find** networks to help locate young children who may need additional supports in their early years.

Child Find is a critical component of the law. The Individuals with Disabilities Act (IDEA 2004) requires that states identify, locate, and evaluate all children from birth to age 21 who are in need of early intervention services or special education (U. S. Department of Education Child Find Project, 2007). Some state Child Find programs involve a continuous process

of building public awareness to increase the referral and identification of children and families in need of early intervention supports. Child Find programs include the following elements (U. S. Department of Education Child Find Project, 2007):

- Definition of target population(s)
- Public awareness campaigns
- Referral and intake processes
- Screening and identification procedures
- Eligibility determination criteria
- Tracking and monitoring services
- Interagency coordination

Child Find services are coordinated at the state level with services for infants and toddlers covered under Part C of IDEA and with services for preschool children who require special education that fall under Part B. This means that in some states two agencies have responsibilities for services as the child progresses from birth through preschool. Once a child is "found," the next step is to determine whether he or she is eligible for early intervention services.

Eligibility requires that a child receive a comprehensive individual evaluation *and* that this evaluation be conducted in the child's primary language (Council for Exceptional Children, 2007). In addition to the services for young children with identified disabilities, early intervention may be provided for children from birth to age 2 who have developmental delays. Developmental delays are defined by each state and can occur in any of the five critical domains: cognitive, communicative, social-emotional, motor, and adaptive development. The purpose of early support for children who may have developmental delays is twofold: first, to optimize early development; and, second, to prevent secondary problems from emerging.

Developmental delays are defined by each state and can occur in any of the five critical domains: cognitive, communicative, social-emotional, motor, and adaptive development.

Children with Developmental Delays

Infants develop at varying rates. Some sit at 6 months of age, others at 4 months, and still others at 8 months (Lundy, 2003). Some walk early, and some walk late. These variations are the major reason for being cautious when deciding whether an infant or toddler has developmental delays.

Delays in development are identified by comparing a child's development in the five key domains with the development of other same-age children. The average ages of a task's accomplishment are put together in a **developmental profile.** If, for example, a child does not sit, stand, walk, or speak with in the age range at which most children in his or her culture have acquired these

Children learn through play and develop through interactions with their environment.
(©Bob Daemmrich/The Image Works)

skills, a disability or developmental delay is suspected. So what are some typical developmental milestones? Figure 3.2 shows some milestones for typical development that can serve as benchmarks for concerns regarding a child's development.

Although understanding typical developmental milestones is helpful when we are learning about children with special needs, a chart such as the one in Figure 3.2 can make things seem rather simplistic and static. We must remember that the early development of a child is anything but simplistic and is certainly not static.

The early development of a child is anything but simplistic and is certainly not static.

Children develop through a series of interactions with their family and other caregivers and with their environment (Guralnick, 2005). These constant interactions shape who the child is and who he or she is becoming. When the early care and environment are optimal, the child's development is enhanced. This is the reason why early intervention is family-centered and works to enhance the capacity of the family to meet the child's needs (Dunst, 2007). When stress enters these dynamic relationships in any way, the child's development may be compromised. Figure 3.3 shows how stressors can affect these relationships, jeopardizing the optimal development of the child (Guralnick, 2005).

In Figure 3.3 we can see that stressors may include inherent challenges for the child. Remember Jennifer and the challenges she faced as a preterm infant? Jennifer's challenges were not over when she was finally discharged to go home. At home she continued to have difficulty with feeding, and her sleep patterns seemed to be reversed. She was most alert and wakeful at night when things were quiet and seemed to be drowsy and fussy during the day. Jennifer also cried a great deal and it was very difficult to calm her down. Her mother, Sandra, felt

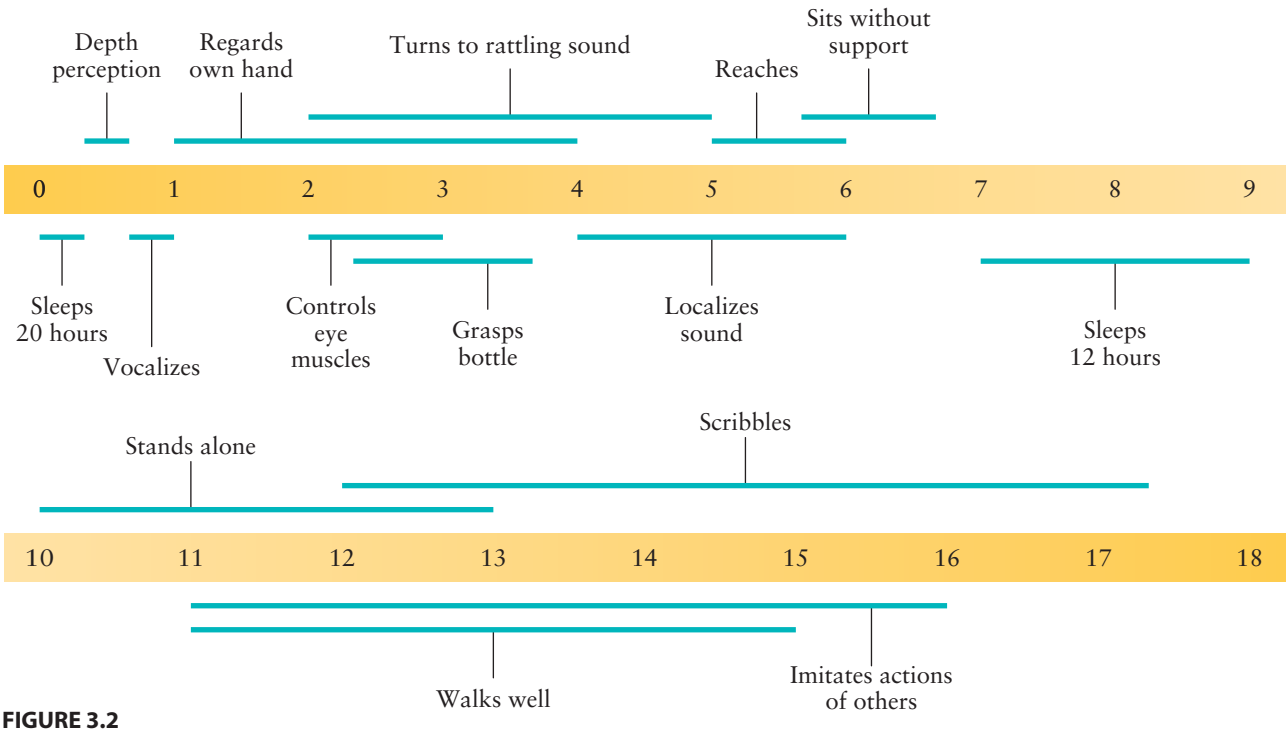


FIGURE 3.2
Typical Developmental Milestones

From www.brainconnection.com/topics/?main=fa/child-brain. © Posit Science Corporation. Reprinted by permission.

like nothing she did for Jennifer seemed to be right, and this growing feeling of incompetence made her wonder whether Jennifer may have come home too soon. The visiting nurse, Tammy, was well versed in the newborn behavioral observation system (Nugent et al., 2007a), and she was able to remind Sandra that Jennifer's physical development was still catching up to her full-term birth date and that Jennifer was likely to become overstimulated very easily. Tammy also helped Sandra understand that during Jennifer's earliest weeks of life she was in a busy, noisy, neonatal unit and that this activity actually helped Jennifer sleep. Sandra used this information to begin adapting the environment to gradually allow Jennifer to sleep with less external stimulation. Throughout this process, Sandra's confidence began to grow. For Jennifer and her family, her preterm birth and early complications placed her at risk for developmental delays and added stress to the system making the early parenting patterns more complicated. Stress can also be added to the system in other ways, through a variety of factors that can put the child at risk for developmental delays.

What Puts Children at Risk for Developmental Delays?

Infants are considered as being at risk for developmental delays because of low birth weight, prematurity, or the presence of serious medical complications (March of Dimes, 2008). Researchers have identified three general categories of conditions that put children at risk: genetic disorders, events occurring during pregnancy and birth, and environmental stressors (Batshaw, 2002).

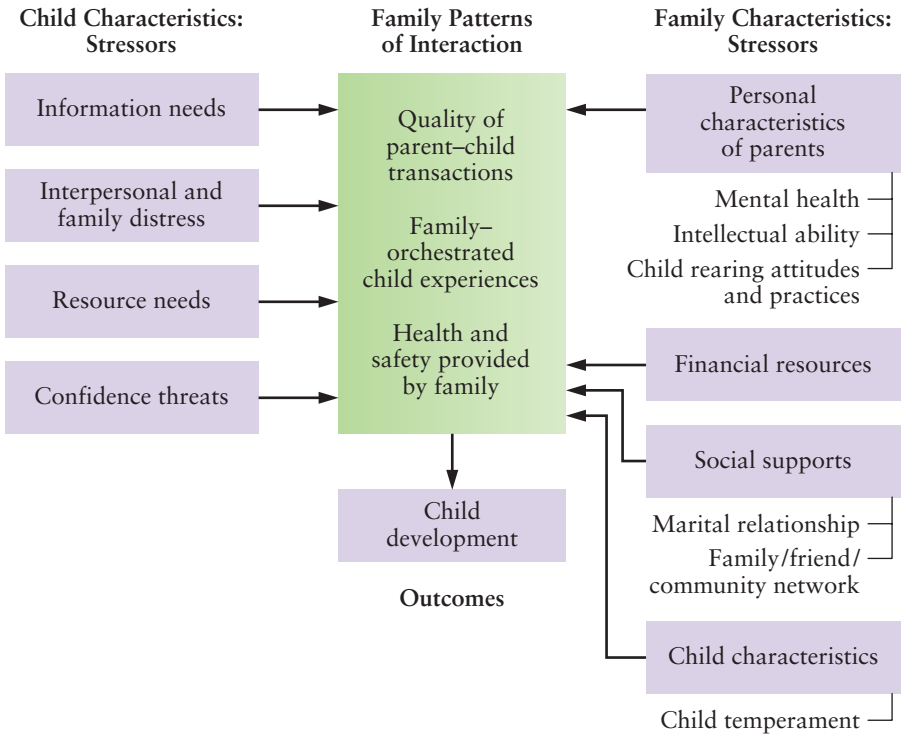


FIGURE 3.3
Potential Stressors that Affect Optimal Early Childhood Development

Source: Guralnick, M. J. (2005). The developmental systems approach to early intervention (pp. 11 Fig. 1.1 and 14 Fig. 1.2). Baltmore: Brookes. Reprinted by permission.

Genetic Disorders

Human Genome Project
www .ornl.gov/sci/techresources/Human_Genome/home.shtml

Genetics is one of the most exciting areas in which new knowledge is increasing our understanding of human development. Chapter 1 discusses emerging genetics knowledge in detail. The Human Genome Project has led the way in helping us understand the role of genes in human variation, including how and why cognitive disabilities occur (Tartaglia, Hansen, & Hagerman, 2007). Figure 3.4 illustrates the male and female chromosomes which make up the human genome. There are approximately thirty thousand genes in the human genome, and more than one thousand different genetic causes of mental retardation have been identified (Tartaglia et al., 2007). Genetic-related causes of learning disabilities and autism are also emerging as we learn more about the role of genes in setting the stage for cognitive development.

The first opportunity to detect potential genetic disorders actually occurs before conception, in **genetic counseling.** A counselor interviews the prospective parents about their families' histories of disabilities and analyzes samples of the clients' blood to determine whether they carry any problematic genes that might be passed on to their children. Individuals may choose to receive this counseling before a child is conceived. A genetic counselor can calculate the probability or odds of a couple's having a child with a disabling condition or a genetic disorder (March of Dimes, 2008), *but the counselor cannot confirm whether the child will be born with or without disabilities*. If the parents have a high probability of having a child with disabilities, the expectant mother may choose to have additional testing to determine whether the child she is carrying may have a disability. Because

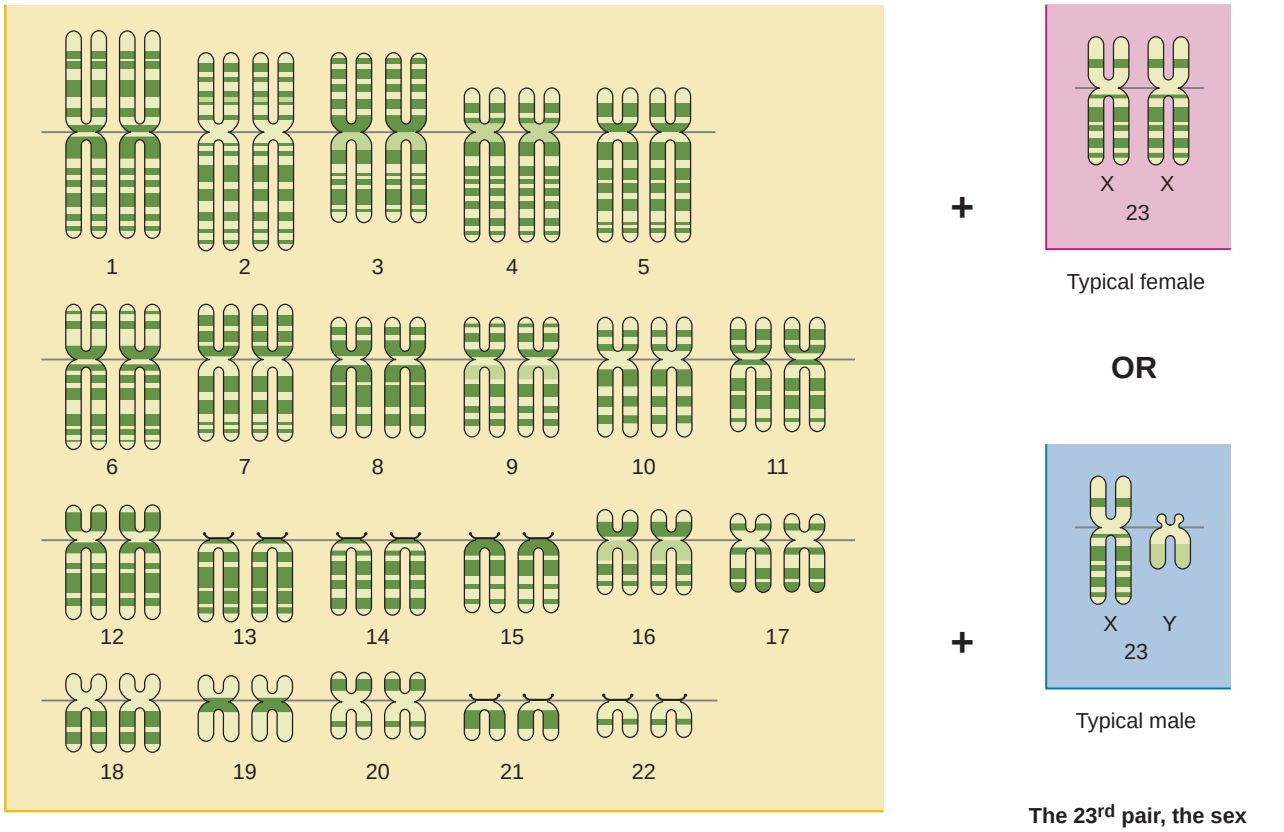


FIGURE 3.4
The Human Genome

Source: Freberg, L. (2006). Discovering biological psychology, p. 121. Used by permission of Houghton Mifflin Harcourt Publishing Company.

genetic counseling is relatively new, we have yet to explore all the ethical issues that knowledge of genetic problems can create for individuals and for society.

Events During Pregnancy and Birth

The second broad category of conditions that may put infants at risk are events that occur during pregnancy or during the birth. The health and well-being of the mother are critical to the prenatal development of the infant. Under optimal conditions the fetus will develop normally during the gestation period. If the mother becomes ill, is malnourished, or consumes harmful substances, the health of the fetus can be jeopardized. Prenatal care is critical because it alerts mothers to the potential dangers of certain drugs and diseases (Schonberg & Tifft, 2002). If contracted during pregnancy, for example, German measles and chicken pox can cause damage to the fetus; fortunately these diseases can be prevented by currently available vaccines. The most common maternal illness that causes difficulties with fetal development is diabetes. Controlling diabetes during pregnancy can prevent the occurrence of many disabilities (March of Dimes, 2008). Doctors may also limit the use of some over-the-counter and prescription medications during pregnancy to prevent complications for the fetus.

Substance abuse by the mother or father can be linked to behavior problems and disabilities in children. The use of alcohol during pregnancy may result in the infant's having **fetal alcohol spectrum disorder** (March of Dimes, 2008). Children with fetal alcohol spectrum disorder have facial abnormalities, droopy eyelids, and heart defects, are often small in size, and usually have some degree of intellectual disability (Wunsch, Conlon, & Scheidt, 2002). Expectant mothers who use heroin may give birth to premature or low-birth-weight infants. The infant may exhibit severe drug withdrawal symptoms and will likely be at risk for disabilities. Heroin and cocaine appear not to cause disabilities in utero, but they often lead to premature births, and the problems associated with low birth weight and prematurity may lead to physical or behavioral irregularities as the child matures (Hansen & Ulrey, 1993). In addition, children whose mothers use drugs tend to be more emotionally and developmentally delayed than the children of nonusers (Krauss et al., 2000). If the expectant mother smokes two packs or more of cigarettes a day, she risks giving birth prematurely or having a low-birth-weight infant. Major national campaigns have been mounted to discourage pregnant women from smoking and using substances that may harm their fetuses (March of Dimes, 2008). In Chapter 5 you will learn more about children with developmental delays.

Environmental Risks

Environmental risk factors are conditions and occurrences in the life of the child and the child's family that interfere with the child's development. Environmental risk factors are the major cause of disabilities for young children. Two well-known environmental factors that interfere with development are poverty and child abuse (March of Dimes, 2008).

Poverty can increase the risk factors for a child in many ways. Women who live in poverty are likely to have insufficient medical care (including prenatal care), poor housing, and inadequate nutrition. In the absence of prenatal care, potential disorders that a physician could detect and treat are missed. If the expectant mother is a teenager living in poverty, she is at great risk of having a premature or low-birth-weight infant, who is in turn at great risk for a variety of disabilities. Young parents who are unaware of the child-rearing strategies that facilitate development face particular risks in rearing low-birth-weight or premature babies because of the complications connected to their infant's needs. Other risks occur when family resources are too limited to provide adequate nutrition, medical care, and housing. These social conditions can, however, be addressed, and preliminary studies have shown that teenage mothers who live in economically advantaged homes, have good prenatal care, and receive emotional support from their spouses or families are more likely to give birth to healthy infants (Anastasiow, 1982; March of Dimes, 2008).

When the family is stressed, the caregiving relationship with the child is more likely to be fragile, and the child is more likely to be neglected or abused.

If you think back to Guralnick's system of interactive components that affect the child's development (Figure 3.3), you will remember that a lack of financial resources is one of the major stressors that can jeopardize the family's ability to meet the child's needs. When the family is stressed, the caregiving relationship with the child is more likely to be fragile, and the child is more likely to be neglected or abused.

Many of us may find it hard to understand the existence of child abuse. How can an adult physically harm a baby or a young child, particularly one with disabilities? Yet most of us cannot imagine the stress that parents of children with disabilities face. Imagine a child who cries constantly and is inconsolable. For hours during the night, the parents try everything they can think of to calm him. They walk him, feed him, and bounce him, but nothing works. Throw into the equation a difficult marriage, pressures at work, and no prospect that tomorrow will be any better than today, and you have the potential for child abuse.

EXCEPTIONAL LIVES, EXCEPTIONAL STORIES

Welcome to Holland

I am often asked to describe the experience of raising a child with a disability—to try to help people who have not shared that unique experience to understand it, to imagine how it would feel. It's like this. . . .

When you're going to have a baby, it's like planning a fabulous vacation trip to Italy. You buy a bunch of guidebooks and make your wonderful plans. The Coliseum. The Michelangelo *David.* The gondolas in Venice. You may even learn some handy phrases in Italian. It's all very exciting.

After months of eager anticipation, the day finally arrives. You pack your bags and off you go. Several hours later the plane lands. The stewardess comes in and says, "Welcome to Holland."

"Holland?" you say. "What do you mean Holland? I signed up for Italy. I'm supposed to be in Italy. All my life I've dreamed of going to Italy."

But there's been a change in the flight plan. They've landed in Holland, and there you must stay.

The important thing is that they haven't taken you to a horrible, disgusting, filthy place, full of pestilence, famine and disease. It's just a different place.

So you must go out and buy new guidebooks. And you must learn a whole new language. And you will meet a whole new group of people you would never have met.

It's just a different place. It's slower-paced than Italy, less flashy than Italy. But after you've been there for a while and you catch your breath, you look around and you begin to notice that Holland has windmills, Holland has tulips. Holland even has Rembrandts.

But everyone you know is busy coming and going from Italy, and they're all bragging about what a wonderful time they had there. And for the rest of your life, you will say "Yes, that's where I was supposed to go. That's what I had planned."

And the pain of that will never, ever, ever go away, because the loss of that dream is a very significant loss.

But if you spend your life mourning the fact that you didn't get to Italy, you may never be free to enjoy the very special, the very lovely things about Holland.

Source: Emily Perl Kingsley (2000). In T. W. Wesley & B. C. Dennis, *Inclusive Child Care Training Series in Early Childhood Professionals*. Chapel Hill: University of North Carolina Frank Porter Child Development Center, Partnership for Inclusion.

Pivotal Issues

- How can we support parents as they struggle to understand and accept the special needs of their child with exceptionalities?
- What positive things emerge as the family learns how to cope with disappointments?

As many as three to ten million children are abused or neglected, and 20 percent of these children have diagnosable disorders (Sameroff & Feise, 2000). Research suggests that children with disabilities are abused more often than other children (Cosmos, 2001). Physical punishment is strongly associated with child abuse, and Zigler, Finn-Stevenson, and Hall (2003) report that 60 percent of cases of child abuse evolved from situations in which parents were attempting to discipline their children physically. When the circumstances of the family are very stressful, life is a challenge. These environmental risk factors are some of the most difficult stressors for a family to cope with, and they often feel overwhelming and insurmountable.

Optimal child development is dependent on how several factors come together to create a dynamic system that either supports or inhibits the child's well-being.

These factors include the child, the caregiver/family, and the environmental circumstances. Stressors can enter this system at any point and can make the child and family more vulnerable. Because optimal child development must be viewed in light of this system, the supports and services provided to enhance a child's development must address each component of the system. One goal of family-centered early intervention is to support the family with knowledge and skills that help them draw on their strengths as caregivers (Dunst, 2007).

Optimal child development is dependent on how several factors come together to create a dynamic system that either supports or inhibits the child's well-being.

Educational Responses for Children Needing Early Intervention

In this section, we look at how services and supports can be provided to children and their families. Some conditions can be prevented and others remediated, but many can be neither prevented nor remediated entirely. With most disabilities and developmental delays, however, improved outcomes for children can be achieved through carefully planned and implemented intervention programs. The goal of all early intervention supports and services is to help young children develop to their full potential. Ideally early intervention takes place within an environment that is both inclusive and naturalistic. This means that supports and services are provided in settings in which children without disabilities spend their time and in common places such as the home, the child-care program, and the community (Sandall, Hemmeter, Smith, & McLean, 2005).

The Individualized Family Services Plan

Finding the right combination of supports and services for each child and his or her family is critical, and this process involves the development of an individualized family service plan (IFSP). Because preschool children with disabilities can be found in different settings (e.g. private child care centers, Head Start programs, and public prekindergarten classrooms) it can be difficult to tell who is responsible for developing and carrying out the IFSP. Part C of IDEA requires that an **individualized family service plan (IFSP)** be developed for each child from birth to 3 years of age who is diagnosed as disabled, developmentally delayed, or at risk for delays. When the child enters the public school early childhood special education services at 3 years of age, an IEP takes the place of the IFSP.

IDEA, Part C: Legal Requirements of the IFSP

IDEA, Part C, requires that IFSPs be constructed to include the following:

- A statement of the infant's or toddler's present levels of physical development, cognitive development, communication development, social-emotional development, and adaptive development, based on objective criteria
- A statement of the family's resources, priorities, and concerns relating to enhancing the development of the family's infant or toddler with a disability
- A statement of the major outcomes expected to be achieved for the infant or toddler and the family, and the criteria, procedures, and timelines used to determine the degree to which progress toward achieving the outcomes is being made and whether modifications or revisions of the outcomes or services are necessary
- A statement of specific early intervention services necessary to meet the unique needs of the infant or toddler and the family, including the frequency, intensity, and method of delivering services
- A statement of the natural environments in which early intervention services shall appropriately be provided, including a justification of the extent, if any, to which the services will not be provided in a natural environment
- The projected dates for initiation of services and the anticipated duration of the services
- The identification of the service coordinator from the profession most immediately relevant to the infant's or toddler's or family's needs (or who is otherwise qualified to carry out all applicable responsibilities under Part C) who will be responsible for the implementation of the plan and coordination with other agencies and persons
- The steps to be taken to support the transition of the toddler with a disability to preschool or other appropriate services (Council for Exceptional Children, 2007)

The focus on the *family* is an important outgrowth of the findings of early childhood intervention programs: a child with disabilities is a child in a family, and family members may need educational, financial, or emotional support to be able to provide the best setting, support, security, and stimulation to help the child with disabilities or developmental delays achieve his or her potential (Dunst, 2007; Sandall et al., 2005). The family may need help in locating, obtaining, and implementing the services specified in the IFSP; in fact, the family will need access to a **multidisciplinary team** of specialists who can help them meet the needs of their child.

Collaboration and the Multidisciplinary Team

The law also recognizes that families who have children with disabilities need more than friendly neighbors or relatives to help them. They may need a variety of services from specialists, as well as a service coordinator to help them locate, obtain, and implement the services specified in the IFSP. Children who qualify for services under IDEA must have been identified, screened, and diagnosed by a multidisciplinary team as having a disability known to be associated with developmental delays or as being at risk for the occurrence of developmental delays. The term *multidisciplinary* means that we must draw from the knowledge and skills of more than one professional as we work with the family and child. The child may need physical therapy to improve motor functioning, speech-language therapy to assist control of the muscles involved in speech, and educational programming to support cognitive development. Thus, a multidisciplinary team working in an early intervention program might include a member of each of these professions. The team always includes the parent or guardian as key members who help to inform the team of the child's and family's needs and help to shape the service plan so that it will meet these needs. Individuals who may serve on the multidisciplinary team working with infants and young children with disabilities are listed in Table 3.2.

Ideally the team works together to gather and review information about the child's and family's needs so that a comprehensive and workable plan can be developed to address these needs (Banks, Milagros, & Roof, 2003). Let's look at how this process worked for Tyron and his family when he was first diagnosed with developmental delays.

TABLE 3.2
Multidisciplinary Team Members

Specialist	Function
Parents/guardian	Share knowledge of the child and the family culture/values
Audiologist	Determines hearing abilities
Ophthalmologist	Determines vision abilities
Early childhood special educator	Plans and administers educational services and coordinates special therapies and supports
Physician	Determines whether a biological or health problems exists and plans treatment
Nurse	Provides a plan for adequate health care
Occupational therapist	Promotes individual development of self-help skills, play, and autonomy; provides needed therapies
Physical therapist	Enhances motor development and suggests prostheses and positioning strategies; provides needed therapies
Psychologist	Provides a comprehensive document of the child's strengths and weaknesses and helps the family deal with the stress of having a child with disabilities
Social worker	Assists the family in implementing appropriate child-rearing strategies and helps families locate services as needed
Speech and language pathologist	Provides necessary assessment plan for needed therapies and delivers services to facilitate communication skills

Parents are important members of the multidisciplinary team.
(© CORBIS)

You may remember that Tyron's mother, Laura, was the first one to become concerned about his behavior. She was worried that he did not seem as responsive as other children his age whom she had seen at the child-care center. Tyron's pediatrician, Dr. Nolan, listened to her and suggested that they do a comprehensive assessment of Tyron to see if they could determine what was going on. This assessment required the involvement of a multidisciplinary team. Tyron's hearing and vision were tested; his motor control, self-help skills, and sensory integration were assessed; and his overall communication and social skills were reviewed. Tyron's parents filled out a lengthy questionnaire, and his teachers completed some observational notes documenting Tyron's behavior under a variety of circumstances. A special education teacher with extensive experience working with children with developmental delays and possible autism observed Tyron at his day care and at home. When all of this information had been gathered, the team met to review Tyron's needs. The team confirmed Laura's worries and determined that Tyron was indeed showing some delays; they diagnosed Tyron with developmental delays and agreed that his progress should be followed closely and monitored for possible autism spectrum disorders. Identifying Tyron's needs, however, was just the first step for the team. The most important work was yet to come.

Once Tyron's needs had been formally identified, the team's next step was to determine what interventions should be put into place to meet these needs. Because Tyron was only 1 year old, he still qualified under part C of IDEA for an IFSP. The team worked to create an IFSP that would meet the family's needs, agreeing that Tyron's plan would focus on communication and social skills. Tyron's parents met with a speech-language therapist to learn ways that they could prompt and facilitate Tyron's communications. Tyron would receive support for speech-language three times per week, and his preschool teacher would make sure to focus on language and communication with Tyron during the class activities and routines. The team agreed to monitor Tyron's progress and to reevaluate his needs within six months. Tyron's full IFSP can be found on the text website (college.hmco.com/PIC/kirk12e). You might want to review it in preparation for class discussions. Tyron's needs, like those of most children, will best be met through inclusion in his preschool and supports in his home.

Inclusion and Natural Learning Environments

Early intervention laws are designed to promote inclusion in the broadest sense. Inclusion takes many forms and varies as to whether the child spends the total day or a portion of the day with typically developing youngsters, but what is critical is that the child is meaningfully engaged with nondisabled peers (Grisham-Brown, Hemmeter, Pretti-Frontczak, 2005; McWilliam & Casey, 2008). Inclusion is primarily designed to promote social relationships between children with disabilities and those without disabilities and to facilitate optimal access to learning opportunities. The use of **blended practices** that draw from general early childhood and early childhood special education allows the teacher in the inclusive classroom to meet the needs of all of her children (Grisham-Brown et al., 2005).

Figure 3.5 shows how teachers plan to meet the needs of their children by embedding specific goals

Activity: Discovery table Date: Week of November 1st

Group: Tyron, Kehla, Alex, & Marcy

Content Area	Broad Outcomes	Individually Targeted Behaviors
Language and literacy	"Read" environmental signs that are part of "map"	Use symbols to communicate wants and needs (Tyron)
Mathematics	Sequence objects/materials in sand	Sequence events in day (discovery table comes after breakfast) (Kehla)
Science	Investigate basic concepts (properties of objects/materials)	Show knowledge of object use (cup is for pouring) (Alex)
Social studies	Use symbols to mark locations on a "map"	Use symbols to communicate wants and needs (Tyron)
Approach to learning	Attempt more than one solution to solve a problem	Engage and attend to activity (Marcy)

FIGURE 3.5
Planning to Meet Individual Student Needs by Embedding Specific Goals Within Class Activities

Source: Grisham-Brown, J., Hemmeter, M. L., & Pretti-Frontczak, K. (2005). Blended practices for teaching young children in inclusive settings (p. 160). Baltimore: Brookes. Reprinted by permission.

within the classroom activities. In this case, we see that the teacher is focusing on helping Tyron, who is now almost 3 years old, develop a variety of communication strategies. She is helping him use symbols to express his thoughts and will also be prompting Tyron with words. The use of *embedded instruction* helps us meet the needs of children with disabilities in the context of the inclusive classroom. Activity-based, embedded approaches are particularly useful in promoting and enhancing young children's social competence (Squires & Bricker, 2007).

The Recognition and Response model, which adapts RTI for preschool children, uses a three-tiered approach to meeting needs. Each tier is described in Figure 3.6. As the needs of the child increase and/or become more complex, the responses made to meet

	Definition	Focus	Goals of Instruction	Role of Parents and Professionals	Assessment Strategies
Tier I: Effective core curriculum and intentional teaching	***Curriculum and instruction*** that is focused on all domains of learning and development, and is guided by observation and assessment	***All*** children	Provide ***high-quality early-childhood instruction*** to meet the needs of all children in the classroom	***Classroom teachers*** and ***staff*** plan and implement core curriculum and instruction; collaborating and communicating with families	Universal screening ***three times each year*** (e.g., fall, winter, spring)
Tier II: Group and embedded instruction	***Explicit instruction*** (e.g., content-specific curricula [e.g., literacy, math] and instructional approaches [dialogic reading]) ***Embedded instruction*** (e.g., environmental arrangement, curricular modifications, peer support)	***Some*** children identified on the basis of universal and periodic screening who need additional support to achieve success	Provide ***enhanced instruction*** through additional supports and opportunities to practice skills within small groups, or as part of daily routines	***Specialists*** assist ***teachers; parents*** receive progress reports and engage in collaborative problem-solving process with early childhood staff.	Progress monitoring to ensure adequate progress and learning ***every 8–10 weeks***
Tier III: Intensive and individualized instruction	***Targeted instructional strategies*** (e.g., prompting, modeling, physical assistance, giving a directive and waiting for a response) combined with ***explicit and embedded approaches***	***A few*** children with marked difficulties in meeting benchmarks who need additional support to achieve success	Provide ***intensive instruction*** through targeted, individualized instructional strategies	***Expanded team of professionals and parents*** develop more intensive plans for individual children and make decisions about referral for further evaluation. Parents receive more frequent reports and engage in the collaborative problem-solving process with teachers and other professionals	Progress monitoring to ensure adequate progress and learning ***every 4–6 weeks*** ***Referral*** for further evaluation if needed

FIGURE 3.6
Optimal Implementation of Recognition and Response in Tiers I, II, & III

Source: Recognition and Response Project (2007). Reprinted by permission of Frank Porter Graham Child Development Institute. This work was funded by a grant from the Emily Hall Tremaine Foundation.

these needs must become more explicit and more intense.

Within Tier I, high-quality learning environments are in place, universal screening is done to look at all children's needs, and periodic progress monitoring is used to see how each child is doing. When a child is not thriving within this environment, he or she may need more support to help him or her learn.

At Tier II we begin to see teachers using more embedded activities, such as those for Tyron shown in Figure 3.5, and more explicit instruction. In Tyron's case, the speech-language teacher has suggested a variety of activities that can be done within the day to promote communication and enhance Tyron's learning. One activity, called "turn taking," is being used during story time. In this, the teacher gives four children two cards each. Each child's cards are a different color. The teacher reads a story and prompts the children to take turns with their comments. After each child has talked, he or she places one of his or her cards in the center. The child must then wait until at least two other children have taken their turn to talk and have placed their cards in the center before he or she can talk again. With Tyron, the teachers are also prompting him with a specific question about the story.

Because Tyron has significant language delays, he also receives services at Tier III. The speech-language therapist works with Tyron three times per week. Sometimes she works with a small group of children in Tyron's class, sometimes she models strategies to enhance communication during daily routines, and sometimes she provides intensive individualized activities. Tyron's parents have also been given strategies to enhance his communication in the home and other naturalistic environments.

Naturalistic Environments

IDEA 2004 encourages educating young children in natural environments—that is, settings that are normal for children of that age who do not have disabilities (Carta & Kong, 2007; Noonan & McCormick, 2006). The intent is to facilitate learning through naturally occurring experiences in daily activities and routines (mealtimes, out-of-home shopping, and so on). The early childhood educator provides parents with strategies to maximize their child's learning in their daily activities and routines and helps to identify learning opportunities in the home and community (Jung, 2003; Sandall & Ostrosky, 2000).

Therapists, teachers, and other interventionists often provide services in the home for a number of reasons. A common belief among many educators is that education should take place in the setting in which the skills will be used; hence the home is the functional setting for very young children. Infants spend most of their time sleeping, and it is not practical to take them to an early intervention program that offers educational and therapeutic practice. In addition, parents who are going through the process of accepting their child's disability may be most comfortable in their own home setting. In some rural areas, early childhood special education centers are a long way from the home, and parents would spend much valuable time traveling instead of interacting with and caring for the child. Furthermore, the mother's or caregiver's primary responsibility is to establish in-the-home routines that will facilitate the child's development.

The first person to visit the home may be a home health nurse who works with the caregivers to help them understand their child's disability, child development in general, and parenting practices. The home health nurse may also help the parents coordinate other therapies and may help to identify a curriculum for the child and family (Nugent & Blanchard, 2006). In the process, the home visitor provides emotional support for and contact with the family. Earlier in the chapter we described the home health nurse who visited Sandra and Tony, Jennifer's parents, during her first few months at home. You might want to look back at this section and think about the critical supports that were provided to help Sandra and Tony meet Jennifer's needs. The home visitor can also act as a service coordinator and help the parents apply for additional services for the child or the family.

Some additional services may be provided by occupational or physical therapists, who visit the home once or twice a week to teach the caregivers to position, carry, sit, bathe, feed, and generally care for the child. Promoting a child's competence through family routines and community activities also facilitates his or her movement into child-care programs (Bruder & Dunst, 2000; Dunst, 2007). The teacher can facilitate learning through the embedded material in the routine activities of the classroom, such as snack time, bathroom use, entering, and leaving (Carta & Kong, 2007; Kaiser & Hancock, 2003; McWilliam & Casey, 2008).

Importance of Learning Through Play

We have known for some time that the natural manner in which all human beings learn is through play (Lerner, 1986). It is particularly crucial for young children, who are innately curious, to look at objects, manipulate (for example, shake or rattle) them to see what they will do, and then play with them. Play is used in most early childhood programs (Buchanan & Cooney, 2000; Linder, 1993). Play has long been known to involve children's thinking, their motivation, and their socioemotional development. Young children with disabilities will tend to spend time observing rather than interacting (McWilliam & Casey, 2008). They engage in more solitary or isolated play, which is functional and on a low sensory level, rather than in higher level dramatic or constructive play (Kim et al., 2003). In encouraging higher level learning, the importance of toys and play activities cannot be overemphasized.

Early studies have concluded that children with disabilities tend to be less active (more passive) and less curious about the world around them; they have fewer coping skills with which to respond to environmental demands; therefore, an interventionist may have to teach a child with disabilities how to play so the child can use play to learn (Anastasiow, 1996; Field, 1989; Zeitlin & Williamson, 1994). Many positive social outcomes result from providing children with toys, allowing them to choose toys, and encouraging them to play with other children, with or without disabilities (Erwin & Brown, 2003). Engaging children through play enhances their interactions with each other and promotes communication (McWilliam & Casey, 2008).

Higher level social play can be encouraged by providing dress-up clothes, a housekeeping corner, blocks, and puppets, as well as encouraging group block play. The National Parent Network in Disabilities catalog has toys that have been specifically adapted for children with disabilities. A high-quality learning environment will provide plenty of developmentally appropriate experiences for the child.

Quality of Early Child Care Services and Developmentally Appropriate Practice

As prekindergarten becomes universal and as an increasing number of children enter school earlier, more children with developmental delays and disabilities will gain access to the supports and services they need (Pianta, 2007). Many states have already increased their commitments to early childhood education, and currently thirty-eight states provide some type of publicly funded prekindergarten services (Ritchie, Maxwell, & Clifford, 2007). These services, however, do not reach all children with developmental delays and/or disabilities, and even inclusive child-care settings may not provide the supports and services needed; thus, full and meaningful inclusion has not been accomplished for many children (Grisham-Brown et al., 2005).

National Parent Network in Disabilities
www.npnd.org

Children with disabilities need a program that focuses on all of their developmental needs. Most children with disabilities are, in other ways, like children without disabilities, and they have similar needs (Buysse, Skinner, & Grant, 2001; Guralnick, 2001). This makes inclusion an even more important service option, particularly if the inclusive classroom is high in quality. Research from child-care studies suggests that the curriculum in high-quality programs is associated with cognitive and language gains, as well as gains in social and emotional development (Love et al., 2003). Lower levels of aggression and fewer problem behaviors occur among children in high-quality programs. The curricula of these programs focus on children's self-determination, choice making, and initiative taking (Erwin & Brown, 2003), thereby encouraging the child to interact with the environment (people and objects) in appropriate ways.

What is clear is that most effective programs are child centered, include developmentally appropriate practices, and are intensive in nature (Halpern, 2000). Two useful scales have been used to assess quality care: the Infant/Toddler Environmental Rating Scale (for birth–age 5; Harms & Clifford, 1980) and the Early Childhood Environmental Rating Scale (Harms, Cryer, & Clifford, 1990). These scales assess the appropriateness of classroom practices, the quality of teacher-child interactions, and the general classroom environment. Samples of these instruments can be found on the website for this text, college.hmco.com/PIC/kirk12e.

High-quality child care and early intervention classrooms result in positive cognitive and language

With toddlers and children 3 to 5 years old, toys and play are the primary mode of teaching the names of objects, colors, concepts of volume and space, and of overcoming weakness in motor skills and physical ability.

(© Susie Fitzhugh)

High-quality child care and early intervention classrooms aid cognitive and language development.

development (Burchinal et al., 2000; Love et al., 2003). Evidence indicates that children who enter a well-planned, intensively structured program during the first five years of life and stay in that program for a longer period of time make the greatest gains and suffer the least loss (Guralnick, 1998). High-quality child care draws on what we consider to be developmentally appropriate practices.

Concern over the education of young children led the National Association for the Education of Young Children (NAEYC) and the National Education Association (NEA) to publish guidelines for **developmentally appropriate practice (DAP)** (Bredekamp & Cupple, 1997). Table 3.3 shows how these guidelines encourage early childhood teachers to create optimal learning experiences.

Although special educators tend to agree with the goals of DAP, their list of suggested practices includes more teacher-directed suggestions. For example, the activity-based intervention program (Bricker & Cripes, 1992; Carta & Kong, 2007), though consistent with the goals of DAP, looks for opportunities to embed the teaching of specific skills that the child has not mastered (Grisham-Brown et al., 2005). The major difference between the approaches resides in how one engages the child (McWilliam & Casey, 2008). Child engagement is defined as the amount of time the child spends interacting within the environment in a way that is developmentally and contextually appropriate (McWilliam & Bailey, 1992; McWilliam & Casey, 2008). Special educators recognize that children with disabilities do not always readily engage and often have to be taught to do so (Casey & McWilliam, 2007).

TABLE 3.3
Key Development and Learning Theory Tenets and Associated Curriculum Practices

Tenets of development and learning theory	Curriculum practices
Areas of development are interrelated.	When planning curricular activities, children should have opportunities for learning across developmental areas because these different areas of development have an impact on one another (e.g., a cooking activity can be used as a teaching opportunity for children to problem-solve, use fine motor skills, socially interact with others, and communicate their wants and needs).
All areas of development occur in a sequence.	Realistic curriculum goals should be set for children based on their present level of development within commonly accepted sequences of development. As such, teachers must have knowledge of the range of development of the children within their class.
Children develop differently one from another.	Curricular activities should be developed that ensure that all children can participate regardless of their developmental level and that result in the practice of individualized target behaviors (e.g., during an art activity, one child might be drawing representational objects; another might be "writing" a story about a picture; and another might be grasping, holding, and moving a crayon or paint brush).
Early learning has an impact on later development, both positively and negatively.	Teachers should consider instructional practices and interactions that may positively or negatively affect a child's development. Teachers should provide feedback/consequences related to children's actions that are timely and integral. When a child is learning to make a request using an augmentative and alternative communication device, it is critical that teachers pair child attempts to use the device with requested items (i.e., each time the child activates a device to request more crackers, a teacher should provide the logical response of giving the child another cracker immediately rather than praising the child for asking, or waiting for the child to also try to sign the word MORE or PLEASE).
Children develop knowledge about concrete before abstract.	Hands-on experiences should be provided for children that move toward more symbolic learning. Children need many opportunities to interact with real objects to learn abstract skills such as counting and sorting. The use of two-dimensional materials (e.g., work sheets) should be limited.
There are multiple influences on a child's development: culture, physical and social experiences and environments, and biology.	Teachers should be aware of the factors that influence each child in the class and consider them when educational experiences are planned. Teachers may conduct home visits and learn about family cultures and values, as well as important events that have occurred in the child's life.
Children learn through play.	A learning environment should be created that includes interesting, age-appropriate activities in which children like to participate. Thus a significant portion of the child's day should be spent in child-initiated play activities (e.g., dramatic play, blocks, reading, sensory activities).
Children need to be challenged just above their development.	Teachers should be aware of the developmental level of all children and understand the next step in each child's development. If a child is beginning to show interest in letter-sound relationships, teachers should offer opportunities for the child to experiment with putting sounds together to make words.

Children learn in different ways.	Activities should be developed that offer learning opportunities through a variety of sensory processes (e.g., visual, auditory, kinesethic). As a result, the classroom should offer activities that promote the use of all of these processes, including music and movement activities, computer games, socio-dramatic play, and sensory activities.
Children learn best when their psychological needs are met.	Teachers should be responsive to the psychological needs of young children. Teachers should be in regular communication with children's families to know of situations that may affect learning (e.g., death in the family, sleep difficulty, divorce, a recent move, skipped meals).

Source: Adapted from National Association for the Education of Young Children, NAEYC position statement. Developmentally appropriate practice in early childhood programs serving children from birth through age 8, in *Developmentally Appropriate Practices in Early Childhood Programs,* Rev. ed., eds. S. Bredekamp & C. Copple (Washington, DC: NAYEC, 1997), 10–15. Reprinted with permission from the National Association for the Education of Young Children.

Navigating Transitions in Early Childhood

Navigating the change of service providers for early intervention may be a daunting task for families as they work to maintain supports for their child (Rous & Hallam, 2006). During the early years families may need to shift service providers three or four times as their child moves from hospital to early intervention to preschool and eventually to kindergarten (Rosenkoetter, Hains, & Fowler, 1994; Rous, Myers, & Stricklin, 2007). Transitions are a time of change, and even at their best they can be stressful (Pianta, Cox, & Snow, 2007). For a family with a child who has disabilities, this stress is likely to be greatly intensified, as their fears about their child's well-being may make changes even more worrisome (Rous & Hallam, 2006). The law requires the development of a transition plan to support families during these changes and to ensure that children receive uninterrupted services as they move through their early years (Rous & Hallam, 2006).

Transitions are a time of change and can be stressful.

Remember when Jennifer (the preterm infant presented earlier in the chapter) was finally ready to go home from the hospital? After weeks of worry, her parents, Sandra and Tony, had mixed feelings about finally taking Jennifer home. They worried that they would be unable to meet her needs and keep her safe. The first phase of intervention, the initial medical support, was ending, and the second phase started with the home visit and home-based support. This support was provided through the state's part C coordinator (remember that in IDEA, part C is the section of the law that covers children from birth to age 2). This first transition was successful, and over the first two years of Jennifer's life Sandra and Tony learned to trust their home-health nurse and the members of the multidisciplinary team they worked with as they struggled to meet Jennifer's needs. They were very comfortable with the family service plan that had guided the support they had received. So their concerns were natural when Jennifer was about to turn 3 and they had to change her services. Fortunately, a plan was developed to help create a smooth transition from part C to part B services (for preschool children).

Under part B, Jennifer qualified for an individualized education program (IEP) because she was still showing developmental delays in motor functioning and cognitive abilities. The multidisciplinary team recommended continued physical and

occupational therapies and helped the family identify the inclusion prekindergarten programs close to their home. Although kindergarten is a long way off for Jennifer, her parents are already thinking about this fourth transition.

The transition to formal schooling in kindergarten is recognized as a landmark event by millions of families across the country (Pianta, Cox, & Snow, 2007). This normal developmental milestone may be more difficult for children with disabilities and their families. A smooth transition depends on several factors coming together. Moving from early child care to kindergarten is a critical step for young children, and carefully formulated transition plans can facilitate their adjustment and success in school (Pianta & Kraft-Sayre, 2003). Successful transition requires communication among the preschool teacher, the parents, and the kindergarten teacher, preferably before the child enters the class. It should be a collaborative process in which past experiences are linked to future goals.

Parents Helping Parents Resource Center www.php.com

The readiness of the child, as discussed earlier, is critical, but the readiness of the school to receive the child is just as important (Pianta & Kraft-Sayre, 2003). School strategies that can facilitate this transition include sending letters home to parents, holding open-house visits, calling parents, and making home visits (Pianta & Cox, 2002). One difficulty is that families who need support during this transition (those who live in poverty, those who reside in urban and rural communities, and those who have children with disabilities) may in fact receive fewer services (Rosenkoetter, Whaley, Hains, & Pierce, 2001). Transition planning for children with disabilities who are receiving early intervention is essential. These children and their families should have a transition plan that is developed and implemented by a team (Pianta, Cox, Early, & Taylor, 1999; Rous & Hallam, 2006). Transition planning for a smooth entry into school is key to ensuring that gains made by early intervention are not lost.

HM VIDEO CASE

Home-School Communication: The Parent-Teacher Conference

Watch this Video Case on the student website. Communication between the family and the school personnel is critical to understanding the needs of children. What can parents and teachers learn from each other during conferences? What strategies and words did teacher Jim St. Clair use to keep the communication positive? Why is positive communication essential during parent-teacher conferences?

The Family-Centered Approach and Cultural Diversity

One of the strongest movements in special education recently has been that toward *family-centered* practices. Our current understanding is that the family needs to be placed at the center of any early intervention system and their goals and opinions addressed and honored (Parette & Petch-Hogan, 2000; Turnbull & Turnbull, 1997). Gaining the family's trust is essential as professionals work to encourage parents to accept proven practices for their child (Dunst, 2007; Banks, Milagros, & Roof, 2003; Barrere, 2000; Harry, Rueda, & Kalyonpurin, 1999). It is essential because the family is fundamental to the development of any child, with or without disabilities (Dunst, 2007; Osofsky & Thompson, 2000). The key is the ability of the parents or caregivers to relate to the child and to provide a responsive, caring environment. Most parents will provide the kind of environment their children need, and if a child is disabled, the parents will seek out professionals and learn desired methods of facilitating growth from them.

Cultural responsiveness is essential when working with families (Fowler, Ostrosky, & Yates, 2007; Garcia & Magnuson, 2000). The following criteria are an important part of assessing the appropriateness of services for children and families from a variety of cultural backgrounds.

National Parent Information Network
www.npin.org

1. What is the child's primary language, and how is it used in the home?
2. What are the parents' expectations as to the use of language to communicate? How is language use valued in the home?
3. What are the preferred strategies of learning: verbal, nonverbal, observation, imitation?
4. To what degree is the family acculturated? Do they agree or disagree about cultural values and mores?
5. What goals does the family have for the child?

Teachers may find the Culturally and Linguistically Appropriate Services (CLAS) website helpful for locating culturally and linguistically appropriate instructional material (Corso, Santos, & Roof, 2002). Through effective collaboration, families and professionals can provide optimal support for young children with disabilities and help them thrive.

Culturally and Linguistically Appropriate Services (CLAS)
http://clas.uius.edu

moral dilemma

Using Genetic Counseling

Shelia and Shea had been married for two years and were beginning to talk about starting a family. Although they wanted to have children, both of them were concerned that they might have some complications. Shea's family had a history of sickle cell anemia. They wondered whether they might pass this on to their own children. They decided to go for genetic counseling. During the session the counselor asked for family histories and then reviewed the results from the blood work that was completed prior to the visit. The counselor explained that the information she could share with them could *not* tell them whether they would have a child with disabilities and that it could only give them an idea about the likelihood of problems. The counselor told Shelia and Shea that they both had "sickle cell trait," which meant that they were carriers of the sickle cell gene. Because they both carried the problematic gene, the counselor told them, they had a 25 percent chance of having a child with sickle cell anemia. Shea asked about the likelihood of his sister carrying the sickle cell gene, because he knew that she and her husband were also thinking about having children. The counselor said that it was possible that Shea's sister also carried the gene. Shelia and Shea had been given a lot to think about, but the first thing Shea wanted to do when they got home was to call his sister and share their news with her. Shelia was not certain that he should let his sister know that she might also carry the sickle cell gene.

(*continued*)

Should Shea inform his sister that she might be a carrier? What problems could having this information create for her (personal, social, health insurance, and so forth)? Is it better to know or not to know? If Shea decides to tell his sister, what should he say?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- Early intervention is now widely accepted as essential to improving outcomes for children with disabilities and developmental delays.
- Early intervention may begin before pregnancy with the mother-to-be receiving appropriate medical care and support.
- At birth, physicians will check for the infant's overall functioning and health and will initiate any supports needed based on the results of the initial tests.
- Family-centered approaches are key to the success of early interventions because the parent or caregiver is critical to the child's well-being.
- Supports and services for children and families must address all components of the child's needs and must be culturally responsive to the families.
- A multidisciplinary team helps to identify the child's needs and develops a plan to respond to these needs: an IFSP for children from birth to 3 years; an IEP for children age 3 and older.
- Inclusion and naturalistic environments are key components of how and where early intervention services are provided.
- Recognition and response is one model that adapts the RTI approach for young children.
- Supporting children and families during transitions is essential to ensuring a smooth delivery of supports and services.

Future Challenges

1 ***What is the effect of advanced medical lifesaving techniques?***

New lifesaving techniques are keeping extremely-low-birth-weight (less than 1,500 g), very-low-birth-weight (between 1,500 and 2,000 g), low-birth-weight (between 2,000 and 2,500 g), and preterm infants alive. Many of these children will have disabilities as a result of being born early. As our medical expertise and skill increases with preterm infants, we will likely see more children who need early intervention. How can we ensure that supports and services are available to meet these needs? What can policy makers do to keep pace with these needs?

2 ***What would be the impact of universal prenatal health care?***

Primary prevention through prenatal care is not available to all expectant mothers, particularly those who live in poverty. Even when it is available, some individuals do not take advantage of it. If prenatal care were provided universally, it could markedly reduce the number of premature and low-birth-weight children who are at risk for disabilities. What policies would have to change in order to provide universal prenatal care? What strategies would we need to employ to ensure access to these services for all mothers-to-be?

3 ***How can we provide appropriate supports and services for families of children with disabilities?***

Having a child with disabilities has a profound impact on the family system. The additional stress, need for resources, and time spent in caregiving can all take a toll on the family's ability to meet the needs of the child. How can we support the family to help them be successful? What are the health care/insurance, social supports, and education needs of families? How can these be provided in ways that address the families' cultural values?

4 ***How can we increase the quality of early child care in the United States?***

Increasing numbers of children are receiving early child care, and a number of these children require early intervention supports and services. How can we ensure that all children have access to high-quality child care and early intervention if they need additional supports? How would universal prekindergarten affect the well-being of children?

Key Terms

alpha-fetoprotein test p. 83
amniocentesis p. 84
Apgar test p. 85
blended practices p. 97
Child Find p. 86
developmental profile p. 87
developmentally appropriate practice (DAP) p. 101
early intervention p. 75
family-centered early intervention p. 81
fetal alcohol spectrum disorder p. 92
genetic counseling p. 90
individualized family service plan (IFSP) p. 94
multidisciplinary team p. 94
natural environments p. 82
sonography p. 83

Resources

References of Special Interest

Odom, S. L., Horner, R. H., Snell, M. E., & Blancher, J. (Eds.) (2006). *Handbook of developmental disabilities*. New York: Guilford Press. This is a comprehensive reference on research related to children with disabilities. It reviews our current understanding of the field of study for developmental disabilities: the health, neuroscience and genetics, and practice related to meeting the needs of children and families.

Krajicek, M., Steinke, T., Hertzdeng, D., Anastasiow, N., & Skandel, S. (Eds.) (2003). *Handbook for the care of infants and toddlers with disabilities and chronic conditions; Instructor's guide for the handbook for the care of infants and toddlers with disabilities and chronic conditions*. Austin, TX: PRO-ED. These materials cover a wide range of disabilities, providing information about conditions as well as techniques (such as positioning) for treating them. They were prepared under

the leadership of Marilyn Krajicek, Ed.D., R.N., at the University of Colorado School of Nursing.

Guralnick, M. (Ed.) (2005). *The developmental systems approach to early intervention*. Baltimore: Brookes. The systems approach to early intervention describes supports and services for young children and their families. As early intervention becomes more universally available, the quality and coordination of services remain critical challenges. This book offers comprehensive thinking about how we can meet these challenges.

Sandall, S., Hemmeter, M. L, Smith, B. J., & McLean, M. E. (2005). *DEC recommended practices: A comprehensive guide for practical application in early intervention/early childhood special education*. Missoula, MT: Council for Exceptional Children, Division for Early Childhood. The Division for Early Childhood of the Council for Exceptional Children gives clear guidelines for best practices for young children with disabilities. This book is an important handbook for all those who work with young children and their families.

Young Exceptional Children Monograph Series. Missoula, MT: Council for Exceptional Children, Division for Early Childhood. These topical monographs cover all the essential areas related to services for young children with disabilities. These are essential references for practitioners and families.

Journals

Journal of Early Intervention
www.dec-sped.org.

Young Exceptional Children
www.dec-sped.org.

Early Developments

Professional Organizations

The Beach Center on Disability
www.beachcenter.org

Division for Early Childhood of the Council for Exceptional Children
www.dec-sped.org

March of Dimes Resource Center Birth Defects Foundation
www.modimes.org

National Center for Early Development and Learning (NCEDL)
www.ncedl.org

National Information Center for Children and Youth with Disabilities
www.nichcy.org

Parents Helping Parents Resource Center
www.php.com

Head Start
www.nhsa.org

Visit our website for additional Video Cases, information about CEC standards, study tools, and much more.

CHAPTER

4

Children with Learning Disabilities

FOCUS QUESTIONS

- What is the history of the learning disabilities field?
- What are some characteristics of children with learning disabilities?
- How are learning disabilities, dyslexia, and attention deficits defined?
- How is RTI changing the field of learning disabilities?
- What are the specific challenges faced by individuals with learning disabilities and attention deficit hyperactivity disorders?
- How does the information-processing model help us understand learning disabilities?
- What teaching and learning strategies work well for students with learning disabilities?
- What technology is available to support academic learning?
- How does a child with learning disabilities affect the family?

Children with learning disabilities are both puzzling and paradoxical. In spite of near-average or higher-than-average intelligence, students with learning disabilities often find school to be very difficult. Just as the term *learning disabilities* implies, these children struggle to learn and often need additional supports to help them succeed in school. Andrew, for example, is a bright and talkative third grader who loves to socialize with his friends. When books are read to him he understands and remembers all the details and often asks intriguing questions. His teacher noticed this and felt that Andrew should be a very capable student, yet his independent reading level was barely first grade. At first his teacher assumed that he was just being lazy, but when she saw how frustrated he was becoming with reading, she decided there might be more to it, and indeed there was: Andrew has a learning disability.

The reasons that children with learning disabilities do not do well in school have fascinated and baffled researchers and practitioners in the fields of reading, cognition, speech and hearing, neurology, learning, vision, audition, and education. Not all children with learning disabilities have the same set of challenges. Most have difficulty learning to read, spell, and write. Others have trouble with math or with attending to information and tasks. Some have difficulty with all academic areas. In this chapter we look at the history of learning disabilities, how learning disabilities are defined, and how the school and family can work together to create a climate of success for individuals with learning disabilities.

Children with learning disabilities face a variety of challenges that include difficulty learning to read, spell, write, and use math, or trouble with attending to information and tasks.

A Brief Historical Overview of Learning Disabilities

The phrase *learning disability* was coined in 1962 by Samuel Kirk, the first author of this text. It came to life during discussions at a 1963 conference with concerned parents and professionals that focused on students who in spite of average or above-average intelligence seemed to be encountering substantial difficulties in school. Prior to 1962, these students had been labeled with terms such as *minimal brain dysfunction, Strauss syndrome*, and *brain injured* (Lerner, 2005; Swanson, Harris, & Graham, 2003). From Kirk's perspective, students with learning disabilities were a heterogeneous group who shared one commonality: all had a neurologically-based problem that affected learning in various ways (Hallahan & Mercer, 2002; Hallahan & Mock, 2003).

The assumption that a learning disability has a neurological basis is sound, but it is hard for teachers to use "neurological anomalies" as evidence when they are trying to decide whether a student has a learning disability. There may come a time in the future when brain studies will be part of the identification process, but currently we must rely on a student's behavior and performance to help us determine the presence of a learning disability (Galaburda, 2005; Miller, Sanchez, & Hynd, 2003; Sternberg, 2008). Because of this limitation, the students we currently identify as having learning disabilities are a very diverse group: They include those with assumed neurologically-based learning problems (the group that Samuel Kirk was focused on) *and* students who are not performing well for other reasons (e.g., poor motivation, problems at

Students with learning disabilities are a heterogeneous group.

home, teacher–student personality conflicts, and so forth). This situation has made the category of learning disabilities a "catchall" for students who need additional support in school. Many of these students do *not* have an underlying neurological base for their difficulties. This group of students has been identified as learning disabled because of **unexplained underachievement.** We explore this further when we discuss how we define learning disabilities (Fuchs, Fuchs, Mathes, Lipsey, & Roberts, 2002).

Characteristics of Children with Learning Disabilities

Children with learning disabilities are like snowflakes; each has his or her own unique structure, combining strengths and needs to form an individual pattern.

PROFILES OF TWO STUDENTS

Characteristics of Students with Learning Disabilities

Children with specific learning disabilities vary in their academic, personal, and social characteristics.

Jason: Jason is a fifth grader with a measured IQ score of 135. Although this score places him in the gifted range intellectually, he still struggles with many academic tasks. He is a solid reader but a very poor speller. Jason also has difficulty with handwriting, and so, although he can talk in great detail about subjects of interest, he has a very hard time writing about them. Because of these challenges, he often tries to distract the class with antics when he becomes frustrated. This disruptive behavior has led to some social isolation, as Jason's classmates do not want to get into trouble because of his behavior. Jason's teacher is frustrated with him; she sees how bright he is when he is participating in discussions and wonders why he can't apply himself more diligently when he is writing. She is also puzzled by his disruptive behavior and feels that he might need more discipline both at school and at home. Later in the chapter we explore how computers and technology can be used to help Jason become more successful.

Ray: Ray looks very different from Jason. Ray has average intelligence but encounters extreme problems with reading, spelling, and writing (sometimes called **dyslexia**). He has a hard time organizing his ideas and is frequently distracted. His reading problems are so severe that he is almost a nonreader. Because of his poor academic performance, his classmates

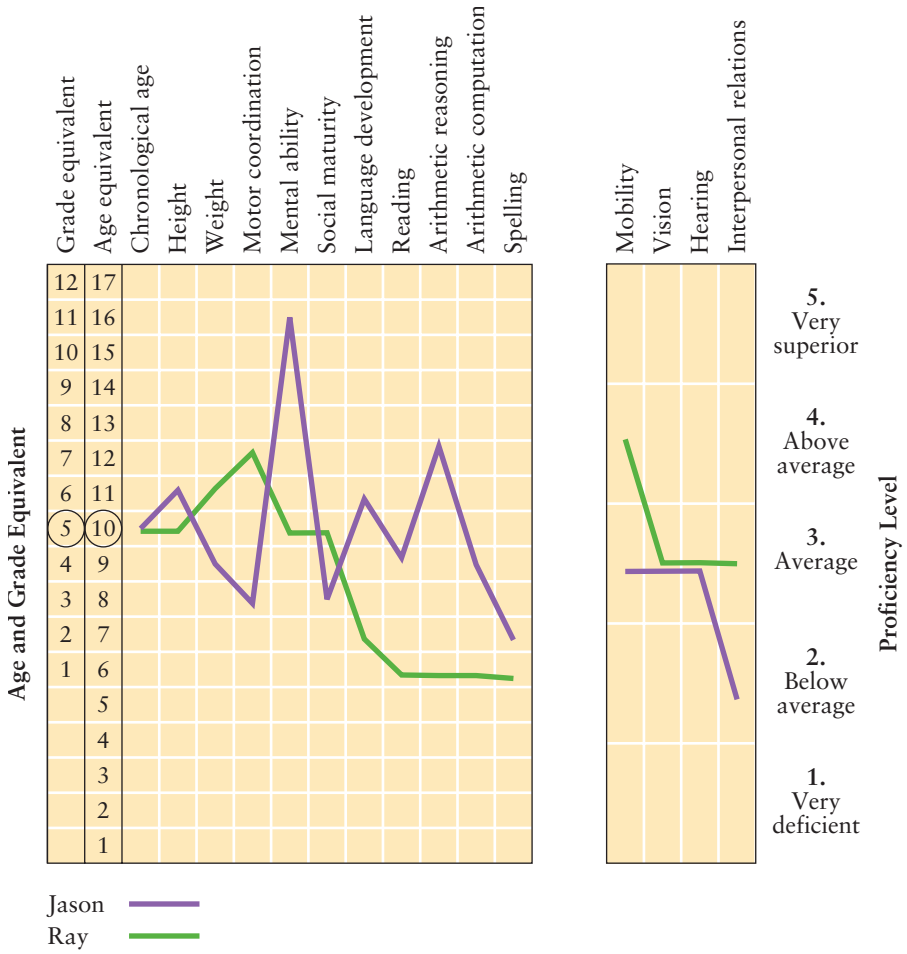


FIGURE 4.1
Profiles of Jason and Ray

believe he is "stupid." In spite of these academic problems, Ray excels in one area: art. Ray is very creative and loves hands-on building projects. In fact, he happily volunteers for all art projects. His teacher feels that he needs a great deal of support for learning and is grateful for the resource teacher's help with Ray. The resource teacher has expertise in working with students with special needs. She works with Ray and a small group of students with similar needs for an hour each day, and she also helps Ray's general classroom teacher adapt her lessons to provide more support for Ray. Together, both of Ray's teachers are looking for ways to use his strength in art to bolster his self-esteem and build more social support for him with his peers.

Both Jason and Ray have learning disabilities, and yet each is unique in his combination of strengths and challenges. Because of these differences, each student with learning disabilities will need an individualized educational program (IEP) to support his or her success in school. Later in the chapter we explore how teachers and parents can work together with the child to promote success, but first we take a look at how learning disabilities are defined by law.

Defining Learning Disabilities

More than forty-five years have passed since Samuel Kirk used the term *learning disabilities* to describe children who, despite average or above average intelligence, seemed to be encountering problems with school (Coleman, Buysse, & Neitzel, 2006). At that time Kirk believed that these children would likely be a very small subset of children with disabilities. Little did we know that children with learning disabilities would become the largest group of students served by our special education programs. Current estimations indicate that 48 percent of the school-age children who receive special education are categorized as learning disabled (LD; U.S. Department of Education, 2005). Why has this population expanded to include such a large number of children?

One possible explanation for the expansion is the way we have defined learning disabilities. The U.S. Department of Education (2004) gives us the following definition:

> SEC. 602. DEFINITIONS.
> (29) SPECIFIC LEARNING DISABILTIY.
>
> (A) IN GENERAL. The term "specific learning disability" means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, write, spell, or do mathematical calculations. . . .
>
> (B) DISORDERS INCLUDE. Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. . . .
>
> (C) DISORDERS NOT INCLUDED. Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

This is a theoretical definition and must be "operationalized" to help us actually identify students with learning disabilities (Herr & Bateman, 2003). To operationalize this definition, most states developed formulas that hinged on the discrepancies between intellectual abilities (IQ) and achievement and/or performance. The magnitude of these discrepancies was thought to indicate the degree of underlying disability affecting a child's psychological processing. Jason, for example, is a bright young man who is doing poorly in school. His poor performance may be due to a learning disability, or it may be due to any number of other things (for example, a lack of interest in school, teachers who are inexperienced, or even problems with home and family). As noted earlier, some educators believe that the use of discrepancy models to identify students with learning disabilities has made the label a catchall. Many students have been so labeled because they are underachieving in school and there is no apparent reason for their lack of success (Conyers, Reynolds, & Ou, 2003; Fuchs, Mock, Morgan, & Young, 2003; Gerber et al., 2004; Kavale, Holdnack, & Mostert, 2005). Thus the

Learning disabilities refers to a heterogeneous group of disorders manifested by significant difficulties in acquiring and using listening, speaking, reading, writing, reasoning, or mathematical abilities.

(© Will Hart/Photo Edit)

category has expanded as the "learning disabled" label has been given to any student whom teachers feel would benefit from some level of systematic support (MacMillan & Siperstein, 2002).

The following concerns highlight several problems with the discrepancy model as it is used to identify children with learning disabilities:

1. Discrepancies between IQ and achievement/performance are difficult to measure with young children.
2. Discrepancies between IQ and achievement/performance may exist for any number of reasons; thus, this approach is really just helping us find children with "unexplained underachievement" that may or may *not* be due to a learning disability.
3. To find discrepancies we must wait until the gap between IQ and achievement/performance is wide enough to measure, and this means that we must wait until the child has experienced substantial failure with learning.
4. The "wait-to-fail" model creates a situation in which the primary problems a child is experiencing get worse and are frequently compounded by secondary problems with behavior, self-concept, and academic readiness (Coleman, Buysse, & Neitzel, 2006).

Because of these problems with the discrepancy model, many educators maintain that the ways we identify and serve students with learning disabilities within both general and special education are not working (Bender & Shores, 2007; Vellutino et al., 1996). These educators believe that it will take a major paradigm shift to get back on track so that the needs of students with learning

disabilities can be met (National Association of State Directors of Special Education [NASDSE], 2005; Fletcher, Denton, & Francis, 2005). The response to intervention (RTI) approach, described in Chapters 1 and 2, was initially conceived as a way to help us identify and serve children with learning disabilities (NASDSE, 2005).

Learning Disabilities: The Paradigm Shift to RTI

The recent reauthorization of the Individuals with Disabilities Education Act (IDEA; reauthorized as the Individuals with Disabilities Education Improvement Act, 2004) reflects this change in thinking about how we define and serve students with learning disabilities. IDEA 2004 includes the RTI model as one option that schools can use to identify students with learning disabilities. The new language is part of Section 614, the section that addresses evaluations, eligibility determinations, individualized education programs, and educational placements:

> (b) EVALUATION PROCEDURES.
> (6) SPECIFIC LEARNING DISABILITIES.
>
> (A) IN GENERAL. Notwithstanding section 607 (b0, . . . when determining whether a child has a specific learning disability as defined in section 602 (29), a local educational agency shall not be required to take into consideration whether a child has a severe discrepancy between achievement and intellectual ability in oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or mathematical reasoning. . . .
>
> (B) ADDITIONAL AUTHORITY. In determining whether a child has a specific learning disability, a local educational agency may use a process that determines if the child responds to scientific, research-based intervention as a part of the evaluation procedures described in paragraphs (2) and (3). (IDEA, 2004)

It is important to note that this language does *not* preclude a review of the student's strengths and challenges as part of a comprehensive educational evaluation of the student's needs (Fuchs & Fuchs, 2007). This section allows the use of information that shows how a child has responded to scientific, research-based interventions *as one part of a comprehensive evaluation of student's needs* (Kame'enui, 2007). This approach is called *response to intervention*.

The way in which a child responds to scientific, research-based interventions can be used as one part of a comprehensive assessment of the child's strengths and challenges.

The RTI model focuses on prereferral prevention and intervention and on recognizing the needs of students so that we can deliver appropriate supports and services through a collaborative approach (President's Commission on Excellence in Special Education, 2002). Although there is currently no single RTI model, most educators agree on the following key components of RTI (Bradley, Danielson, & Doolittle, 2007):

- An **intervening hierarchy** with three or more tiers in which Tier I is a high-quality general learning environment and the additional tiers provide more help for students whose needs require more intensive supports

- The use of **evidence-based interventions** to meet students' needs, often called **standard protocol** approaches
- **Collaborative problem solving**, which involves a multidisciplinary team working together with parents to design services that address the students' needs
- **Progress monitoring**, or using data on student's achievement, performance, and other needs to monitor progress, guide decision making, and plan for future needs

The RTI approach allows early and intensive interventions based on students' needs without waiting for children to "fail" in the third grade (Fuchs & Fuchs, 2007; Fuchs, Fuchs, Mathes, Lipsey, & Roberts, 2002; Fuchs, Mock, Morgan, & Young, 2003; Jenkins & O'Connor, 2002; Vaughn & Fuchs, 2003). If we think about Ray's experience in school, we can see how the RTI approach would have been useful. Ray, as you may recall, is a fifth grader who is struggling in school and has severe problems with reading, spelling, and writing. In the early grades Ray's teachers hoped that he would catch up to grade level if he worked a little harder. They did not refer Ray for an educational assessment to initiate special education services because, although he was falling behind, he was not yet behind enough for his teachers to see an acute discrepancy between his abilities (IQ, which is average) and his performance (somewhat below average). It was not until Ray was in the third grade that he qualified for services, at which point he was finally failing. With the RTI approach, Ray's teachers would have been able to activate supports and services as soon as they noticed that Ray was encountering difficulties; they would not have had to wait for a formal label of learning disabilities. Ray would have had more intensive instruction provided in small groups, as Tier II interventions, early on, and his teachers would have initiated formal assessments as soon as they realized that Ray was continuing to fall behind. Ray's learning disability would have been identified, but he would not have had to fail in third grade in order to get the help he needed. To help us get a fuller picture of Ray's learning disabilities, let's look at two related areas: dyslexia and **attention-deficit hyperactivity disorders.**

Dyslexia

International Dyslexia Association
www.interdys.org

Currently, dyslexia is accepted as a disorder within the learning disability population, and it is defined by the International Dyslexia Association as follows:

> One of several distinct learning disabilities, it is a specific language-based disorder of constitutional origin characterized by difficulties in single word decoding, usually reflecting insufficient phonological processing. These difficulties in single word decoding are often unexpected in relation to age and other cognitive and academic abilities; they are not the result of generalized developmental disability or sensory impairment. Dyslexia is manifested by variable difficulty with different forms of language, often including, in addition to problems with reading, a conspicuous problem with acquiring proficiency in writing and spelling. (Orton Dyslexia Research Committee, 1994, p. 7)

The major conclusion is that children with dyslexia have brains that operate differently from the brains of children without dyslexia (Miller et al, 2003;

Rourke, 1991; Willingham, 2008; Willis, 2008). Although persons with dyslexia have difficulties in language-based tasks (reading, spelling, writing, and phonological awareness), many have well-developed abilities in visual, spatial, motor, and nonverbal problem solving (Dickman, 1996). Ray's problems with learning could be called *dyslexia* because his specific learning disabilities are in the language area. It is important to remember that not all children with learning disabilities have dyslexia and that dyslexia is often considered a medical term, whereas *specific learning disability* is used in educational settings. Ray also has a great deal of difficulty with paying attention in school, and his mind often seems to wander, which causes difficulties for him in school and is a source of frustration to his teachers. Ray's difficulties are extreme enough that his teachers feel he may also have an attention-deficit disorder.

Researchers recently have focused on analyzing what children must learn and on identifying the problems that children with learning disabilities have in mastering the material.
(© Stephen McBrady/Photo Edit)

Attention-Deficit Hyperactivity Disorders

Attention-deficit hyperactivity disorders (ADHD) can be considered a specific form of learning disability related to an individual's inability to attend to or focus on a given task. Although there is some controversy as to whether ADHD should be considered as a separate condition and not as a learning disability, we have chosen to include it within this chapter because of its neurological basis and because many of the educational strategies we use to respond to the needs of students with ADHD are similar to the supports we use with children who have other forms of learning disabilities (Cutting & Denckla, 2003). The organization for Children and Adults with Attention-Deficit Hyperactivity Disorder (CHADD) defines ADHD as follows: "Attention-deficit hyperactivity disorder (ADHD) is a condition affecting children and adults that is characterized by problems with attention, impulsivity, and overactivity" (CHADD, 2008).

Children and Adults with Attention-Deficit Hyperactivity Disorder
http://www.chadd.org

Angie has ADHD. She is easily distracted and often distracts other students. Angie makes careless mistakes in her work and seems to daydream much of the time. It is hard for her to concentrate in school, and her teacher refers to her as a "wiggle worm." Angie's parents feel that she is impulsive, and they find it frustrating that she cannot follow through with simple household chores, such as setting the table, unless she is prompted several times. Her parents feel that they have become "nags" and that Angie is changing from their fun-loving little girl into an angry and unhappy child. As you review the indicators of ADHD in Table 4.1, from the *Diagnostic and Statistical Manual of Mental Disorders,* you will see that Angie has several of the symptoms listed.

Although many children encounter periodic problems with attention and follow-through, individuals with ADHD face lifelong challenges and need a variety of supports to help them be successful. Many individuals with ADHD may benefit from medications used to help them focus and sustain their attention.

TABLE 4.1
Symptoms of Attention-Deficit Hyperactivity Disorder

Note: All of the symptoms of inattention, hyperactivity, and impulsivity must have persisted for at least six months to a degree that is maladaptive and inconsistent with the developmental level of the child.

Inattention

- Fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- Has difficulty sustaining attention in tasks or play activities
- Does not seem to listen when spoken to directly
- Does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- Has difficulty organizing tasks and activities
- Avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- Loses things necessary for tasks or activities (for example, toys, school assignments, pencils, books, or tools)
- Is easily distracted by extraneous stimuli
- Is forgetful in daily activities

Hyperactivity

- Fidgets with hands or feet or squirms in seat
- Leaves seat in classroom or in other situations in which remaining seated is expected
- Runs about or climbs excessively in situations in which it is inappropriate
- Has difficulty playing or engaging in leisure activities quietly
- Is often "on the go" or acts as if "driven by a motor"
- Talks excessively

Impulsivity

- Blurts out answers before questions have been completed
- Has difficulty awaiting turn
- Interrupts or intrudes on others (for example, butts into conversations or games)

Source: American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev., p. 92). Washington, DC: Author.

Causes of Learning Disabilities

No one has discovered a single cause of learning disabilities. Studies that focus on subgroups within the larger population of children with learning disabilities have identified some neurological differences and sensory deficits associated with their learning problems (Hynd, 1992; Lyon, 1995; Rourke, 1994). Recent studies using imaging technology have found differences in brain structure among students who have reading problems, attention deficits, and auditory processing difficulties (Jensen, 2000; Willingham, 2008; Willis, 2008). Although no one is quite sure what causes learning disabilities, some evidence indicates that they may be genetic, as they seem to "run in families." That is not always the case, however; environmental factors, from inadequate prenatal health care to exposure to harmful substances, may also lead to learning disabilities.

Prevalence of Learning Disabilities

We must continue to review identification procedures to ensure that we do not inadvertently overidentify children from some racial groups.

Although learning disabilities have an impact at all ages, we focus our discussion of prevalence on school-age individuals, from 6 to 21 years old. The *Twenty-sixth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, 2006,* reports that 4.3 percent of individuals ages 6–21 are receiving special education and/or related services because of specific learning disabilities, and, as noted earlier, the learning disabilities category makes up approximately 48 percent of all students with disabilities (U.S. Department of Education, 2005). Learning disabilities is the largest category of disability among all racial and ethnic groups; however, there are differences in identification patterns across groups. The *Twenty-sixth Annual Report* indicates that American Indians/Alaska Natives, black non-Hispanic, and Hispanic students are somewhat more likely to be identified as having learning disabilities, whereas identification is somewhat lower for white non-Hispanic and Asian/Pacific Islanders. These patterns continue to remind us that the identification process we use must be fair and equitable so that we do not inadvertently overidentify children from some racial and ethnic groups.

Figure 4.2 shows how the services for students with learning disabilities are provided across both general and special educational settings. The majority of students

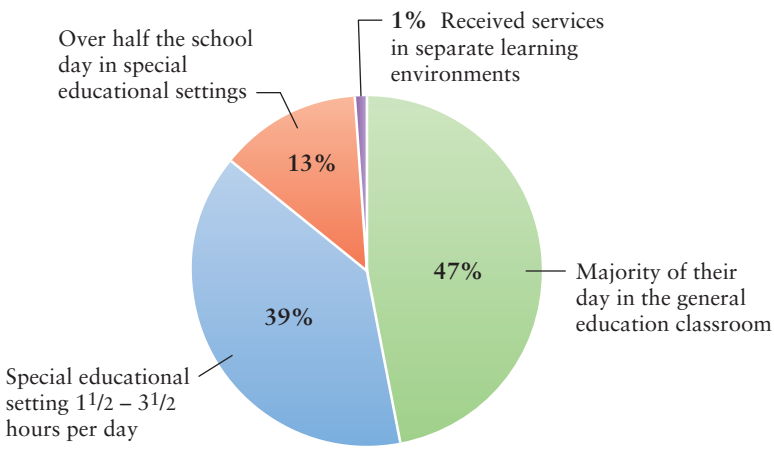


FIGURE 4.2
Percentage of Students with Learning Disabilities Served in Different Educational Settings

Because reading and arithmetic are similar in many ways (for example, numbers and words stand for concepts), a child with language difficulty is likely to have difficulty in learning to calculate.

(© Monika Graff/The Image Works)

with learning disabilities (47 percent) spend most of their time in general education classes. Thirty-nine percent of students with learning disabilities receive services in other settings for between one and one-half and three and one-half hours a day. A much smaller percentage of students with learning disabilities (13 percent) spend over half of their school day in settings other than the general classroom, and 1 percent receive services in a different environment (U.S. Department of Education, 2005).

When thinking about students with learning disabilities, it is important to bear in mind the following:

- All children with learning disabilities have learning problems of some kind.
- Not all children with academic problems have learning disabilities.
- *Learning disabilities* is a general term that refers to a heterogeneous group of disorders that includes different patterns of strengths and challenges.
- Learning disabilities are viewed as a problem not only of the school years but also of early childhood and adult life.
- Today's students with learning disabilities are a mixed group, some of whom have neurologically based learning disabilities, whereas others have unexplained underachievement.
- Learning disabilities may occur with other disabilities and may be found within all cultural and linguistic groups.

Information-Processing Model

The **information-processing model (IPM)** is useful in helping us understand the impact that a learning disability can have on a student's ability to take in, think about, and share things that he or she is learning. (Willis, 2008; Wong, Harris, Graham, & Butler, 2003). This model describes learning as a series of components that involve sensory stimulation/input, processing/thinking, and output, or the sharing of what has been learned. In this chapter, we focus on the impact that a learning disability has on one's ability to process information; in later chapters we address how sensory impairments and other disabilities can be viewed using the IPM.

Overarching each of these components is the **executive function** that serves as the system's decision maker. In learning, we sometimes call this aspect of the IPM **metacognition.** We have added a surrounding emotional context for information processing, because this emotional context is a critical mediator in the way students with learning disabilities process information (Cutting & Denckla, 2003; Jensen, 2000, 2008; Willis, 2008). The IPM is not the only

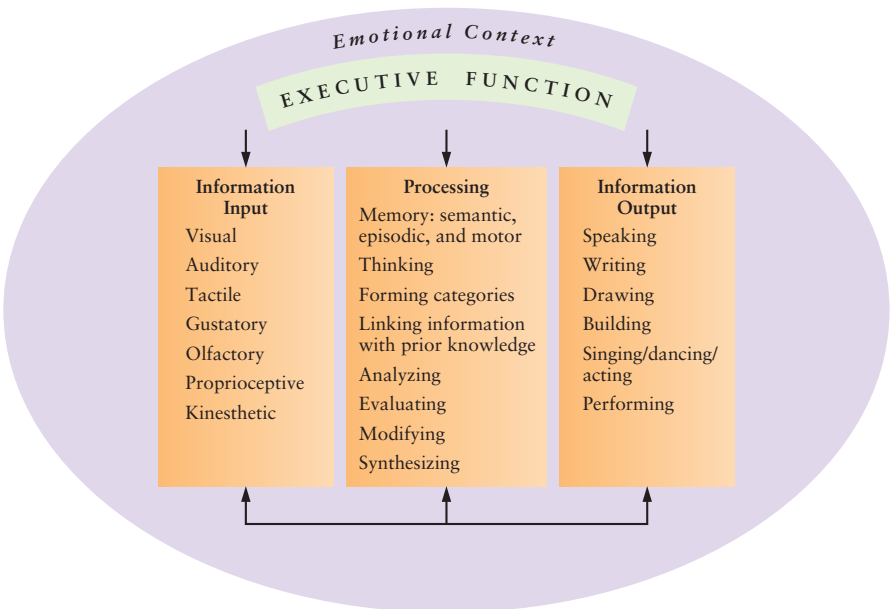


FIGURE 4.3
Information-Processing Model

Using the IPM helps us to understand the components of learning, and this allows us to explain learning disabilities in a concrete way.

way to describe learning, but it is a useful way to think about learning in the presence of a learning disability (Sternberg & Grigorenko, 2002; Willingham, 2008).

Using the IPM shows the components of learning and how they are impacted by a learning disability. The IPM also gives us a direct insight into strategies we can use to support student learning. The four major components (input, processing, output, and executive function) operate in the context of an emotional environment that influences the processing of information. Each component carries out an important function related to learning, and optimum learning takes place when the components function smoothly, as one system. A learning disability can be explained as a glitch in this system. Let's look at each component and explore what the glitches mean for students.

Problems with Input

When the learning difficulty occurs because of input glitches, a sensory-perceptual problem exists. Unlike sensory acuity problems, perceptual problems cannot be corrected with glasses or hearing aids. Those with **visual perception** problems can experience figure-ground (seeing an object against the background), closure (completion of a figure), and spatial relationship problems. Any one of these problems can make learning very difficult. If they are combined with auditory perceptional difficulties—figure-ground auditory problems (hearing speech against background noise) or difficulties in sound discriminations and/or sound

Technology can be used to support children's learning when they have visual or auditory perception difficulties.

(© Jim West/Photo Edit)

recognition—then learning becomes even more difficult (Lerner, 2005). Andrew, the first child we met in this chapter, has visual perceptual problems that make reading very difficult. His **auditory perception**, however, is strong, and so he can understand information that is read to him.

In addition to perceptual problems, some individuals with learning disabilities experience **sensory integration** difficulties. Sensory integration involves the ability to use two or more senses simultaneously and smoothly (Lerner, 2005). A student's inability to listen and take notes during class is an example of a sensory integration dysfunction, because this task requires blending auditory perception and tactile or **proprioceptive** (an awareness of where your body is in relation to the space around it) actions.

A final area of concern with this component is oversensitivity to sensory input. Lights, sounds, smells, and tastes may become overwhelming. When this **heightened sensitivity** affects the sense of touch, it is called **tactile defensiveness**, in which touch can trigger acute discomfort (Packer, 2004). For individuals who are tactually defensive, a light or soft touch seems to be more uncomfortable than firm contact. In a typical busy classroom, it is easy to see how a student with these sensory sensitivities would experience difficulties.

Problems with Processing or Thinking

When problems with learning primarily affect processing or thinking, we see difficulties with memory and in organizing ideas or thoughts in meaningful ways. Problems in these areas can be especially frustrating for students and their teachers. Although Ray's problems occur in several areas, the most difficult of them involves his inability to organize his thoughts and ideas. This inability creates great challenges across most school tasks, and it is only when he can be creative in the arts that he feels truly at home. Jason, on the other hand, excels in his thinking. He seems to thrive in the world of ideas, and he has a great memory. His struggle, as we see later, comes when he must write his ideas down. Let's look at glitches that affect memory and information retrieval and then at the problems with organizing thoughts.

The division of memory into sensory, short-term, and long-term memory helps us understand how students process different tasks (Bender, 2001; Swanson & Sáez, 2003). See Figure 4.4 for an information-processing model of how memory works. Our **sensory memory** can hold large amounts of information for a very short period of time; 2 to 3 seconds. We use **short-term memory** to remember the directions and steps for solving a math problem while simultaneously doing the calculations. **Long-term memory** stores information that we have made our own to draw on for future use. Problems with any of these forms of memory lead to major learning difficulties. However, the greatest impact occurs when students struggle with long-term memory storage and retrieval.

Another way to view memory is to consider how the information is stored. We typically store information in three kinds of memory: semantic, episodic, and physical/motor (Lerner, 2005).

- **Semantic memory** stores concepts, words, symbols, and generalizations. This is the most frequently used form of memory in school.
- **Episodic memory** is our ability to recall whole scenes or episodes from our past. When we experience episodic memory, we feel we are "right

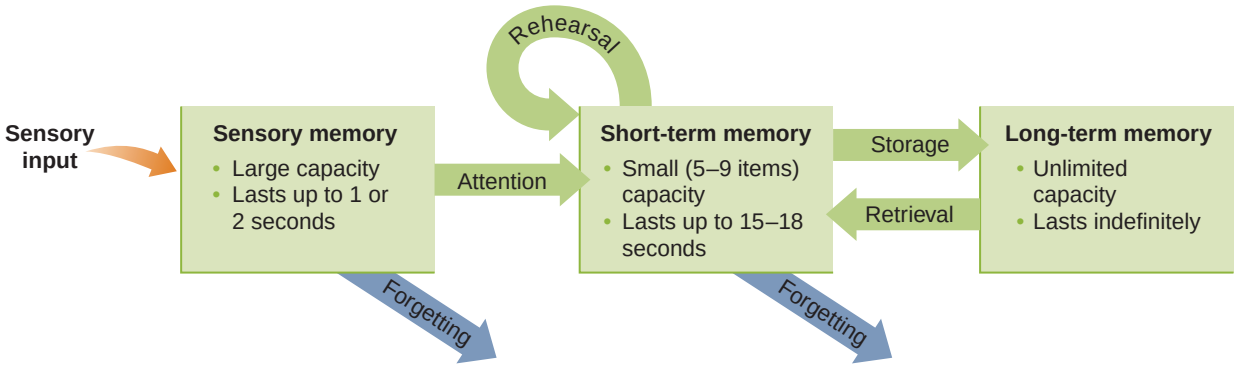


FIGURE 4.4
The Atkinson-Shiffrin Model of Memory
From Freberg, L. (2006). Discovering biological psychology (p. 354). Boston: Houghton Mifflin Harcourt Publishing Company. Used by permission of Houghton Mifflin Harcourt Publishing Company.

back there" with all senses engaged. Often episodic memories are triggered by smells. When you smell lavender perfume like your grandmother wore, you are immediately transported back to the times she read to you while you sat on her lap. Episodic memories are often associated with strong emotions that can be either positive or negative.

- **Motor memory** is our ability to program our body movements. Our bodies learn patterns and retain them for future use. We learn to ride a bicycle, play the piano, or write our names. Some motor memories seem to last after we no longer use them. Thus the expression "It's like riding a bike."

When an individual has a learning disability that affects memory in any form, school can be a challenging place.

In addition to memory, the processing component includes thinking. Students work with the information to interpret and combine it with prior knowledge as they create meaning for themselves by constructing their own understandings. Original ideas are born in this stage that allow the learner to move beyond the known into new areas of thought. It is in this component of the information-processing model that real learning takes place.

When information is stored in memory as isolated bits and pieces, it is more difficult to retrieve and is harder to use in meaningful ways. By structuring our teaching around concepts and big ideas, we can help students remember what they learn.

When problems occur in thinking, they are likely to stem from an inability to organize thoughts in meaningful ways. In other words, ideas remain fragmented and disconnected, so that patterns and relationships across ideas never jell into useful concepts. Interestingly, when information is stored in memory as isolated bits and pieces, it is more difficult to retrieve and is less useful for thinking. Because of retrieval problems, structuring our teaching around concepts and big ideas is a useful approach to helping our students (this is discussed further later in the chapter).

Learning, according to the IPM, is a function of how well an individual processes the information. Deep processing of information is necessary to understanding information so that it can be used in meaningful ways. Deep processing occurs when we transform the information to make it ours (Willis, 2008). Such processing might include forming categories where new information is linked with existing information. It also includes analytical and evaluative thinking.

The ultimate transformation occurs when we use the information to create new ways of thinking and share these new understandings with others. Ray, for example, has a hard time getting new information to "stick." In preparation for an upcoming social studies test, his mother spent several nights helping him study by quizzing him on vocabulary and dates. During the study sessions he seemed to be getting the information, and everyone was discouraged when he all but failed the actual test. Ray had not really processed the information deeply during his study time, and so he was not able to apply his learning when it came to the test. On the other hand, after he completed his social studies project, a topographical map of his state showing its different regions, populations, and products, he was able to remember and discuss everything he had learned in great detail. For Ray, this hands-on art-related project helped him process the information more deeply so that he could remember and use what he had learned. Sharing of information, or using what you have learned, is represented in the output component of the IPM.

Learning, according to the IPM, involves deep processing of information to understand and use it in meaningful ways.

HM VIDEO CASE

Psychology Applied to Education—Metacognition: Helping Students Become Strategic Learners

Watch this Video Case at the student website. Meet E. J. Buecler, an eighth-grade teacher at the Amigos School. In this Video Case, Mr. Buecler shows his students how to apply the information-processing model to a chemistry lesson. Do you think his application of the IPM is helpful? Will it help his students master the content? Why or why not? How is the teaching technique useful for students with learning disabilities?

Problems with Output

For some individuals with learning disabilities, the problem is primarily output, or the expression of ideas and thoughts, which can take several forms.

When output problems affect speech, they may be called *developmental aphasia,* because the symptoms mirror those of a stroke patient with speech difficulties. These problems include word retrieval and speech fluency, which can make communication difficult.

A second form of an output glitch involves the motor mechanics of handwriting (Berninger & Amtmann, 2003). The easiest way to understand this is to imagine that the connection between the brain and the hand is not efficient. There is "static on the line," which makes it difficult for the hand to know what to do and for the brain to understand what the hand has done. If you think back to Jason's profile this was one of his challenges. Difficulties with handwriting are sometimes called **dysgraphia,** which literally means *bad writing*. To produce legible products, these students have to "draw" their letters and form them into words. This process is very taxing and cannot be sustained for general work. When dysgraphia is combined with visual and auditory perceptual problems or sensory integration difficulties, note taking during lectures and copying from the board are virtually impossible.

Another form that output learning disabilities can take is an inability to both understand and produce gestures and facial expressions that correspond with feelings and emotions. In this case, individuals have difficulty interpreting emotional nuances that are communicated through facial expressions and body language. Because a tremendous amount of information is communicated nonverbally through looks and body positions, an individual who does not "read" these clues is at a distinct disadvantage when communication is required.

Individuals with these problems may also have a flat affect (an absence of expression on the face) that can limit their ability to express needs and wants, thus

making communication more problematic. Social situations can be quite painful for these individuals, creating an early pattern of social avoidance.

Problems with Executive Functions

The executive function, or metacognition, is the decision-making component of this model. Decisions are made about

- What input to notice or screen out
- What strategies to use to store information or whether the information needs to be stored
- How useful the information is
- How ideas and understandings will be expressed

Metacognition also includes **self-regulatory skills.** We monitor ourselves so that we can continuously adapt our thoughts, speech, and actions to accomplish our goals. Self-regulatory skills help us adapt to the environment, and they are essential (Wong, 2004). Self-regulation implies that an individual is in control of and responsible for his or her own actions. In addition to its importance for learning, self-control is also a key ingredient in social success. Impulsivity can lead to disastrous results: essentially leaping before looking. In learning, self-regulation allows us to monitor our understanding. Good readers, for example, continuously monitor their comprehension and work to make sense of their reading (Pierangelo & Giuliani, 2006). When something is not clear, good readers loop back and reread the passage. Poor readers, on the other hand, often fail to recognize that something does not make sense. Even when they do recognize the problem, they often fail to initiate a strategy such as rereading to help them make sense of the text (Williams, 2003).

For an individual with ADHD, the activities of a typical busy classroom may be full of distractions.

In addition to problems with self-regulation, difficulties with the executive function can show up as ADHD (Cutting & Denckla, 2003). With an attention disorder, as noted earlier, individuals may have difficulty maintaining their focus and can be easily distracted. This distractibility occurs because they are unable to screen out stimuli that are irrelevant to the present task. Therefore, all stimuli are given equal weight, and the information-processing system can be overwhelmed with input. Imagine being in a store with forty-five televisions tuned to forty-five different channels. Trying to watch only one program would be difficult, as all the TVs are producing sound and visual images that are competing for your attention. This is the experience that individuals with ADHD have when environmental stimulation is abundant. For an individual with ADHD, such as Angie, from earlier in the chapter, a typical busy classroom may be overwhelming due to its numerous distractions. This is the world as she knows it, and it is no wonder that she finds it overwhelming at times.

Emotional Context of Information Processing

Emotional context is not typically included as part of the IPM. However, it is critical to our understanding of students with learning disabilities. The IPM usually describes learning as a purely cognitive activity, but this is not how learning really takes place (Jensen, 2000, 2008). One's emotional environment and internal emotional state both have a dramatic impact on one's ability to learn (Shattell, Bartlett, & Rowe, 2008; Willis, 2008). When the emotional environment

The emotional environment and our internal emotional states have a dramatic impact on learning.

is harsh or we perceive it as dangerous, our internal emotional states become acutely stressed and defensive. Neither this environment nor the internal state it produces is optimal for learning. Think for a moment of a time when you were trying to learn something new or to perform a task under a great deal of pressure and stress. Perhaps you were taking an exam, or maybe you were learning to drive. Take yourself back to that time and try to remember how you felt. Can you see how strong emotions can affect our ability to learn and to perform with success? In fact, strong negative emotions have an impact on all aspects of our ability to process information, coloring our perceptions, scrambling our thinking, interrupting our ability to communicate, and, perhaps most important, clouding our judgment or executive functioning.

Individuals with learning disabilities may be even more vulnerable to toxic emotional environments than other students because their internal emotional states are often less secure (Shattell et al., 2008). Repeated experiences of failure and frustration can lead to **anticipatory anxiety** in the face of new situations, even when the situation is not particularly stressful (Bender, 2001; Levine, 2003). This anticipatory anxiety can sabotage success by undermining self-confidence at the start of a new experience. Anticipatory anxiety can also lead to heightened sensitivity and defensiveness, which further erode an individual's ability to respond to new situations and opportunities.

Thus far we have discussed the impact of the emotional context on cognition, but the emotional context also affects social situations. When an individual has a learning disability that affects his or her ability to read and understand social cues, social situations can feel threatening because people are often very unpredictable. The individual may have difficulty reading and understanding social cues due to this unpredictability.

In a classroom, a student's success is directly related to his or her skills in understanding and interpreting the teacher's expectations. Most students know when they are about to "cross the line" with a teacher and pull back enough to prevent negative consequences. Students who have learning disabilities that affect their understanding of social cues and who have difficulty with self-regulation may often find themselves in trouble. This tendency further exacerbates the anxiety response in the face of similar situations. When you are fairly certain that you will get in trouble and you don't know how to prevent it, you can become anxious anticipating the future.

Put yourself in the shoes of Andrew, Jason, Ray, or Angie for a moment and think about how their frustrations, fears, and anxieties compound their difficulties and make learning even harder for them. The importance of a positive emotional climate for learning is discussed later in the chapter.

The Information-Processing Model as a System

Although each part of the IPM has been discussed separately, the components work together as a system. Each component influences and is influenced by others in a continuous feedback loop. An anomaly or problem in one area will have an impact on other components.

For example, a student with a visual processing problem that affects *closure* will have a difficult time recognizing the differences between the letter pairs *a/u, n/h, a/d, h/b, a/g, c/o, a/q, c/d, t/f, i/l, i/j, o/p, r/n,* and *v/y*. If he or she has a problem with *visual rotations* and *mirror images,* then the following letter pairs will become difficult: *b/d, q/p, q/g, u/n, h/y, m/w,* and *g/p*. With these moderate perceptual

A Painful Situation

A bad year
Without bad people really
No one exactly to blame
Just a sequence of events
A class that didn't belong to me
And I not belonging to it
The round peg in the square whole [*sic*]
So slowly I faded out
At first just the field trips and their ilk
Then for part of the day
And finally completely
As words sprang and papers vanished
I became more and more lost and confused
And most of all sad
So the round peg
Found a round whole
And so the story ends
At least it was without villains

(unpublished poem, By Shane Wilder 2004)

Shane was born in 1992 and has lived in Albuquerque his whole life. He began writing in the second grade, when he won the New Mexico PTA Reflections Fair. Years later one of his stories, *To Top It All Off*, about his experience of having a learning disability, was placed in the Library of Congress. In 2005 and 2006 Shane was recognized as an All-American Scholar. But in spite of these academic successes, Shane's early life was filled with struggles in school. His parents captured Shane's dilemma this way: "In the early elementary school grades, Shane experienced profound failure and, in our view, a lack of understanding that a student could have a substantial learning disability and also be intellectually gifted. This was especially confusing for some teachers because his primary area of disability identified was in reading and written language, and yet these are also the primary areas of his giftedness." Like other students who are *twice exceptional*, Shane is gifted in several areas, but these strengths are combined with areas of great challenge. In Shane's case, he has a specific learning disability that affects reading. In fact, through fourth grade, Shane was essentially a nonreader, and he describes his difficulties this way: "It all began in the second grade. That was when I realized that I couldn't read, write, or keep track of things like other kids could. Thus I sort of fell out of regular education, first into a special education class at my school and eventually into Mr. Higgins's twice-exceptional class."

Shane kept his love of language and learning alive by getting his books on tape. According to his

Shane Wilder
(Courtesy of Marci Laurel)

difficulties, reading becomes a struggle. The individual spends the majority of his or her time and energy sorting the letters and decoding the words. This leaves little room for understanding meaning, which is essential for moving information into short-term memory (see Figure 4.5).

Moderate problems with input will also hamper processing and thinking, making it difficult to learn. This will inhibit output (the ability to share what

parents, "Shane continued to be a motivated learner, but he became very discouraged about his daily failure at school. At home he discovered books on tape, which greatly helped his mental state as he was able to read the books he loved independently and continue to learn new words and ideas that were so important to him." One of Shane's teachers in middle school said, "Shane's passion for language would be remarkable in any teenager but is astounding when coupled with the severe learning disability that made reading 'with his eyes' a struggle at best and, for most of his elementary years, an impossibility. How could a boy who faced years of failure—and at times stinging humiliation—maintain his love of books? Thank heavens for books on tape!" The books on tape allowed Shane to use his strong listening comprehension, his outstanding ability to think, and his natural curiosity about life to continue learning.

Shane was also fortunate because the Albuquerque Public Schools has one of the finest programs for students who are twice exceptional. As Shane's struggles in school increased, his parents sought out ways to help him:

> We were so very fortunate at that time to meet Dr. Dennis Higgins. Shane was eventually transferred to the school where Dr. Higgins was teaching a model elementary school classroom for students who were identified as both gifted and having an area of disability. Shane felt "at home" from the moment he stepped into this classroom and, with the love and guidance, became willing to try again to be a "successful" student.

Shane talks about his journey back to school success this way:

> It began with learning to accept school again once I got to Mr. Higgins's class. This occurred by beginning my time in Mr. Higgins's class with very little work and a lot of support for those few things. In Mr. Higgins's class I slowly learned, one, to catch up in skills that I have missed and, two, to persist in things that were hard. As well, I had a series of reading teachers who had varying levels of success, until the final one who taught the Wilson Program, which was exceedingly dull and boring, but it had its desired effect. By working two hours a week one-on-one with the teacher, I finally learned to read in the fifth grade.
>
> I am currently doing well in the ninth grade, where I take honors English, analytical biology, and a "gifted" health class but also study skills (a.k.a. resource room special education support). The most important support for being successful in challenging academic classes at this point are my IEP modifications, especially those that allow a teacher to accept my work based on content that might otherwise be disqualified because of spelling and/or conventions of writing. Books on tape are and always will be the most important adaptation for me because, even though I can now read at an expected level, it is still slow and less effective; therefore, I rely on audio books for most of my reading. The final modification of great relevance is the ability to either use voice activation software (which is new to me) or dictation for long written work.

He added that although he does not have any "sage" advice, he would suggest that others who struggle with twice exceptionalities should "find Dr. Higgins or his clone!"

Pivotal Issues

- Students who are twice exceptional have complex needs. What should we be doing to recognize and respond to these needs?
- How can teachers help their students develop the persistence in the face of difficulty that Shane describes?
- How do you think Shane's elementary school years might have been changed if his school had used an RTI approach?

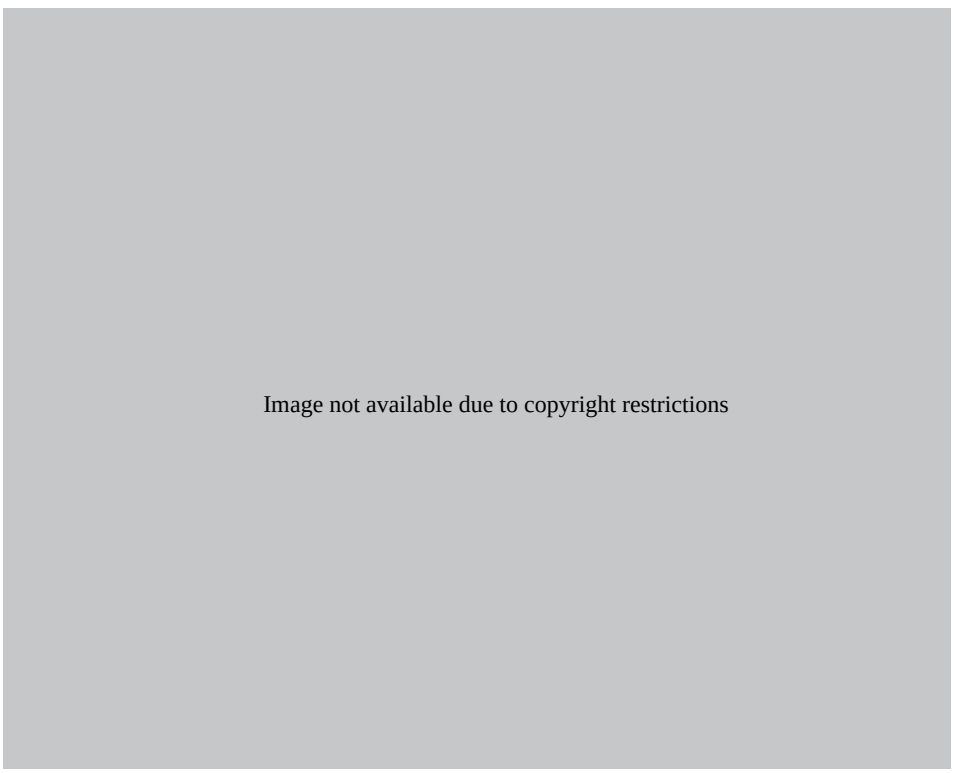
has been learned), because the information has not been deeply processed and stored in long-term memory. In contrast, for good readers, the decoding becomes automatic. This automaticity means that while they are reading, they can also process the information; they can think about what they are learning. When all the components work together, this facilitates understanding and keeps the IPM operating smoothly.

Visual Perception Problem	Letters That Cause Difficulties
Closure or visual completion	a/u; h/b; y/g; n/h; a/d; u/y; i/j; r/n; c/o; a/q; c/d; t/f; i/l; o/p; v/y
Reversals	b/d; g/q; p/q; g/p
Rotations	n/u; w/m; h/y; b/q

FIGURE 4.5
Visual Perception and Reading Difficulties

In addition to the influences of each IPM component on the others, disabilities are further complicated because of the multiplicity of problems. It is not unusual, for example, for a student to have problems with visual perception, short-term memory, sequencing information, organizing thoughts, and handwriting. This same individual might be strong in auditory perception, creative insights, and talking. In fact, this combination reflects Andrew's learning profile, but each individual will have a unique combination of strengths and problems.

Remember that when we use the term *learning disability* we are referring to a wide range of learning problems that coexist with a variety of learning strengths. Therefore, each student with a learning disability will have a unique profile and will need an educational environment that can address these differences.



Educational Responses to Students with Learning Disabilities

Throughout this chapter we have looked at the multiple ways that a learning disability can affect a student's ability to learn. We have noted that the category of learning disabilities includes individuals with widely different kinds of strengths and needs. Because of these unique needs, an IEP that links educational interventions and supports to the specific needs of each student is essential. The following section on education adaptations gives general suggestions and strategies for meeting the needs of students with learning disabilities, understanding that as teachers we must match these to the individual student's needs. In this section we use the RTI model to look at the three tiers of the intervening hierarchy and think about how students' needs are addressed at each level. We will also refer back to the information processing model on page 121 to present a variety of strategies that can support students with problems in each of the processing areas (input, processing, output, and executive functions) for the content areas of reading, math, and writing.

Adapting the Learning Environment

The RTI approach to meeting students' needs builds on collaboration between general and special education across the intervention hierarchy, or tiers of support. The intervening hierarchy, used to deliver supports and services to students with learning problems, shows how the needs of students can be addressed in a variety of settings within the school. At each tier teachers work to match instruction to the learning needs of the student though systematic progress monitoring (Bush & Reschly, 2007). Students receive support at the different tiers based on the intensity of their needs, and movement across the tiers is determined by the students' responses to the supports offered.

RTI

Tier I: The General Education Classroom

The general education classroom is the primary prevention and intervention site for all students. Effective teaching using evidence-based curriculum and pedagogy creates a high-quality learning environment in which most students should be successful. Teachers intentionally plan for their students, responding to their needs. The general classroom teacher uses universal screening and periodic progress monitoring to check on the needs of her or his students (Compton, Fuchs, Fuchs, & Bryant, 2006). Progress monitoring at Tier I helps the teacher to determine whether her or his students are making appropriate gains in their learning. Teachers may use performance outcome measures that align the overall learning goals (these are often

National Center on Student Progress Monitoring
www.studentprogress.org

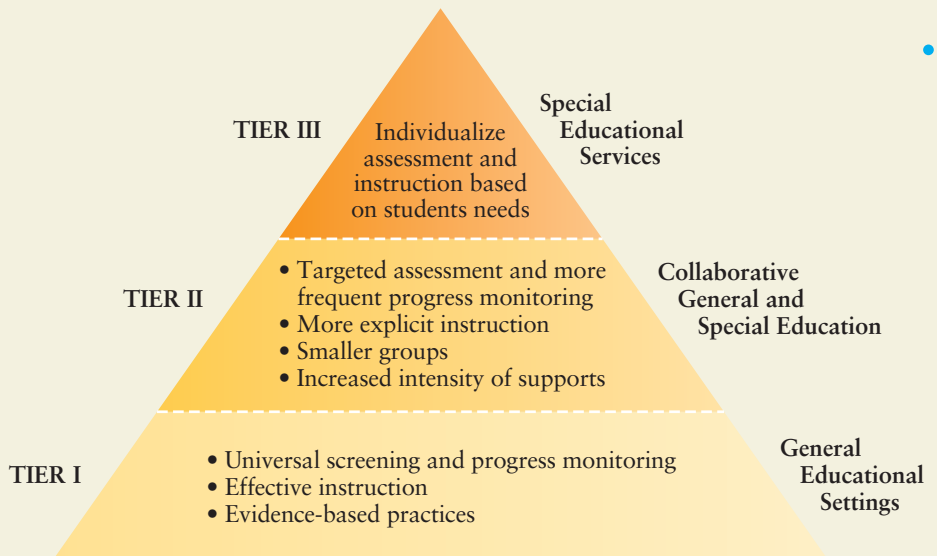


FIGURE 4.6
Intervening Hierarchy for RTI
Adapted from www.nasdse.org/projects.cfm? page projectid=23. Reprinted by permission of National Association of State Directors of Special Education.

called *curriculum-based measures*) to monitor progress, or they may use work sampling, in which tasks are drawn directly from the learning activities and are used as evidence of a student's mastery or needs.

When we first met Andrew at the beginning of the chapter, he was struggling in third grade because his reading skills were weak. If his teachers had been able to recognize his needs and respond to them earlier using an RTI approach, Andrew might have had a better chance of success.

Following is what Andrew's kindergarten classroom would have looked like if the RTI approach had been in place.

Ms. Brown, Andrew's kindergarten teacher, uses a guided reading approach to help all her students get ready to learn to read. This approach focuses on early reading skills, including print awareness, phonemic awareness, vocabulary building, word recognition, reading fluency, and reading comprehension. At the beginning of the year, as part of the schoolwide screening, Ms. Brown assessed all of her students on letter naming, letter sound recognition, word recognition, story retelling (retelling the story from memory after it had been read aloud), and story sequencing (placing pictures in order to show the story as it was told). Andrew had a very difficult time with most of these skills, but he was very good at story retelling and picture sequencing. Ms. Brown noted Andrew's initial skill levels in each area and began her instruction with Andrew. She also sent a note home to Andrew's parents asking them to read with and to Andrew as often as possible. She included two books that she thought might interest Andrew, with a list of questions to be used in discussion of the books.

Andrew was placed with a group of his classmates who all needed to strengthen their early reading skills. For six weeks Ms. Brown collected weekly progress monitoring data on letter naming, letter-sound matches, and word recognition. At the end of this period she used this information to review what her students had mastered. At this point, she realized that Andrew was not making appropriate gains in his phonemic awareness and that he was falling further behind his classmates in word recognition. Ms. Brown decided that Andrew's needs required even more intensive instruction, and so she brought Andrew's file to the kindergarten team meeting. In addition to the kindergarten teachers, the team meeting included the school's reading specialist and special education teacher. At the team meeting, it was decided that Andrew would benefit from short-term intensive instruction on letter recognition and phonics and that Andrew would receive reading support with Tier II services.

Tier II: Collaborative Interventions

As the intensity of the students' needs increases, the level of support to meet the needs must also increase. In Tier II, general and special education come together to provide the support needed. Interventions at Tier II are characterized by instruction that is more explicit or directive, along with expanded learning opportunities that are embedded in the students' daily learning experience. Learning supports at Tier II are often provided in smaller groups to increase the intensity of the instruction, and the frequency of progress monitoring is also increased. Tier II learning activities act as supplements to Tier I and are designed to correct problems early and to prevent further problems from developing. The general classroom teacher works with specialists to design and implement Tier II interventions. Through this collaborative process the team selects standard protocol interventions and works together in a problem-solving mode to determine what else should be done for the child. Progress monitoring in Tier II is used to see whether the intervention has been successful and to help in determining whether the child needs more intense supports (Fuchs & Fuchs, 2006).

In Andrew's case, he joined two other students who worked three times a week with the reading specialist on mastering letter-sound matches (phonemic awareness) and word recognition. An evidence-based curriculum was selected to teach these skills, and this support was provided in addition to all the early reading instruction that Andrew received in his general classroom. Andrew's progress on both skills was monitored three times per week, and records were kept to show his **slope of improvement** (see Figure 4.7).

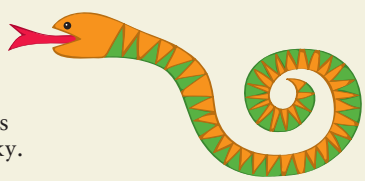
A meeting was held with Andrew's parents to share Andrew's progress and discuss his needs. Andrew's parents suggested that they could help more with word recognition and wondered whether there might be any computer software that they could use for this. They also asked his teachers to remember his outstanding memory for stories that were read to him, and together they decided to use this strength to help him develop a word bank of his favorite words from the stories he heard. Andrew created a notebook with pages for each letter and began adding words the next afternoon after story time. In addition to the word, his teacher helped him write a sentence using the word, and Andrew drew

Image not available due to copyright restrictions

a picture in his word bank showing the part of the story in which this word occurred (see Figure 4.8).

Andrew's teaching team met again with his parents to review his progress at the end of nine weeks. It was decided that, although Andrew had made substantial progress in both his phonemic awareness and his word recognition, he still needed the intense support to be successful. The team also agreed that more information about Andrew's learning needs should be gathered through a comprehensive evaluation. The planned evaluation included individual assessments of Andrew's listening, thinking, speaking, reading, writing,

SNAKE



The snake was fast and sneaky.

SPIDER

The spider sat on her web.

FIGURE 4.8
Sample Page from Andrew's Word Bank

spelling, and math, the seven domains identified in the legal definition of specific learning disabilities. An occupational therapist was brought onto Andrew's team to assess his handwriting, sensory integration, and motor skills. These assessments, in combination with the progress monitoring data, gave a comprehensive picture of Andrew's strengths and challenges to help the team determine how to meet his needs. The assessment would also be used to decide whether Andrew would need the more intensive services provided through the school's special education program.

Tier III: Individualized Educational Services

When the results of Andrew's assessments had been compiled, the team met again. This time they reviewed all of the assessment information and discussed Andrew's eligibility for special educational services. Andrew's assessment verified the observations that his teachers and parents had made and helped them understand the complexity of his needs. Andrew's strengths and challenges placed him in the gifted range and also showed that he was eligible for learning disabilities services. With both giftedness and learning disabilities present, Andrew is a youngster who is **twice exceptional**. The psychological report indicated that "Andrew's reading and writing deficits will impact all academic areas. But in spite of these problems, he understands concepts easily, has an advanced vocabulary, and demonstrates very superior verbal abilities. Andrew's listening comprehension is very advanced and his critical thinking is strong." The areas of difficulty included significant delays in visual motor integration, early reading skills, and writing, and moderate difficulties with early math achievement. This information, along with the progress monitoring data, indicated that Andrew should be identified for special education services for learning disabilities and that he would also need support for his gifted strengths. The team agreed that an IEP would be needed for Andrew to help him with the transition to first grade. (Visit the text's website, college.hmco.com/PIC/kirk12e, to look at Andrew's IEP so that you can discuss this in class.)

Strategies That Work to Support Students with Learning Disabilities

Earlier in this chapter we looked at the information-processing model as a way to think about the impact that a learning disability can have. Tables 4.2–4.5 show

TABLE 4.2
Support Strategies for Students with Learning Disabilities: Using the Information-Processing Model (Input Problems)

Information-processing component	General strategies	Reading strategies	Math strategies	Writing strategies	Assistive technology
Input problems	1. Content outlines 2. Advanced organizers 3. Syllabus or class overview 4. Reduce distractions 5. Use multiple learning styles (e.g. visual, auditory, kinesthetic) 6. Preferential seating 7. Carrell or screen	1. SQ3R (survey, ask questions, read, recite, review) 2. Think about what you already know 3. Self-check and "fix it fast" if you don't understand something	1. Use manipulatives 2. Learn multiple problem-solving approaches (e.g., guess and check, draw a picture, simplify, etc.)	1. Use writing process that includes: a) prewriting organization b) "note cards" for references c) all your senses to set the stage for writing (e.g., listen, look, feel)	1. Text-to-voice readers 2. Calculators 3. Franklin spellers that "speak" 4. End notes software for references

TABLE 4.2
Support Strategies for Students with Learning Disabilities: Using the Information-Processing Model (Input Problems) (*continued*)

Visual difficulties	1. Graphic organizers 2. Color code information 3. Black-and-white, clearly printed handouts 4. Highlight direction words 5. Use a cover sheet, reduce distractions	1. Use card to guide eyes across the page 2. Read out loud so you "hear" the words 3. Books on tape	1. Use graph paper with large squares to keep numbers organized 2. Turn lined paper sideways to create columns for your work	1. Reduce or eliminate "far point copying" from board	1. Large-print screens, text 2. Reduce glare on computer screen 3. Color "gels" to overlay on page
Auditory difficulties	1. Use headphones to reduce noise 2. Tape lectures to listen to again 3. Listen to music as you work	1. Scan the written material; focus on understanding charts, graphics, and pictures 2. Use chapter features (e.g., headings, bold print, summaries, etc.) 3. Watch the movie	1. Use pictures and visual prompts to support problem solving 2. Make sure all directions are written down in clear steps (1, 2, 3, . . .)	1. Reduce or eliminate dictated writing	1. Tape recorders
Tactile difficulties	1. Wear comfortable clothing 2. Cut tags out of shirts and avoid rough seams 3. Avoid foods with unpleasant (for you) textures (seeds, stickiness, etc.)		1. Role-play to act out word problems	1. Trace letters, words on sandpaper or textured surface	

TABLE 4.3
Support Strategies for Students with Learning Disabilities: Using the Information-Processing Model (Processing Problems)

Information-processing component	General strategies	Reading strategies	Math strategies	Writing strategies
Processing problems	1. Sit near a study buddy 2. Break up longer work periods with short breaks to stretch and move 3. Create or use study guides 4. Allow movement to help anchor learning 5. Use simulations and action games for learning	1. Get the assignments ahead of time and start reading early 2. Highlight key words and ideas 3. Write margin notes in book as you read 4. Summarize key ideas as you read	1. Use real-life examples as the basis for math problems	1. Talk your work over with someone 2. Backward map your work to see if the flow is logical (i.e., look at the ending and work backward to make sure that all the supporting details have been included)
Memory challenges	1. Learning concepts versus isolated facts 2. Chunking information 3. Mnemonic devices such as My Dear Aunt Sally for the order of operations (multiplication, division, addition, subtraction) 4. Rehearsals or repetition of information, often as a chant 5. Keep lists and use flash cards to study	1. Use headings to outline material and take notes 2. Write short summaries 3. Create a visual to help remember main ideas and sequences (time lines, story lines, etc.) 4. Retell the story/material 5. Discuss with others	1. Use mnemonics 2. Reduce emphasis on memorization of "facts" and "formulas"; focus on math problem solving	1. Use note-taking and prewriting strategies 2. Keep a to-do list 3. Insert a "next steps" note to remind yourself where you are going when your writing is interrupted 4. Stop writing with a sentence left half finished so you can start back easily
Thinking challenges	1. Concept webs 2. Learning frames (Edwin Ellis, www.graphicorganizers.com/downloads.htm) 3. Make relationships across ideas explicit 4. Start reviewing for tests early	1. Listen to class discussions and ask questions 2. Ask yourself questions about the material	1. Model the thinking by "thinking out loud" 2. Discuss the relationships and patterns to understand the "why" of math	1. Dictate your thoughts prior to writing so you will remember them 2. Talk to yourself about the ideas you want to share 3. Find editorial support

learning strategies that can help to address difficulties with each component of the IPM system. These strategies are presented for reading, writing, and math, but they can be used in all of the content areas. Assistive technology has also been listed when technological supports exist for learning. Some ideas given focus on the teacher and the learning environment, whereas others are suggestions the student can use.

Table 4.2 shows strategies that can be used to support students who have difficulties with processing input. Remember that students with learning disabilities have problems with perception, or how the brain interprets the information, not with acuity or the ability of the sensory organ to take in stimuli. Ray, the second child we met in this chapter, has severe visual and auditory processing difficulties. This means

TABLE 4.4
Support Strategies for Students with Learning Disabilities: Using the Information Processing Model (Output Problems)

Information-processing component	General strategies	Reading strategies	Math strategies	Writing strategies	Assistive technology
Output problems	1. Separate grades for content and mechanics (e.g., spelling, grammar, punctuation) 2. Reduce assignment length; focus on the essentials 3. Ask for extra credit		1. Remember that less is often more (reduce the number of "practice" problems)	1. Dictate responses 2. Allow short written answers when appropriate 3. Use note-taker support	1. Use *all* available technology for support (e.g., voice activation software, photocopies, etc.)
Speaking difficulties	1. Make notes ahead of time of key points you want to make in a discussion and practice these	1. Practice ahead when you need to read out loud	1. Draw pictures of problems 2. Use charts and graphs to communicate	1. Use notes and e-mails to communicate versus phone calls	1. Use software to "read" written material
Writing difficulties	1. Use prewriting techniques		1. Use math talks to share what is learned	1. No penalty for poor handwriting 2. Use the drafting process and seek feedback (start early!) 3. Learn essay-writing techniques and use them	1. Computers (spelling and grammar check) 2. Inspiration software as a prewriting tool 3. Voice-activated software

that it is very hard for him to take in information when he is reading or listening, but remember that Ray is very good with hands-on projects. The strategies that will support Ray need to focus on using multiple pathways for processing the information. Look at the ideas presented in Table 4.2 and identify strategies that you think would help Ray learn. Which of these would be helpful for his Tier I supports, which might need collaboration between his classroom and special education teacher; which for his Tier II supports; and which strategies should be taught or delivered within his special education services, Tier III?

Some students with learning disabilities have problems in processing information. These problems make it difficult for them to organize their thoughts and ideas and to retrieve information that they have learned. Ray has a very hard time with memory, and he often finds organizing his ideas to be a daunting task. In addition to the strategies you identified to help Ray with his input difficulties, what strategies do you think would help him with his memory and organization of ideas? Review Table 4.3 to see whether there are things that you feel could be done to support Ray's learning within each tier of intervention (Tiers I, II, and II).

Problems with output often create difficulties such as those faced by Jason, one of the students we have discussed in this chapter. Jason has a very hard time with handwriting, and his behavior is becoming

TABLE 4.5
Support Strategies for Students with Learning Disabilities: Using the Information-Processing Model (Executive Function Problems)

Information-processing component	General strategies	Reading strategies	Math strategies	Writing strategies	Assistive technology
Executive function problems	1. Use assignment books 2. Create schedules for day and week, and calendar for semester (color code what you must do, what you should do, and what you want to do) 3. Make lists and check things off 4. Create quiet study place with everything you need handy 5. Keep materials organized with a system that works for you (e.g., color-coded notebooks)	1. Focus on topic sentences, conclusions, and summaries 2. Use *Cliff's Notes* to help you summarize learning 3. Understand that different kinds of written material need different kinds of reading and adjust accordingly	1. Focus on one step or direction at a time 2. Check your work to verify accuracy 3. Work slowly and try to be neat 4. Use reading strategies to help with word problems (e.g., highlight key words, etc.)	1. Think about who your audience is and what they need to know to understand your message 2. First focus on your key points (what would the bumper sticker say), then expand them 3. Ask for peer editor feedback	1. Day planners and Palm Pilots 2. Electronic calendars and schedulers

increasingly more disruptive as his frustration escalates. Reviewing Table 4.4, what kinds of things might be put in place to reduce Jason's frustration with output difficulties while supporting his strengths in thinking, or processing? How do you think these supports could be implemented within a tiered, or RTI, approach? What kinds of collaboration will Jason's classroom and special education teacher need to form in order to help Jason become successful?

Some of the most challenging difficulties faced by students with learning disabilities are those that affect the executive function abilities. Angie, a student discussed in this chapter, has ADHD. She is easily distracted and finds it very hard to stay on task. Because ADHD and problems with executive functioning will affect all areas of information processing, many of the strategies listed in Tables 4.2–4.5 will be important for her. Take a look at these and identify key strategies that you feel could be used within Tier I, the general classroom; Tier II, the collaborative intervention; and Tier III, special education services.

The emotional context within which individuals learn is also key to understanding the information-processing model. Thinking about Ray, Jason, and Angie, how can their teachers create the emotionally supportive environment that they will need to thrive in school? Often, when we begin to look at how we can support students with special learning needs, we find that the same strategies would benefit many of our other students. How would all of our students' learning be enhanced if some of the strategies you have identified for Ray, Jason, and Angie were more broadly implemented in general education classrooms?

The National Research Center on Learning Disabilities at the University of Kansas has an outstanding website that gives evidence-based strategies for working with students with learning disabilities.

One of the most stressful experiences for students with learning disabilities can be test taking. The level of anxiety that is often associated with testing compounds their problems with learning and exacerbates their learning difficulties. Here are ten things that can be done to help students become more successful during assessment:

National Research Center on Learning Disabilities
www.nrcld.org

1. Prompt students to read directions and questions carefully and to ask if they do not understand.
2. Offer extended time on tests.
3. Use alternative assessments (for example, projects, films, photo essays, and so forth).
4. Allow short written answers when appropriate.
5. Give oral-response tests.
6. Remind students to look over the whole test before starting and to focus first on the items that score the highest number of points.
7. Offer a "tips for test taking" seminar for your students.
8. Read the test to the students.
9. Offer a distraction-free environment for test taking.
10. Allow students to design cover sheets with key prompts and information that you approve for use during the test.

Educational adaptations should be designed to minimize the impact of the disability while maximizing the student's ability to be successful. Adaptations that help the student become more autonomous and independent are optimal. The responsibility for learning and for self-regulation ultimately rests with the individual, but it is the job of educators to provide the support needed so that the individual can thrive. Fortunately, the child's family can play a critical role in the support system.

Families provide support to help their child find success.
(© Ronnie Kaufman/Blend Images/Corbis)

Family and Lifespan Issues

Families are a critical part of the support system for individuals with learning disabilities. Because a learning disability is often not identified until the child reaches school age, the adjustment of the family to the child's needs comes later than it will in some other areas of disability, as discussed in Chapter 3. The quality of the child-parent transactions and the extent to which the family provides diverse activities influences the child's progress. Families of children with learning disabilities are at risk themselves if they lack social support and are undergoing stress in coping with their child's disability. Because learning disabilities seem to run in families, parents may feel guilty that they have genetically passed this on to their child. They may also be struggling with some of the same problems that their child is experiencing, and so they may feel ill equipped to help. However, families are unique, and often they display amazing strengths, as well as needs. Many recognize that their children with learning disabilities need to be taught strategies (executive functions) for learning, as well as information and facts. Families are key to convincing their children with learning disabilities that they are not "stupid" or "lazy," and families need to find ways to motivate their children to persist in the face of academic failure (Shattell et al., 2008).

Teachers working closely with families can develop an IEP for the child. Strong partnerships with parents help both the teacher and the parent understand the child's needs. The parents play two key roles for their child with

TABLE 4.6
Ideas for Parental Support for Students with Learning Disabilities

- As much as possible, create a consistent household schedule for daily routines (bedtimes, wake-up times, dressing, leaving for school, meals, room cleaning, TV time, chores, etc.).
- Develop clear guidelines for expected behavior framed from the positive (what you want rather than what you don't want) and place these in a chart or contract if needed for a reminder.
- Consistently reinforce expectations from a positive point of view and, if necessary, develop consequences for inappropriate behavior. Consequences should be naturally linked to behavior. For example, if a child breaks a toy out of anger, the consequences may be to clean up the mess and to give one toy away to a child who does not have many toys. For a teenager who stays out too late and does not call, the consequence may be grounding for a week with no phone privileges.
- Use prompts and checklists for normal chores if needed (prepare a get-ready-for-school checklist the night before).
- Organize, organize, organize!
- Set up things you need for the next day the night before (clothes out, lunch made, everything gathered together by the door, etc.).
- Provide a quiet study place and time.
- Check to see that homework has been done and verify that the agreed-on amount of time has been spent working on assignments.
- If needed, seek out the help of a tutor or study coach.
- Help your child regulate blood sugar with healthy snacks and foods.
- Help your child get appropriate exercise to regulate mood and stress.
- If medications are needed, monitor these and their impact.
- Monitor TV time, programs watched, computer time, and Internet access.
- Communicate your love and appreciation of your child often and in very concrete ways.
- If there are other siblings in the family, make sure that their needs are also addressed, and do not set siblings in competition for your approval.

learning disabilities (Baum & Owen, 2004). The first is as an advocate for the child, working to ensure that the school addresses their child's needs. As teachers, it can sometimes be difficult when parents ask us to change our practices to better meet the needs of their child. But it is critical that we listen. If we have formed a strong partnership with the parents, we can work together, and the parents' knowledge of their child can help us meet the child's needs.

The second key role of parents is to create a support system at home to provide a safe and loving environment with the necessary structures for the child's success. Table 4.6 shows a few things parents can do to support their child with learning disabilities.

Although the suggestions in Table 4.6 may seem like solid ideas for any family, the consistency, organization, and positive tones are even more critical for the healthy development of children with learning disabilities. The major task

of every family with children is to prepare them for a meaningful life. This is no different for families who have a child who has learning disabilities.

Transitions and Lifespan Issues for Individuals with Learning Disabilities

The transition from adolescence to young adulthood can be a difficult time for anyone (Levine, 2005). The normal struggles with independence, identity formation, and lifestyle choices are compounded when a disability is added. For many students with learning disabilities, school has been a place where they have struggled, and so decisions about postsecondary options are filled with mixed emotions. Yet students with learning disabilities are attending college in growing numbers (Coleman, 1994; Kosine, 2007; Kravets, 2006). Colleges and universities that receive any federal funds are legally required to provide support for students with disabilities (Block, 2003a). In spite of this requirement, supports and services vary widely from campus to campus (Kirby, Silvestri, Allingham, Parrila, & La-Fave, 2008). A solid support system at the college level is important for students with learning disabilities because, as Block (2003b) points out, college is different from high school. Think of the many things that you, as a college student, are expected to do that were never a part of your high school experiences (Kirby et al., 2008). Now imagine the impact these differences would have on you if you also were coping with a learning disability. (For more information on college students with learning disabilities, please visit the website for this textbook.) Not all students with learning disabilities will go to college; many will choose other options. The most important thing is that during their early educational years we have prepared them for the many opportunities that will come their way in life so that they can make sound personal decisions and meaningful contributions to those around them.

moral dilemma

Classroom Modifications

Students with leaning disabilities often need modifications in their assignments in order to minimize the impact of their disabilities and to facilitate their success. Kevin's IEP, for example, includes extended time on exams, no penalty for spelling errors on essays written in class, and ability to use the computer for extensive written work. You are Kevin's high school English teacher, and one of your students has protested that giving these accommodations to Kevin is not fair. The protest is growing, and now several students have voiced their resentment of "Kevin's special treatment."

How will you handle this? What are your personal beliefs about this issue, and how will your beliefs affect your professional decisions? What does "fair" mean in the educational context for individuals with special learning needs?

Go to the student website to share your thoughts on this dilemma: www.college.hmco.com/PIC/kirk12e.

Summary

- Although the origins of learning disabilities are largely unknown, the most commonly accepted cause is a problem related to how individuals process information at the neurological level.
- Individuals with learning disabilities are a heterogeneous group, and each student has his or her own unique set of strengths and challenges.
- A comprehensive evaluation that includes overall cognitive abilities and academic achievements in combination with progress monitoring data is essential to accurately diagnosing and planning services for students with learning disabilities.
- Most students with learning disabilities are served in general education classrooms with appropriate modifications (outlined in their IEPs) to help them be successful.
- The response to intervention (RTI) approach promotes the collaboration between general and special educators needed to fully support students with learning disabilities.
- Families of students with learning disabilities are critical both in their advocacy role and in the home support they provide for their child.
- More and more students with learning disabilities are attending college and finding ways to use their strengths in meaningful and productive lives.

Future Challenges

1 ***How will the use of RTI affect the identification of and services for students with learning disabilities?***

As RTI becomes more widely used, patterns of identification and services are likely to change, and we do not yet know what the full impact of this will be for students with learning disabilities. The following questions will need to be addressed: How will RTI change which students are identified? Will RTI reduce the current overrepresentation of students from culturally diverse families? How will collaborative services be delivered in ways that ensure that the needs of students with learning disabilities are met? What will be done for those whose needs are in math or in other nonreading areas? How will parents' rights continue to be addressed as RTI becomes more prevalent?

2 ***Increasing numbers of students with learning disabilities and attention-deficit disorders are attending colleges. What should be done to ensure smooth transitions and comprehensive services in the postsecondary setting?***

The wonderful news is that more and more students with disabilities are attending colleges. The difficulty is that institutions of higher education may not be fully prepared to meet the needs of these students. Questions that will need to be answered include: How can we make sure that colleges and universities are equipped to meet the needs of students with disabilities? What changes are needed in institutional policies (for example, admissions, drop-add periods, support services, housing, full-time-student criteria, and so forth) in light of this changing student population?

3 ***How can the needs of twice-exceptional students be addressed?***

As more students are recognized as being twice exceptional—that is, gifted with disabilities—supports and services need to be developed to address their complex needs. We need to ensure that the strengths of twice-exceptional students are nurtured and addressed through challenging learning experiences while at the same time appropriate supports are provided for the areas of disability. How can collaborative teams work to include gifted education specialists to address the needs of twice-exceptional students?

Key Terms

anticipatory anxiety p. 125
attention-deficit hyperactivity disorders p. 114
auditory perception p. 121
collaborative problem solving p. 114
dysgraphia p. 123
dyslexia p. 109
episodic memory p. 121
evidence-based interventions p. 114
executive processor p. 119
heightened sensitivity p. 121
information-processing model (IPM) p. 119
intervening hierarchy p. 113
long-term memory p. 121
metacognition p. 119
motor memory p. 122
progress monitoring p. 114
proprioceptive p. 121
self-regulatory skills p. 124
semantic memory p. 121
sensory integration p. 121
sensory memory p. 121
short-term memory p. 121
slope of improvement p. 130
standard protocol p. 114
tactile defensiveness p. 121
twice exceptional p. 132
unexplained underachievement p. 109
visual perception p. 120

Resources

References of Special Interest

Division for Learning Disabilities. (2007). *Thinking about response to intervention and learning disabilities: A teacher's guide.* Arlington, VA: Author. This publication of the Council for Exceptional Children's Division for Learning Disabilities is a brief user-friendly guide to how the RTI approach can be used with students who have learning disabilities. It provides an excellent overview for teachers who will be working to implement RTI in their schools and classrooms.

Bender, W., & Shores, C. (2007). *Response to intervention: A practical guide for every teacher.* Arlington, VA:

Joint Publication Council for Exceptional Children; Thousand Oaks, CA: Corwin Press. This is a comprehensive guide for the implementation of RTI in the classroom. Examples of RTI in action for a variety of grade levels and content areas are given. This book also contains several lists of resources and validated curriculum that can be used for interventions with students who are struggling.

Baum, S., & Owen, S. (2004). *To be gifted and learning disabled.* Mansfield, CT: Creative Learning Press. The paradox of students who are twice exceptional is discussed. Comprehensive guidance is provided for teachers, parents, and students on how to cope with the complexities of gifts in combination with areas of extreme challenge. The use of student case stories brings the book to life and makes the strategies presented readily applicable for use with students who may face similar difficulties.

Lerner, Johns, (2009), *Learning disabilities and related mild disabilities*. Boston, MA: Houghton Mifflin. This is the definitive text on learning disabilities written by leading authors in the field. It shares the current strategies and ideas for identifying and serving students with learning disabilities and those with mild disabilities. It is a critical body of work that forms an essential foundation for teachers who work with these students.

National Association of School Psychologist. (2007). Special series: Service delivery systems for response to intervention. *School Psychology Review, 36*(4). This Special Series reviews the current state of research and practice for RTI. Contributing authors review what we know and need to know about how RTI can be used across schools. The authors lay out concrete suggestions for the research that is still needed and offer clear guidance on the systems changes that would be required to fully and successfully implement this approach. This special issue will be particularly useful for student with an interest in educational policy and the process of school reform through systems change.

Swanson, Harris, & Graham, Editors, (2003). *Handbook of learning disabilities*. New York, NY: The Guilford Press. This publication shares in one volume the thinking of leaders in the field of learning disabilities. The five sections cover: foundations and current thinking; causes and behavior manifestations; effective instructions; formation of instructional models, and methodology related to children with learning disabilities. This is an essential desk reference for anyone interested in learning disabilities.

Journals

Learning Disabilities Research and Practice. A publication of the Division for Learning Disabilities, Council for Exceptional Children,
www.TeachingLD.org

Learning Disability Quarterly. The journal of the Council for Learning Disabilities,
www.cldinternational.org.

Journal of Learning Disabilities A publication of the Hammill Institute on Disabilities, 512-451-3521.

Professional Organizations

National Research Center on Learning Disabilities
www.nrcld.org

Division for Learning Disabilities, Council for Exceptional Children
cec.sped.org
www.TeachLD.org

National Center for Learning Disabilities
www.ncld.org

Learning Disabilities Association (LDA)
www.ldanatl.org

Council for Learning Disabilities
www.cldinternational.org

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CHAPTER

5

Children with Intellectual and Developmental Disabilities

FOCUS QUESTIONS

- How do educators define intellectual and developmental disabilities (IDD)?
- What are some of the biological and environmental factors that can cause IDD?
- What are the two key components in defining IDD?
- What are some of the typical characteristics of students with IDD?
- What are the educational issues related to inclusion of students with IDD?
- What are some of the changes in curriculum and teacher strategies useful in teaching students with IDD?
- How do we adapt technology for students with IDD?
- What are some of the problems students with IDD may have in making the transition to the community?

The category of intellectual and developmental disabilities (IDD), formerly termed *mental retardation*, has probably seen more change than any other category of exceptional children. Since 1908 there have been ten changes in the definition, and even the current definition has received its share of criticism. There seem to be two reasons for this dynamic state: the proliferation of research, which is a strong change agent; and the changes in the way society views IDD and those who have it (Greenspan & Switzky, 2006).

A Brief History of the Field

Organized attempts to help children who learn slowly began less than two hundred years ago, when Jean Itard, a French physician, tried to educate a young boy who had lived by himself in the woods—the so-called Wild Boy of Aveyron. Although Itard failed to achieve all of his objectives, one of his students, Edouard Seguin, later developed Itard's approaches and became an acknowledged leader of the movement to help children and adults with mental retardation.

Over the years, the care and education of children with IDD, has moved gradually from large state institutions to special classes in the public schools and, within the schools, to the least restrictive environment, the regular classroom.

Another notable person in the field, Maria Montessori (1912), worked with children with IDD in the physiological tradition, using what is now called *sense training*. Her work was so successful that her ideas were applied to the teaching of young children without disabilities. Today she is best known for her educational play materials and methods, even though her original work was done with children who had IDD.

In 2006–2007, the key professional organization in this field, the American Association on Mental Retardation, changed its name to the American Association on Intellectual and Developmental Disabilities (AAIDD). It also changed the title of one of its key journals; now the names refer to the basic condition as "intellectual and developmental disabilities" rather than "mental retardation," thus trying to eliminate the negative connotations that had been attached to the previous term (Prabhala, 2007).

Maria Montessori was a true pioneer in the education of young childern.

(© Mary Evans Picture Library/The Image Works)

Defining Intellectual and Developmental Disabilities

Over the past decades, emphasis in the diagnosis of intellectual and developmental disabilities has shifted from strictly a measurement of cognitive abilities (primarily IQ tests) to a mix of cognitive abilities and adaptive behaviors. This change has been due in part to the realization of the role played by the environment (particularly poverty environments) in the development of mild mental retardation. Educators do not merely try to help a child adjust to his or her disability; they also try to intervene early in the life cycle to keep the condition from becoming more serious.

Identification of Intellectual and Developmental Disabilities

American Association on Intellectual and Developmental Disabilities
www.aaid.org

Table 5.1 highlights the current definition of mental retardation, now IDD, set forth in 2002 by the then American Association on Mental Retardation. It refers to two separate domains in which limitations must be found before we refer to a person as having IDD. The first is significantly *subaverage intellectual functioning*; the second domain reflects limitations in three general indicators of *adaptive skills*. Despite the problems that the definition poses, most educators and psychologists see the wisdom of using the dual criteria—*intellectual subnormality/developmental delay* and *deficits in adaptive behavior*—in identifying mild IDD. Adaptive behaviors are those skills that allow the individual to adapt to his or her surroundings.

Many people think that definitions of terms relating to children with IDD have existed over generations. It is important to realize that this is not true. When new information based on research becomes available, the definition changes. The newest definition is presented in Table 5.1, but it is not likely to become the final definition (AAIDD, 2002).

What separates the current definition from those of the past is the recognition that IDD is a set of conditions that blend together intelligence and adaptive behavior. Because the quality of the environment in which the child develops is important, the condition can be modified and improved with modifications in the environment. This environment is not something that is fixed at birth by genetic factors, and this is encouraging for educators who now see avenues for improvement and change.

The context of the child affects his or her ability to adapt positively.

The context of the child can determine his or her eventual ability to adapt, positively or negatively. The term **developmental disabilities** includes mental retardation plus other conditions of mental and physical impairment for which the child is likely to need lifelong help from a variety of health, social, and educational agencies.

Intelligence

No definition, no matter how comprehensive, is worth much unless we can translate its abstractions into concrete action. Intellectual subnormality has traditionally been determined by performance on intelligence tests. Children

TABLE 5.1
The AAMR Definition of Mental Retardation

Mental retardation is not something that you *have,* like blue eyes or a heart defect. Nor is it something you *are,* like short or thin. It is neither a medical disorder nor a mental disorder. **Mental retardation** is a particular state of functioning that begins in childhood and is characterized by limitation in both intelligence and adaptive skills. Mental retardation reflects the "fit" between the capabilities of individuals and the structure and expectations of their environment.

Mental retardation is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. The disability originates before age 18.

Five Assumptions Essential to the Application of the Definition:

1. Limitations in present functioning must be considered within the context of community environments typical of the individual's age peers and culture.
2. Valid assessment considers cultural and linguistic diversity as well as differences in communication, sensory, motor, and behavioral factors.
3. Within an individual, limitations often coexist with strengths.
4. An important purpose of describing limitations is to develop a profile of needed supports.
5. With appropriate personalized supports over a sustained period, the life functioning of the person with mental retardation generally will improve.

Source: From American Association on Mental Retardation (now AAIDD) (2002). Reprinted with permission.

The definition of intellectual and developmental disabilities (IDD) must include retardation in intellectual development and in adaptive behavior.

with mental retardation are markedly slower than their agemates in using memory effectively, in associating and classifying information, in reasoning, and in making sound judgments—the types of performance measured on intelligence tests. One of the earliest of these tests was developed by Alfred Binet in France for the express purpose of finding children who were not capable of responding to the traditional education program in France at the turn of the twentieth century.

Later on, individual tests of intelligence developed by Lewis Terman (1925) and David Wechsler (1974) became popular and widely used. Part of the popularity of the Wechsler scales is that they provide ten subtests (for example, similarities, information, and block design) and scale scores that allow psychologists to develop a profile of the skills of the individual tested and allow teachers to distinguish between verbal IQ scores and performance (essentially nonverbal tests of assembling puzzles, seeing patterns, and so forth) IQ scores. Other group tests of intelligence were designed to test large numbers of students in a shorter period of time. Though considerably less expensive than the individual tests, they are also less reliable and less valid and should be used only for screening.

Adaptive Skills

The current emphasis on the environment and the context of the child has resulted in an extended attempt to distinguish among various categories of adaptive behavior. Adaptive behavior has become an important aspect of the definition of

Exceptional children are children first with some special characteristics that require educational attention.
(© Lauren Shear/Photo Researchers, Inc.)

IDD. In the 1992 definition (Luckasson et al., 1992) ten elements of adaptive behavior were noted. In the most recent definition (Luckasson et al., 2002), the number has been reduced to three major categories: conceptual skills, social skills, and practical skills (see Table 5.2).

A number of concerns still exist. For example, how independent are "conceptual skills" from "intellectual ability"? And how intense must naïveté or gullibility be before it is invoked as a sign of lack of intellectual ability? It is safe to say that the details of what is considered adaptive behavior are still being worked out.

It is possible to have a low IQ score and still possess usable adaptive skills, be self-sufficient in the community, be able to interact reasonably with other citizens, and maintain a part-time or full-time job. Under such circumstances, an individual would still be considered intellectually subnormal but would not be considered intellectually or developmentally disabled. The lowest score on an IQ test that a child with an intact, undamaged nervous system would achieve is not zero but about 65 or 70. Any score lower than that is generally an indication of some type of organic pathology.

Levels of Intellectual Disabilities

Historically, psychologists and educators distinguished among levels of intensity of *mental retardation* by assigning individuals to various categories (first *idiot*, *imbecile*, and *moron*; later *educable*, *trainable*, and *dependent*; then *mild*, *moderate*, *severe*, and *profound*). *Mild* indicated development at between one-half and three-fourths of the normal rate; *moderate*, development at about one-half of the

TABLE 5.2
Major Categories of Adaptive Behavior

Conceptual Skills	Receptive and expressive language Reading and writing Money concepts Self-direction
Social Skills	Interpersonal Responsibility Self-esteem Gullibility Naïveté Follows rules Obeys laws Avoids victimization
Practical Skills	Instrumental activities (preparing meals, taking medication, using telephone, managing money, using transportation)

Adapted from R. Luckason, D. Coulder, E. Polloway, S. Russ, R. Schalock, M. Snell, D. Spitalnick, and I. Stark, Mental Retardation: Definition, Classification, and Systems of Support (Washington, DC: American Association of Mental Retardation, 1992), pp. 40–41. Reprinted with permission.

normal rate; *severe*, development at slightly more than one-fourth of normal cognitive growth; and *profound*, less than one-fourth the normal rate. This chapter focuses on students at the mild and moderate levels. Students at the severe and profound levels are covered in Chapter 12.

Levels of Support

The formal definition places developmental disabilities within the individual, but another way of viewing the individual is to define the level or intensity of support necessary to allow the child or individual to operate effectively, as shown in Table 5.3. The intensities of support are measured as *intermittent*, *limited*, *extensive*, and *pervasive* (Greenspan & Switzky, 2006).

TABLE 5.3
Intensity of Support for Persons with IDD

The levels of support needed by a person who has an intellectual or developmental disability:

- *Intermittent* refers to support as needed but that is not necessarily present at all times.
- *Limited* refers to support provided on a regular basis for a short period of time.
- *Extensive* support indicates ongoing and regular involvement.
- The *pervasive* level of support describes constant high-intensity help provided across environments and involving more staff members than the other categories.

Let's look at a specific example of a student with IDD. David is a 10-year-old in academic trouble. He can barely begin to read and do sums, and he is angry about this inability and about the teasing he gets from his agemates about his failures. Whether he is at a level called *educable* or *mild* or even referred to in terms of the amount of attention he needs, David clearly needs help—at least at a limited or intermittent level—if he is to survive this school experience.

A Special Population?

There are those who insist that the group at the mild level of intensity needs to be considered a separate population from the other designations (MacMillan, Siperstein, & Heffert, 2006). Earlier, in definitions by Tredgold and Doll as noted by Spitz (2006), even the mild condition was considered incurable because of the genetic cause assumed to be at the heart of it (Spitz, 2006).

The more that environment has assumed a part in the development of disability, the more professionals believe that cure or improvement should be considered possible. This chapter focuses on what steps can be taken to help David and others like him reach an independent adulthood with a high degree of self-sufficiency.

Haywood (2006) also discusses the question of subdividing this large category for the purpose of education and treatment:

> Mental retardation is not a single entity and can only be further misunderstood if we insist upon regarding persons who are profoundly retarded and multiply handicapped under the same broad concepts that govern our conception of persons who are barely discriminable from those who actually escape the "retardation" label altogether. (p. xvii)

Social Significance of Definition

The definition of mental retardation (or IDD) became of larger social significance with the Supreme Court's consideration of whether persons with mental retardation should be given the death penalty in capital cases. In *Atkins* v. *Virginia* (2002), the Supreme Court ruled, six to three, that executing a citizen with mental retardation violates the Eighth Amendment's ban on cruel and unusual punishments.

Justice Stevens, in his majority opinion, focused on the adaptive behavior characteristic of *gullibility*, the inability to see through manipulation by a less disabled confederate or by police officers seeking a confession, plus the person's inability to understand the court proceedings well enough to be of assistance to his or her counsel (Greenspan & Switszky, 2006, p. 300).

Not only the professional community and the courts have objected to the term *mental retardation*; those who have been designated "mentally retarded" also take issue with the label:

> A lot of people on the outside world would run and make fun at "retarded people". . . but when you get in the position of being the person they are making fun of it's different. That's why I won't poke fun at anybody. I have lived with that. I understand that if I had somebody poke at me, I wouldn't like it.

I think I was sort of an outcast because when I was growing up everyone was calling me retarded. It was hard to deal with.

I never thought of myself as a retarded individual but who would want to? I never had that ugly feeling down deep. (Snell & Voorhees, 2006)

Causes of IDD

A large number of possible causes of IDD have been cited, including genetic malfunction, toxic intrusions, neurological insults, and even environmental factors, such as poverty. We review the major ones here, but all of them negatively influence the development of the cognitive and social abilities needed to adapt to the world without help.

Whatever the original cause of the condition, it is the cognitive and social problems that are its end product that call for educational adjustments. Therefore, similar educational strategies may be used with children whose disabilities result from widely differing causes.

Genetic Factors

The question of how a tiny gene can influence the complex behavior of children and adults has puzzled scientists for many years. The breakthroughs of James Watson and Francis Crick helped to explain the functions of DNA and RNA, and it is now possible to provide a general answer to that question. They discovered that genes influence the proteins that are critical to the functioning of the organ systems that determine behavior (Tartaglia, Hansen, & Hagerman, 2007). Thus, genes can influence anatomical systems and their functions—the nervous system, sensory systems, musculature, and so on.

Do certain patterns of genes predetermine certain types of behavior? Are we unwitting automatons driven by mysterious bursts of chemicals? Not really. No particular gene or protein forces a person to drink a glass of whiskey, but some people have a genetic sensitivity to ethanol that may increase their tendency to become active drinkers.

Down Syndrome

One of the most common and easily recognized genetic disorders is **Down syndrome.** The child in the photograph on page 153 shows the physical manifestations of Down syndrome, resulting in a somewhat flattened facial profile. It occurs once in every 600–900 live births and results from a genotype that features three copies of chromosome 21 (see Figure 5.1). The genotype is responsible for moderate retardation, or IDD, and often for a series of other medical complications as well.

Phenylketonuria

Normal growth and development in the embryo and fetus depend on the production of enzymes at the right time and place. When enzymes are not produced

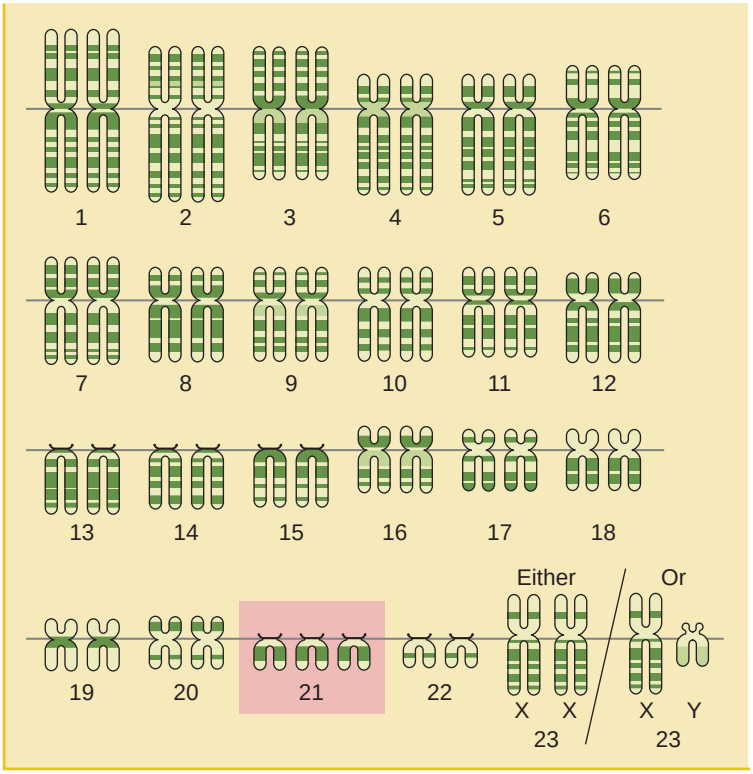


FIGURE 5.1
Down Syndrome
The inheritance of three copies of the twenty-first chromosome results in Down syndrome. Down syndrome usually causes mild retardation and a variety of characteristic physical features.

From Freberg, L. (2006). Discovering biological psychology (p. 146) Boston: Houghton Mifflin Harcourt Publishing Company. Used by permission of Houghton Mifflin Harcourt Publishing Company.

or fail to perform their normal functions, a number of unfavorable developmental conditions can result. These conditions are called *inborn errors of metabolism*. One of them is **phenylketonuria (PKU)**, a single-gene defect that can produce severe retardation. In PKU, the absence of a specific enzyme in the liver leads to a buildup of the amino acid *phenylalanine*.

PKU is an unusual genetic disorder in that it can be modified by environmental treatment—a special diet. The diet is very strict, however, and many families have difficulty holding to its requirements. PKU can be detected at birth, and every state has established a screening program to identify such children so that they can be started on a nutritional regimen early (Simonoff, Bolton, & Rutter, 1998).

The importance of staying on this strict diet can be judged by the following facts: The earlier treatment is begun, the less will be lost in intelligence. Children with PKU who abandon the diet at school age suffer social and intellectual setbacks. Mothers with PKU can have a high proportion of children with birth defects unless they maintain this diet. As a child with PKU grows, he or she can eat only small quantities of high-protein food (such as meat and cheese) but can have fruits and vegetables (low protein). Peer pressure, however, can often pull the child off this restrictive diet.

Fragile X Syndrome

Fragile X syndrome (FXS), the leading cause of inherited developmental disability, results from a mutation on the long arm of the X chromosome, and it affects about twice as many males as females—its prevalence is about one in four thousand. Extensive investigation has found that the condition causes a deficiency in protein production necessary for normal brain development. The diagnosis can be determined by DNA testing (see the accompanying box for a further description).

The wide range of individual differences in this condition calls for individual planning and treatment based on a child's own profile and patterns of development.

A Child with Fragile X Syndrome: Early Identification

Kathy May noticed a problem with her son, Sam, within weeks of his birth. He was not easy to comfort and always seemed to keep his hands clasped. When he was 6 weeks old, Kathy tried unsuccessfully to get Sam to look at her when she clapped her hands. At 15 months, Kathy's doctor expressed concern that Sam's language development was behind. She took Sam to an early intervention service provider, who recommended that he be tested at the local children's hospital. At 20 months, Sam was diagnosed with fragile X syndrome (FXS).

Compared with most families of children with FXS, the Mays were fortunate. Sam was diagnosed with FXS earlier than most such children. According to a Frank Porter Graham Child Development Institute study, the average child with FXS is not diagnosed until nearly age 3, and many others not until much later. Had these children been identified earlier, they would have been immediately eligible for early intervention services under the Individuals with Disabilities Education Act.

Source: Frank Porter Graham Child Development Institute, Screening newborns for fragile X. *Early Developments*, 8 (2004): 11–13. Reprinted by permission of Frank Porter Graham Child Development Institute.

Fragile X syndrome condition results in moderate retardation and often behavior problems.

Down syndrome results in mild to moderate intellectual and developmental disabilities and a flattened facial profile.
(© Steve Dunwell/Getty)

Toxic Agents

The remarkable system whereby a pregnant mother transmits nutrients through the umbilical cord to her fetus is also the highway by which many damaging substances can pass to the developing child. Drugs (including alcohol) and cigarette smoke are prime examples of **teratogens**, which refer to any agent that causes a structural abnormality following fetal exposure during pregnancy.

Fetal Alcohol Syndrome

For centuries we have been generally aware of the unfavorable effects that alcohol consumption by the mother may have on her unborn child. About 7 out of 10,000 births result in **fetal alcohol syndrome (FAS)**, which produces moderate retardation and behavioral problems such as hyperactivity and inattention.

Far too many women are unaware of the potential consequences of drinking while pregnant. The National Organization on Fetal Alcohol Syndrome (2004) presents three key facts:

- When a pregnant woman drinks, so does her baby.
- The baby's growth can be altered and slowed.
- The baby may suffer lifelong damage.

The Effects of Lead

Ingesting heavy metals, such as lead, cadmium, and mercury, can result in severe consequences, including IDD. Most attention is currently focused on lead, and much of the lead that enters the brain comes from the atmosphere. One of the most effective steps that have been taken on a societal level was the reduction of lead amounts permitted in gasoline. This reduction resulted in a lowering by one-third of the average lead levels in the blood of U.S. men, women, and children. The reduction in lead levels paralleled the declining use of leaded gasoline (Beirne-Smith, Ittenbach, & Patton, 1998).

Also, legislation has restricted the use of lead in paint and mandated that lead paint be removed from the walls and ceilings of older homes—a common source of lead poisoning in youngsters. Children, who will place anything in their mouths, are known to ingest peeling paint chips with some regularity. Medications can be prescribed that can have the effect of flushing the system of lead once it has been discovered (Pueschel, Scala, Weidenman, & Bernier, 1995).

Infections

The brain begins to develop about three weeks after fertilization. Over the next several weeks, the central nervous system is highly susceptible to disease. If the mother contracts **rubella** (German measles) during this time, her child will likely be born with IDD and other serious birth defects. A rubella vaccine that is now available has drastically reduced the number of children with defects caused by rubella. Children and adults are also at risk of brain damage from viruses that produce high fevers, which, in turn, destroy brain cells. **Encephalitis** is one virus of this type. Fortunately, it is rare, as are other viruses like it.

Environmental Factors

There has long been an enormous gap between what we know about the brain and its function and the set of behavioral symptoms by which we define IDD. With current advances in understanding the central nervous system, we are able to make some reasonable assumptions about the links between that system and behavior. It appears that experience influences the development and maintenance of certain structures in the brain. The implications are exciting. If the development of the nervous system is not preset at fertilization by genetic factors, then the nervous system can grow and change as the individual experiences new events.

That means that environment and human interactions can play a role in neurological and intellectual development. Such speculation on the influence of experience on brain development has been largely confirmed (Jensen, 1998; Sameroff, 1990). We have already seen the results of various early intervention programs in Chapter 3. Some children who are on the borderline of IDD classification can be improved through environmental enrichments, though they may still need help in Tier II of the response to intervention (RTI) model.

Psychologists such as Hunt (1961) and Bronfenbrenner (1992) have long championed the idea that the experiences that young children have in their

families and their surrounding social systems can have a significant impact on their development. We can see this ourselves in flowers or vegetables or puppies that, even though they possess specific genetic potential, can be stunted or enhanced in their development by their surrounding environment. It remains for educators and special educators to take such knowledge and transform it to the developmental benefit of children—the earlier the better (Dunst, 2007).

We also must not forget that there remains a role for genetics in the mild category of IDD. As we learn more from research such as the Human Genome Project, we become more conscious of the continued interaction between environment and genetics. A study of 3,886 twins (Spinath, Harlaar, Ronald, & Plomin, 2004) chose to focus on the children who ranked in the lowest 5 percent in verbal and nonverbal abilities. They found twin concordance for mild mental impairment in 74 percent of the monozygotic (single-egg) twins, whereas only 45 percent of same-sex dizygotic (two separate eggs) twins had shown mild mental impairment (see Figure 5.2).

Image not available due to copyright restrictions

Characteristics of Children with Intellectual or Developmental Disabilities

Special programming for children with mild and moderate IDD is shaped in part by the characteristics that distinguish these children from their agemates. There are marked differences in factors linked to level of intellectual development, such as the ability to process information, the ability to acquire and use language, and emotional development. There are substantial differences, also, in the strengths that individual children bring to their development.

Adaptive behavior is more difficult to assess because behavior can differ depending on the environment. Adaptive rating scales may indicate that a child is adapting well to the larger environment, yet the child is acting out in the classroom. The Adaptive Behavior Scales of the American Association on Mental Retardation (AAMR; Nihira, Leland, & Lambert, 1993) and the Adaptive Behavior Inventory for Children (ABIC) measure adaptation to the community. Most children do well on these and similar scales because they are not asked to perform academically and because constraints on their behavior are minimal. But a total measure of adaptation should measure how well students respond in the school environment, where they spend five or six hours a day, five days a week.

The school edition of the AAMD Adaptive Behavior scale does focus on behavior in the school setting (Nihira, Leland, & Lambert, 1993a), and therefore it may be a more appropriate measure to use.

Ability to Process Information

To help children learn, teachers need to know how children with intellectual and developmental disabilities process information.

The most obvious characteristic of children who have mild or moderate IDD is their limited cognitive ability—the ability to process information. This is a limitation that inevitably shows up in their academic work. These children may lag by two to five grades, particularly in language-related subjects (reading, language arts). To help children who are not learning effectively, we must understand how they think—how they process information that they receive.

Many children who have IDD have problems in **central processing**, or the classification of a stimulus through the use of memory, reasoning, and evaluation. *Classification*—the organization of information—seems to be a special problem for children who have IDD. School-age children quickly learn to cluster (or group) events or things into useful classes: A chair, a table, and a sofa become "furniture"; an apple, a peach, and a pear become "fruit." Children with IDD are less able to group things. They may have difficulty, for example, telling how a train and an automobile are alike.

Memory, another central-processing function, is also difficult for children who have IDD. Memory problems can stem from poor initial perception of what information has been stored in a given situation. Most children use "rehearsal" as a memory aid, saying a string of words or a poem to themselves until they remember it. Children with IDD are less likely to rehearse information because their ability to use short-term memory appears limited. (See information-processing model example in the chapter on learning disabilities.)

A common way to refer to the difficulty in processing information is to say that there is a lack of good judgment.

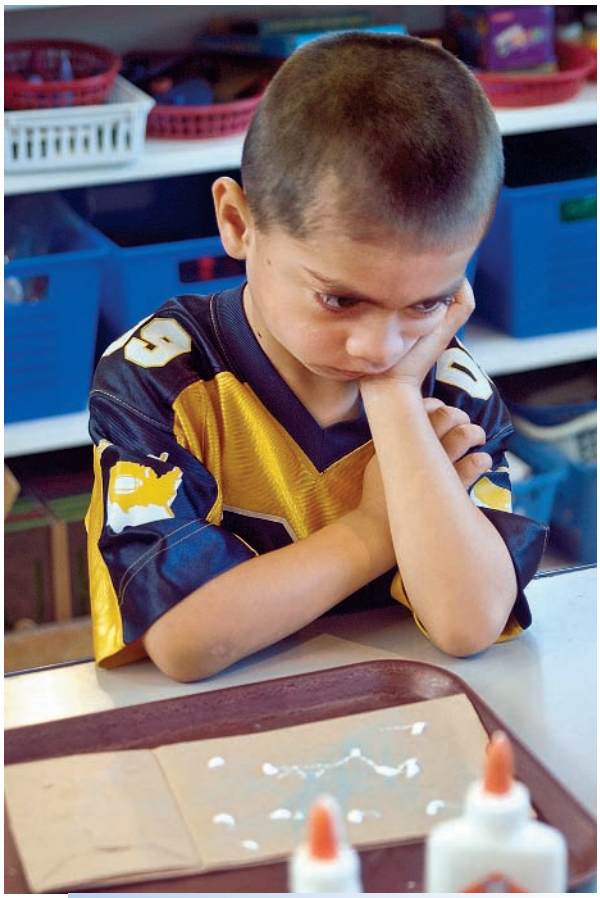
Executive function—the decision-making function that controls attention, central processing, and expression—is a key factor in the poor performance of children who have IDD (Bebko & Luhaorp, 1998). It is not so much that these children cannot perceive a stimulus as it is that they cannot pay attention to the relevant aspects of the experience. It is not so much that they cannot reason as it is that they do not have the strategies to organize information to a point at which reasoning can take place. And it is not so much that they do not have a repertoire of responses as it is that they too often choose an inappropriate response. Their teachers may often say that they lack "good judgment."

Cognitive Processes

One of the questions posed by researchers in this area is "Do children with IDD follow the same developmental patterns of cognitive growth, only slower, or do they have a unique pattern of development?" Weisz (1999) synthesized the results of many experiments and came to the conclusion that the evidence strongly supports a similar developmental sequence for children with IDD—only slower.

This finding raises another issue, that of *learned helplessness,* the feeling that nothing you can do can make a positive difference. If the child with IDD consistently fails on tasks, does he or she have a tendency to quit trying because of a feeling built up by consistent failure in academic tasks and situations? Think of your own abilities in some sports. If you are not able to kick the ball well in soccer and cannot run fast, isn't there a strong tendency to abandon that game in favor of something that provides some measure of success?

Several studies that matched children with IDD with nonidentified children of the same mental level indicated that following failure experiences, the children with IDD showed a significant decline in the use of effective problem-solving strategies (Weisz, 1999). This issue of *learned helplessness* becomes a significant challenge in inclusion, because children with IDD can hardly fail to see that their own performance does not match those of typical children in the classroom.



Children who have failed many times before can become discouraged when facing a new problem.
(© Elizabeth Crews/The Image Works)

Ability to Acquire and Use Language

The ability to develop language is one of the great achievements of humans, and there always has been curiosity as to how, if at all, language development is changed or modified in children and adults with IDD. The close link between language and cognition has long been noted, as well as its reciprocal interaction. Not only is language limited by cognition, but cognition (especially thinking, planning, and reasoning) is also limited by language (Fowler, 1998). In addition, limited input and an impoverished database during the language-learning years can add up to an impoverished linguistic system. Remember the great differences in exposure to language of young children with professional, working class, and welfare parents reported in Chapter 1 (Hart & Risley, 1995).

Language develops in the same fashion, only more slowly, in children with IDD. For example, a child at age 5 would match in linguistic skills a child of 10 with IDD whose mental age was 5.

Yet there are intriguing variations on this generalization. Children with Down syndrome have retardation in language even lower than that of their general mental deficit (Yoder & Warren, 2004), whereas children with *Williams syndrome* seem to have advanced language beyond their general mental abilities. This puzzle guarantees that there will be much more research on these topics in the near future (Fowler, 1998).

Ability to Acquire Emotional and Social Skills

Emotional and behavioral issues associated with IDD may lower social acceptance by peers in the inclusive classroom.

For many years, we have had a modest understanding of the link between emotional and social problems and the condition of IDD. But what that link signifies and what should be done about it remain issues of some dispute. We know that emotional and social difficulties can undermine vocational and community adjustment. We are also aware that emotional and behavior problems probably lower the level of social acceptance experienced by children with IDD in comparison with their peers in the classroom.

The current stress on inclusion makes it particularly important to find ways to improve the social relationships of children with mental retardation—one of the main goals of inclusion.

As has been the case with language development, recent studies on social development have focused on the specific problems of children with special causal factors such as Down syndrome (Kasari & Bauminger, 1998). A range of studies reveal many problems in peer relationships for children with IDD. With the current stress on inclusion, it becomes particularly important to find ways to

HM VIDEO CASE

Inclusion: Grouping Strategies for Inclusive Classrooms

Watch this Video Case at the student website. How did Ms. Cebula and her teaching staff carefully plan for their students' strengths and needs? What specific factors did they need to bear in mind when planning instruction? Why is this planning essential for successful inclusion?

improve the social relationships of children with IDD, as the formation of such relationships is one of the key purposes of inclusion.

Certain skills appear to be important for social acceptance. They include sharing, turn taking, smiling, attending, and following directions. A person with social competence uses such skills appropriately in social situations.

Social Adaptation

Because social adaptation has become critical for the child with IDD, both in the classroom and later in vocational settings, it is important to determine what barriers stand in the way of social adaptation. A study on the interpretation of social cues was most revealing in this regard (Leffert, Siperstein, & Millikan, 2000). One hundred seventeen students in elementary grades, with and without IDD, were shown videotapes depicting various social conflicts (for example, a child knocking a book off another child's desk accidentally or being rejected when wanting to join a group on the playground). The students watching the videotapes were then asked for their reactions.

The children with IDD much more often interpreted the scene as the child who knocked over the book being mean. They were focusing on the negative outcome of the event and ignoring social cues that would indicate that the event was an accident. They also more often referred to an adult authority to solve the social crisis, rather than suggesting social strategies for resolving the incident.

Role-playing helps children identify social cues.

These results suggest one reason that children with IDD are not well received in peer groups and also point the way to some necessary curricular additions for them. They clearly need practice in identifying social cues so that they can better interpret social situations, and they also should have practice through role-playing or discussions about useful strategies for prosocial interaction. One of the helping roles that the special educator, working as a collaborator with the general education classroom teacher, can play is to provide such experiences in some small-group situations and help children with IDD to work out their own strategies for response.

Two of the common characteristics ascribed to persons with IDD have been *credulity* (inability to see through untruthful assertions) and *gullibility* (the ease with which one can be duped); in other words, the inability to judge the truthfulness of even highly ridiculous statements (Greenspan, 1999). These cognitive shortcomings in evaluation and adjustment can result in serious social consequences and should be targets for educational programming.

Identification of Children with IDD

The first step in adapting the standard educational program to meet the needs of children with IDD is to identify those children who need special help. How does a child find special education services? Although referrals can come from

many different sources, most students with IDD come to the attention of special education services because they fail in school. The inability of the child to adapt academically or socially to the expected standards of his or her age group sets off alarm bells in the teacher and calls for action.

Until recently, the response to such alarm bells was a diagnostic examination by the school psychologist to determine whether the child was eligible for some form of special education. Now, many school systems use a *prereferral team,* which includes the classroom teacher, the principal, someone from special education, and relevant other special personnel. The team tries to help the classroom teacher devise some adaptation of the general classroom program to cope with the student's problems without more intensive (and more expensive) intervention (Salvia & Ysseldyke, 2007). If the student makes no apparent gain as a result of the recommendations of the prereferral team, the child may then be referred for more detailed diagnostic examination by the psychologist and, if found eligible, placed in more intensive special education services with an individualized education program (IEP) decided on by the multidisciplinary IEP team working with the child's parents.

What is the purpose of a multidisciplinary team? Each team member brings important information to an IEP meeting. Members share their information and work together to write the child's IEP. Each person's information adds to the team's understanding of the child and what services the child needs. The team membership always includes the general education teacher, a parent, and the special education representative. Also included, depending on the nature of the child's needs, can be a speech and language pathologist, school psychologist, school principal, occupational therapist, the student, and others as appropriate.

Educational Responses to Students with Intellectual and Developmental Disabilities

The special education adaptations for children with IDD should take into account the special characteristics of these youngsters, noted previously. We cannot assume that they will learn from observation or imitation as other children do. They usually don't have strategies for attacking problem situations, and their judgment is often off base.

Because of these limitations, knowledge and skills must be explicitly taught to these children. It may be necessary to spend some time in specifically modeling and practicing behaviors, such as putting materials away after a lesson. These children are not being ornery; they literally do not know the behavior expected of them.

Time and patience are required in teaching both the standard curriculum and the social rules of the classroom and social survival skills.

RTI Model

The RTI model can be brought into play at all three levels, or tiers, for children with IDD. At Tier I, the inclusive classroom, attention still needs to be given to ensure that the key lesson elements have been mastered, and additional practice is needed for these children so that they don't fall behind and become confused and discouraged. A special education consultant could be valuable here.

Tier II may have to include special lessons for small-group instruction in social skills or in making good choices, conducted by knowledgeable staff. These choices will necessitate removing children for a time for this special instruction.

And at Tier III, some of the students may not be able to master the standard curriculum and may have to be given special instruction in a special education setting for at least a part of the day or even in a separate setting (Bambara & Knoster, 2005).

There are four basic ways to modify the existing program: changing the needed teacher and student skills, changing the learning environment, changing the curriculum content, and changing the special uses of technology.

Special Education Teachers

Just about everybody agrees that simply placing a child with special needs in a general education classroom without making additional and necessary resources available to the classroom teacher is a recipe for failure. A *special education teacher* can help broaden the regular education curriculum by

- Encouraging and organizing support networks for the child with special needs
- Serving as a resource locator for the regular classroom teacher
- Playing the role of *team teacher*

PROFILES OF TWO STUDENTS

Characteristics of Two Students with Intellectual and Developmental Disabilities

Look at Figure 5.3 showing the developmental profiles of Bob, a child with mild familial retardation, and Carol, a child with moderate Down syndrome. Both children are 10 years old. The patterns revealed in the graphs are not unusual for children of their intellectual development, although individual differences from one child to another within each of these groups may be great.

Bob: Bob's physical profile (height, weight, motor coordination) does not differ markedly from the profiles of others in his age group. But in academic areas such as reading, arithmetic, and spelling, Bob is performing three and four grades below his age group. Depending on his classmates and the levels at which they are performing, Bob would fall at the bottom of

the regular class group or be placed in a special program in a resource room. Bob's mobility, vision, and hearing are average, but he is having problems with interpersonal relationships. Although he is a likable boy under nonthreatening conditions, he is quick to take offense and fight on the playground.

In the classroom, he has a tendency to interrupt other children at their work and to wander aimlessly around the room when given an individual assignment. All these characteristics add up to a situation in which Bob has only a few friends, although he is tolerated by his classmates. With special help, he is able to maintain a marginal performance within the general education class.

Carol: Carol has moderate IDD and a much more serious adaptive problem. Her development is at the level of a 5-year-old (her IQ score is in the 50s). Like many other children with Down syndrome, she shows poor motor coordination and some minor vision and hearing problems that complicate her educational adaptation.

Carol's developmental profile shows that her academic performance is below first-grade level; indeed, at maturity, Carol's reading and arithmetic skills may not exceed a third-grade level. She can learn important skills or concepts in an educational setting, but the standard academic program is clearly inappropriate for her. To develop her capabilities to their maximum potential, Carol will need some special experiences with specially trained personnel.

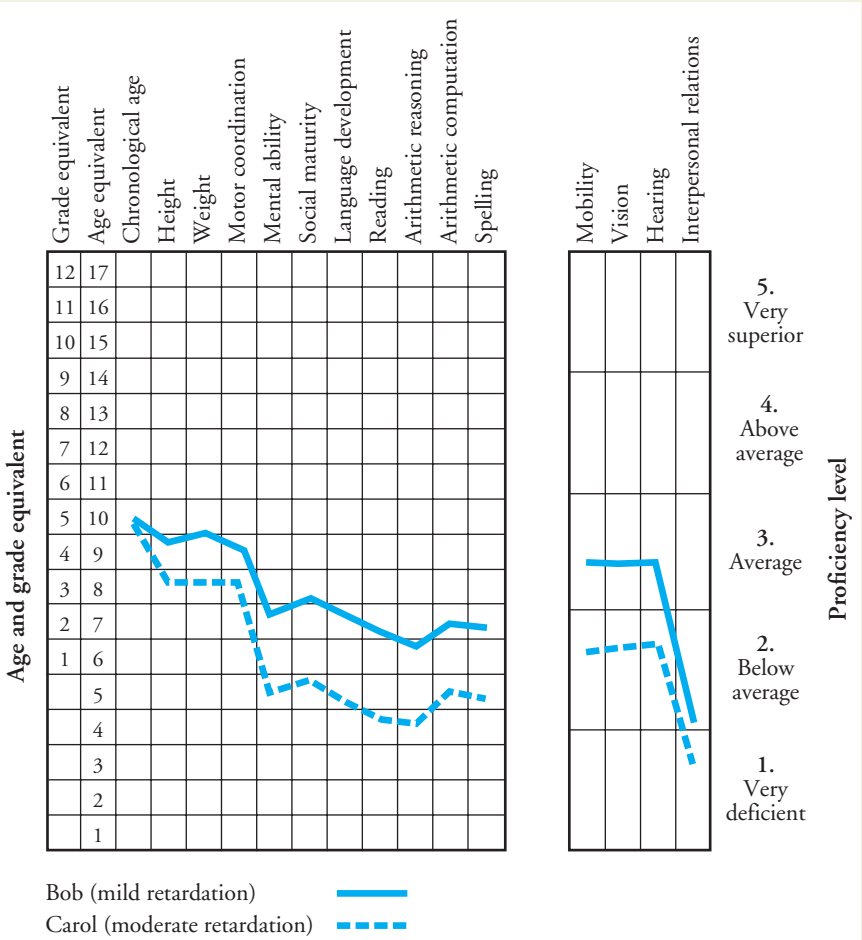


FIGURE 5.3
Development Profiles for Two Students with IDD

These special teachers can play a larger role by helping all students, with or without disabilities, who are having difficulty in educational tasks or in gaining peer acceptance. It is crucial that special educators provide support only when it is needed and not be overprotective. Finally, the special educator is the general education teacher's resource, and they need to plan together for students needing support in the general education classroom (Schaffner & Buswell, 1996, p. 55).

Changing the Learning Environment

Inclusion in Context

How should the educational program be adapted to meet the needs of children with IDD? One intriguing aspect of the reform movement for inclusion is that it highlights principles of interpersonal interaction that are needed for life in the larger society. Proponents of inclusion want the child with disabilities to be welcomed into a community of equals in the classroom. They want no one to speak disparagingly about others, everyone to be helpful to one another, and no one to be put down by others because of an inability to do certain things. But can such a philosophy of fairness and love be implemented in the school as we know it, particularly when the school has a number of competing academic goals that may make achieving such interpersonal goals difficult? Implementation would be particularly difficult in the absence of support personnel to assist the classroom teacher, who otherwise would have to bear sole responsibility for inculcating such values.

The U.S. Congress left little doubt as to their preference for education in the general education classroom for all special needs children with the following language (from the Individuals with Disability Education Act amendments of 1997) and repeated in IDEA 2004:

> To the maximum extent appropriate, handicapped children, including children in public or private institutions or other care facilities, are educated with children who are not handicapped, and that separate schooling, or other removal of handicapped children from a regular educational environment occurs only when the nature or severity of the handicap is such that education in regular education classes *with the use of supplementary aids and services* cannot be achieved satisfactorily. [20 U.S.C. §1412(5)(B)]

Teachers in inclusive classrooms should be able to call on reading specialists, compensatory education personnel, school psychologists, school counselors, physical and speech therapists, other classroom teachers, math and science teachers, and a variety of other people

Keeping students with IDD alert and interested is a constant challenge.
(© Ellen Senisi)

All four of the major areas of change—*learning environments, curriculum content, skills mastery,* and *technology*—seem to require attention for students with IDD.

to provide suggestions or participate in the classroom to make classes more flexible and relevant to the needs of all students.

Those who worry about a terrible traffic jam as these counselors, special teachers, and psychologists bump into one another trying to get to the classroom teacher need not be concerned just yet. The availability of these personnel to the classroom teacher is uncertain in many school districts, to say the least. It is not the ideals of inclusion that are being argued but the ability to achieve or implement them.

The Socialization Agenda of Inclusion

One of the distinguishing features of inclusion is the emphasis on socialization of the child with disabilities within the inclusive setting. This is the primary objective of the schools, from the standpoint of inclusion advocates, and in their view is as important as academic achievement.

Special educators have long been aware that merely moving an exceptional child from one educational setting to another does not, of itself, accomplish very much. The rationale for moving a child to another setting is that it will allow the teacher to accomplish goals that otherwise would not be possible.

The philosophy of *inclusion,* or bringing the exceptional child into the general education classroom, depends on three specific questions:

- Can the presentation of the general education curriculum be modified to meet the special needs of the child with mild IDD?
- Are the teachers able to assess the student's needs and modify the curriculum appropriately?
- Are teacher-training and inservice programs available to help teachers acquire the skills for teaching a diverse group of students? (Crockett & Kauffman, 1998)

The current stress on "high standards" for curriculum content and the emphasis on testing to ensure student mastery of that content have raised doubts in many quarters that the general education teacher can meet these three criteria.

Research findings suggest that changes in the *learning environment* alone do not make a striking difference. A large number of studies have tested the effectiveness of inclusive education for children with IDD, but the information derived from such studies is not often educationally significant. Few of the studies discuss the nature of the program the students received, and that surely is just as important as, if not more important than, "where" the student has been placed (Guralnick et al., 2006).

Special Classes

The greater the degree of disability, the more likely a child is to need a special learning environment in order to learn distinctively different material. In the special class, a special education teacher provides a distinctive curriculum for a small group of children, typically no more than fifteen. The curriculum may include exercises in personal grooming, safety, preprimary reading skills, or any subject not appropriate for the normally developing child in the regular classroom but highly appropriate for a child such as Carol, whose cognitive development is half or less of what is normal for her age.

Individualized Education Programs (IEPs)

One of the first efforts to develop long-range plans for child and family came forth from the IEPs, mandated in 1975 by the Education for All Handicapped Children Act (PL 94-142) to increase the collaboration between professionals and parents and to ensure some thoughtful consideration about how children would be served within the special education program.

One of the major changes in the educational planning for children with disabilities is that instead of focusing on their deficits and disabilities, we now wish to document the developmental and personal strengths of each student to plan the most effective educational intervention. Students with limited verbal proficiency may be able to express themselves through dance or through other arts, or they may be relatively proficient in working with their hands, as in carpentry (Bateman & Linden, 2006).

Table 5.4 shows briefly some of the goals and objectives for Ben, a boy with resistant behavior but with clear strengths as well. Ben's strong communication skills will be brought forth in the *reciprocal teaching* model to improve his academic performance. Here,

TABLE 5.4
Ben's IEP Goals and Objectives (CA = 9-8, IQ = 67)

Area	Annual Goals	Short-term Objectives
Academic	Ben will increase his reading and math scores by one year each on standard tests.	Reciprocal teaching will be used to improve his reading performance and peer-adult interaction by 25 percent.
Social	Ben will reduce his resistant and oppositional behavior episodes by one-half by end of school year.	Positive behavior supports will be used to decrease the basis for oppositional behavior. Resistant episodes charted should be down by 25 percent.
Physical	Ben will be involved in team sports to encourage sharing and cooperative behavior.	Ben will be invited by physical education teacher to play after-school soccer. Number of confrontations and resistant behaviors will be counted and reductions noted.

Ben is the teacher and the teacher is the student. By teaching the lesson himself, Ben should gain some more insight on the content areas.

His good physical skills are also taken advantage of by encouraging him to play soccer and, through that experience, to improve his respect for rules and his peer interactions while under adult supervision.

Adapting Curriculum

What Are the Goals?

There has been much discussion about the most desirable curriculum for children with IDD. Should the content be modified from that given to the average child? If so, where in the educational sequence should the branching take place? In secondary school? In middle school? Or should the curriculum be different from the beginning? The important questions to be answered in the development of curricula for students with IDD are, "What are our goals? What are our immediate objectives to reach that goal?"

For students like Carol, who have moderate IDD, reasonable goals are to:

- Learn to read at least the "survival words" (*stop*, *poison*, *restroom*, and so on). See Table 5.5 for a functional reading vocabulary.
- Do basic arithmetic and understand the various denominations of money.
- Learn social skills, such as the ability to work cooperatively with others.
- Develop some leisure-time skills.
- Communicate effectively with persons such as storekeepers and community helpers.
- Learn some work skills to be partially or fully self-supporting in adulthood.

The more difficult curriculum decision involves children like Bob, with mild IDD, who can be expected to reach a medium to high elementary school level of skills and knowledge. This decision is particularly difficult if the child is in an inclusive classroom. The curriculum will be the general education curriculum—which may or may not meet the needs of the child, except for the social contacts the student can have in the class. Patton (1986) suggested that it is possible to infuse relevant career education topics into regularly assigned lessons. Though possible, such a process would require more knowledge and teamwork between special education and regular education than is often present.

At what point does the student with mild IDD branch off into a separate secondary school program

TABLE 5.5
A Functional Reading Vocabulary

Go	Up	Dynamite	School
Slow down	Down	Explosives	School bus
Stop	Men	Fire	No trespassing
Off	Women	Fire escape	Private property
On	Exit	Poison	Men working
Cold	Entrance	Wet paint	Yield
Hot	Danger	Police	Railroad crossing
In	Be careful	Keep off	Boys
Out	Caution	Watch for children	Girls

Source: From C. Drew, M. Hardman, & D. Logan. *Mental retardation: A life cycle approach* (6th ed.) (Upper Saddle River, NJ: Prentice-Hall, 1996). Copyright © 1996. Reprinted with permission of Prentice-Hall, Inc., Upper Saddle River, NJ.

that is designed to provide work skills rather than help the student reach the next level of education? Inclusion advocates do not expect students with mild or moderate retardation to take advanced high school physics or calculus. It is in the secondary program that attention is traditionally paid to community adjustment and work skills.

Oddly, the recent national emphasis on educational excellence may be a special problem for marginal students such as Bob.

One of the distinctive characteristics of the educational reform movement is its commitment to high standards and accountability. "High standards" generally refers to high conceptual learning in traditional subjects such as language arts and mathematics. This is surely not good news for students with IDD, who do not do well on high-level conceptual material and whose secondary programs may even be focused on learning community living. Yet the No Child Left Behind legislation insists on including most children with disabilities in these districtwide assessments, following these principles:

- All students should have access to challenging standards.
- Policymakers and educators should be held publicly accountable for every student's performance (McDonnell, McLaughlin, & Morrison, 1997).

As yet, little is known about the performance of children with disabilities on accountability measures, because many of these students, particularly students with IDD, have been exempted from the exams by local school systems (Vanderwood, McGrew, & Ysseldyke, 1998). But there is an increasing call for testing *all* students in a school system, so the issue is emerging as to what to do with students who do not perform well on the tests. Some of the later regulations allow for 2 percent of exceptional children to be exempted if it is clear the tests are inappropriate.

Differentiated Instruction

The most common adaptation suggested to teachers for children with IDD is **differentiated instruction,** but what exactly does this term mean? It means that each teacher adjusts the level of difficulty of tasks to fit the level of development of the child with IDD. For example, if the rest of the class is doing complex multiplication or division problems, the child with IDD may be given addition and subtraction problems at his or her level of comprehension. Or in a cooperative

learning situation, teams of four or five students might be working on a particular problem related to the early American colonists in our country. The child with mild IDD could be given a task such as finding pictures of colonial life to be used in a report, and other students would be challenged with a complex question such as why these settlers abandoned their homeland to come to the New World. Sometimes such differential lessons are referred to as **tiered assignments,** that is, assignments of varied difficulty, and they allow the child with IDD to participate meaningfully in the group activity.

In such situations it becomes important to have a special education teacher as consultant to help the general education teacher design tiered assignments. Failure to differentiate lessons for the child with IDD runs the risk of discouraging the child, who faces failure once again in the academic setting (see the earlier discussion on learned helplessness).

In most programs for children with mild and moderate IDD—particularly for those who are grouped with other students of limited abilities or performance—differentiated instruction takes place in four major areas:

- *Readiness and academic skills.* With preschoolers and elementary school children, basic reading and arithmetic skills are stressed. Later, these skills are applied to practical work and community settings.
- *Communication and language development.* The student gets practice in using language to communicate needs and ideas. Specific efforts are directed toward improving memory skills and problem-solving skills at the level of the student's ability.
- *Socialization.* Specific instruction is provided in self-care and family living skills, beginning at the preschool level with sharing and manners, then gradually developing in secondary school into such subjects as grooming, dancing, sex education, and avoiding drug abuse.
- *Prevocations and work-study skills.* The basis for vocational adjustment through good work habits (promptness, following through on instruction, working cooperatively on group projects) is established. At the secondary level, this curriculum can focus on career education and include part-time job placement and field trips to possible job sites.

Case Study: Ronald

Ronald and his parents have been told that he will be part of a new program at school, called *inclusion,* that will bring Ronald into the regular fifth grade, even with his diagnosis of mild IDD. Previously he was in a resource room program; he spent an hour or more each day with a special education teacher who worked with him in areas of language and basic arithmetic. He was achieving at the second-grade level.

His parents felt gratified that Ronald would now be with all the other fifth graders, but worried, too. Would he get along with the other children? How could he keep up with the other students, when he was reading at only a second-grade level? The school principal told Ronald's parents that he would be seeing his special education teacher for some lessons, but within the general education classroom. The fifth-grade classroom teacher worried about the very same issues as the parents, knowing that having him in a seat in her class didn't mean that Ronald would find friends there or that he would be happy with the high standards of instruction directed toward students now. One major task for this teacher is to make Ronald feel at home, feel like part of the class. A second is to ensure that he receives individualized instruction to meet his

HM VIDEO CASE

Academic Diversity: Differentiated Instruction

Watch this Video Case at the student website. How did Ms. Colbath Hess plan for the range of student needs within her classroom? What supports did she provide for her students to help them be successful? Why is differentiated instruction such an important strategy for a teacher to have in her repertoire?

needs. Making inclusion work for Ronald will require professional teamwork on the part of the school. That may be why many observers remain unconvinced about the utility of inclusion policies. It is not so much that inclusion may not work as that it may demand more attention and planning by school and classroom personnel then they are willing or able to provide (Crockett & Kauffman, 1998).

American Speech-Language-Hearing Association
www.asha.org

Language and Communication

There is a substantial effort in elementary schools to help children with moderate retardation use language as a tool for communication. Students may be asked to describe a simple object such as a table (it is round; it is hard; you put things on it; it is brown). And they may learn to communicate feelings of happiness, anger, and sadness by using language.

Language exercises for children with moderate retardation aim to foster the development of speech and the understanding and use of verbal concepts. Communication skills such as the ability to listen to stories, discuss pictures, and tell others about recent experiences are stressed. Two important areas of study are the home and the community. Children learn about holidays, transportation, the months of the year and days of the week, and contributions to home life. Classes make use of dramatization, acting out a story or a song, playing make-believe, engaging in shadow play, and using gestures with songs, stories, and rhymes.

Social Skills

Social skills are a critical component of the primary school or preschool curriculum for children who have IDD, but instruction at this level should be informal.

Image not available due to copyright restrictions

Children can learn to take turns, share, and work cooperatively as part of their daily activities. The lunch table for young children is an excellent location for teaching social skills. Here, youngsters learn table manners, as well as how to pass and share food, help others (pouring juice, for example), and wait their turn. The lunch table is also a good place to review the morning's activities and talk about what is planned for the afternoon or the next day. Although the teaching is informal, it is both effective and important to the child's social development.

Children with IDD sometimes have difficulty transferring or applying ideas from one setting to another. Thus, we teach some needed social skills directly. We do not expect the children to automatically understand these skills and apply them from observation or experience.

Part of the process of growing up is gradually mastering social skills to establish effective communication and relationships with others. We rarely think about these skills because they emerge through adult and peer modeling without our being conscious of them. If we are asked how we meet strangers, break unpleasant news, communicate with someone we haven't seen for a long time, or tell someone that he is intruding on our space and time, it is likely that we will have to think for a while before we can recall the coping strategies that we use without conscious effort. These skills are the lubrication that allows each of us to move smoothly through our daily contacts and tasks. Someone who is markedly deficient or awkward in such skills stands out in a crowd. Many children with IDD lack these social skills and need direct instruction in them if they are to establish a useful personal and community adjustment.

Bob, for example, usually got too close to the person he was speaking to. He made the other person uncomfortable but was not aware of this reaction. Through role-playing a number of social situations with Bob and others, the teacher was able to establish that each person has a personal space that is not to be invaded without permission (for example, to kiss an aunt good-bye). Such social rules may seem trivial, but their importance is magnified substantially when they are violated.

It is important that the sense of privacy is established and understood when the child begins to cope with sexual relationships. Parents and other adults worry about the susceptibility of young people with IDD to sexual abuse or unwanted sexual contact merely because they lack the skills to fend off others in sexual encounters (the gullibility factor). The closer the student is brought to the inclusive classroom, the more likely he or she is to have a variety of contacts with members of the opposite sex. Therefore, some type of counseling and role-playing of relationships or situations with the opposite sex are often part of the curriculum for students with IDD.

For students with IDD, gaining social acceptance in the inclusive classroom requires special planning by educators.

To meet a socialization goal of inclusion, those educators endorsing inclusion have devised a series of activities that enhance social contact and learning. In *peer-buddy systems,* a classmate may help a classmate with disabilities negotiate the school day; *peer support networks* help students become part of a caring community; and in *circles of friends,* an adult facilitator helps potential peer buddies sensitize peers to the friendship needs of students with disabilities (Villa & Thousand, 1995).

Changing Teaching Strategies

Even if the same content is being used in the inclusive classrooms, there are strong reasons for modifying the teacher's approach to meet the special needs of children with IDD.

Positive Behavior Supports

One of the most advanced moves made for children with IDD has been the introduction of **positive behavior supports (PBS)** in educational programming. Behavior problems and disruption have, unfortunately, been a major part of the lives of too many children with IDD. This may be due in part to the fact that they have grown up in an environment in which such behavior is the norm. It may also be that these children have been reacting to their inability to live up to adult expectations at home and at school. Unfortunately, the teacher response to disruptive behavior is often to be punitive, which compounds the problem.

The strategy of PBS espouses that, when faced with some form of behavior disruption, the teacher

should focus on *human motivation*, not just on human behavior. For example, Ben, a student with mild IDD, has shouted "No!" to the teacher's request to pick up his reading book. Why would Ben do such a thing, considering that it will surely bring unpleasent reprimands? What hidden rewards must Ben receive from this situation that would cause him to burst out like that? There must be rewards of some sort, or he wouldn't have done it.

The goals of PBS are to achieve (1) improved academic performance, (2) enhanced social competence, and (3) safe learning and teaching environments (Eber, Sugai, Smith, and Scott 2002). The seeking of the "why" of human behavior has traditionally been the role of the psychologist and the psychiatrist, not the teacher, who has immediate circumstances to deal with. Once Ben has been settled down, after either a quiet talk with the teacher or a short visit to a quiet place, it can pay to reflect on the *why* of the situation. The teacher or a child study team can take some time to analyze the event, particularly if it has been only one of many resistant actions taken by Ben.

Ben's Functional Assessment

1. What were the environmental circumstances surrounding Ben's outburst? (Ben had an altercation with Sylvia at lunchtime, which upset him a lot. He has not been doing well in his reading exercises in past days. He feels the teacher has been too demanding of him, and his father gave him a bad time at breakfast this morning.) Any or all of these might be the cause.
2. Develop some hypotheses about the motivation for Ben's behavior. Is he trying to avoid reading recitation time, at which he has been doing poorly? Is this a general reflection of his fight at lunchtime? Has his relationship with the classroom teacher soured, and he wants to strike back? Is school or the classroom an unpleasant place to be and he wants to get out?
3. Let us test one of the hypotheses by changing the environmental circumstances. Instead of his reciting in a group, the teacher's aide, Mrs. Rosseli, whom Ben likes very much, will take him aside and work with him one-to-one with his reading lesson so that he will not show his deficiencies to the entire classroom. If we are right, we will expect Ben's events of resistance will be reduced, and his reading may even improve.

   We will take regular measurements of Ben's behavior and chart these changes coincident with the change in environment that we have made.

   If there is no reduction in Ben's resistant behavior, we might move on to another hypothesis and test it (for example, by not including Sylvia in small-group work).

   Once we have found an environmental change that works (that is, reduces the undesirable behavior), we can see whether it generalizes to other situations and employ it there.

Although PBS has generally focused on individual children, there have been attempts to apply it to a total school setting, with positive results—a reduction in discipline referrals (Bohanon et al., 2006).

Scaffolding and Reciprocal Teaching

In **scaffolding**, the teacher models the expected behavior and then guides the student through the early stages of understanding. As the student's understanding increases, the teacher gradually withdraws aid (hence the name *scaffolding*). The goal is to have the student internalize the knowledge and operate independently.

In **reciprocal teaching,** small groups of students and teachers take turns leading a discussion on a particular topic. This exercise features four activities: questioning, clarifying, summarizing, and predicting. In this strategy (as in scaffolding), the teacher models how to carry out the activities successfully. The students then imitate the teaching style while the teacher plays the role of the student. In this way, students become active players in a role they find enjoyable.

Cooperative Learning

Interestingly, emphasis has switched from a focus on one-on-one instruction for the individual student with special needs, as represented in the policies for an IEP, to the importance of student participation in *cooperative learning* or *team-assisted individualization* (Johnson & Johnson, 1991; Kagan, 1989; Slavin, 1988).

In **cooperative learning,** the teacher gives a task to a small group of students (typically four to six), who are expected to complete the task by working cooperatively with one another. The teacher may assign different responsibilities to different members of the group or ask each child to play a specific role (such as recorder, reporter, searcher, or praiser). The child with disabilities may have the same overall objective as other students but be operating with a lower level of task expectations, a reduced workload, or partial participation. As long as the child feels a part of the enterprise, some good social interactions can occur.

Group instruction may actually be more advantageous than one-on-one instruction because of the economy of teacher effort, students learning how to interact with peers, and students learning from peers. Small-group instruction is the mode for the regular classroom if the students with special needs are to be included (King-Sears & Carpenter, 2005).

Motivation

One of the most important questions facing the teachers of children with IDD is how to motivate these children to learn. There are many reasons that they may not be motivated in school. Bob, for example, comes from a home in which there is little interest in school learning. He is 10 years old and has had a few years' experience in school. But those years have not been full of positive experiences. Bob has known a lot of failure, and failure is a distinct turn-off for most children and adults. Building on Bob's strengths becomes important to avoid feelings of learned helplessness.

Carol, however, faces a different situation. Many special educators believe that their students' fundamental goal is not the mastery of knowledge or skills but the mastery of adaptive behaviors such as social skills, communication skills, and work skills. After all, they ask, who cares very much whether Carol reaches third-grade or fourth-grade mastery of academic skills? What is important is that Carol develop adaptive skills that will serve her well in adulthood and in the world of work. Thus, it is important for Carol to participate in cooperative learning exercises, not necessarily to learn what the other students learn but to experience positive social interaction and learn how to work constructively with others.

A problem-solving strategy can be taught that helps the student to achieve more independent behavior. It is simple to teach and practice.

1. Find the problem (Problem)
2. Discover as many options as possible (Option building)
3. Choose the option you think is best (Best option)
4. Act on the choice (Action)
5. Judge the effectiveness of the choice (Success or no)

For example, Mary is faced with a dilemma: The printer in the classroom is out of paper. No one will be able to finish their assignments (problem). The options Mary can think of are: to complain to peers that the printer is not working again; to tell the teacher about it; to go to the supply closet and get another ream of paper; to start doing something else (choice).

Mary doesn't know how to put the paper in, so she chooses to tell the teacher about it. This is the option choice (decision). She gets out of her seat and goes to tell the teacher (action). The teacher either gets more paper and refills the printer (success), or says that she is too busy and will get to it later (no success).

This sequence can be followed for most people's daily problems, but for the child with IDD, it may

HM VIDEO CASE

Classroom Motivation: Strategies for Engaging Today's Students

Watch this Video Case at the student website. How did the teacher, Josh Baker, show respect for his students? Why is showing respect an important component of effective teaching? What specific strategies did Mr. Baker use to engage the range of students in his classroom?

have to be illustrated through role playing, in which two students play the roles of student and teacher. Or reciprocal teaching can be used, in which the teacher plays the role of the student and verbalizes her thoughts and actions through the process. The teacher can also use modeling by showing the group the steps of getting the paper and filling the printer, and then asking the students to follow the same process (King-Sears & Carpenter, 2005).

We should not assume that, because students have learned the problem-solving process in filling the printer, they will apply the same process to the problem of spilled water under the sink. The sequence of problem solving should be posted on the bulletin board and specifically gone through each time. Generalization from one situation to another is very difficult and must be pursued vigorously by the teacher.

Another skill related to **self-management** is choice making. Josh may be asked, "Would you like to complete your work at your desk or at the table? Would you like to do your math now or after lunch?" Such choice making gives the student a sense of being in control. Of course, once the decision is made, it should be honored (Bambara & Koger, 2005). The outcome of these problem-solving and choice-making activities is students with more self-confidence who are more in control of their environment.

Adapting Technology

The rapid development of technology linked to education provides a variety of opportunities for children with disabilities. These technological aids can be divided into two areas: assistive and instructional. *Assistive technology* exists to help the child with disabilities gain access to the information needed for learning. *Instructional technology* is used to help the student learn that information. The *universal design for learning (UDL)* is a way of presenting the information to be learned in the style most accommodating to the individual student's needs.

Assistive Technology

One of the support features of an IEP can be assistive technology, equipment or product systems that can meet some of the special needs of individual children with developmental disabilities (Parette, 1998). These assistive devices can use either low technology (such as communication boards or adapted books) or high technology (such as computerized visual amplification systems or augmentative communication devices

The child with IDD needs guided practice with technology.
(© Bob Daemmrich/The Image Works)

Teacher Education website
http://education.college.hmco.com/students

Technology, when properly used, can help the child grasp unfamiliar ideas.

that use digitized speech). The high-tech devices are sophisticated and expensive, and it pays to be aware of the low-tech devices that can be helpful for students with special needs (Parette, 1998).

The low-tech devices are relatively inexpensive, whereas the high-tech devices tend to be complex, expensive, and difficult to maintain. The high-tech devices often require extensive explanation from the IEP committee before a school system will invest in them, but they may be required to meet the educational needs of some children. See the website for an expanded list of assistive technology equipment.

Instructional Technology

Whereas assistive technology can provide the avenue through which knowledge can be accessed, instructional technology provides the means for presenting content in alternative approaches, and, as such, the computer is a critical tool for the special educator.

For the child with IDD, the computer is actually a window on the world, given capable instruction in its use and the availability of appropriate software. As Foshay and Ludlow (2005) point out, "computers can be the means of curriculum modification, to facilitate the access to content areas such as science and social studies in the academic curriculum and to develop peer relations through interactive games and collaborative learning" (p. 101).

Sometimes children with IDD need additional multimedia stimulation to master concepts. For example, the Doppler effect, often illustrated by a whistle of an approaching and then departing train, may be more richly portrayed through audio and video formats that can be repeated to ensure that the student has mastered the concept.

An Application of Technology

Many students with IDD have difficulty reading. **Hypertext** software programs can provide assistance to learners with words they do not recognize or understand. In such programs the student can select the unknown word. The student can make the computer read and define the word and read the definition. Some programs may also have pictures to support the meaning of the word. For example, a hypertext program could be created for vocabulary found in a general academic science class. A student could independently study the pronunciation and definitions found in the science curriculum through the use of a program that provides words and definitions in an auditory format.

Source: J. Foshay & B. Ludlow, Implementing computer-mediated instructional supports, in M. C. Wehmeyer, D. C. Browder, & M. Agran (Eds.), *Teaching Students with Intellectual Disabilities: Empirically-Based Strategies* 101–124. (Boston: Pearson Custom Publishing, 2005).

Do not be deceived, however. Much teacher or teacher aide time must be invested in preparing the student for the proper use of the computer for the purposes noted in the box. Still, through the Assistive Technology Act (P.L. 105-394), Congress provided funds for obtaining hardware and also requires, through IDEA (2004), that IEP committees take into account technology needs when developing IEPs for the student in question. It is highly likely that special education programs for teachers in training will be spending larger and larger amounts of time on the uses of technology in the classroom.

Ryan's Readjustment

Ryan, a 22-year-old with IDD, was referred to an occupational therapist after unsuccessful community-based job placements. Several professionals recommended that he return to a sheltered day program for "work skills training."

While working with a new occupational therapist, Ryan said he'd like more jobs similar to the ones he had previously lost due to excessive absence or poor performance. Ryan was capable of doing the necessary tasks for those jobs but had seemed to lose interest in them very quickly.

He took a look at some new job ideas on video and was excited about the possibility of working as a housekeeper at a motel. It wasn't

easy to find an employer who was willing to give him a try. But one motel owner agreed to give Ryan a job on a 30-day trial basis. It took only a short time for Ryan to become one of the most efficient and reliable housekeepers on the motel's staff. His employer was so impressed that she requested other people with disabilities seeking employment.

Ryan had many successes at this job. He was named Employee of the Month and given a cash bonus, and later he was promoted to "second floor supervisor" and given a raise. Ryan eventually moved up to supervising a group of motel employees without disabilities.

Source: Adapted from Becky Blair. (2000). Ryan's story: From job placement challenge to employee of the month, *Teaching Exceptional Children* 32(4), 47. Copyright by the Council for Exceptional Children. Reprinted with permission.

Effectiveness of Intervention

As with other programs in special education, we are interested in knowing how much and in what ways intervention is paying off for children with intellectual or developmental disabilities. Guralnick (1997) has summarized the literature on early intervention and concluded that the basic question, Can intervention make a difference? has been answered and that the answer is yes. Our task now is to determine the relative effectiveness of various models of intervention.

Bryant and Maxwell (1999) have reviewed the series of studies that attempted to chart gains from special programming for these children. They found support for an *intensity* or *duration-of-treatment* effect. In other words, the heavier the dose of educational treatment, the greater the children's gains. The same can be said for the length of time that the treatment is applied: the longer, the better. As a matter of fact, when special treatment stops, there is a tendency for the children to lose some of the gains that they have made.

One of the other keys is clearly to begin as early as possible. Guralnick et al. (2006) reported on social skills instruction for 4- to 6-year-olds and reported "modest effects of the intervention," which prevents the development of negative factors and patterns in social play with peers.

We might make an analogy with diabetes in that the patient must keep receiving treatment (insulin or other medication and adherence to diet) in order to get the desired results. What we have learned is that special education needs to be intensive and ongoing for the children's initial gains to hold.

Transition

What happens to students with IDD when they finish school? Do they get employment? Do they advance to independent living?

School to Work

In the not-too-distant past, little or no information was available about the progress of students with IDD after they left school. Today, a growing number of studies indicate how these students are doing in adult life. The news is mixed.

A major study looking at eight thousand youths with disabilities, the National Longitudinal Transitional Study of Special Education Students (Blackorby & Wagner, 1996), has been a major guide. Researchers used a careful sampling design to ensure that their sample was nationally representative and generalizable to the population as a whole, as well as to students in eleven disability categories. Large samples of youngsters with disabilities from three hundred public school districts and from twenty-five state-operated schools for children who are deaf or blind were surveyed and interviewed. In addition, a subsample of more than eight hundred parents of youths who had been out of secondary school between two and four years was interviewed.

What happened to youths identified as having IDD? Half of the students with IDD graduated from high school; the rest either dropped out or aged out of school. The reasons for dropping out of school appeared to be related to behavior rather than to academic performance. Twenty-eight percent of those who dropped out had serious discipline problems.

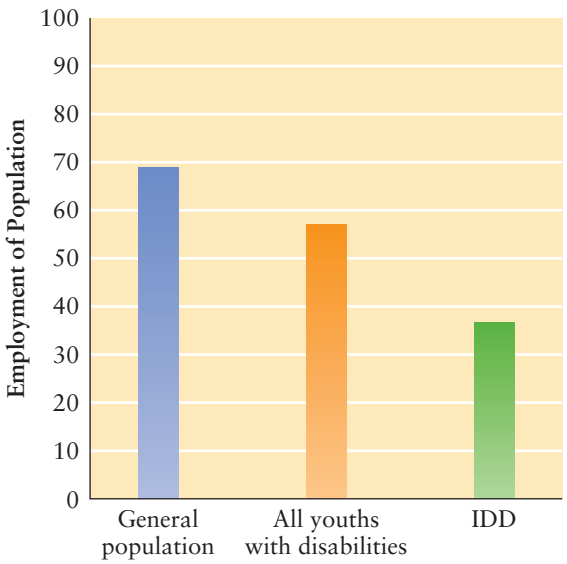


FIGURE 5.4
Youths Competitively Employed 3–5 Years Out of School

Source: From M. Wagner & J. Blackorby, Transition from high school to work or college: How special education students fare, in D. Terman, M. Lerner, C. Stevenson, & R. Behrman (Eds.), *The Future of Children, 6*(1) (1996): 4–24.

What about responsibilities at home? Out-of-school youths with IDD had roughly the same amount of household responsibilities as youths in other disability categories. Although the number of students with IDD who were performing in an unsatisfactory fashion was not encouraging, their adaptation seemed to be similar to that of students with other disabilities.

What about living independently? In the first or second year after secondary school, fewer students with IDD were living independently than were students with other disabilities. For example, 9 percent of the students with IDD, 22 percent of the students with learning disabilities, and 26 percent of the visually impaired students were living independently. These figures improve, however, three to five years after high school. Then, 24 percent of adults with IDD were living independently. There also were encouraging increases in employment rates and wages (Blackorby & Wagner, 1996).

Figure 5.4 indicates the percentage of youths with IDD who were competitively employed within three to five years after they left school. On the graph, the general population of students shows a 70 percent rate of employment, and when

TABLE 5.6
Planning for Secondary Students with IDD

AT AGE 16
• Find and hold a part-time job in school or in the community.
• Write transition knowledge into the IEP meetings.
• Invite adult service providers to IEP meetings.
• Discuss how long student will attend high school—for four years or until age 21.
• Attend information night meetings that offer information about future planning.
AT AGE 17
• Enroll in vocational education classes.
• Establish a graduation date.
• Write transition goals into IEP.
• Invite adult service providers to IEP meetings.
• Investigate guardianship procedures and determine what is in the best interest of the child.
AT AGE 18
• Apply for SSI and Medicaid card.
• Make application to PACT Inc. for residential or case management assistance.
• Apply to adult service provider. Take time to visit all providers to find the best match.
• Schedule a vocational evaluation to better assist in determining the child's interest and setting a vocational goal.
• Write transition goal in IEP. Discuss services needed for best transition from high school to adult services.
• Attend a job fair.

Source: From A. M. Goldberg, Transition timeline, retrieved July 15, 2004, from www.ndss.org. Reprinted with permission.

all the figures for youths with disabilities are included, slightly more than half are competitively employed. In contrast, the number of youths with IDD is between only 30 and 40 percent. Such a figure underscores the importance of vocational training and counseling in that transition period between school and work so that these youths can make an effective adjustment to the world of work. One young woman with Down syndrome achieved these goals: certification as a teacher's aide for an early intervention program, advisory board member on a magazine for parents of children with disabilities, and an associate in science degree.

Table 5.6 provides a series of events for secondary students who have IDD. Basically, by getting a part-time job at age 16, enrolling in vocational classes at age 17, and setting vocational goals at age 18, the student is preparing for a transition to work and the community. It does not make much sense to continue to enroll this student with IDD in traditional secondary courses, many of them designed for college-preparatory programs.

Many students with IDD can find a good vocational setting in adulthood.
(© Richard Hutchings/Corbis)

Such results have convinced special educators that assistance to many students with IDD has to be continued beyond the school years, if the goals of becoming self-sustaining and independent are to be achieved. Accordingly, there has been more attention paid to the transition years between school and vocational work (and adulthood). Although inclusion appears to be a viable goal for children with IDD through middle school, there needs to be a significant transition plan, which can be every bit as important as the IEP established earlier in the child's career. (See Table 5.6.)

The lesson here is that we cannot release young people with IDD from school and expect them to adjust to a working environment without help and planning. With organized training programs and support services, many of these individuals can adjust well. The support resources fall into four categories:

Students with IDD can and do make good adaptations in adulthood.

- *Individuals:* skills, competencies, the ability to make choices, money information, spiritual values
- *Other people:* family, friends, coworkers, cohabitants, mentors
- *Technology:* assistive devices, job or living accommodations, behavioral technology
- *Services:* habilitation services that can be used when natural resources are not available

Family Support

The Arc of the United States
www.thearc.org

One of the common feelings of parents whose children have developmental disabilities is loneliness. They feel different from their neighbors and often do not know how best to help their child. An important resource designed to help them cope can be an organized parents' group. The Arc of the United States (established in 1951 as the Association for Retarded Citizens) is a national organization with many chapters throughout the country. It is able to provide access to resources for parents and to advocate for them and for their children. Often another parent who has been through the same experience can be a valuable friend and confidante, and parents' organizations such as The Arc have well-developed support help. Visit The Arc's website for leads to a wide variety of useful information.

Respite care is one of the simplest and most effective aids to families.

One of the strategies that professionals use to help families cope with the extra stress that often accompanies living with children with disabilities is respite care. **Respite care** is the provision of child-care services so the parents are freed for a few days of their constant care responsibilities. Parents who may not have had a "day off" from child-care responsibilities for years greatly appreciate such assistance. Respite care is an effective way of reducing parental depression and stress and enabling parents to be more effective in their role (Botuck & Winsberg, 1991).

Another role for the professional is to help the family in establishing a sustainable daily routine (Gallimore, Bernheimer, & Weisner, 1999). Many parents react to their stressful situation by saying that they are merely going "one day at a time"—all the more reason to emphasize the importance of developing a daily routine that meets the needs of each family member in some optimal way. As difficult as this life situation may be for the two-parent family, it becomes even more of a strain when only one parent is present or if the family unit is in poverty. One should not overlook the role of available resources or money to pay for child minding, laundry appliances, and cleaning services to relieve the parents of certain household tasks.

Parent to Parent
www.netnet.net/mums

Too often in the past, when professionals said they were involved with the family, they really meant only the mother. We now realize the importance of relating to the father as part of the family unit. This is especially true in light of evidence that the typical father tends to play less of a family role when there is a child with disabilities (Blacher & Hatton, 2007). Some direct counseling and support for the father in his role may be important in achieving the sustainable daily routine that seems so necessary to keeping the family on an even keel.

A popular program called Parent to Parent-USA matches a trained "veteran parent" (someone who has experience as a parent of a child with disabilities) and a "referred parent" (one who is dealing with the issues for the first time). Although only a little more than twenty years old, there are 650 Parent to Parent programs serving nearly every state. An example of what such a program can mean comes from a referred parent:

> Parent to Parent has been my lifeline. When I first heard the diagnosis, I was devastated. Well-meaning doctors and nurses, as well as friends and family, simply did not understand. It was only when I finally connected with another parent through the Parent to Parent program that I could begin to hope for a future for us all. My veteran parent was gently there for me whenever I needed her. (Turnbull & Turnbull, 1997, p. 181)

Eunice and Me

I sometimes wonder what was going through Eunice Kennedy Shriver's head when she came up with the idea of Special Olympics and turned her backyard into a day camp for disabled kids. They say it was for Rosemary, her older, learning-disabled sister. That Eunice saw how difficult things were for Rosemary and was inspired by her struggle, and that she also saw that including Rosie with the right support worked out well. It is certainly true that having a disabled person in your life can really alter your perspective. You become very familiar with the dark underside of the world, the realm of "can't do" and "will never be."

My autistic son is 18, and I have been jamming my foot into closing doors all his life: from the renowned doctor who shrugged and pronounced him "retarded" to the synagogue that would not let him have a Saturday bar mitzvah to the local principal who was afraid to have him attend her school.

One day, however, a door swung open wide where we least expected it: sports. Nat tried a gymnastics class run by Special Olympics. The coach was inexperienced with autism but full of energy and patience. She worked him hard and got him to the State Games that summer. We experienced the odd sensation of feeling both proud of our son and being able to trust others with him. Then, at 14, Nat learned how to swim on the local Special Olympics swim team, and it was the first time he ever seemed to look forward to something. "Swim races, swim races," he would say over and over, with a huge grin. Now, at 18, Special Olympics taught him how to be a part of a basketball team.

Our life with Nat is often very hard, but at Nat's sporting events it is not. There, he's just another team member playing his hardest. Nat is just one of the guys, and we are like everyone else. There is no "can't" in Special Olympics. Whether she knew it or not back then, I think that this is what Eunice Shriver had in mind when she set up the day camp. Even though the Special Olympics athlete's pledge is "let me be brave," the secret is, at Special Olympics, we parents don't have to be.

This essay aired on November 16, 2007, on WBUR-FM. Susan Senator is the author of *Making Peace with Autism: One Family's Story of Struggle, Discovery, and Unexpected Gifts*. Shambhala, 2005.

Pivotal Issues

Discuss some other ways that students with IDD might find self satisfaction similar to special olympics (such as art or music).

Transition to Community: Special Olympics

A goal of almost everyone, regardless of their educational philosophy, is to increase community contacts and interaction for students with IDD. Whether it is on-the-job vocational training, boarding a community bus to an athletic event, or field trips to various community sites, there is a manifest advantage in these students interacting in the community in which they will live as adults.

One of the most successful of these ventures is a program called Special Olympics, which uses the format of the Olympic Games but in which all the persons participating have developmental disabilities. The program was begun in 1968 by Eunice Kennedy Shriver, a sister of President John F. Kennedy. It has grown to an international event, with several thousand participants and many thousands of spectators. The purpose of the games is to allow children with disabilities to participate in races, swimming meets, field events, and team games and to feel what other athletes feel in competition, in winning and losing—an experience they rarely are able to achieve elsewhere. It has received substantial community support and is touted as the largest athletic event now operating besides the traditional Olympics.

Interestingly, some negative voices are heard about the Special Olympic games—that they are not designed to integrate the students into the mainstream but are special games only for children with disabilities, emphasizing that they are different from the general public. Of course, most of these youngsters could never compete for the basketball or track and field teams of their mainstream schools, so the idea of integration is not possible anyway. The sheer joy that these youngsters and their parents get from their Special Olympics experience is obvious to any observer.

moral dilemma

Inclusion and Student Harassment

A teacher in training, Ms. Bascomb, has been concerned about Max, a 9-year-old who has just moved into town with his family. Max joined the fourth-grade class under the school policy of inclusion, although he clearly was not performing at the same level as the other students. The other students have noticed this as well and have begun to comment about it. Today, while on the playground, a group of boys more or less surrounded Max and made some comments that he was a "dummy" and a "retard" and asking why he didn't go to a school where he belongs. Max clearly didn't know how to handle the situation and tried to slip away from his tormentors.

What is Ms. Bascomb's responsibility in this situation? What should she say to the boys who were harassing Max? When they have dispersed, what should she say to Max? How should the incident be reported to the classroom teacher, who has been having troubles of her own getting Max oriented? Develop a dialogue between Ms. Bascomb and the boys; Ms. Bascomb and Max; and Ms. Bascomb and the classroom teacher.

Go to the student website to share your thoughts on this dilemma: www.college.hmco.com/PIC/kirk12e.

Summary

- The current definition of children with intellectual and developmental disabilities focuses on two major components: intelligence and adaptive behavior. An educational diagnosis of IDD depends on the characteristics of the child and on the demands of the social environment.
- Many factors contribute to the development of IDD. They include genetic abnormalities, toxic agents, infections, and negative environmental factors.
- Early intervention programs are one means of preventing IDD caused by environmental factors, but they are not a cure-all for the effects of poverty and social disorganization in the home. They are an important first step; the earlier, the better.
- The IEPs of children with IDD are encouraged to stress strengths that can lead to positive accomplishments.
- Children with IDD have difficulty processing information. For many, the problem lies in limited memory, perception, and the way they organize information and make decisions. Children with IDD often have a general language deficit and specific problems using interpretive language.

- The elementary and secondary curricula for students with IDD stress academic skills, communication and language development, socialization, and prevocational and vocational skills. The emphasis, particularly for students with moderate IDD, is on functional language.
- By reducing failure, increasing success, and modeling appropriate behaviors, teachers can improve the attitudes and behaviors of children with IDD.
- Planning and vocational training are needed to ease the transition of those with IDD from school to work. Many of these students soon make good adult adjustment, often with community help.
- Families with a child with IDD may need support and assistance to function at an extended level.

Future Challenges

1. ***Which dimensions of poverty contribute to slow development?***

   We still are not sure what factors in the culture of poverty are responsible for the slow development of children with mild IDD. Until we can determine the nature of the problem (lack of motivation, poor language, inattention and hyperactivity, lack of effective adult models), it is difficult to design effective methods for preventing it.

2. ***How can positive employment prospects be increased?***

   The future of students with IDD depends as much on the environment or context in which they live as on their education and training. The increasing complexity of modern society casts a shadow over the goal of independence for these students, although many may be able to get jobs in the service sector. How can individuals with IDD find a place in a shrinking job market?

3. ***How can more effective instruction be offered to students with IDD who are from a variety of cultures?***

   The changing demographics of the American population make it certain that more and more students from different cultures and ethnic backgrounds will be referred for special education services. Some will be mislabeled because of the difficulties of communication; others will find it difficult to adapt to classrooms in which the demands are high and not in line with their own experience or even their family values. Special educators need to develop greater understanding and sensitivity to the cultural diversity of families bringing children to the schools, in order to serve the students well.

4. ***How can inclusion and the best placement options be achieved?***

   By including individuals with mild IDD in the general education classroom at the secondary level, we limit them to a standard curriculum. Yet these students need special instruction in prevocational and survival skills. How do we balance the benefits of inclusion with these special vocational needs?

Key Terms

central processing p. 156
cooperative learning p. 170
developmental disabilities p. 146
differentiated instruction p. 165
Down syndrome p. 151
encephalitis p. 154
fetal alcohol syndrome (FAS) p. 153
fragile X syndrome (FXS) p. 152
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Resources

References of Special Interest

Agran, M., & Wehmeyer, M. (2005). *Mental retardation and intellectual disabilities: Teaching students using innovative and research based strategies*. Boston: Merrill/Prentice Hall. A review of the many kinds of special intervention techniques to be used with children with IDD. Special attention is paid to positive behavior supports and the teaching of problem-solving techniques to build the capacities of these students.

Beirne-Smith, M., Ittenbach, R., & Patton, J. (2001). *Mental retardation* (6th ed.). Upper Saddle River, NJ: Merrill. A comprehensive view of children with mental retardation from definition to assessment to characteristics. Much space is devoted to lifespan issues, including infancy and early childhood, educational programming in the school years, and the transitional years preparing for adulthood. Family consideration, individual rights, and legal issues are also addressed.

Blacher, J., & Baker, B. (2002). *Families and mental retardation*. Washington, DC: American Association on Mental Retardation. This book is a compilation of thirty-two articles about families and mental retardation that were originally published in AAMD journals over one hundred years. It reviews how professionals have changed their views concerning families over that period of time. The content covers family responsibilities, the reactions of families to mental retardation (they are not all negative, by any means), and family interventions and support.

Burack, J., Hodapp, R., & Zigler, E. (1998). *Handbook of mental retardation and development*. New York: Cambridge University Press. An important book that synthesizes what we know about the development of children with mental retardation. Major chapters are devoted to cognitive and linguistic development, social and emotional development, and the effects of environment and family.

Davis, S. (Ed.). (2003). *A family handbook on future planning*. Silver Spring, MD: Arc of the United States. A guide to help families develop a plan for their sons and daughters with cognitive, intellectual, or developmental disabilities. The plan deals with issues of personal finances and how to ensure the safety and well-being of the children after their parents' deaths.

Luckasson, R., Borthwick-Duffy, S., Bintinx, W., Coulter, D., Craig, E., et al. (2002) *Mental retardation: Definition, classification, and systems of support* (10th ed.). Washington, DC: American Association on Mental Retardation. This book represents the latest attempt of a team of multidisciplinary professionals to provide a definition of mental retardation, together with its rationale. Attempts are made to link the definition with education. There are specific changes from the 1992 version, especially in the area of adaptive behavior. Worthwhile to see the enormous effort to reach some resolution on a difficult concept.

Switzky, H., & Greenspan, S. (Eds.). (2006). *What is mental retardation?* Washington, DC: American Association on Mental Retardation. A comprehensive view by many different experts on the problems of defining and implementing the concept of mental retardation. The role of the environment and

adaptive behavior are explored, with widely varying views on the appropriate answers.

Turnbull, A., & Turnbull, H. R. (2003). *Families, professionals and exceptionality: Collaborating for empowerment* (5th ed.). Upper Saddle River, NJ: Prentice Hall. A rich text that focuses on the many roles played by the family members of a child with disabilities. It is designed to help professionals understand families, collaborate with families to help family empowerment, and aid family roles in the community and educational system improvement. Many practical quotes from family members bring the issues to life.

Journals

American Journal on Mental Retardation
aamr.allenpress.com

Education and Training in Mental Retardation and Developmental Disabilities
www.cec.sped.org

Intellectual and Developmental Disabilities
www.aaidd.allenpress.com

Research in Developmental Disabilities
www.elsevier.com

Professional Organizations

American Association on Intellectual and Developmental Disabilities
www.aaidd.org

Association for Retarded Citizens (The Arc)
www.thearc.org

National Down Syndrome Society
www.ndss.org

United Cerebral Palsy Association
www.ucpa.org

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CHAPTER 6

Children with Emotional and Behavior Disorders

FOCUS QUESTIONS

- How do intensity and length impact emotional and behavior disorders (EBD)?
- What are some of the risks and protective factors for children with EBD?
- How do positive behavior supports differ from other types of coping with problem behaviors?
- What techniques do we use to teach children to manage and control their own behavior?
- What kinds of special teachers and support staff are needed for students with EBD?
- What rights do parents have through legislation?
- How do we help students with EBD adapt in the community after their schooling is completed?

Few experiences are as disturbing to teachers as trying to teach children who are chronically unhappy or driven to aggressive, antisocial behavior. The teachers feel distressed, knowing there's a problem but feeling unable to do anything about it. The inability of teachers to manage behavior problems in the classroom is rated the most serious problem facing teachers (U.S. Department of Education, 2005).

Children with behavior problems carry a burden that children with other disabilities do not. We do not blame children who have intellectual and developmental disabilities or who have cerebral palsy for their deviant behavior. But many people assume that children with behavior disorders can control their actions and could stop their disturbing behavior if they wanted to. The sense that they are somehow responsible for their disability colors these children's interactions with those around them: their families, their agemates, their teachers (Gresham, 2007).

History

We have always been aware of children with behavior or emotional problems. Yet for generations there has been amazing variation in what were believed to be the causes of such behavior and a correspondingly wide array of treatments. Two centuries ago children with behavior problems were believed to be possessed by the devil or insane or mentally deficient. When attention was paid to them at all, they were shut away in large institutions with very little effort directed to their education. The professionals who dealt with them were largely physicians or clergy (if they were "possessed," it was up to the "holy men" to cure them) (Kauffman, Brigham, & Mock, 2004).

In general, our views of the causes and cures of mental disturbance have followed the broader trends of the times. That is, when we as a society became interested in genetics, heredity came to be considered an important cause of behavioral aberrations. When the society became interested in Sigmund Freud's style of psychoanalysis, we became interested in the inner life of the child with behavior problems.

In the late 1800s, children who were manifestly different from their agemates were being put into special ungraded classes, but with little attention paid to their individual or special needs. Jean Itard and Edward Seguin, both physicians, became important figures in treating children with behavior problems, as well as children with mental retardation, as there had been few other attempts to differentiate the two conditions.

After World War II, the responsibility for such children gradually shifted from the medical or mental health professionals to educators. The schools assumed greater responsibility for their treatment, and the treatment became increasingly behavioral and educational. As we became aware of the power of ecological and social factors to influence children's development, treatment also included changing and improving their social and educational environment. This chapter discusses the current view of causes, as well as the methods and current curricula based on humanistic, ecological, and behavioral principles (Kaufman, Brigham, & Mock, 2004).

Definition

It is not easy to define emotional and behavior problems in children. There is no clear dividing line, such as an IQ score or the syndromes of autism spectrum disorders.

Readers are tempted to skip lightly over technical matters such as definitions in order to get to the more meaty sections that describe students with exceptionalities and how to plan programs for them. We urge that you not do that in this case because the definition of children with emotional and behavior disorders (EBD) is knee deep in many of the problems faced by this special field. Table 6.1 provides the definition in the legislation (IDEA Amendments of 2004), and it is easy to recognize oneself in this definition. After all, which of us has not been concerned with interpersonal relationships or depression or inappropriate behavior?

What separates these children from their more average peers is not the *kind* of behavior shown but the *intensity* and *long-lasting nature* of that behavior. Everyone can be unhappy from time to time, but not everyday or in many different circumstances. But here is one of the problems with this definition: How can we separate those who have a normal amount of unhappiness from someone with such intense unhappiness that it threatens to swallow up the person and destroys any attempt to do normal schoolwork? Where is the dividing point?

Another problem with this definition is in the final statement in Table 6.1, which says that the term "does not apply to children who are socially maladjusted unless it is determined that they have an emotional disturbance." Few professionals are in agreement with this statement; they believe that we should be trying to cope with both emotionally and behaviorally disturbed children (Cullinan, 2004). Gresham (2007) has suggested that lawmakers assumed that students who were acting out were doing so on their own accord and could stop

TABLE 6.1
Federal Definition of Emotional and Behavior Disorders

. . . a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects educational performance—

A. An inability to learn that cannot be explained by intellectual, sensory, or health factors;

B. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers;

C. Inappropriate types of behavior or feelings under normal circumstances;

D. A general pervasive mood of unhappiness or depression; or

E. A tendency to develop physical symptoms or fears associated with personal or school problems.

F. The term does not apply to children who are socially maladjusted unless it is determined that they have an emotional disturbance.

Source: Code of Federal Regulations, Title 34, §300.7(b)(9)

Because practically all children exhibit inappropriate behavior from time to time, criteria for identifying problem behavior depend largely on the frequency and intensity of specific behaviors.

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if they wished to do so. Another line of thought has been that lawmakers, having passed legislation dealing with delinquency, thought that having two different kinds of legislation would create overlap.

The schools have, by and large, handled this problem by assuming that any child showing serious behavior problems can automatically be assumed to be emotionally disturbed and thus eligible for treatment. Whether this is really true or not remains an open question.

One professional organization for children with behavior disorders is part of the Council for Exceptional Children. www.ccbd.net

This definition of emotional disturbance does have some other serious shortcomings. A number of observers have pointed out that the federal definition places *all* responsibility for the problem on the child and none on the environment in which the child exists, thus making it the responsibility of the special education program to change the *child* but not the *learning environment,* which can be considerably flawed (Nelson, Crabtree, Marchand-Martella, & Martella, 1998).

The term *behavior disorder* implies that the child is causing trouble for someone else. A serious emotional disturbance can be merely a manifestation of personal unhappiness. But almost all children reveal age-inappropriate behavior at one time or another. Moreover, a child's behavior is not the only variable that determines classification in this category. The person who perceives the child's behavior as "inappropriate" plays a key role in the decision. Clearly, some kinds of behavior, such as physical attacks, constant weeping or unhappiness, and extreme hyperactivity, are unacceptable in any setting. But the acceptability of a wide range of other behaviors depends on the attitude of the perceiver.

In our pluralistic society, behavior that is acceptable in some groups or subcultures is unacceptable in others. Can we say that a child's behavior is deviant if the behavior is the norm in the child's cultural group, even though we may find the particular behavior socially unacceptable? A definition of acceptable behavior must allow for cultural differences.

We noted that this definition focuses on the child, but not on the child's environment. The learning environment may be exactly what is at issue for children who come to school from very different cultures with different lifestyles and values. Let us introduce you to a few students. Pete is a good example of a child with both academic and behavior problems that interfere with school performance. He has been a constant trial to his middle school teachers. He belongs to a gang known as the Griffins who, on occasion, terrorize other students in the school. They are suspected of stealing from local stores and perhaps marketing drugs in the school. Pete does not appear to be depressed or anxious, but his acting-out behavior causes great stress for his teachers and his parents.

Juan, a newly arrived Hispanic child, has trouble with the different ways he is supposed to react to authority. He is expected to look teachers in the eye when they are talking to him. But if he did that at home, he would be severely reprimanded, because such eye contact would be considered defiance of parental authority. Juan's reaction to this very different environment may cause him to exhibit behavior within the range of the current definition of behavior disorder. That behavior would not be due to some underlying pathology but to the clash of cultural values in the school and in the home (Harry and Klinaner, 2007).

What treatment is prescribed for such a child? Should Juan be made to change his behavior patterns to fit the new environment, or should we try to reach an accommodation between the two? The issue of an individual child with maladaptive behavior may turn out to be an issue of clashing societies with a very different prescription for social remediation that extends far beyond the reach of special education.

The student caught between two cultures can still manifest behaviors that are certain to cause him or her trouble now and in the future in the school environment and in the community. In short, the problem may start out as a cultural clash, but it is transformed into a personal adjustment problem. Should the child receive some type of intervention? In this situation, it is appropriate to think of the entire family as the focus of attention. Increasingly, the family unit is involved in the attempts at behavior change in the child.

Prevalence

There is a disturbing gap between the number of children receiving special services in the schools and the number of children who are judged to have either **serious emotional disturbance** or behavior disorders (variously estimated between 5 and 15 percent). Many of the judgments are subjective and left to local personnel; This is the reason that it is hard to arrive at a definitive prevalence figure. This is not to say, however, that there is not a core of children who can readily be identified as having emotional or behavior disorders. A child who attacks another child with a weapon such as scissors, a knife, or a hammer leaves little doubt; neither does a child who weeps five or

HM VIDEO CASE

Classroom Management: Handling a Student with Behavior Problems

Watch this Video Case at the student website. Do you agree with the approaches outlined by the teachers in this piece? Why or why not?

six times a day without apparent cause. As always, confusion about whether a child is eligible for special services exists at the margin of the category.

When a first-grade teacher sees a child who harms others and damages property, who breaks the rules, fights, lies, and yells, the teacher first wonders what to do about this child, then worries about what is to become of him or her. Will he or she continue to show these aggressive tendencies? Will they fade away as the child gets older? Will the child, in fact, be in trouble with society as an adult?

Is This Condition Permanent?

A child's emotional or behavior disorders in school are strong indications of future difficulties in school and society.

One of the hopes of educators is that behavior problems and academic problems may ease or become less severe over time as the child physically and socially matures. But longitudinal studies tend to lessen that hope. One such study (Montague, Enders, & Castro, 2005) followed kindergarten students identified as at moderate or high risk for behavior and academic problems into later elementary and middle school. These students were primarily from poor families and with minority status.

The authors found that those at risk in kindergarten continue to be at risk for poor school outcomes that include truancy, delinquency, and school failure through middle school. The critical importance of early intervention to aid such children is obvious.

In another longitudinal study, a sample of 297 male children who were first assessed at age 6, then evaluated at each grade level through seventh grade, and finally evaluated through interviews at ages 19 and 20 provides some answers to these questions (Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003).

These authors were able to sort these children into four groups: *chronic high aggressive* (the child was aggressive when starting school), *moderate aggressive, increasing aggressive* (including those who seemed to become aggressive while in school and increased their aggressiveness over the years), and *nonaggressive*. Figure 6.1

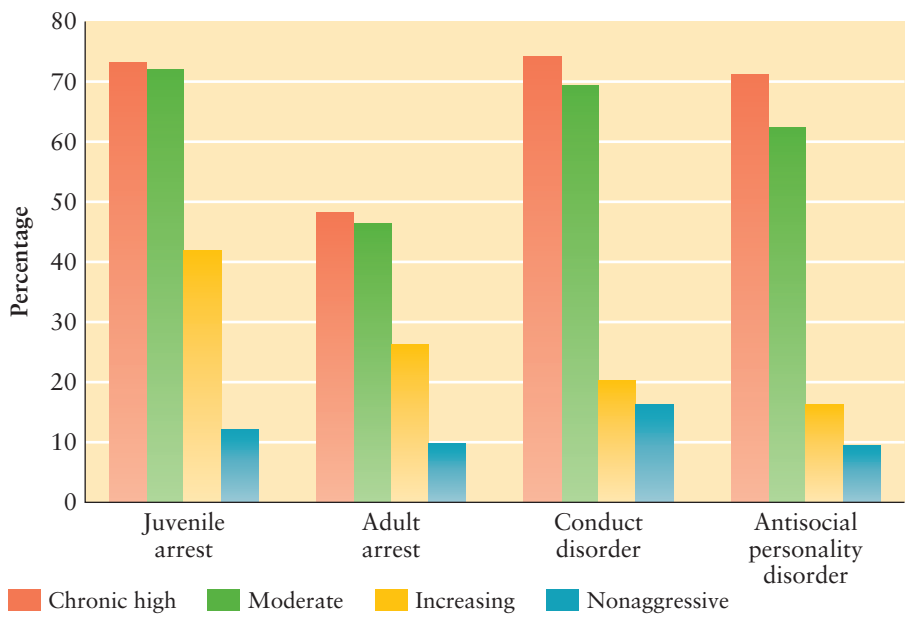


FIGURE 6.1
Prediction of Adult Aggressive Behavior from Behavior of Young Children

A Teenage Student Comes to Terms with Medication

My name is Amy. I am a 15-year-old girl from Erie, Pennsylvania, and I have attention deficit disorder (ADD). Part of my treatment is working with Jennifer Girts, a counselor at the Achievement Center near my home. One afternoon when I was really frustrated, she gave me an article on ADD and adolescents. Wow! I loved it! It really helped me understand a lot about myself. Now I feel moved to write my own article telling my story; about when I was diagnosed, the ways I felt about it then, and how I am coping now. Having dealt with ADD for nine years I know how other kids with ADD feel. I was there at one time too, and I hope my story will help.

Before we found out about ADD, my childhood was good. I have wonderful parents and a younger brother, Bran, who means the world to me. I was good and bad, just like another child. Then, in first grade we found out I have ADD. My life changed from then on.

Coming to Terms with ADD

When I first heard about ADD, I did not know what it was. I remember asking my parents about it. They explained it to me and I asked, "Will it ever go away?" The answer: "No." This made me really upset. They assured me that ADD could be treated, but that I needed to want the help.

My parents thought bringing me to a psychiatrist, who could give me medication, would help me. I thought I was going to lose my head trying all the different kinds of medications suggested. I ended up trying eight different kinds. Can you believe it? I took kinds that made me less hungry, some that made me depressed, and others that made me confused. Finally, my doctor found a combination that works. Now I am on Adderall and Clonidine.

Making a Choice

Finally we found the right medication, but then I never wanted to take it. I would hide it in my dog's chew toys or put it up my sleeve. Now I find myself wondering why I would want to do that since the medication really does help me. My mom assures me there was a time when I didn't care if it did or not. Here is the real reason: I wanted to be normal. After all, no other kid I knew took medication. But when I did not take my medication, I always had difficulty paying attention, and my grades dropped. I was a grouch—definitely not a nice person—all because I did not take my medication.

Finally, my counselor said to me, "Amy, it is your choice to take your medication or not. A lot of people take medication for all different kinds of reasons. You need to decide if you want to be in control of your moods and impulsivity. What kind of person do you want to be: someone in control or a grouch?" I finally realized that I need the medication to help myself. That's the way my father put it. He would say, "You need to help yourself before you can help others."

Listen, it's up to you. It's your choice; no one can force you to take your medicine. I know which person I would rather be. It was up to me to make the right choice—not my parents or my counselor. Other people can ask me to take medication, but I need to be smart enough to realize that I need it. I found out that it was the best thing for me. So my advice to others is: be smart and take your medication. It will help you—take my word for it.

Now my life is pretty good. I am in the eighth grade. I make good grades and have tons of friends. I still take my medication every morning and at night. And I still see my counselor every once in a while. She helps me sort out my feelings and ask myself the right questions. But, hey, I have ADD. And I am normal.

Don't get me wrong, I still have my ups and downs—everyone does. It's not because of ADD; it's because I am human. My life has changed over the years. I've come to understand what ADD can mean to me. ADD may never go away, but I have the power to control it. I will not let it control me again. I have made my choice. The right choice. You have to decide how you want to live: as Oscar the Grouch, or as a person in control with a wonderful life. What is your choice?

Amy is an eighth-grader at Walnut Creek School in Erie, Pennsylvania. Her favorite subject is English and favorite pastimes are hanging out with her friends, going to the mall, school dances, camping with her family, and helping other people. She wants

to be a counselor for children with ADD. She enjoys talking with Jennifer Girts, her own counselor, and feels that it would benefit children with ADD to talk to a counselor who has had first-hand experience with the disorder.

Source: From Amy Wojtkielewicz, My choice for my life: Coming to terms with ADD, *Exceptional Parent Magazine* (November 2000): 113. Reprinted with permission.

Pivotal Issues

- What can you do to support students with ADD/ADHD in your classroom?
- What support will you need from other professionals?
- How will you discuss ADD/ADHD with the student's family?

shows the comparison of aggressive behavior in school with later adult consequences. The figure shows that almost three-quarters of the children in the chronically high aggression and the moderate groups were arrested as juveniles and that half of them were arrested as adults. Also, almost three-quarters of the children in the chronically high aggressive and the increasing aggressive groups were identified as having conduct disorder or antisocial personality disorder.

Other studies have shown the continuity between early aggressive behavior and adult aggressive behavior (Kauffman, 2002). In the study discussed, there also seems to be a linkage between aggressive behavior and attention-deficit hyperactivity disorder (ADHD) that suggests a contributing or comorbid (joint) relationship. The fact that the child with increasing aggression may suffer from concentration problems in school contributes to the portrait of a student having difficulty adjusting to the classroom. The authors called for increasing and improved screening and tracking of behavior problems in elementary schools or before so that preventive intervention can take place before the problems ripen into adult antisocial behavior.

Risk and Protective Factors

Table 6.2 lists the risk and protective factors that influence behavioral disorders in children (Crews et al., 2007). The list of *risk factors* is quite recognizable. The *lack of bonding to school* is important. Unless the student feels a commitment to

TABLE 6.2
Risk and Protective Factors for Externalizing Disorders

Risk	Protective
Lack of bonding to school	Age at first identification
Delinquent peers	Adequate academic performance
Internalizing comorbidity	Play activities
Prior antisocial behavior	Lack of corporal punishment
Low academic achievement	Intact family structure
Nonsupportive home environment	Popular social status
Corporal punishment by parents	High IQ
Controversial sociometric status	

Source: Crews, S., Bender, H., Cook, C., Gresham, F., Kern, L., Vanderwood, M., & Cook, C. R. (2007). Risk and protective factors of emotional and/or behavioral disorders in children and adolescents: A "mega"-analytic synthesis. *Behavioral Disorders, 32*(2), 64–77.

school and education, it is unlikely that his or her aggressive impulses will be totally manageable.

However, the second column in Table 6.2 is more significant. It shows the importance of *protective factors* that keep some students from academic collapse. If Jim is socially popular or has a high IQ or an intact family structure, all these strengths can be incorporated in a positive behavior support effort to counteract the risk factors. One of the most important factors is the *age at first identification,* as it is easier to cope with preschool behavior problems than with the same problems at age 14, after they have hardened into a resistance to everything concerned with school.

Risk Factors for Behavior Problems

Parents and professionals looking for the reasons that some children have externalizing disorders need to examine an array of potential influences that include the individual's biological makeup and cognitive ability, along with family factors and his or her relationship to the larger society.

Biological Risk Factors

Some ideas are harder to accept than others. One hypothesis is that future behavior is determined at birth (see the film *The Bad Seed*). The essential unfairness of such a concept repels us and makes genetic research findings harder to accept. Fortunately, we can now say that the final determination of adult behavior is a mix of genetics and environment; criminal behavior, for instance, is *not* fixed at birth.

What the genetic evidence does tell us, though, is that some children have a predisposition toward behaviors such as hyperactivity, attention problems, or impulsiveness. Those behaviors may call for some special educational or social environments to ensure that such predispositions do not flower into real behavioral problems (Rutter, 1997).

Some children have a genetic predisposition toward behavior problems. This can be helped through both special education and social environments.

Interaction Between Genetics and Environment

Although it has now been widely accepted that there is an interaction between genetics and environment in the development of aggressive and hostile behavior in children, if we are to develop good remedial practices, we need to know *how* such an interaction works.

An ingenious study has taken us forward (Ge et al., 1996). The researchers studied forty-five teenage children who had been separated from their biological parents at birth. The biological parents were identified as having (1) two or more pathological disorders, (2) one pathological disorder, or (3) no pathological disorders. The children were measured for their levels of hostile and aggressive behavior, and the adoptive parents were measured for their own pathological behavior and for the type of discipline that they applied (warmth versus harsh or inconsistent).

There was a strong relationship between the amount of pathology in the biological parents and the amount of aggressiveness shown by the children,

confirming the genetic link between parental pathology and aggressive behavior in a child (Plomin & Petrill, 1997).

An unusual finding was a high correlation between the biological parent's pathology and the harsh discipline handed out by the *adoptive parent*. But why would there be any connection between the problems of the biological parents and the behavior of the adoptive parents, when these adults were unknown to one another?

An answer evolves when we compare the level of hostility that the child shows and the harsh discipline revealed by the adoptive parents. The greater the aggressiveness in the children, the more harsh discipline was used by the adoptive parents. So we may conclude that this is another example of how a child's behavior (although originally influenced by the biological parent) now creates its own environment and directs the reaction of others (adoptive parents)! In other words, it is the child's aggression that brings forth a hostile reaction from the adoptive parents, thus continuing what has been referred to as a **coercive cycle** that has to be broken if we are to make progress with these hostile children.

Although there clearly is some genetic influence in conduct disorders, particularly those associated with hyperactivity, inattention, and poor peer relationships, there is no reason to believe that environmental experiences cannot counteract those influences. After all, if you can get a lion to sit on a chair and a bear to ride a bicycle (hardly gene-driven behavior), as happens in many circuses, you can control the behavior of a child with tendencies to hyperactivity. What does seem clear is that there are two-way interactions between the various forces at work. That is, just as aggression can change psychosocial factors, so can psychosocial factors change levels of aggression.

Family Risk Factors

Children who are victims of abuse and violence often learn to inflict those behaviors on others.

One interesting indicator of a family risk factor is family violence, which includes child abuse (see Table 6.2). Violence against children is a behavior that the children themselves are likely to display when they are old enough to inflict violence on those weaker than they.

The intergenerational aspect of this disorder is distressing. A child with serious behavior disturbance rarely comes from a stable home with warm and loving parents. And the child who is abused is likely to be an abusive parent and to reproduce the entire negative pattern unless the school or community intervenes (Mattison, 2004).

A generation ago, feelings were strong that parents were in large part responsible for their child's behavior problems. Today, many believe that the child's atypical behavior may cause parents to react in ways that are inappropriate and make the condition worse in a downward spiral of unfortunate sequential events.

School Risk Factors

The risk factor most frequently associated with social and emotional disturbance is below-grade achievement in school. Do these children act out *because* they are academically slow and not able to keep up with their classmates? Is their acting out a reaction to their failure in school? The idea is an interesting one, but the evidence does not seem to support it. For one thing, the aggressive behavior that gets these youngsters into trouble in school is clearly observable *before* they enter school.

Children with conduct disorders learn that aggressive behavior is a way of getting what they want, particularly when parental punishment is sporadic and ineffective and provides another model of aggressiveness.
(© Carl Glassman/The Image Works)

Jim, for example, was in trouble in school as early as kindergarten. His school records are peppered with teachers' statements: "He seems bright but doesn't want to apply himself." "He's unmotivated and an angry little boy." "This boy will not take the time necessary to learn the basics."

Violence in the Schools

There are few things more disturbing to teachers than a child who is disruptive to classroom procedures, openly defiant of authority, and threatening or using physical violence to get his way. (We say "his" because the majority of such students are male.)

Dramatic events such as school shootings and killings highlight what has come to be seen as a serious and continuing problem to the schools. Several major questions come to mind:

- How much violence exists, and is it getting better or worse?
- Can we identify students who are prone to violence?
- What are the methods and procedures for lessening and controlling such violence?

The answer to the question "How much violence is occurring in the schools?" is that a great deal of violence occurs there.

- Over 100,000 students bring weapons to school each day, and more than forty students are killed or wounded with these weapons annually.
- Large numbers of students fear victimization (bullying, sexual harassment) in school and on the way to and from school.
- More than 6,000 teachers are threatened annually, and more than 200 are physically injured on school grounds.
- Schools are major sites for recruitment and related activities by organized gangs. (Sprague & Walker, 2000)

Safe and Responsive Schools Project
www.indiana.edu/~safeschl/

The Surgeon General's report on Youth Violence (2001) contained the following figures.

> In 1999, there were 104,000 arrests of people under age 18 for a serious violent crime—robbery, forcible rape, aggravated assault or homicide. Of these, 1,400 were for homicides committed by adolescents and, on occasion, even younger children. . . . For every youth arrested in any given year in the late 1990s, at least 10 were engaged in some form of violent behavior that could have seriously injured or killed another person, according to the several national research surveys in which youths report on their own behavior. (p. 1)

A subset of juveniles commits virtually all of the serious offenses, and members of the subset begin their violent behavior when quite young.

Can we identify children prone to violence? The answer is yes, and they can be identified quite early. Loeber and Farrington (1998) suggested that a small subset of juveniles commits virtually all of the serious offenses and that these students began their violent activities when quite young. Sprague and Walker (2000) suggest that 6 to 9 percent of children account for more than 50 percent of total discipline referrals and virtually all of the serious offenses. Furthermore, early discipline problems predict later adjustment problems quite accurately (Walker, Calvin, & Ramsey, 1995), so it is important to intervene as early as possible.

What can be done? First of all, we should consider what does *not* appear to work with the violent child. The "zero tolerance" approach adopted by many schools, which includes suspensions, expulsions, metal detectors, guards in the hallways, and so forth, seems to reduce violence only temporarily. This "zero tolerance" amounts to counterhostility on the part of the school rather than an attempt to deal with the individuals. Some suggest that such strategies may well be used to impress or reassure parents and other citizens that "action" is being taken on the problem.

Also, there appears to be sufficient evidence now that counseling does not seem to have an effect on antisocial or predelinquent youths (Elliott, Hamburg, & Williams, 1998; Gottfredson, 1997). Of course expulsions may solve the "problem" of the school administration, but not that of the community, because violent youths would be roaming the neighborhoods, free of monitoring or supervision.

Cultural and Ethnic Risk Factors

Many observers have noted the increased prevalence of minority and immigrant children who are identified as having social or emotional disturbances (Osher

Recent violence has led many schools to adopt a "zero tolerance" approach.
(© APP/Getty Images)

et al., 2004). However, even though there might be a clear *correlation* between ethnic background and behavior, this does not mean there is *causation*—that is, that their condition was caused by their ethnic or racial membership.

Bronfenbrenner (1989) focused on the family as a child-rearing system, on society's support or lack of support for that system, and on the effects of that support or lack of support on children. He maintained that the alienation of children reflects a breakdown in the interconnected segments of a child's life—family, peer group, school, neighborhood, and work world. The question is not "What is wrong with children with emotional or behavior disorders?" but "What is wrong with the child's social system?"

The conflict between the values of those in authority in society (and in the school) and the values of their subculture can create tension. For example, what does a child do who sees a friend cheating? Honesty—a valued societal ethic—demands that the child report the incident. But loyalty—a valued subcultural ethic—demands silence. Even more serious in its impact is the situation in which the subgroup devalues education or pressures the individual to use drugs or violence.

Substance Abuse Risk Factors

One of the serious side problems of many children with behavior disorders is *substance abuse*. The public's attention is often directed to the use of exotic drugs, but the use and abuse of alcohol and tobacco are much more common. There is evidence (Davis, Kruczek, & McIntosh, 2006) that children with behavior problems have rates of substance abuse higher than the rates of their peers in

special education or in general education. Despite this information, there appears to be little systematic effort to include prevention programs in the school curriculum for these students.

Does the presence of behavior or emotional problems predispose an individual to use drugs? If you are anxious, depressed, or angry, are you more likely to take drugs? Common sense would answer "Yes," but research is not clear.

Substance abuse is a growing problem in U.S. schools. The prevalence of alcohol abuse and drug use is substantial (18 percent of adolescents used alcohol during the month of the survey) (Department of Health and Human Services [DHHS], 2003), and it has been theorized that exceptional children may be overrepresented among those who use drugs and alcohol. Think about the characteristics of drug users: low self-esteem, depression, inability to handle social experiences, and stress. These are the same characteristics that mark children with behavior disorders. The primary handicap is a behavior disturbance; the secondary handicap is a chemical dependency. Special educators, then, must know the signs of chemical dependency, what to do when they suspect drug abuse in their students, and how to work with drug treatment programs.

In addition to the general teen culture that can encourage substance abuse in some communities, children or teenagers with behavior and emotional problems often are influenced by a series of additional factors that may predispose them to substance abuse. These factors would include prescribed medication, chronic medical problems, social isolation, depression, and a higher risk of being in a dysfunctional family (McCombs & Moore, 2002).

The link between substance abuse and behavior problems has been well established. One notable study is the longitudinal Pittsburgh Youth Study of inner-city boys. Substance use was classified in five categories: beer and wine, tobacco, hard liquor, marijuana, and other drugs. Tobacco was being used by 23 percent of the 13-year-olds, whereas beer and wine had already been experienced by 32 percent of those boys. By the time the boys in this study reached 13 years of age, 9 percent of them had used marijuana.

These investigators (Loeber et al., 1998) found that the different levels of substance use correlated with the severity of delinquent acts. The factors that seemed to be most linked to substance abuse were low achievement, depressed mood, the presence of attention deficit disorders, and a lack of guilt on the part of the child about such substance use. Substance abuse cannot be said to cause emotional problems or problem behavior, but it is clearly part of the syndrome of behaviors linked to early problems and later delinquency.

Risk for Internalizing Anxiety and Depression

Children who are anxious or withdrawn are likely to be more of a threat to themselves than to others around them. Because they usually are not disruptive, they generally do not cause classroom management problems. In contrast to children with conduct disorders, children who are anxious and withdrawn have problems with excessive internal control; in most settings they maintain firm control over their impulses, wishes, and desires. Children who are anxious and withdrawn may be rigid and unable to be spontaneous (Gresham & Kerr, 2004).

Where do fearful children come from? We know that many of them have parents with similar problems. In addition, most professionals agree that chronic anxiety in children comes from being in a stressful situation, not being able to

get out of the situation, and not being able to do anything to improve it. This inability to change the situation adds to feelings of helplessness and reinforces low self-image.

For students, a crucial examination looming on the horizon can create chronic anxiety. For younger children, anxiety can stem from homes in which they feel unwanted or are abused. Children are often too young to understand that their parents may be working out their own problems or that their parents' actions have little to do with them. All they understand is that no matter what they do, they are not getting praise or love from their parents.

Children develop chronic anxiety when they are frequently exposed to stressful situations and are unable to control or remove themselves from those situations.

PROFILES OF TWO STUDENTS

Characteristics of Two Students with Emotional and Behavior Disorders

The graph shows the profiles of two students, Jim and Molly. Both have behavior problems, and both are experiencing academic difficulties. The two children, however, manifest these problems in different ways.

Jim: Jim is an 11-year-old who seems sullen and angry most of the time. He rarely smiles and has a history of temper outbursts. When he is frustrated, he sometimes blows up and attacks the nearest person with such frenzy that other children give him a wide berth and hesitate to interact with him.

Stories in the neighborhood recount Jim's cruelty to animals, how he has tortured and killed cats and dogs. His language borders on profanity, and he has been known to challenge his teachers by asking, "What are you going to do about it?" Jim is a threat not only to his peers but also to his teachers' sense of their own competence. His physical skills are advanced, even though his interpersonal skills are not, which tends to complicate the situation.

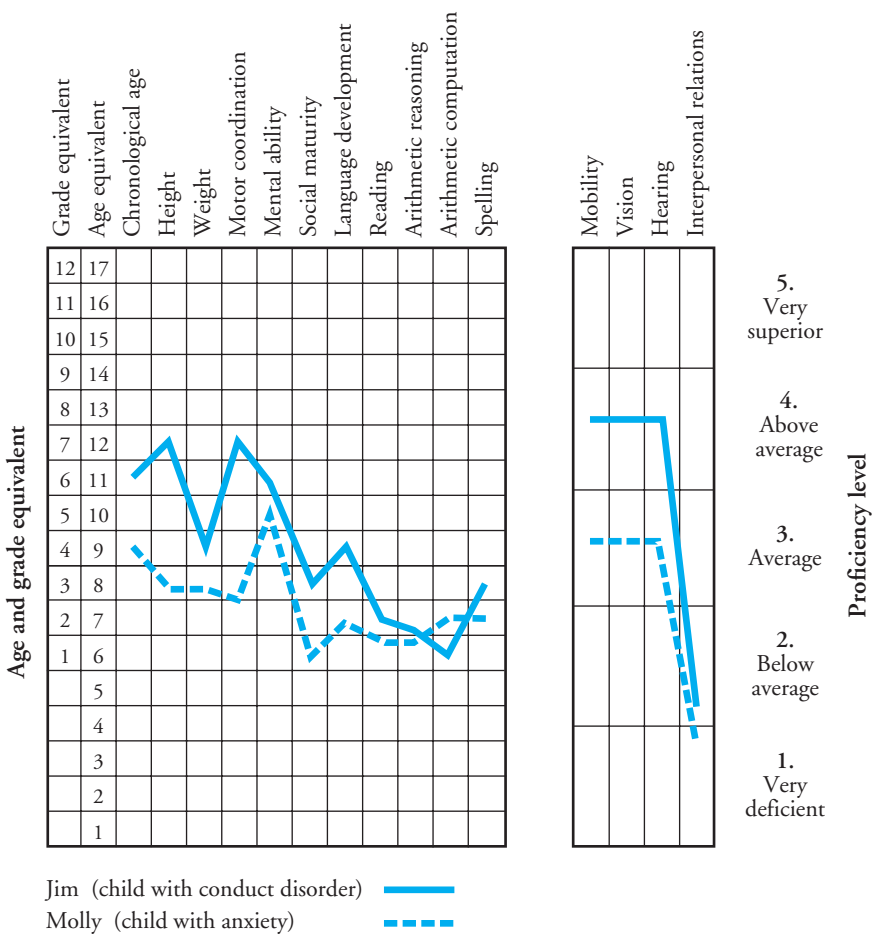


FIGURE 6.2
Profiles of Two Students with EBD

As he grows older, he will become less manageable physically. Although we can tolerate the temper tantrums of a 5-year-old, the same outbursts from a 15-year-old are frightening.

School personnel are actively seeking alternative placement for Jim on the grounds that they are not capable, either physically or psychologically, of coping with his problems. Jim comes from a father-absent home; his mother is somewhat disorganized and seems to have given up trying to control her son. Attempts have been made to coordinate the program for Jim with mental health services for his mother in hopes of strengthening the family as a viable social unit. Although some progress has been made, the situation remains difficult. His social contacts are limited to a few other youngsters who have similar propensities for acting out when they become angry. Adults who are close to Jim are worried about his future. Jim's performance in school, as shown in the profile, is from two to five grades below his grade level, and his hostility and unwillingness to accept correction or help have caused his teachers much anxiety.

Molly: Molly is a 9-year-old girl in the fourth grade who is having a difficult time at school. In contrast to Jim, who tends to externalize his problems, Molly seems to internalize hers. She is in tears and depressed much of the time. She is not able to make friends with the girls who have formed the major social group in the classroom, and she seems lonely and alone. Molly is so quiet that if it were not for the manifest unhappiness that shows in her face and physical demeanor, she would likely go completely unnoticed in school. She, like Jim, is seriously behind in her academic work. Jim is clearly externalizing his problems and, in the process, is causing problems for others. Molly is internalizing her problems and making herself miserable but is not directly confronting others.

Molly's middle-class parents are concerned about her and have taken many different steps to help her, including therapy from a psychiatrist in the community, but so far their efforts have met with little success. She is a source of great frustration to her parents, who cannot understand why she is not like her older sister, who seems to succeed effortlessly in both academic and social spheres. Molly is not the personal threat to teachers that Jim is because she does not challenge their ability to control the classroom. But she does challenge those teachers who want the children in their classes to be happy in school and who are upset by their inability to modify her sadness and low self-concept.

Suicide

A strong feeling of hopelessness can be the predominant reason for teenagers to think about suicide or even to attempt it. For some time, suicide has been one of

the major causes of adolescent death. Today it is the third leading cause of teenage deaths in the United States, with 272 deaths recorded, along with about eight times more suicides attempted. The ratio of males to females in such attempts is about 4:1 (National Institute of Mental Health, 2001). A number of suicides are also linked to substance abuse.

The following are some currently cited signs of a potential suicide:

- Extreme changes in behavior
- Previous suicide attempts
- Suicide threats and statements
- Signs of deep depression

Special education or general education teachers who note such signs should make referrals to appropriate crisis teams or mental health facilities. Most communities now have such services available. In addition, there is a National Suicide Prevention Lifeline (1-800-SUICIDE; 1-800-784-2433) that is available 24 hours a day and seven days a week for emergency counseling (English and Spanish). The teacher remains the first line of defense in these crisis situations and needs to be alert for any signs that students may provide.

Adolescents need to find their way out of learned helplessness through learning alternative coping mechanisms and being offered experiences designed to improve their feelings of self-esteem and self-worth. In these situations, as well as many others we have discussed, multidisciplinary teams of professionals seem called for.

One effort to thwart suicide attempts has been the formation of crisis teams at both the school and the district levels. Team members learn procedures to cope with suicidal individuals, and the team has access to resources that it can bring to bear quickly. A teacher who sees the danger signs has the immediate task of providing relief from the feelings of helplessness or hopelessness that the student may be expressing and of instilling in the student some feeling of being in control. Some positive change, no matter how small, must be made to prove to the student that the situation is not hopeless.

Long-range treatment may demand services from community and mental health agencies, and teachers should be aware of good referral sources. For schools, the best method of prevention is an educational program that enhances feelings of self-worth and self-control. Explicit instruction in positive coping skills can be one way of providing feelings of self-control.

Learned Helplessness

Learned helplessness in children is the belief that nothing they do can stop bad things from happening. Learned helplessness results in severe deterioration in performance after failure, as though the children have said to themselves, "It's all happening again." These children often have such low self-concepts that failure in a school task or a social setting only confirms for them their worthlessness and helplessness in the face of an unfriendly environment. These children's poor performance in the classroom may be much worse than they are capable of doing, simply because they are so pessimistic about themselves and their abilities. Low self-esteem seems to be at the heart of much of the underachievement of children who are anxious and withdrawn.

Learned helplessness comes from low self-esteem and depression.

Articles on behavioral issues and behavioral support. www.ericec.org/faq/behavdis.html

The placement of a disproportionate number of minority students in special education programs has raised questions about the process that many school systems use to identify students with behavior problems. Are these systems mistaking cultural differences for aberrant behavior? Are the personal biases of some decision makers playing a role in decision making? Or are some subgroups especially likely to show the symptoms of behavior problems? The answers to these questions can be made only on an individual basis by a multidisciplinary team of professionals.

It often is difficult to distinguish between children with behavior disorders and those who just have a series of transient adaptation problems.
(© David Young-Wolff/Photo Edit)

The individualized education program (IEP) can be an effective guide for teachers who are trying to cope with children who show emotional or behavior problems. The IEP is shaped not only by the student's specific problem but also by available resources. The presence of professional consultants in the mental health area or of an active remedial program in the school gives both the assessment team and the parents more options to consider.

Despite a liberal definition of children with behavior problems that includes the perceiver as well as the child, most diagnostic instruments now in use focus exclusively on the characteristics of the child and do not take into consideration the nature of the environment. Judgment about the role of the environment still is left to the discretion of the individual observer, clinician, or special educator.

What Have We Learned About Externalizing Behaviors?

Rutter (2003), in summarizing what has been learned, also presented what we have yet to learn, and these statements represent a challenge for the next generation of researchers and educators:

1. Most of the research falls well short of identifying the crucial mediators of the causal process or the effective elements of prevention or treatment.
2. We have only a very limited understanding of what is required to bring about beneficial change. It is evident that parental abuse and neglect provide significant risks for children, but it is not so obvious what would succeed in preventing abuse and neglect.
3. Even when we know which interventions are effective, we lack good means of ensuring that those who might benefit from the interventions participate.
4. Most research has focused on individual differences rather than on (a) differences in level, (b) why the crime rate now is much higher than in 1950, (c) why most forms of antisocial behavior are more common in males than in females, or (d) why the homicide rate in the United States is some dozen times the rate in Europe. (p. 376)

Educational Responses to Students with Emotional and Behavior Disorders

In earlier chapters, we discussed the various ways that educators can modify the standard educational program to meet the special needs of exceptional children. They can change the *learning environment* and the *content* of the lessons, they can teach the child *skills* to process information and to work effectively with peers and adults, and they can use *technology* to aid communication. In addition, teachers must be given intervention strategies, as well as training, to accomplish these differential tasks. It is important to think of modifications in all these areas for children with behavior and emotional disorders.

Positive Behavior Supports

If we are to urge teachers to abandon punishment and punitive responses to behavior problems (primarily because they don't work in the long run), then what will we replace them with? This is particularly relevant because the influential No Child Left Behind act stresses the importance of evidence-based practices and research-supported procedures.

A review of such innovative practices includes positive behavior supports, functional behavior assessments, social skills instruction, and self-management practices (Lewis, Hudson, Richter, & Johnson, 2004). These reviewers point out that it is essential not only that teachers understand these techniques but also that they have ample opportunity to practice them! It is one thing to read a piece of music and quite another to play that piece with grace and style. Such performance requires quality monitoring of the necessary practice.

Case Example: Mrs. Cabot

Mrs. Cabot, sixth-grade teacher, does not necessarily believe in punishment as a way of restoring order in the classroom, but she sometimes is driven to it as a last alternative to chaos. What she may not realize is that Jim and Pete, her most troublesome students, would really prefer a calm and reasonable learning environment, too, if their needs were appropriately met. The question is how to keep Mrs. Cabot from reaching that level of desperation and how to have available to her alternative strategies for classroom control. She needs, and should have, professional supports to aid her.

The history of positive behavior supports is quite short, but its influence is growing rapidly across the country. The basic concept is that misbehavior should not necessarily be followed by punishment of one sort or another but with attempts to understand the causes or antecedents of the misbehavior (Dunlap & Carr, 2007). Then the teacher should introduce attempts to create a positive environment that would make the misbehavior unnecessary. If we can create an educational climate in which personal needs and interests are being met, we will generate less of the anger and cruelty that so often accompanies social transgressions.

None of these procedures is easy to learn or implement. The Teacher and the Pressures of Inclusion box gives a brief description of what may face an elementary school teacher without such training.

Functional Behavior Assessment

Functional behavior assessment (FBA) is a key part of positive behavior supports. It can be described as a collection of methods for gathering information about a child's behavior that tries to answer the question "Why did he or she do that?" rather than, "What did he or she do now?" To answer these key questions, a child study team may wish to seek the *antecedent behaviors* to the event or to understand the child's understanding of the consequences of his or her actions.

Gresham (2007) describes five major ways in which behavior can accomplish certain goals for the individual child or adult:

a. Gain social attention (positive social reinforcement)

b. Gain access to tangibles or preferred activities (material or activity reinforcement)

c. Escape, delay, reduction, or avoidance of aversive tasks or activities (negative reinforcement)

d. Escape or avoidance of other individuals (negative social reinforcement)

e. Internal satisfaction (automatic or sensory reinforcement)

The Teacher and the Pressures of Inclusion

Anne, a devoted elementary school teacher in a local rural school district for fifteen years, tells me that her job has become emotionally and physically overwhelming. After her school district moved to "full inclusion" several years ago, her fifth-grade classroom of twenty-five now includes two children diagnosed with autism, three with EBD (emotional and behavioral disabilities), eight with learning disabilities (LD), and about five others with mild cognitive disabilities. Anne is not certified in special education, but she gets some support from a special education teacher who works with the children with autism and a child with LD about thirty minutes each day. Although the reading levels of the children range from preprimer to grade level, she is required by the state to use standard textbooks for the fifth-grade level. She is finding it an increasingly difficult struggle to meet the needs of such a widely diverse class of students and is seriously considering resigning her position at the end of the year.

Source: From L. Polsgrove, Reflections on the past and future, *Behavioral Disorders 28* (2003): 221–226. Reprinted with permission.

When Bobby suddenly hits another boy for being in his way or Sally tears up a drawing done by someone else, there probably is a cause that fits into one of these five categories, but which one? Careful observation may be required to discover which one and to plan alternative activities that will reduce the need for the unacceptable behavior. Bobby may be avoiding working with numbers, which he hates, whereas Sally may be trying to avoid Midge, whom she has just been told to work with. If we feel confident in our conclusions, then we can plan environmental changes or social activities that make such behavior unnecessary. You might recall some unusual behavior that you have seen over the past week. See if you can categorize it into one or more of the motives in the preceding list.

For an example of what an FBA looks like, visit Chapter 6 on the text website.

Applied Behavior Analysis

One of the most frequently used methods of modifying student behavior is applied behavior analysis (ABA), procedures that follow the work of B. F. Skinner on operant conditioning. In addition to the attention paid to the problem behavior, the procedure focuses on the *antecedents* to the behavior and the *consequences* following it; this is sometimes referred to as the A-B-C approach (Antecedents–Behavior–Consequences). By modifying the antecedent behavior and the consequences that follow, we can often modify the behavior itself (Lewis, Lewis-Palmer, Newcomer, & Strichter, 2004).

For example, Matt has developed the disturbing habit of physically escaping from frustrating situations, and this means that someone must be alert lest Matt take off out of school and into the surrounding neighborhood, leading his mentors on a long and unsatisfying chase. The answer that ABA gives is to focus on antecedent behavior. What was happening immediately before Matt headed for the outdoors? If it is discovered that it was direct conflict with one of the other boys in the class, then steps can be taken to reduce the likelihood of such conflicts, or they can be stopped before a crisis develops.

Also, if the consequence of Matt's sojourns is that the other students pepper him with attention when he returns to the room, the teacher can instruct the other students to ignore Matt when he runs away or to praise him for being a member of the group. Matt can even earn points in a token system for his resisting the temptation to flee. Such points can later be turned in for such rewards as time to listen to music or read special books.

It is not easy to always determine the antecedents and consequences of problem behavior. Once we are looking for them, however, we are often able to make a reasonable conclusion as to what is happening. There will be many students with diverse needs and capabilities in the same physical space; this fact makes even more necessary the establishment of a solid basis for **schoolwide behavior supports** at the Tier I level in the Response to Intervention (RTI) model.

Education in Preventing Social Problems

Specialists in behavior disorders strive not only to remediate behavior problems that have been observed but also to prevent their occurring in the first place. One of the most ambitious prevention projects has been carried out in four separate communities in the United States, with 198 first-grade intervention classrooms from 48 high-risk elementary schools, along with 180 randomly selected comparison classrooms (Conduct Problems Prevention Research Group, 1999).

Two levels of child intervention were applied with the entire classroom in the 198 first grades. PATHS (Promoting Alternative Thinking Strategies), a fifty-seven-lesson curriculum in social competence that focuses on self-control, awareness of one's own feelings, and peer relations was utilized to improve social skills for the whole class.

Ten percent of these first-grade students who were identified by teacher and parent reports as "high-risk students" in kindergarten were given additional parent support classes, small-group social skills interventions, and academic tutoring, together with home visiting (Tier II in the RTI model).

This "fast track" prevention program was designed to reduce the total level of aggressive, hyperactive, and disruptive behavior by having the full classroom become proficient in understanding their own feelings and by learning self-control skills. At the same time, additional effort was being made to help the 10 percent of students at particular risk in the hope of reducing the likelihood that such students would have a negative impact on the total class behavior.

The detailed statistical analysis of the results indicated that the intervention classrooms showed less aggression than the comparison classrooms and also less hyperactive-disruptive behavior. No differences were found in prosocial behavior.

One lesson to be learned from this large project is that it is possible to combine an overall effort at teaching social skills in first-grade classrooms with special interventions for high-risk students to reduce those behaviors that can cause greater difficulty in later school years (Conduct Problems Prevention Research Group, 1999).

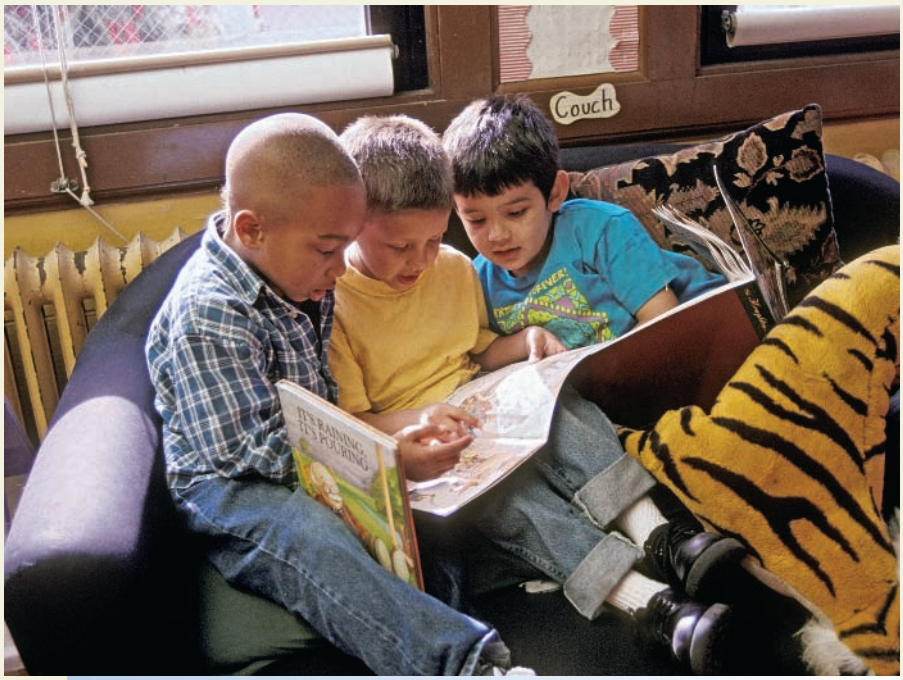
Social Skills Training

One of the clear goals in remediation of emotional and behavior disorders is to improve the social skills of the student to produce socially acceptable learned behaviors such as cooperation, assertion, responsibility, empathy, and self-control. There has even been some suggestion that improvement in academic skills instruction might improve the behavior of many students as well as the social skills instruction itself might. One of the biggest problems has been the failure of *generalization*; that is, the student might learn a skill in one setting (for example, proper greeting in a classroom) but be unable to generalize it to other settings, such as the playground. Gresham (1998, p. 22) has proposed a contextual approach to teaching social skills that would take advantage of events that occur naturally in the school environment; most social skills instruction in home, school, and community settings can be characterized as informal. Thousands of behavioral incidents occur in these settings, creating numerous opportunities for successful learning experiences every day.

A comprehensive review of social skills training and its effect on children with behavior and emotional disorders (Kavale, Mathur, & Mostert, 2004) found limited positive results and concluded that social skills training is still an "experimental intervention and needs to be rebuilt as part of a comprehensive treatment for students with EBD" (p. 459). This serves to remind us that it took years for many of these students to develop their dysfunctional behavior patterns, which cannot be eliminated without great effort and professional attention.

Although the various attempts at meta-analyses (syntheses of past studies) of the effectiveness of social skills training have reported modest and sometimes discouraging results (see Kavale & Forness, 1999), a more recent study (Gresham, Van, & Cook, 2006) provides more encouragement. These authors believed that the reason for the small results in previous studies was due to (1) lack of intensity of treatment and (2) failure to target the specific behaviors in need of modification.

The finding that treatment intensity counts has many applications in other special education attempts to modify behavior. Because of the chronic lack of resources for treatment, we are tempted to try to use as few resources as possible to get the changes we want. We lose faith in some methods because they were not provided in specific intensity or for a specific length of time with follow-up. The hard lesson is that it takes time and considerable effort to modify well-ingrained behavior patterns.



Social skills can be developed through modeling, role-playing, performance feedback, generalization, and maintenance.
(© Elizabeth Crews)

Students using self-management assume greater responsibility for changing undesired behaviors.

Developing Social Skills

Many children with behavior disorders not only engage in nonadaptive behaviors that cause them trouble with their peers and teachers but also lack positive social skills. Some students may have little opportunity in their neighborhoods or in their families to see positive social skills in use. One specific goal of a special education program, therefore, is to enhance the use and practice of socially acceptable behaviors.

Self-Monitoring, Self-Instruction

There is a family of strategies currently known as the *cognitive strategy approach*. Whether called *self-monitoring*, *self-instruction*, or *self-control*, these methods rely on the cooperation of the child and encourage the development of effective conscious coping skills.

One attraction of self-management techniques is that students who successfully apply them assume greater responsibility for their behavior instead of being externally controlled or "forced" to change by various kinds of conditioning (Polsgrove & Smith, 2004).

Suppose Pete has trouble staying in his seat. The first step is to teach him to recognize the behavior and then to record its frequency. Next, Pete negotiates a

HM VIDEO CASE

Social and Emotional Development: Understanding Adolescents

Watch this Video Case at the student website. Meet Shaina Martinez, a school counselor who helps students with EBD. What are some of the pros and cons of the strategies she uses with students?

reward that is satisfying to him (perhaps some time to work on the computer) for staying in his seat for a specified period. Once he has shown the ability to control the behavior, he can be given the opportunity to control his own schedule and make decisions about the content or skills he would like to work on in the time slot.

There are several self-management techniques:

- *Self-monitoring* requires students to determine whether a target behavior has occurred and then record its occurrence. For example, if Pete feels an aggressive attack coming on, he can note it in a journal. This helps him become increasingly aware of the clues that identify a potential outburst.
- *Self-instruction training* (SIT) is a strategy for teaching any sequential thinking skills such as problem solving, handling frustration, managing anger, or resisting peer pressure (Polsgrove & Smith, 2004).
- *Self-evaluation* asks the student to compare his or her behavior with some criteria and make a judgment about the quality of the behavior being exhibited; for example, "On a scale of 1 to 5, how much attention am I paying to the teacher?"
- *Self-reinforcement* means that the student rewards himself or herself with a token or a tally after meeting some performance standard, such as avoiding aggressive outbursts for a set period of time. For example, a timer set for ten minutes that goes off without an aggressive outburst earns for the student a token that he or she can cash in later for game-playing time or a specially designed activity.

Those techniques are designed to increase students' awareness, competence, and commitment to eliminating negative behaviors and to encourage the acquisition of constructive ones. For Pete, this means that the teacher works with him to improve self-awareness skills that will enable him to increase his own control over his hyperactivity or distractibility. One practical way of increasing the student's personal responsibility is to let the student participate in developing his or her own IEP.

The greatest advantage of this approach is that the child gains self-confidence by exerting control of his or her previously out-of-control behavior. There is an important additional advantage. Many children with behavior disorders spend much of their time in the general education classroom as a result of inclusion. Many general education classroom teachers do not wish to, or feel they cannot, engage in the complex monitoring and recording of individual student behaviors that some of the other behavior-shaping techniques require. Once the students learn what they are to do in a self-management program, they can proceed with only modest teacher supervision.

How do all the approaches work with individual children such as Pete, who is having special problems with a fellow student, Jason? Part of Pete's volatility around Jason is a reaction to feeling left out. Pete is angry at being abandoned by Jason, who had been his friend when they were younger and his behavior with Jason is a misplaced attempt at getting something: Jason's attention and friendship. At this point we can work with Pete to help him see how his aggressive behavior drives more people away from him. Part of the positive behavioral supports for Pete will include working with the school counselor on (1) recognizing the consequences of negative behavior and (2) developing specific **replacement behaviors** that will help him make and keep friends.

When we look at Pete's functional behavior assessment, we see that there are a few things we could do to modify the classroom environment and provide positive supports for his better behavior. We might, for example, establish a work carrel for Pete in which distractions are minimized and he has all supplies (such as pencils, Franklin speller, paper, etc.) in one place. This might help with his initial "out of the seat" behavior, but we need to go further if we want to address his task avoidance. We already know that Pete avoids tasks with reading and writing because they are very difficult for him, so we look for ways to support his academic progress and thereby foster competence and success.

In addition to working on his IEP goals, we might establish a behavior contract with him that focuses on his interactions with classmates, especially with Jason. The contract might look like the "Contract for Pete" in the box on page 208.

Contract for Pete

Behavior and impact: I, Pete Walker, understand that when I start fights with Jason, I disrupt the class, I don't do my own work, I make my teacher get mad at me, and Jason and I sometimes get hurt.
Target for change: This week I will work on leaving Jason alone.
Reward for change: If I do not get into a fight with Jason this week, I can pick three classmates to play my favorite computer math game with me on Friday during independent work time.
Consequence for no change: If I do fight with Jason this week, I will use my independent work time to do a classroom chore. That way, I can give something back to my classmates.

Date: 9/15/08

Student Signature:_____ Teacher Signature:_____

What is most important about behavior contracts is that they are directed by the student: The student identifies specific objectionable behavior, articulates the impact of this behavior, identifies its consequences, and describes rewards for not indulging in it. This ownership, for students, is critical to helping them take responsibility for their behavior and for the impact it has on those around them. It is also essential to remember that the more specific a contract is regarding the targeted behavior, the more likely it is that the student will be able to succeed in changing it. So in Pete's case, the wording "leaving Jason alone" is much better than a vague phrase like "trying to get along with Jason." The reward, too, is critical: It should appear desirable to the student, but it should also foster positive growth. For Pete, the ability to invite other students to play a math game fosters growth in both academic and social skills. Finally, the consequence for *not* fulfilling the contract must be logical and must be seen by the student as undesirable. In this instance, Pete's behavior disrupts the class and takes away class time, so it is logical that his consequence should give something back to the class.

The RTI Model

How does the RTI model fit into these various attempts to create a plan for behavior adjustment? Figure 6.3 reveals the RTI model for children with emotional and behavior disorders. The bottom of the RTI triangle is concerned with the universal interventions, the *schoolwide behavior system*. It should not be assumed that this band is represented by the usual classroom program. Instead, there needs to be a determined effort to ensure that the regular classroom is a place for healthy social interaction and the presentation of good mental health programming, as well as adequate content knowledge. This is not always the case from one school to another.

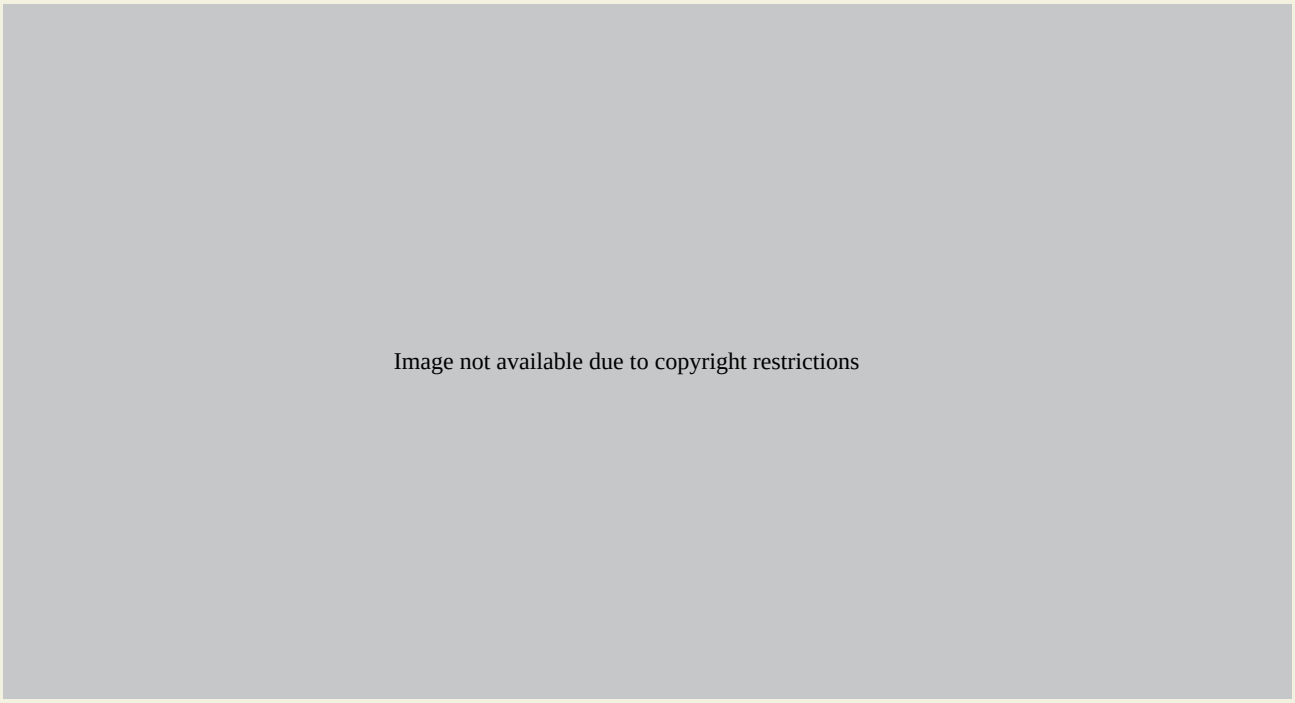
Three levels of behavioral support seem to be necessary for good school operation (Lewis & Sugai, 1999). The first of these is *universal group behavior support* for most students. This involves establishing schoolwide management strategies, setting rules and standards for expected student behavior in such venues as the cafeteria, the hallways, and the bus. Such an approach has been documented as sharply reducing office referrals for misbehavior (Taylor-Green et al., 1997).

The second-tier activities (for about 5–15 percent of students) would apply the positive behavior supports through small-group work or individual tutoring. Such intervention starts at the earliest possible moment to prevent the flowering of even more difficult behavior problems.

The third tier involves a small number of students (1–7 percent), those with the most serious emotional and behavioral problems. They are dealt with on an individual basis with carefully designed IEPs and professional support to lessen the negative impact that the environment and bad personal interactions have had on these impaired children.

Residential Care

Despite the strong tendency to try to place children with emotional and behavior disorders in inclusive



settings, other alternatives are being investigated. A small residential unit in North Carolina enrolls twenty-four children with severe behavior problems (ages 6–12) for periods up to six months and provides them with an organized program using the reeducation model (Fields, Farmer, Apperson, Mustillo, & Simmers, 2006). This would be the third tier in the RTI model.

Teams of teacher/counselors, licensed special education teachers, and qualified mental health professionals work with a group of eight children who attend school and complete therapeutic and daily living activities five days a week, returning for the weekend to family or foster care homes. The reeducation program stresses positive wellness, as well as building academic competencies (Fields et al., 2006). This approach would be the equivalent of a Tier III operation in the RTI model.

Substantial gains in appropriate behavior were noted by both the Child Behavior Checklist and the Behavioral and Emotional Rating Scale, with the majority of students appearing in the normal range following this program. Readings taken six months after treatment reported that most children maintained a large part of the gains they had made in the program.

Obviously, the intensity of treatment provided and the high staff-to-student ratio makes such an approach very expensive and not likely to be adopted by public school programs, but it could be one part of a state comprehensive program for children with emotional and behavior disorders (Fields et al., 2006).

Teacher Preparation

If your school has made a commitment to inclusion, there remains the question of how the general education teachers are going to be supported and who is going to provide special education help. Policy makers differ as to whether the field of emotional and behavior disorders merits a specialist training program or whether it can be folded into the usual special education program. In a survey on this topic, twenty-eight of forty-seven states reported that they required a certificate in EBD, whereas the remaining nineteen states required merely special education training (Katsiyannis, Landrum, Bullock, & Vinton, 1997).

Personnel Preparation

Personnel preparation studies of teachers in the EBD field yield good news in terms of the increasing confidence that such prospective teachers have in controlling classroom behavior (Henderson et al., 2005). Students respond positively to statements such as

The support teacher concept fits well into the inclusive classroom.

Students with behavior problems need joint planning with the support teacher.
(© Gabe Palmer/Alamy)

"I am skillful in managing behavior" and "in collaborating with non-special education teachers, including prereferral interventions."

The bad news is that not enough of these teachers are available. The teacher shortages in the EBD field are severe, as is attrition, causing many school systems to hire persons under emergency certificates to handle these responsibilities. SPeNSE (Study of Personnel Needs in Special Education supported by the U.S. Department of Education) has conducted surveys that reveal the continued need for qualified personnel (SPeNSE, 2002). Among other things, these results probably mean that some inservice training of general and other special education teachers in local districts should be provided by certified EBD teachers in such problematic areas as classroom management and behavior challenges.

The Support Teacher (EBD Specialist)

One innovative suggestion for supporting classroom teachers is to use a **support teacher**, a person with special education training in many of the approaches noted earlier. She or he comes into the general classroom to support the teacher in working with children with special needs and sometimes takes responsibility for small groups of students. Obviously, a classroom teacher with twenty-five or thirty children cannot cope with all aspects of the classroom environment without help. Who can provide that help? The strategy rests on five assumptions and principles:

- Even a child who has serious behavior problems is not disturbed all the time. There are *only certain periods* during which the pupil cannot function in the larger group setting. These periods may come at certain regular times or in the press of a crisis. But most of the time, the child can benefit from and fit into the class.
- Teachers need direct assistance. Consultation is one thing, but real help is something else. Psychologists and similar professionals might offer advice, but they do not know what it is like to try to administer a classroom that includes children who have behavior disorders.

- The direct-service support teacher should work full time in the school to which he or she is assigned, should not be itinerant, and should be trained as a special teacher. The support teacher should be able to respond to the child who is in crisis but also be able to help all children with academic and emotional problems. Many of these youngsters need direct counseling help with issues such as self-concept, but just as many can achieve growth through therapeutic tutoring.
- Sometimes the support teacher can assist best by taking over the classroom while the regular teacher works through a phase of a problem with a child.
- Help should be based on the reality of how the child is able to cope with the classroom and not on categories, labels, or diagnostic criteria.

The support teacher generally uses techniques that are an extension of regular education procedures, emphasizing positive behavior supports. In addition, the support teacher is able to provide important liaison services that are not within the capabilities of the heavily burdened classroom teacher. Children with behavior problems often need the help of a multidisciplinary team of pediatricians, psychologists, and paraprofessionals, and the support teacher can be the case manager and coordinate these sources of assistance.

The Wraparound Approach

The **wraparound approach** makes extensive use of agencies outside the school program, though they are expected to include school personnel in the planning. The family is also a critical part of this planning if it is to work, and strong efforts are made to involve them (Eber, Sugai, Smith, & Scott, 2002). Because behavior problems seem to include many different dimensions of self, family, culture, and community, it makes good sense to try a multidisciplinary approach using professionals from education, psychology, psychiatry, social work, and perhaps other related fields, combined into a treatment team that produces a system of care (Eber & Keenan, 2004).

With regard to Jim, such wraparound planning might include counseling for his mother, who has become depressed about her inability to handle his behavior; some psychological counseling for Jim to help him understand the reasons for his hostile outbursts; and plans for the teacher to find some examples of success for Jim in his schoolwork so that he will get some satisfaction from being in school.

The plan focuses on the strengths of the student, as well as on attempts to mute any deficits in performance that the student may have. Although it is often used as a vehicle for maintaining the student in the general education classroom by bringing additional resources into that classroom, services might be delivered in a resource room or a self-contained special class if that is what represents the least restrictive environment for that student (Kerr & Nelson, 2002).

Teachers can use various strategies with students who have behavior disorders, but each strategy imposes costs or demands on the teachers, whether they are trying to communicate with students, support desirable behavior, or control problem behavior. For example, reminding a student about the rules of the classroom (RTI, Tier I) costs the teacher less in energy or effort than does conducting a group meeting on a problem behavior (Tier II). High-cost teacher behavior, however, may be needed to bring some benefits to the situation. Teachers often find themselves having to decide whether to use these high-cost strategies, and all sorts of factors—professional and personal—can affect the final decision.

Peer Tutoring

One of the instructional strategies in use with students with mild disabilities such as EBD is *peer tutoring*. Obviously, if peers can be helpful in improving the performance of children with disabilities, it could be a substantial boon for the teacher.

One of the most active and well-researched programs is the peer-assisted learning strategies (PALS) used primarily in the elementary schools (see Fuchs et al., 1997). This approach consists of pairing students, one of whom is the player (student with a disability) and the other the coach (a student who has been prepared to help). In twenty-five-minute segments, the pair meet to take turns in reading to one another, identifying words, and so forth.

Over a fifteen- to twenty-five-week period, meeting four times a week, this approach has shown growth in reading that is sustainable over time for many, but not all, students. Much appears to depend on the nature of the students and the kind of preparation given to the tutors before beginning. One of the great potential advantages of such an approach is that expert outside

Peer tutoring can be of great assistance to the teacher.
(PALS First Grade Math, authored by Lynn Fuchs, Douglas Fuchs, Laura Yazdian, Sarah Powell, and Kathy Karns)

Peer Assisted Strategies
www.peerassistedlearningstrategies.net

help is not needed for its operation. Once the classroom teacher has set up the pairs and the learning periods, she or he has only to monitor the progress periodically. This approach would be especially valuable in rural schools, where little outside help can be expected for the classroom teacher.

Stenhoff and Lignugaris/Kraft (2007) reviewed twenty articles on peer tutoring at the secondary level and reported good results. These favorable results occur when the teacher spends some time in providing the tutors with a clear understanding on how to conduct lessons, how to provide feedback for correct responses, procedures for correcting errors, and so forth. Role-playing the tutor-tutee procedures seems particularly useful.

As with inclusion, it is not enough to ask one student to help another with his or her lessons. This approach requires considerable planning and preparation to be successful. One of the interesting side benefits is that the tutors themselves showed academic gains, reduced school absences, and increased positive social interactions. It seems that giving students increased responsibility in the academic setting pays off for both tutor and tutee!

Adapting Technology

Computers: Aiding Content Mastery and Avoiding Negative Response

A computer can be an especially useful learning tool for a student with a behavior disorder because it provides an objective, neutral response to the child's sometimes provoking or challenging behavior. Children with long histories of social interaction problems may respond poorly to teacher feedback, particularly when criticism or correction is involved. The child who is adept at manipulating others can quickly change the focus of a discussion from his or her inadequate academic performance to the teacher's behavior. "Why are you always picking on me?" is a common theme. With a computer, however, the student must find a different approach.

Obviously, a computer is not able to interact emotionally with the child. If the student has difficulty

Students with ADHD may benefit from working on a computer.

solving a problem, he or she must find out why and determine the right answer in order to proceed with the computer program. The student cannot resort to emotional manipulation or accuse the computer of being unfair.

Children who are hyperactive or who have ADHD often have difficulty concentrating and can be helped by a computer. When working with a computer, they must pay some degree of attention to get results. The orderliness and sequence of the software programs can provide a systematic structure for students who have very little cognitive structure or self-discipline. Given the extensive possibilities for the use of computers with students who have behavior disorders, it is surprising that little research on their impact with such students has been published, as yet.

A number of technological aids can provide some supportive help for those working with children with behavior or emotional difficulties. Some take the form of board games that enhance social skills development with topics such as social greetings, handling anger at school and work, appropriate and inappropriate touching, good sportsmanship, and so on. In another classroom behavior game, students move around the board and are exposed to ten strategies that are positive solutions for managing anger. They include taking responsibility for one's own actions, encouraging self-control, and dealing with the acting-out behavior of others.

www.pcicatalog.com

Time-Out

One of the techniques used most frequently to control the behavior of children with behavior disorders is the time-out—sending students who have violated classroom rules to a secluded place in the room or in a space nearby with instructions to come back when they feel they have regained control of themselves. Time-out takes the student away from possibly negative interactions with other students and gives him or her a chance to cool off.

The time-out is frequently used to control the misbehavior of children.

One version of the time-out approach is the Think-Time strategy (Nelson, Crabtree, Marchand-Martella, & Martella, 1998). This approach requires the cooperation of another teacher who can provide the think-time area. The student engaging in disruptive behavior is sent to an area in another classroom previously designated in cooperation with another teacher. This enables the teacher to cut off a negative social exchange or a power struggle and provides the student with time to think about future performance. Once the student has calmed down, the cooperating teacher can get the student to review the inappropriate behavior, what the student was trying to do, and what he or she needs to do on returning to the classroom. Such an intervention cuts short what could be a serious situation.

Schools are important microsystems in treatment of children with behavior and emotional disorders.

There is a version of time-out, however, that has received negative reviews from the professional community. *Seclusionary time-out* (placing an individual in an area that he or she cannot leave until others decide that he or she can) is a highly intrusive behavior and should be used only as a last resort. As with any other technique, time-out should be used as a positive behavior-enhancement tool, not as punishment.

The Role of the Family

The importance of the family, in both positive and negative ways, has long been recognized. This is one of the reasons that parents play a significant role in the IDEA legislation. Table 6.3 summarizes the various interactions the family will have with the school.

The goal is for the parents to become partners with the school in coping with their child.

As you can see in Table 6.3, parents must be fully informed about activities related to their child. Sopko and Reder (2007) provide detailed statements from the law itself that leave little doubt as to the intentions of the lawmakers.

A relatively new way of viewing the professional and parent relationship is by seeing it as a *partnership of experts*. The parents are experts on their own children and on those children's feelings and behavior. They are case managers, policy makers, and legislative advocates. The professionals are experts in such general fields as special education and mental health.

TABLE 6.3
Parental Involvement in IDEA

- Understand what consent is and provide informed consent for services under IDEA.
- Notified in advance about any proposed changes to a child's evaluation, IEP/IFSP, or educational placement to ensure the opportunity to participate in meetings regarding the education of their child.
- Informed about the process used to assess the child's response to scientific, research-based intervention, appropriate strategies for improved achievement, and the right to request an evaluation.
- Informed about disciplinary processes and disciplinary actions regarding their child.
- Given a copy of the procedural safeguards, the evaluation report, the documentation of determination of eligibility, and a copy of the child's IEP at no cost to the parent.
- Informed about the state procedures for filing a complaint, and the right to records of hearings, findings of fact, and decisions.
- Allowed to inspect and review all education records related to their child, and request that information be amended.

Source: Sopko & Reder (2007). *Public and Parent Reporting Requirements: NCLB and IDEA Regulations*. Alexandria, VA: Project Forum National Association of State Directors of Special Education. Reprinted by permission of National Association of State Directors of Special Education.

Under these assumptions we can establish a relationship between the two parties with the best interests of the child in mind (Turnbull, Turnbull, & Turnbull, 2000).

A possible problem in establishing such collaboration or partnership could be any cultural differences between families and professionals. In such instances the parents of children from nonmainstream cultures are more likely to be seen by the professionals as "needing training" rather than as full-fledged partners in the remedial efforts. A sense of "learned helplessness" felt by many such parents has to be combated by the professionals, so that the parents can maintain self-respect and the desire to be the professionals' partners (Harry, 1997).

Transition

One of the unsolved challenges involving the education of students with emotional and behavior disorders is their poor record of school completion, together with limited success in the vocational arena following school. The Office of Special Education Programs (2003) reported that only about 40 percent of these students completed their secondary schooling. These findings suggest (1) the difficulty of entering a labor market with low and uncertain wages, (2) the possibility of trouble with the law, and (3) the unlikelihood of their seeking additional training on their own.

The findings are consistent with those of earlier studies (Rylance, 1997; Valdez, Williamson, & Wagner, 1990). Kortering, Braziel, and Tomkins (2002) individually interviewed thirty-three students who were receiving services for behavior disorders to find out their perceptions of the problems with completing school. Students' responses are listed in Table 6.4 and indicate that additional support is needed during the difficult transition period.

TABLE 6.4
Responses from Students with EBD on Staying in School

Are There Any Advantages or Disadvantages to Staying in School?	
Advantages	Better education and jobs. Getting a better job and better pay. Diploma means a better job. Good education and a job. So I can get in the army and get a job. You will get a better job. Good job.
Disadvantages	Getting into trouble with peers. A lot of homework and not much free time. Can't get a job. Can't work. Working in class is too hard. Don't get a lot of time with friends.
What Changes Would Help an Individual Student Finish School, and How?	
More Support	Help me pass. Help me with my homework. Help me get good grades. Give me more help. Help me control my anger.
What Changes Would Help More Students Stay in School?	
Curriculum	More detail in classes. Up-to-date books. Newer texts. Social studies books should be easier for kids in special education classes. Some of the books are too difficult. More fun things in class. Put tutors in [classes].

Source: From L. J. Kortering, P. M. Braziel, & J. R. Tomkins. (2002). The challenge of school completion among youths with behavioral disorders: Another side of the story, *Behavioral Disorders,* 27: 142–154. Reprinted with permission.

moral dilemma

Emotional and Behavior Disorders

Mrs. Stern, a special education teacher working with children with behavioral disorders, has been on increasingly good terms with Ralph, since she has listened quietly to Ralph's complaints and protests about the unfairness of life from his standpoint. Ralph has had numerous escapades in and out of school.

One day Ralph, a twelve-year-old, asked Mrs. Stern to sit down and talk with him about a problem he was having. He asked Mrs. Stern to swear to keep secret what he was about to tell her, and she said she would. He then told her about his belonging to a gang that was systematically stealing from local Wal-Marts and drugstores. This activity was fairly limited in scope, and Ralph did not seem too concerned. Recently, however, drugs have entered the situation, with members of the gang urging Ralph to deliver drugs from their supplier to various other sites. Part of the reward for his being a delivery boy is that he would be allowed a small amount of drugs for his own use. Despite the pressure put on him by other members of the gang, he has resisted so far, but now he is being threatened with expulsion from the gang or worse.

He wants advice and perhaps moral support for his action.

What should Mrs. Stern do? She has already promised him confidentiality. What should she say to Ralph? What is her responsibility to the larger school and neighborhood community concerning the presence of drugs in and out of school? Write some dialogue that might follow in this situation.

Go to the student website to share your thoughts on this dilemma: www.college.hmco.com/PIC/kirk12e.

Summary

- Unlike children with other disabilities, children with emotional and behavior disorders are often blamed for their condition. This affects their interactions with the people around them.
- The definition of *emotional and behavior disorder* takes into account the intensity and duration of age-inappropriate behavior, the situation in which the behavior is exhibited, and the individual who considers the behavior a problem.
- Although fewer than 1 percent of schoolchildren are receiving special education services for emotional and behavior disorders, the number of children who actually need those services is at least 5 percent and may range as high as 15 percent.
- There is an increased prevalence of minority and immigrant children referred for special services for social and emotional disturbance. Such students often

report less support from peers and adults, as well as low school achievement. Favorable changes in the school environment for these children have positive results.

- Intervention for the child who is anxious and withdrawn should have as its primary objective instilling a sense of self-worth and self-control. Positive experiences play an important role in preventing suicide—a serious problem among students who are deeply depressed and withdrawn.
- Violence in the schools has been a continuing problem. Serious physical violence is caused by a small percentage of students, many of whom can be identified at an early age.
- Although traditional methods such as counseling and the "zero tolerance" approach do not appear to reduce violence, functional behavior assessment and positive behavior supports do seem to have favorable results.
- The RTI model's three-tier approach provides the opportunity for students to move between intense treatment and less intense professional involvement as the situation requires.
- Inclusion appears to offer a viable setting for many students with behavior disorders if the classroom teacher has received training in special instructional strategies, if the other students have been alerted to the special needs of the student with behavior problems, and if adequate support services are made available.
- Social skills training has been a modest success and should focus on the need for generalization from specific training to general classroom behavior.
- Self-management and self-control training has shown promising results.
- The wraparound approach, which features a multidisciplinary system of care, also has potential for positive results.

Future Challenges

1. ***What are the conditions for emotional health for culturally diverse students?***

   Despite findings of increased prevalence of social and emotional problems in minority and immigrant groups, the vast majority of such children are not so affected. A study of emotionally healthy children from these backgrounds and their families could help us understand and assist in the emergence of emotional health in these groups.

2. ***Can increasing uses of multidisciplinary teams provide the necessary increase in services?***

   One serious condition limiting the delivery of quality educational services to children with behavior problems is the need for highly trained personnel. Unless a way can be found to use paraprofessional personnel, as has been done in applied behavior analysis programs, it will not be possible to provide the help needed by many students identified as having behavior problems.

3. ***How early should we begin?***

   The more research that is done, the stronger is the felt need to begin education and therapy as early in the child's life as possible—and that includes family

counseling. For children with emotional and behavior disorders, this would mean starting well before the school years. Ideally, some therapeutic treatment for children with EBD and their families should begin by ages 2 or 3. This often means arranging for relationships with pediatricians and other professionals, who frequently are the first contact that the family has about these problems.

4 ***How can violence be prevented?***

Longitudinal studies of children who are socially maladjusted and act out their aggressive feelings suggest strongly that they do not outgrow these tendencies. Unless something significant is done with these children or with the environment surrounding them (positive behavior supports), we can predict that aggressive children who hurt peers will become aggressive adults who hurt people. The need for large-scale intervention within the school, family, and neighborhood is clear.

Key Terms

coercive cycle p. 192
functional behavior assessment (FBA) p. 201
learned helplessness p. 199
replacement behaviors p. 205
schoolwide behavior supports p. 202
serious emotional disturbance p. 187
support teacher p. 208
wraparound approach p. 209

Resources

References of Special Interest

Bender, W., Clinton, G., & Bender, R. (Eds.). (1999). *Violence prevention and reduction in schools*. Austin, TX: Pro-Ed. This text, written by a team of experts, contains practical, current information. Offering an overview of critical issues and potential solutions, it can be helpful to both educators and parents who want to be better informed.

Committee for Children. (2002). *Second step: A violence prevention curriculum*. Seattle, WA: Author. This curriculum is a classroom-based social skills program for children ages 4 through 14. Designed to teach socioemotional skills, its goals are to reduce impulsive and aggressive behavior in children and to increase their levels of social competence. The program teaches, models, practices, and reinforces skills in empathy, impulse control, problem solving, and anger management and is packaged in a teacher-friendly format for use in the classroom. Over twelve evaluations of the second-step curriculum have been conducted; all have found overall decreases in aggression (both verbal and physical), along with a decrease in discipline referrals.

Fields, E., Farmer, E., Apperson, J., Mustillo, S., & Simmers, D. (2006). Treatment and posttreatment effects of residential treatment using a reeducation model. *Behavior Disorders*, 31(3), pp. 312–322. A description of residential treatment that can supplement a total program for EBD students.

Forum. (2003). *Behavioral Disorders*, 28, 197–228. A special issue of this journal containing the retrospective thoughts of key figures in the field. Steven Forness, James Kauffman, C. Michael Nelson, and Lewis Polsgrove sum up what they have learned and what they believe to be the key issues of the present and the immediate future. Younger leaders in the field comment on these summaries with ideas of their own.

Kerr, M., & Nelson, C. (2002). *Strategies for managing behavior problems in the classroom* (4th ed.). Upper Saddle River, NJ: Merrill. This book is rich in the wide varieties of strategies and techniques for dealing with children with behavior problems. It includes principles for selecting interventions and for dealing with specific behavior problems, aggressive behaviors, and psychiatric problems. It also presents survival skills for the teacher.

Lane, K., Gresham, F., & O'Shaughnessy, T. (Eds.). (2002). *Interventions for children with or at risk for emotional and behavioral disorders*. Boston: Allyn & Bacon. A multiauthored text whose sections include coverage of prevention and identification, academic instruction, management of challenging behaviors, and the integration of services to children with EBD. One section deals with internalizing disorders such as phobias, anxiety, depression, and so forth. Much of the book focuses on the specific problems teachers have in coping with these children, and there is a call for continued research on the linkage between academic difficulties and behavior problems.

Rutherford, R., Jr., Quinn, M., & Mathur, S. (Eds). (2004). *Handbook of research in emotional and behavorial disorders*. New York: Guilford Press. The editors have gathered together many of the most outstanding researchers and scholars in this field to present the most recent knowledge, research, and practices for educating students with emotional and behavior disorders. The content allows easy access to historical and conceptual foundations, assessment and evaluation, student characteristics and intervention, and treatment. It is an admirable source book for anyone interested in this field.

Sugai, G., & Horner, R. (Eds.). (2000). Special Issue: Functional Behavioral Assessment. *Exceptionality*, 8(3), 145–230. A special issue devoted entirely to a discussion of functional behavioral assessment. A series of experts discuss the conceptual and empirical foundations of this process, how functional behavioral assessment fits into recent legislative efforts, how to design plans for functional assessment, and the use of information technology to prepare personnel to use this new set of instructional strategies.

Journals

Behavioral Disorders
www.ccbd.net

Exceptional Children
www.cec.sped.org

Journal of Applied Behavior Analysis
www.seab.enumed.rochester.edu/jaba/

Teaching Exceptional Children
www.cec.sped.org/bk/abtec.html

Journal of Emotional and Behavior Disorders

Professional Organizations

American Psychological Association
www.apa.org

Council for Children with Behavioral Disorders
www.ccbd.net

National Alliance for the Mentally Ill
www.nami.org

National Mental Health Association
www.nmha.org

Society for Research in Child Development
www.srcd.org

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CHAPTER

7

Children with Communication, Language, and Speech Disorders

FOCUS QUESTIONS

- How did the field of speech and language disorders evolve?
- What are some characteristics of children with communication, language, and speech disorders?
- How are communication, language, and speech defined and related to each other?
- What are the critical components of language and how does typical language develop?
- What kinds of problems and/or disorders can affect communication, language, and speech?
- Why must a child's culture and linguistic background be factored in when assessments and services are determined?
- What kinds of supports and services can be provided to children and their families?
- How does the language environment in the home impact a child's development?

The desire to communicate seems as basic a human need as food. Communication begins early as the infant works to make his or her needs known to the parent. Initially, the infant uses cries, grunts, gestures, and facial expressions to get the message across. At 3 or 4 months of age, the baby begins cooing and babbling—using sounds that approximate speech and imitate the language the baby has been listening to from birth. Finally, at around 1 year, the first "words" appear. These first words are usually repetitions of sounds, such as *ma-ma, da-da,* or *pa-pa*. So is it any wonder that in many languages these words mean "mother" and/or "father"? Nothing is more exciting to parents than their infant's amazing ability to acquire speech and language in the first year of life.

When a child shows delays in language development or has difficulty producing speech sounds, early intervention is essential to improve his or her ability to communicate. In this chapter, we look at communication, language, and speech, examining the ways that children develop and the difficulties they encounter when they have problems in these areas. We look briefly at the history of the speech-language field; reflect on how we define communication, language, and speech; examine typical human development of language; review the disorders and disabilities that can affect these areas; and present strategies that can be used to support children and youths who have disorders in communication, language, and/or speech. Throughout this chapter, we refer you to other chapters for information on the impact that specific disabilities may have on a child's development, because difficulties with communication, language, and speech often coexist with other disabilities.

History of Communication, Language, and Speech Disorders

The formation of the American Speech and Hearing Association (ASHA) in 1925 marked a significant point in the emerging field of speech-language pathology, but attempts to correct speech patterns and to enhance communication date back at least as far as the early Greeks in the fifth century BC (Coufal, 2007). In the United States during the 1800s, the focus was on elocution, or the ability to speak with elegance and propriety (Moore, 1802, as cited in Duchan, 2008). With the emergence of public schools, curricula for teaching elocution were developed, and some attention was given to helping students who had speech impediments. Alexander Graham Bell founded the School of Vocal Physiology in 1872 to help improve the speech of children who were deaf or who suffered from stuttering and/or articulation problems (Duchan, 2008).

American Speech and Hearing Association
www.asha.org

By the twentieth century, the science of speech and communication began to influence practice. Early studies showing areas of the brain that were associated with speech and language began to emerge with the work of Paul Broca and Carl Wernicke. As Figure 7.1 shows, parts of the brain were named after Broca and Wernicke as a result of their pioneering work in this area. By the middle of the twentieth century the conception of speech-language disorders began to move beyond the production of sounds to include the "inner language," or thoughts that underlie communication. Key contributors to the importance of symbol formation were Karl Goldstein, Helmur Myklebust, and Charles Osgood. Goldstein worked with aphasics, individuals who had lost or failed to develop

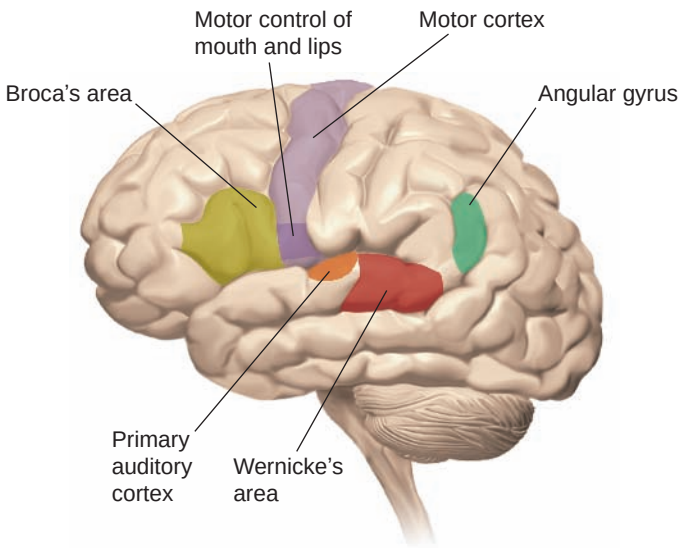

FIGURE 7.1
The Major Brain Structures Participating in Language

From Freberg, L. (2006). Discovering Biological Psychology. 392. Used by permission of Houghton Mifflin Harcourt Publishing Company.

language, whereas Myklebust concentrated on individuals with auditory processing difficulties. Osgood added the idea of a mental component to communication. Their combined work began to show that communication was complex, involving interactions among speech production, language development, and thought (Duchan, 2008).

During the 1960s and 1970s, the field emphasized linguistics. Noam Chomsky led the way by examining the rules and sequences governing the acquisition of language (Chomsky, 1965). Over the last 30 years, the area of language pragmatics—ways that language is used to communicate in a variety of contexts—has emerged as a critical area of study (Duchan, 2008; Hyter, 2007). The social aspects of communication in everyday life also play a central role in our current thinking about speech and language disorders (Duchan, 2008; Olswang, Coggins, & Svensson, 2007; Salvia, Ysseldyke, & Bolt, 2007). Because communication is so vital to being a member of society, life can be difficult for children who have speech and/or language disorders.

Communication is vital to participating in society, and life can be difficult for children who have speech and/or language disorders.

Characteristics of Children with Communication, Language, and Speech Disorders

Communication is central to our ability to fit into society successfully, and when difficulties with language and/or speech interfere with communication, children often experience problems (Brinton & Fujiki, 2006). These problems can affect the formation of a child's friendships, school success, and self-esteem (Girolametto & Weitzman, 2007).

PROFILES OF TWO STUDENTS

Characteristics of Two Students with Speech Disorders

Johnny: Johnny is a 10-year-old boy who has a moderate articulation and phonology disorder (he mispronounces specific sounds). A speech disorder may signal an underlying language problem, and a comprehensive assessment indicated that Johnny also has a language-related learning disability. Academically, he is performing below grade level on skills that

require language mediation. Johnny demonstrates a range of intraindividual differences. At this point, his sound substitutions and omissions are not so severe, and he can usually be understood, but his oral productions still call attention to his speech and sometimes set him apart from his peers.

Johnny's speech is characterized by consistent sound substitutions (w/r, as in *wabbit* for *rabbit;* t/k, as in *tome* for *come;* and l/y, as in *lello* for *yellow*). He also sometimes omits sounds at the ends of words, including the sounds that represent verb tense and noun number (for example, the final /s/ in *looks* and *cats*). When he was younger, his expressive language was delayed, and he spoke very few words until he was 2 years old. When he did begin to talk, his speech was almost unintelligible, and non-family members had difficulty understanding him. Johnny's receptive language, however, was excellent, and his understanding of language spoken to him allowed him to be an active member of a busy family with three older siblings. Careful listening to his conversational language reveals that he still omits articles and that his sentence structure is not as elaborate as that of most 10-year-olds.

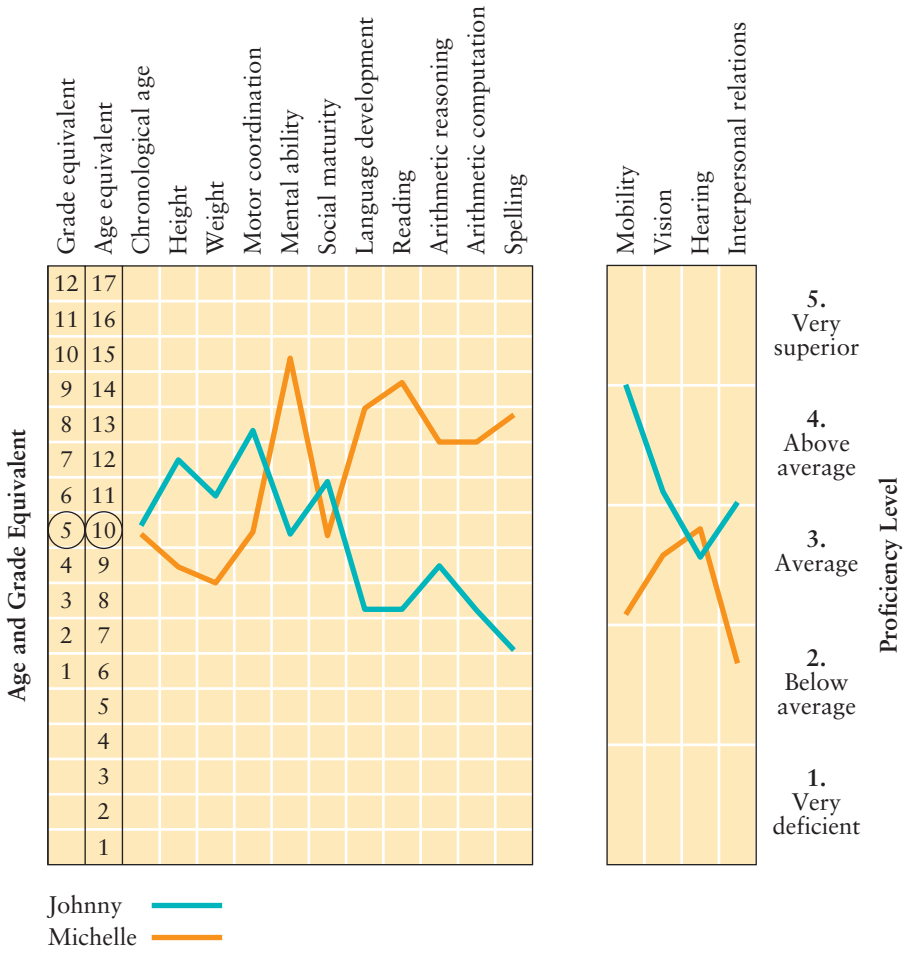

FIGURE 7.2
Profiles of Two Students with Speech Disorders

Johnny is in a regular classroom, Tier I, but seems reluctant to participate in class. It has not been determined whether this reluctance stems from his sensitivity to others' reactions, an inability to formulate speech and complex language to express his ideas, or both. When we look at Johnny's profile we see that he is bright and has strong athletic abilities and that he gets along well with other children. A sensitive teacher can do much to help Johnny feel comfortable in spite of his speech disorder and can help him develop a positive self-concept.

Michelle: Michelle also has difficulty with speech. Her problems, however, are not with articulation, that is, the pronunciation of words. Michelle has difficulty with speech fluency, and she often stutters when she is talking. Michelle's speech is characterized by sound repetitions (for example, "W-W-W-What do you need?"), sound prolongations (for example, "ShShShShould I go too?"), and a series of interjections that insert pause words into the sentence (for example, "I can-um-um-you know-do this"). Sometimes when Michelle opens her mouth to speak nothing comes out. Michelle is a shy child by nature, and her difficulties with speaking have made her very hesitant to interact with others. When Michelle was in the second grade, she had a teacher who made the situation even worse. Michelle remembers Mrs. Cooke forcing her to stand before the class and give her book report. Mrs. Cooke said loudly in front of the class, "Now, Michelle, just take a deep breath and talk slowly and you will be fine." When Michelle did begin to stutter, Mrs. Cooke interrupted her and said, "Just start from the beginning and you can get it right." Michelle was mortified by her continued difficulties in front of the whole class, and the more nervous she became, the worse her stuttering became. Finally, she was allowed to slink back to her seat and try to make herself invisible; she has tried hard to maintain her invisibility ever since.

One of Michelle's strengths is written language, and she has won several awards for her poetry. Michelle is comfortable talking at home, and her stuttering does not seem to be a problem when she is with her family. In school and other settings Michelle finds it very difficult to participate in conversations in which there are more than a few people.

Both Johnny and Michelle have speech disorders, and both receive support from a speech-language pathologist. Later in the chapter we discuss the supports and services these children need to be successful, and we return to Johnny and Michelle to check their progress.

Definitions of Communication, Language, and Speech

Although we sometimes use the terms *communication, language,* and *speech* interchangeably, each means something different. The following definitions clarify how these terms are being used in this chapter and give us a shared platform for looking at the kinds of problems that can emerge with each of these areas.

Communication

Communication requires three things: a sender, a message, and a receiver. When these three work, we can exchange thoughts, information, feelings, and ideas.

The ability to communicate is essential to our participation in society. It is what links us to others and helps us form a shared sense of belonging. **Communication** is the exchange of thoughts, information, feelings, and ideas, and it requires three things: a *sender*, a *message*, and a *receiver*. (See Figure 7.3.) This statement may seem like common sense, but it is important to note that communication has not taken place unless all three elements are in place *and* are working. The sender initiates the communication and determines the message, and the receiver gets the message and must interpret it to understand what it means, thus completing the communication loop. Communication problems can emerge when there are difficulties with any one of these elements.

There are many ways to communicate. Messages can be transmitted through writing, telegraphy, and pictures. As humans we also use the arts to communicate through drama, dance, music, and all of the fine arts. Communication can be nonverbal, through gestures and facial expressions. Think of all the things you can express with just a look. Sign language uses an ordered form of gestures to convey meaning. The primary vehicle that humans use for communication, however, is language.

Language

Lahey's classic definition of **language** as "a code whereby ideas about the world are represented through a conventional system of arbitrary signals for communication" is still viable today (Lahey, 1988, p. 3). Through this definition

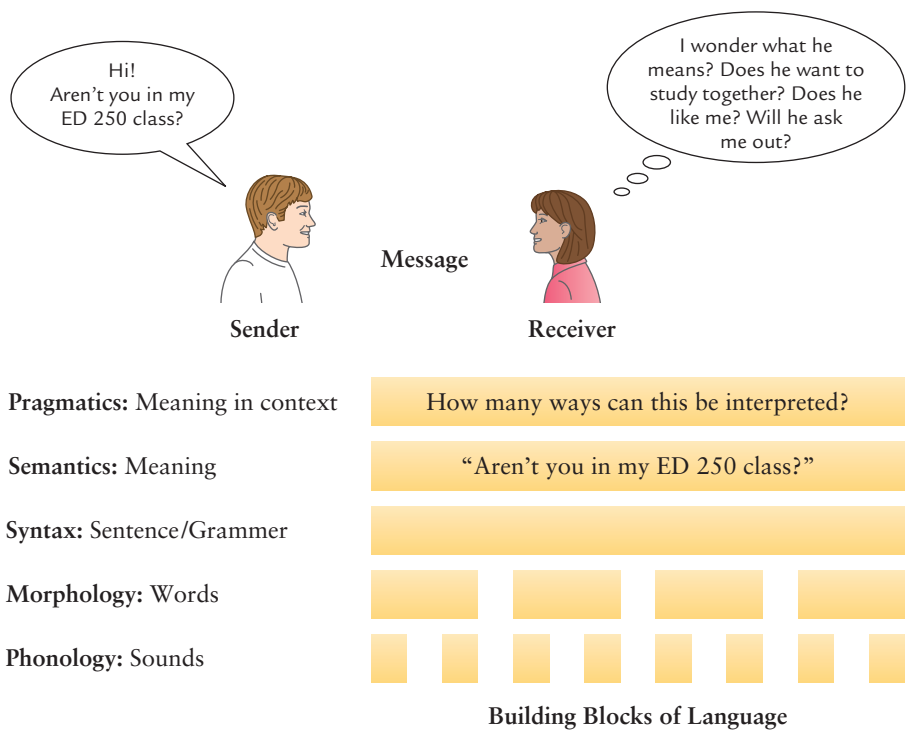

FIGURE 7.3
Has Communication Taken Place?

There are two aspects of language development that are critical. They are receptive language, or hearing with understanding, and expressive language, or talking.

we see that language, as a *code*, represents *ideas*, or mental constructs, and that these are *separate from the actual objects and events*. These mental constructs are inherent to the person and not to the word, object, or event. Further, Lahey's definition reminds us that language is symbolic, that it relies on signals, sounds, and signs to represent objects and events, and thus that it is an abstraction of these. And finally through this definition we see that the primary function of language is to communicate.

Two kinds of language are involved in communication: **receptive language** and **expressive language.** *Receptive language* involves the ability to take in the message and understand it (that is, listening with understanding to oral language and reading written language with comprehension). *Expressive language* is the ability to produce a message to send; this typically involves speaking and writing. So, as part of communication, language is an organized system of symbols that humans use to express and receive meaning (Jusczyk, 1997; Salvia et al., 2007). Language systems evolved over time and largely replaced the innate communication system of gestures and facial expressions, which convey a more limited range of meaning. The key elements that help to define a language can be thought of as belonging to three categories: form, content, and function.

Language Form

The form that a language takes can be seen in the sounds, the words, and the grammar that underlie the language (Sylvia, Ysseldyke, & Bolt, 2007). Each language has its own individual form, or structure, but languages that share a common origin may be similar to each other in form (Bloom, 1991). **Language form** includes:

1. **phonology:** the sound system and rules for the combinations of these sounds
2. **morphology:** the rules that address how words are formed and the structure of words
3. **syntax:** the rules that guide how words are combined to form sentences and the relationships of components within the sentence

A language's grammar is the combination of its morphology and syntax. The structure of a language helps to convey the content.

Language Content

The content of a language is the information being communicated. This is an essential element of language because the meaning of the symbols used is the heart of the message. **Language content**, or *semantics,* is the meaning of words and sentences. You may have heard someone say, when arguing a point, that something is "just semantics," dismissing a point of difference by implying that the ideas are the same regardless of the word used. This argument is incorrect, however. *Meaning is semantics*, and this may be the most essential aspect of language. Meaning, however, must be considered within the context of the communication.

Language Function

Language function, or use, addresses language as appropriate communication within a given society and a specific context. The two concepts that are critical

to how language is used are language **pragmatics** and **supralinguistics** (Salvia et al., 2007). *Language pragmatics* address the social context in which the communication occurs. The social context is important because it helps to clarify the meaning of the communication. Thus, the sentence "Can you feed the dog?" may mean: please feed the dog; are you physically able to feed the dog; or do you have the resources needed to feed the dog, depending on the circumstances and person to whom the question is addressed. Pragmatics also addresses the different expectations for communication in different settings. Children are asked to use very different rules when they communicate in the classroom versus on the playground, and sometimes expectations for communication are different for the home and the school. To be successful we must learn to adapt our communications to the specific expectations in a variety of settings.

Supralinguistics is the sophisticated analysis of meaning when the literal meaning of the word or phrase is *not* the intended meaning (Salvia et al., 2007). Being good at supralinguistics means that one can understand sarcasm, indirect requests, and figures of speech. This skill is also important for understanding puns, wordplay, and verbal humor. Because people often communicate with indirect language, individuals who have difficulty with this may be at a loss to interpret meaning and understand needs. For example, a teacher may say, while rolling her eyes, "Well, of course I *expect you* to talk out in class," when she means the opposite. A youngster who has difficulty understanding social cues and interpreting nonliteral language (such as sarcasm) will be very confused by this statement.

Next, we discuss speech. When a given community selects a series of sounds to convey meaning, it creates speech. Spoken language can be used to convey abstract meanings and to address the past and future, as well as the present.

Speech

Speech is the systematic oral production of the words of a given language. Sounds become speech only when they produce words that have meaning. Speech has a rhythmic flow, with stress and intonation, and it uses words with stressed and unstressed syllables. We think of normal speech as combining **articulation**, **fluency**, and **voice**. *Articulation* is the clear pronunciation of words, *fluency* refers to the appropriate flow of the words, and *voice* is the intonation and quality of the production (pitch, loudness, and resonance). Figure 7.4 presents a simplified overview of the production of speech. A thought occurs in the brain; it is translated into symbols and sent to the larynx area for phonation and resonation, which takes place in the vocal tract; then air is sent to be modified by movements of the tongue and passage over the teeth and lips, which combine to form the sounds, words, and sentences of a particular language (articulation).

Speech combines articulation, the clear pronunciation of words; fluency, the appropriate flow of the words; and voice, the intonation and quality of the production.

The thought transformed into words is received by a listener through hearing, in a process called **audition.**

The following four processes are involved in the production of speech:

- **Respiration** (breathing) generates the energy that produces sound.
- **Phonation** is the production of sound by the vibration of the vocal cords.
- **Resonation** gives the voice a unique characteristic that identifies the speaker (it is the product of sound traveling through the speaker's head and neck).

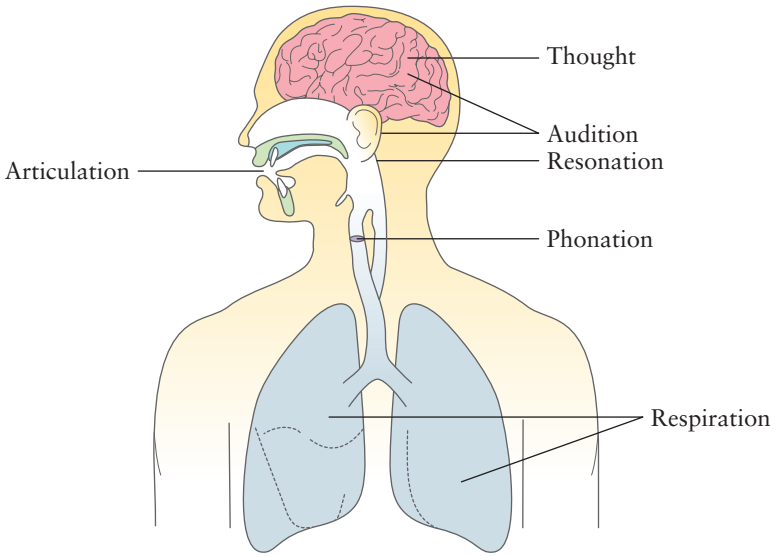

FIGURE 7.4
Processes Involved in the Production of Speech

- **Articulation** is the movement of the mouth and tongue that shapes sound into phonemes (the smallest unit of sound), which combine to make speech.

Typical Language Development

An infant is innately programmed to communicate through smiles, eye contact, sounds, and gestures (the prelinguistic system). Infants are very social beings and are motivated to relate to persons in their environment (Bloom, 2000). The language system uses these talents, and parents teach the child that people and objects have names and particular sounds to identify them. Although the specific language that each child learns will depend on the language spoken in the home, the pattern of language development seems to be similar across languages. The aforementioned two aspects of language, receptive language and expressive language, are critical to a child's development. Understanding typical language development is essential to understanding when and how problems with language can manifest themselves. Table 7.1 shows the typical emergence of language for children from birth to age five.

Infants begin to communicate the moment they utter their first cry.
(© ICHIRO/Getty)

TABLE 7.1
Typical Language Development for Children from Birth through Age Five

Chronological age in months and years	Expectations for typical receptive language development (hearing and understanding)	Expectations for typical expressive language development (talking)
Birth–3 months	• Startles to loud sounds • Quiets or smiles when spoken to • Seems to recognize your voice and quiets if crying • Increases or decreases sucking behavior in response to sounds	• Makes pleasure sounds (cooing, gooing) • Cries differently for different needs • Smiles when sees you
4–6 months	• Moves eyes in direction of sounds • Responds to changes in tone of your voice • Notices toys that make sounds • Pays attention to music	• Babbling sounds more speech-like with many different sounds including *p*, *b*, and *n* • Vocalizes excitement and displeasure • Makes gurgling sounds when left alone and when playing with you

(*continued*)

TABLE 7.1
Typical Language Development for Children from Birth through Age Five (*continued*)

Chronological age in months and years	Expectations for typical receptive language development (hearing and understanding)	Expectations for typical expressive language development (talking)
7 months–1 year	• Enjoys games such as peek-a-boo and pat-a-cake • Turns and looks in direction of sounds • Listens when spoken to • Recognizes words for common items, such as *cup, shoe,* or *juice* • Begins to respond to requests (e.g., "come here" or "want more?")	• Babbling has both long and short groups of sounds, such as *tata upup bibibibi* • Uses speech or noncrying sounds to get and keep attention • Imitates different speech sounds • Has one or two words (e.g., *bye-bye, dada, mama*), although they may not be clear
1 year–2 years	• Points to a few body parts when asked • Follows simple commands and understands simple questions (e.g. "What's that?" "Roll the ball," "Kiss baby," "Where is your shoe?") • Listens to simple stories, songs, and rhymes • Points to picture in book when named	• Says more words every month • Uses some one- or two-word questions (e.g., "Where kitty?" "Go bye-bye?" "What's that?") • Puts two words together (e.g., "More cookie," "No juice," "Mommy book") • Uses many different consonant sounds at the beginning of words
2 years–3 years	• Understands differences in meaning ("go/stop," "in/on," "big/little") • Follows two-step requests ("get the book and put it on the table")	• Has a word for almost everything • Uses two- or three-word "sentences" to talk about and ask for things • Speech is understood by familiar listeners most of the time • Often asks for or directs attention to objects by naming them
3 years–4 years	• Hears you when you call from another room • Hears television or radio at the same loudness level as other family members • Understands simple *wh-* (*who, what, where, why*) questions	• Talks about activities at school or at friends' homes • Speaks clearly enough that people outside the family can usually understand his or her speech • Uses a lot of sentences that have four or more words • Usually talks easily without repeating syllables or words
4 years–5 years	• Pays attention to a short story and answers simple questions about it • Hears and understands most of what is said at home and in school	• Makes voice sounds clearly like other children's • Uses sentences that give lots of details (e.g., "I like to read my books.") • Tells stories that stick to a topic • Communicates easily with other children and adults • Says most sounds correctly (except perhaps certain ones such as *l, s, r, v, z, ch, sh, th*) • Uses the same grammar as the rest of the family

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There are many reasons that a child's individual language progression may differ somewhat from the typical sequence given in Table 7.1, but when this difference is substantial, it may be due to a disorder with communication, language, and/or speech.

Disorders in Communication, Language, and Speech

It is important to distinguish between disorders in communication, language, and speech because they have different origins and they require different interventions. Table 7.2 gives the American Speech-Language-Hearing Association's (ASHA) definitions of these disorders. Communication disorders related to hearing are discussed in Chapter 10.

Communication Disorders

Communication disorders disrupt the individual's ability to send, receive, and process information. If you think back to the information-processing model on page 121 of Chapter 4, you can see how problems with input could undermine an individual's ability to take in messages. Difficulties with processing can make understanding or interpreting the message hard, and output problems can make it hard to send a message. In some cases, the processing difficulties affect a child's ability to understand nonliteral meanings of words, and so the child misses the nuances of the communication. The executive function also oversees and monitors communication, and so if there are problems with attending, communication will be difficult. The emotional context of communication can also contribute to an individual's inability to send, receive, and/or understand the message. Strong emotions, such as anger and high levels of anxiety, can make communication difficult. Remember Michelle, the girl we met at the beginning of the chapter, and how painful speaking in front of the class was for her? It became even more difficult as her anxiety increased when her teacher put pressure on her. Michelle's early experience with public speaking was connected with strong negative emotions that stayed with her and inhibited her desire to communicate for years to come. A failure to appropriately interpret the context or setting can also lead to problems with communication and the pragmatics of language use.

Language Disorders

As we explained earlier, culturally determined rules govern the form, content, and function of language. Table 7.2 shows that each element of language—phonology, morphology, syntax, semantics, and pragmatics—is a potential source of **language disorders**. For example, some children are able to express age-appropriate ideas in correct sentence structures but are not able to use accepted rules of morphology; they might have difficulty with pluralization (*foot-feet*), with verb tenses (*run-ran, walk-walked*), or with the use of prefixes (*pre-, anti-*).

Language involves both *reception* (taking in information) and *expression* (giving out verbal information and producing written language). In some manner,

TABLE 7.2
American Speech-Language-Hearing Association's Definitions of Communication Disorders Including Language and Speech

I. Communication Disorders	A *communication disorder* is an impairment in the ability to receive, send, process, and comprehend concepts of verbal, nonverbal, and graphic symbol systems. A communication disorder may be evident in the processes of hearing, language, and/or speech. A communication disorder may range in severity from mild to profound. It may be developmental or acquired. Individuals may demonstrate one or any combination of communication disorders. A communication disorder may result in a primary disability, or it may be secondary to other disabilities. A. A *speech disorder* is an impairment of the articulation of speech sounds, fluency, and/or voice. 1. An *articulation disorder* is the atypical production of speech sounds characterized by substitutions, omissions, additions, or distortions that may interfere with intelligibility. 2. A *fluency disorder* is an interruption in the flow of speaking characterized by atypical rate, rhythm, and repetitions in sounds, syllables, words, and phrases. This may be accompanied by excessive tension, struggle behavior, and secondary mannerisms. 3. A *voice disorder* is characterized by the abnormal production and/or absences of vocal quality, pitch, loudness, resonance, and/or duration, which is inappropriate for an individual's age and/or sex. B. A *language disorder* is impaired comprehension and/or use of spoken, written, and/or other symbol systems. The disorder may involve (1) the form of language (phonology, morphology, syntax), (2) the content of language (semantics), and/or (3) the function of language in communication (pragmatics) in any combination. 1. Form of Language a. *Phonology* is the sound system of a language and the rules that govern the sound combinations. b. *Morphology* is the system that governs the structure of words and the construction of word forms. c. *Syntax* is the system governing the order and combination of words to form sentences, and the relationships among the elements within a sentence. 2. Content of Language *Semantics* is the system that governs the meanings of words and sentences. 3. Function of Language *Pragmatics* is the system that combines the above language components in functional and socially appropriate communication.
II. Communication Variations	A. *Communication difference/dialect* is a variation of a symbol system used by a group of individuals that reflects and is determined by shared regional, social, or cultural/ethnic factors. A regional, social, or cultural/ethnic variation of a symbol system should not be considered a disorder of speech or language. B. *Augmentative/alternative communication* systems attempt to compensate and facilitate, temporarily or permanently, for the impairment and disability patterns of individuals with severe expressive and/or language comprehension disorders. Augmentative/alternative communication may be required for individuals demonstrating impairments in gestural, spoken, and/or written modalities.

Source: Reprinted with permission from American Speech-Language-Hearing Association in the Schools, Definitions of communication disorders and variations, *ASHA, 35* (Suppl. 10) (1993): 40–41. Available from www.asha.org/policy.

language is processed internally during both reception and expression, but language production and language comprehension do not always proceed at the same pace. Some children will speak but do not seem to understand the meaning of the sentence (Miller & Paul, 1995). And remember from our discussion of the information-processing model that processing errors interfere with all types of learning, including language learning.

The stages and sequences of normal language acquisition give clues to language disorders. But it is often difficult to determine a specific cause for a specific language disorder in a specific child. Speech problems, developmental disorders, or other disabilities may all influence the child's ability to use language. Speech disorders are a specific form of language disorders that affect a child's ability to produce oral language.

Speech Disorders

Speech disorders may include problems with articulation and phonological processing, fluency, and/or voice.

Articulation and Phonological Processing Disorders

The number and kinds of misproductions and their effect on intelligibility are among the criteria for judging the disorder on a continuum ranging from mild to severe. **Articulation disorders** may range from a mild frontal lisp to a fleeting hesitation in words to mispronunciations of speech sounds so severe that the speaker is unintelligible to listeners in his or her own community. Imprecise phoneme (sound) production or articulation errors include substitutions, distortions, omissions, and, infrequently, the addition of extra sounds. When the intended phoneme is replaced by another phoneme, the error is one of *substitution.*

Speech therapists encourage production of speech with articulation that can be understood.

(© Christina Kennedy/Photo Edit)

Common examples are *w* for *r* (*wight* for *right*), *t* for *k* (*toat* for *coat*), and *w* for *l* (*wove* for *love*). The influence of multiple substitutions on intelligibility becomes apparent when *like* becomes *wite.* In other instances, a misproduction makes a phoneme sound different, but not different enough to change the production into a different phoneme. These productions are known as *distortions* (for example, *bru* for *blue*). When a disorder involves *omissions,* certain sounds are omitted entirely (*pay* for *play, ka* for *cat* or *cap*). Misarticulations are not always consistent. In some phoneme sequences, sounds are articulated correctly; in others, they are not. Often the position of a sound (at the beginning, middle, or end of a word) or the position of a word influences the production. Johnny, the boy discussed earlier in the chapter, had difficulties primarily with articulation. Even with intense early speech therapy, his speech was almost unintelligible until he was 8 years old.

Disorders of Speech Fluency

Fluency is the flow of speech. The most common fluency disorder is stuttering, which is characterized by repetitions and prolongations of sound, syllables, or words; tension; and extraneous movement (ASHA, 2008). **Stuttering** is a complex speech disorder with a variety of assumed causes. Some researchers believe that there may be a genetic component to stuttering (Yairi, Ambrose, & Cox, 1996). Many children who stutter show spontaneous recovery by school age (Bloodstein, 1995). But others, like Michelle, continue to have difficulties. As with most disabilities, early intervention (begun by the age of 3) can be very effective in reducing stuttering (Onslow, Costa, Andrews, Harrison, & Packman, 1996).

Disorders of Voice

Voice is the production of sound in the larynx and the selective transmission and modification of that sound through resonance and loudness (you may want to look back at Figure 7.3 to remind yourself how speech is produced). When we talk about voice, we usually think of three characteristics: quality, pitch, and loudness (ASHA, 2008). We evaluate these characteristics in terms of the speaker's age, sex, and culture (Moores, 1996). A **voice disorder** is an inappropriate variation in one of these. Disorders of voice quality, generally called **dysphonia,** can be related to phonation, resonation, or both. Breathiness, hoarseness, and harshness are disorders of phonation. Problems with resonation include hypernasality (excessively nasal-sounding speech) and hyponasality (speech that sounds as if the speaker has a bad cold). Often phonation and resonation disorders are present in the same person, but they can be separate disorders. Pitch indicates whether the speaker is male or female, young or old. Pitch breaks, a common problem, occur in adolescents and affect boys particularly when their voices are maturing.

With the growing numbers of children from culturally and linguistically diverse families in today's schools, we must be extremely careful that we take the child's language background into consideration as we look at possible areas of concern (Guiberson et al., 2006; Salvia et al., 2007).

Linguistic Diversity

Children learn to speak the language that is spoken in their homes and neighborhoods. They tend to use language to express their needs and thoughts in the same way that their parents or caregivers do. In some homes, parents use language in

Children from communities that speak a language other than American English need assessments by speech-language pathologists who are skilled in the child's primary language.
(© Michael Newman/Photo Edit)

ways that are different from the language some teachers expect students to use. For example, teachers may demand explicitness in language (Anastasiow, Hanes, & Hanes, 1982). Whereas the two sentences "He took it" and "Arthur took my truck" convey the same meaning, the listener has to be in the immediate environment to understand the former, less explicit communication. Children who have not been exposed to explicit communication in the home may have difficulty when they encounter a teacher who expects it. Teachers must be aware that differences in language usage such as this are not treated as disorders. Such differences can be addressed by teaching rather than by therapy. Comparing the child's communication skills with the skills of peers from the same cultural background avoids labeling the child as language impaired rather than language different (Roseberry-McKibbin, 1997).

The picture can be further complicated by differences in a child's language due to family, community, or regional accents and dialects. Variations in word usage, pronunciation (phonology), word order (syntax), and meaning (semantics) influence the child's use of language (pragmatics). A **dialect** is a variety of language that differs in pronunciation, vocabulary, or syntax from the literary form of the language. It is used and understood by a group within a larger community. Dialects reflect regional, social, occupational, and other differences: "He done sold his car"; "We be there tomorrow"; "She be sick to her stomach." The use of a dialect is not a sign of a speech disorder but is part of the linguistic diversity of society (Hwa-Froelich, Kasambira, & Moleski, 2006). Saying "warsh" for "wash" is not a sign of a speech defect but a regional dialect. If a child says "dog" for "cow," then a disorder may be suspected (though it may be that the child has not learned the new term). A dialect is very much a part of a child's self-concept, and teachers must react to it carefully. They need to model standard literary usage and encourage children to use it when reading aloud and writing,

but they should allow children to use dialect in their informal speech if communication is clear.

Speech therapists and teachers must take the specific community pronunciations and usages of language into consideration for each child.

A major problem for teachers is that the existence of a dialect may mask a delay or disorder that will become increasingly difficult to diagnose the longer it remains undetected (Guiberson, Barrett, Jancosek, & Itano, 2006). A major failing of language assessment tools is that they are based on the average child's use of language, which is not necessarily the way language is used, taught, and encouraged in all families and communities. Speech therapists and teachers need to learn what a specific community considers accurate pronunciation and usage, and they need to teach children the expectations for communication in different settings.

Prevalence of Communication Disorders

Because of the complexity of communication problems, it is difficult to get an accurate picture of how many communication disorders are speech deficits and how many are language deficits. Speech and language impairment affected over 1 million children in 2002, composing 18.7 percent of the total number of children with disabilities (U.S. Department of Education, 2005). Not all children with speech-language disorders are in special education classes. In fact, 87 percent of children with speech and language impairments are served primarily in regular classes; only 8 percent are in resource rooms and 5 percent in separate classes (U.S. Department of Education, 2005). Children with speech and language disorders are more likely than children with other disabilities to be served in the regular classroom.

Determining prevalence figures can be difficult because younger childern, in kindergarten through second grade, may be over identified due to mild speech disorders. Prevalence figures also tend to be distorted because intellectual and developmental delays, cerebral palsy, and many other disabilities affect communication. Although a communication disorder may be secondary to another disability, it still requires treatment and therapy as part of a total special education program.

Disability Areas and Problems with Communication, Language, and Speech

Throughout this text we look at the ways that a disability can affect a person's life. The impact that a disability can have on an individual's ability to communicate with others is perhaps one of the most poignant of these effects. Table 7.3

TABLE 7.3
Possible Problems with Communication, Language, and Speech That May Accompany Disability Areas

Disability Area	Possible Communication, Language, and Speech Problems
Intellectual and Developmental Delays	Delayed language is a universal characteristic; disorders may be present in all aspects of speech production and with both expressive and receptive language.
Cerebral Palsy	Poor muscle control and impaired breathing of the child with cerebral palsy may result in communication difficulties ranging from speech disorders of articulation and voice to the inability to speak. For many individuals language delays will also be present.
Learning Disabilities	Language difficulties can cause major problems in learning to read, write, spell, and do arithmetic. Problems with communication include understanding social cues, contextual needs, and nonliteral language.
Severe and Profound Multiple Disabilities	Inability to speak; possible ability to learn a limited number of receptive words. May experience delays in language development; may need an augmented communication device.
Autism	Communication difficulties can stem from an inability to "read" and interpret social cues, facial expressions, and gestures; difficulties with nonliteral language and language delays may be present.
Deaf/Hard of Hearing	Generalized language delays, alternative communication needs (e.g., sign language, cued speech, etc.); may have articulation difficulties, voice problems, and limited speech.
Visual Impairments	Difficulties with language reception in reading; can require use of braille or audio augmentation. Communication difficulties may be present if individual is unable to see social cues, facial expressions, and gestures. Abstract ideas, e.g. colors, may be hard to communicate if child has no vision.
Emotional and Behavioral Problems	Communication difficulties can arise from the inability to appropriately "read" social cues and from problems with self-regulating emotions. Language delays lead to further frustration and can exacerbate existing problems.

shows the possible problems with communication, language, and speech that can coexist with other areas of disability.

Because problems with communication, language, and/or speech are often present along with other disabilities, the law requires that speech-language therapy be available as a related service for children with disabilities if they need it (CEC, 2006). **Related services** are defined as support services that are required to assist the child in benefiting from special education (CEC, 2006). In most cases, a speech-language pathologist will be part of the multidisciplinary team that helps in assessing the child's needs, in planning to address these needs, and in carrying out the services required to support the child. The early detection of problems related to communication, language, and speech is essential because early intervention can make a significant difference in the outcomes for children with problems in these areas.

Early intervention can make a significant difference in the outcomes for children with problems related to communication, language, and speech.

Sara's Story

Have you ever wondered what it would be like not to be able to communicate? It's very frustrating. It's very lonely. It hurts.

Think about it. You feel, you think, you know and understand the words, yet you cannot speak them. You hear everyone around you in an interesting conversation, but you cannot join in.

You cannot express any of the feelings or emotions that are just as deep inside of you as anyone else. You are furiously angry and you have to hold it in; or you are extremely happy and you can't show it. Your heart is so full of love you could just burst, but you can't share it. I know what it is like because for years I could not communicate or express myself. I am a 19-year-old girl. I have cerebral palsy and cannot talk. I do not have coordination in my hands to write or use sign language. Even a typewriter was out of the question when I was younger. I know what it is like to be fed potatoes all my life. After all, potatoes are a good basic food for every day, easy to fix in many different ways. I hate potatoes! But then, who knew that but me?

I know what it is like to be dressed in reds and blues when my favorite colors are mint greens, lemon yellows, and pinks. I mean, really, can you imagine?

Mama found me one night curled up in a ball in my bed crying, doubled over in pain. I couldn't explain to her where or how I hurt. So, after checking me over the best she could, she thought I had a bad stomachache due to constipation. Naturally, a quick cure for that was an enema. It didn't help my earache at all!

Finally, help came! I was introduced to Blissymbols.

My life changed! Blissymbols were originally developed for a universal language, but they have been a miracle for me and others like me. Blissymbols are a combination of the written word and a symbolized picture that anyone can learn, which are displayed in a way that can be easily used. There was a tray strapped to my wheelchair. It was covered with a sheet of paper, which was divided into little blocks of words to form sentences. At last, I could communicate!

Naturally, one board could not hold all the words needed. I had to learn to make up my own, combining

Difficulties with speech, language, and communication may affect many children with disabilities.

(© Elizabeth Crews)

two or more words to mean another. As in "story sleep" for dream or "bad night horse" for nightmare.

My teachers started me on ten words a day to see if I could learn them. I learned as fast as they could give me new words. I was ready to communicate! I could even stutter! That's what my uncle calls it when it takes three or four tries to point to one word.

Once I mastered Blissymbols I left the symbols behind and changed to words and sentences. I got my first computer. It was an Autocom.™ I programmed my Bliss board into it and much more. It also had a printer. Finally, I could write!

I didn't stop there. I went on to a more advanced system. I had fun learning about computers by using my Express III™. I was doing the programming all by myself and even did some of the "funny" spelling.

The first thing I learned about computers was to think of them as "hotel." My "Hotel Express III™" had 99 floors or levels. Each floor had 128 rooms or spaces for programming. In each room I could put one person as in a letter or a number, or a whole family as in a sentence; or I could just throw a wild party with several paragraphs. So you see my "Hotel Express III™" had almost unlimited accommodations.

Did I stop there? Surprise, I got a new device. It is called a Touch Talker™ with Mindspeak software. This one has the same basic features as my Express III,™ but I can connect it to an Apple computer to either store the memory on a disk or just use the screen to make my paragraphs all in one instead of having to say bits and pieces at a time. Everything in it is coded like my Express III™, but it is much easier to get the words or sentences out because everything is coded by pictures instead of numbers, and it is a lot easier to remember pictures. The Express III™ had number levels, and it was harder to remember where I put everything, so as you can see, the Touch Talker™ makes it a lot easier for me to communicate with you or anyone else.

Communicating for me has opened a lot of doors. It even let me act in a play. I have been a guest speaker at a Kiwanis Club meeting. It has done a lot more, too. There's help out there, just don't give up.

Source: "Sara's Story" from *Keyhole Communique, 3*(3), May 1989. Reprinted by permission of the author.

Pivotal Issues

- Students like Sara need assistive technology to be able to speak about what they already know but don't have the ability to communicate.
- Assistive technology makes it possible for students like Sara to learn and grow.
- Notice that Sara has excellent writing skills as she tells her story in this article.
- Identify the strengths of children in your classroom who have communication disorders.
- Are there students in your class who would benefit from assistive technology to help them communicate?
- What professionals can you ask about advances in technology that might help your students?

Assessment and Identification of Problems with Communication, Language, and Speech

A comprehensive evaluation of a child's ability to communicate will include an assessment of both receptive and expressive language strengths and needs. Because the demands of communication are complex, it is essential to assess each element of language to establish areas in which difficulties are encountered. Table 7.4 shows the language element that should be assessed and what it will look like for both receptive and expressive language.

TABLE 7.4
Language Elements for a Comprehensive Assessment of Communication Difficulties

Language Elements	Receptive Language	Expressive Language
Phonology	Hearing and discriminating speech sounds	Articulating speech sounds
Morphology and syntax	Understanding the grammatical structure of language	Using the grammatical structure of language
Semantics	Understanding vocabulary, meaning, and concepts	Using vocabulary, meaning, and concepts
Pragmatics and supralinguistics	Understanding a speaker's or writer's intentions	Using awareness of social aspects of language
Ultimate language skills	Understanding spoken or written language	Speaking or writing

Source: Adapted from J. Salvia, J.E. Ysseldyke, and S. Bolt (2007). *Assessment in special and inclusive education,* 10th ed. (Boston: Houghton Mifflin) Reprinted by permission of Houghton Mifflin Harcourt Publishing Company.

A comprehensive evaluation will likely include both formal and informal assessments, combining standardized tests with systematic observations and recordings of spontaneous uses of language (Hyter, 2007; Olswang et al., 2007; Salvia et al., 2007). Teachers can make a key contribution to understanding the child's needs through their systematic observations of the child. The observations that a teacher makes of the child's language behavior during the course of typical classroom activities helps the team gain a comprehensive portrait of the child's typical verbal and nonverbal communication patterns (Olswang et al., 2007). The teacher can further use her or his observations to shape the kinds of supports that will help to strengthen the child's communications skills. The speech-language pathologist is primarily responsible for the identification, diagnosis, and design of the treatment plan and curriculum for children with language and speech deficits. In doing this, the speech-language pathologist works as part of a multidisciplinary team. The team must consider several things as they evaluate the communication strengths and needs of the child. The child's age, general cognitive abilities, sensory acumen, experiences, and the family's primary language will all have an impact on the child's communication. When English is not the primary language of the child and/or the child's family, the assessment for possible problems with language is more complex.

Assessment of Children Whose Primary Language Is Not English

Children from homes in which English is not the primary language are likely to encounter difficulty in using English in school. Language differences can and should be identified early, and language pragmatics, that is, how to relate

to others and to speak in a school setting, should be taught to minimize problems for the child due to cultural differences in expectations (Brice, Miller, & Brice, 2006). Children from cultures and communities that speak a language other than English need to be assessed by speech-language pathologists who are skilled in the child's primary language (Guiberson et al., 2006; Salend & Selinas, 2003).

Ines is a 3-year-old born into a New Mexico family living in economic poverty. She speaks primarily English, but her range of English vocabulary and language proficiency is lower on developmental tests than would be expected for her age norms. In part, these lower scores reflect a New Mexican dialect, called Spanglish, that some of the local families use that varies from classic Spanish and includes some English. The school personnel will need to be knowledgeable about this dialect when they assess Ines's functioning (Brice, Miller, & Brice, 2006). Ines is fortunate in some respects, as many children her age in New Mexico have not learned English and will not do so until they attend school. Ines's success will depend on the skills of her teacher and the speech therapist and on the cooperation and support provided by her family (Saenz & Felix, 2006).

Children who are bilingual vary in their English competence. Any assessment of these children should involve a specialist who is bicultural, who speaks the language of their home, and who can answer three basic questions (Metz, 1991): Who speaks what language? When is that language spoken? For what purpose is that language spoken?

Assessments of bilingual children should include a specialist who is bicultural and bilingual.

Bilingual children, whether they understand both English and Spanish or Hebrew, Chinese, French, or a Native American or other language, are usually more proficient in one language than in the other. For children with disabilities, intervention should occur first in the language in which the child is more proficient (Gutierrez-Clellen, 1999). Helping the child learn by supporting him or her in the primary language is part of being culturally responsive to the child and family. Respect for the family's primary language is key to family-centered intervention approaches (family-centered approaches were discussed in Chapter 3).

Great care must be taken that children from different cultures who speak a different language receive an accurate assessment by a person well versed in the children's language and cultural mores. For example, Spanish-speaking children who speak a Puerto Rican dialect make a number of phonological "errors" that are consistent with their dialect. If the dialect of these children is not taken into account, lower scores will be obtained (Goldstein & Iglesias, 2001).

When a native speaker of the child's language is not available to conduct the assessment, a mediator who speaks the child's language can be hired as a neutral person to assist the evaluator and help communicate with the family. During the evaluation, the mediator can relieve the family's stress by keeping the family informed about what is taking place (Saenz & Felix, 2006).

HM VIDEO CASE

Bilingual Education: An Elementary Two-Way Immersion Program

Watch this Video Case at the student website. How did the teachers work together to promote vocabulary development for their students? In what ways did they use the bilingual approach to reinforce concept development and to enhance understanding?

Educational Responses to Students with Communication, Language, and Speech Disorders

Adapting the Learning Environment

The three levels of intervention that typically constitute the response to intervention (RTI) approach are an excellent match for students with communication, language, and speech disorders. All three levels can play an important role in helping the child meet with success.

Tier I: The General Education Classroom

The general classroom is where most children whose primary area of identification is speech-language are served. Inclusion is the typical option for the child with communication disorders because most children with primary speech disorders respond well to the regular education program if they receive additional help for their special communication needs. The general education classroom and inclusion with typically developing peers provides a rich language environment that can enhance the communication of all children.

You may recall that both Johnny and Michelle, the children presented early in this chapter, were students in a general classroom. You may also remember that Michelle's second-grade teacher's insensitivity led to a painful situation in which Michelle's stuttering caused her significant embarrassment. Michelle's current teacher in fifth grade, Ms. Boone, is much more aware of the difficulty that Michelle faces and has worked hard to make the classroom comfortable, engaging, and nonthreatening. Ms. Boone has modeled active listening for her students, and she praises them when they listen respectfully and patiently to each other without interrupting. This is particularly helpful to Michelle, because it has allowed her to feel more at ease talking. In addition, the children in the class have learned about the difficulties that Michelle faces, and they have been asked to show courtesy to Michelle when she is speaking by following these guidelines:

- Disregard moments of pause or slow speech.
- Show acceptance of what has been expressed rather than how it was said.
- Treat Michelle like any other member of the class.
- Acknowledge Michelle's condition without labeling her.
- Help Michelle feel in control of her speech.

Not surprisingly, because of the open, honest, and compassionate way that Michelle's needs have been addressed, the class is very supportive, and Michelle is making leaps and bounds with her class participation.

Ms. Boone also uses a variety of cooperative learning strategies to promote student-to-student communication (Timler, Vogler-Elias, & McGill, 2007). The classroom environment is set up with engaging materials and small-group arrangements that promote conversations about what is being learned. Ms. Boone believes that learning is facilitated by social interaction, and so she has structured her classroom environment and routine to facilitate communication (Timler et al., 2007). Even with this language-rich environment in which the children's communication is intentionally enhanced, Ms. Boone knows that some of her students will need more support. She works closely with the school's speech-language pathologist, Mrs. Henley, to help her students with more intense needs.

Tier II: Collaborative Interventions

In addition to Michelle, Ms. Boone's fifth-grade class has three students with language-related learning disabilities, two students who are English-language learners, and one student with Asperger's syndrome (see Chapter 8). Many of these children seemed reluctant to participate in the literature seminars that the class held every other week. To help with this, Mrs. Henley worked with a small group of children, giving them explicit instruction on the "language routines" used by Ms. Boone during literacy seminars (Ritzman, Sanger, & Coufal, 2006). She explicitly taught them the rules of participation, and the students practiced their new participation skills until they could use them comfortably (Timler et al., 2007). During the seminars Mrs. Henley prompted the students to remember their "participation rules" when they wanted to contribute. Eventually students were able to participate without explicit prompting.

To help Michelle become more comfortable participating in the classroom, Mrs. Henley and Ms. Boone used planned participation activities that gave

Michelle time to prepare and practice what she wanted to say. They also focused on Michelle's strength in poetry writing by creating a "Friday Poets Corner," in which students could share their poems. Classroom teachers can be particularly helpful to the child who stutters by working with the speech-language pathologist to create planned opportunities for the child to participate in speaking activities that are appropriate for practicing newly acquired fluency skills at increasing levels of complexity.

Speech-language pathologists increasingly are working directly with children in the general education classroom, supporting the academic program. They may alert students to pay attention to verbal or written instructions, encourage them to ask pertinent questions and to participate in discussions, and assist them in responding in a culture- and classroom-appropriate fashion. The speech-language pathologist helps teachers facilitate communication with the child in natural settings, including the classroom (Salend & Salinas, 2003).

Speech-language pathologists also use many techniques to promote the carryover of newly acquired communication skills into the classroom and everyday conversation. These techniques include children's notebooks prepared by therapists that are kept in the classroom for the teacher's regular review, weekly conferences with teachers regarding specific objectives, the use of devices and props as reminders, and carefully planned in-class "talking" activities. A major task of the communication specialist is to help the classroom teacher use these tools effectively, because the teacher's help is vital to success. The speech-language pathologist helps by suggesting strategies that encourage talk, expand talk, and model correct forms and usage. She may help the teacher set up effective peer-mediated social supports (Goldstine, Schneider, & Thiemann, 2007) and may help teach students self-advocacy skills so that they can communicate their needs (Ritzman, Sanger, & Coufal, 2006). The teacher's creativity in adapting classroom opportunities to foster ways of talking will help the student to generalize these new skills. The classroom is often the most appropriate setting for incidental and interactive functional teaching (Fey, Windsor, & Warren, 1995). For some children, however, more individualized support is needed, and for these children Tier III services must be provided to help them be successful.

Tier III: Individualized Educational Services

At Tier III, the services are specifically designed to meet the individual needs of the student. The child's individualized education program (IEP) will specify the services needed and will determine the related services that are essential to his or her success. Several sample IEPs can be found on the book's website, college.hmco.com/PIC/kirk12e, and you may wish to review these. Because the needs of each child are unique, a speech-language pathologist must be prepared to deal with a broad range of disorders. The speech-language pathologist provides support for students who may have primary articulation, fluency, voice, and/or language disorders. She or he must also be able to address the problems found among children with cleft palate, intellectual and developmental delays, cerebral palsy, learning disabilities, and emotional disturbances, children who are learning impaired, and students who are deaf (Hanks & Velaski, 2003). To address the wide variety of needs, the speech-language pathologist must be able to manage multiple roles (Ritzman et al., 2006).

Roles of the Speech-Language Pathologist

The speech-language pathologist is primarily responsible for the identification, diagnosis, and design of the treatment plan and curriculum for children with language and speech deficits. In addition to delivering direct services to the child, the speech-language pathologist may also support the child's teacher and parents with suggestions, lessons, and ideas to include in the child's IEP or individual family service plan (IFSP). Speech-language pathologists assist children who have communication disorders in many ways:

- They provide individual therapy.
- They consult with the child's teacher about effective ways to assist the child in the classroom.
- At times they may work with the entire class.
- They work closely with the family.
- They work with vocational teachers and counselors to establish goals for work.
- They work with individual children in the classroom, cuing them as to when to ask questions and encouraging them to participate in discussion and to interact verbally.

TABLE 7.5
Terms That Speech-Language Pathologists Use to Describe Communication Disorders

Term	Disorder
Apraxia	Impairment in the ability to plan the movement for speech
Aphasia	Impairment in the ability to communicate due to brain damage
Dysarthria	Articulation or voice disorder due to impaired motor control problems of throat, tongue, or lips
Anarthria	Loss of the ability to speak
Dysphonia	A disorder of voice quality
Stuttering	A disorder of fluency: repetitions, prolongations, and hesitations of sounds and syllables

Speech-language pathologists have specific terminology for some of the major communication disorders. Understanding this specialized terminology can help the teacher as she or he works with the speech-language pathologist. Table 7.5 gives the definitions of terms that are commonly used in speech-language pathology.

Working with Parents to Support Communication

Because a portion of the treatment and intervention program may be delivered by parents, the speech-language therapist may be responsible for giving the parents strategies to help their child and for modeling correct behavior for them. For example, if the child says "Wa doo," the parent may say, "I don't understand; tell me again." The child repeats "Wa doo," looking at the refrigerator. The parent then says, "Oh, you want some juice," and gives it to the child (Camarata, 1995, p. 70). The parent can also be taught to use *recasting,* or modeling the correct pronunciation without correcting the child's speech. For example, in response to the question "What do we call that big cat?" the child says "a wion," and the parent says, "yes, that big cat is a lion." At no time does the parent interrupt the child and tell him or her, "Say *lion*." Responses by the adult that build on what the child is communicating are also referred to as *following directives,* and they have been shown to facilitate the child's language development (McCathren, Yoder, & Warren, 1995).

Parents also may need to be reminded that their child with a speech or language disorder needs everything a child without a communication disorder needs and perhaps something more in the form of support or extra time. Parents of children with disabilities may not talk to their child with disabilities as much as they would talk to a child without disabilities, or in some cases they may overwhelm their child with talk. Parents of children with hearing-language impairments may need help in being flexible and encouragement in communicating with their child. Some parents consistently change the topic of talk away from the child's focus or fail to respond to the child's talk and extend the child's topics (Snow, 1999). These parents may need help in how to facilitate their child's language learning (Hart & Risley, 1999).

Developing Language in Natural Settings

When we focus on the social use of language (pragmatics) and stress functional communication, we can support language development in natural environments (Kaiser & Gray, 1993). Using an interactive approach, the interventionist—a parent, special education teacher, or speech-language pathologist—capitalizes on the natural inclination of the child to talk about what he or she is doing, plans to do, or wants to do. To encourage correct word and language use, the adult provides support while the child is eating, playing,

or visiting community settings such as a grocery store (Hyter, 2007). Working in settings in which talking and listening occur naturally helps to increase the child's amount of talk (Bloom, 1991), and the more the child talks, the more he or she will gradually gain accuracy and increase his or her vocabulary.

Specific Strategies to Support English-Language Learners

Understanding the linguistic competencies of children whose primary language is not English can be tricky. Earlier in the chapter we looked at a variety of things that make it more challenging to recognize language delays and disorders in children who are English-language learners, and so it should come as no surprise that meeting the needs of these children can also be challenging. The strategies given here are meant to be a starting place for teachers and can provide a foundation for interventions at Tiers I and II.

RTI

These strategies address the two areas of language competence that English-language learners need: (1) basic interpersonal communication skills and (2) cognitive/academic language proficiency (Bunce, 2003). In other words, children must be able to communicate with others socially, *and* they need the more specialized language skills required for success in school. Brice, Miller, and Brice (2006) offer the following ideas for teachers to help English-language learners strengthen their communication:

1. Build lessons around the child's background knowledge and bridge this to the text or material under study.
2. Provide written copies of directions and key instructions.
3. Ask prediction questions (for example, "What do you think . . . ?").
4. Teach self-study skills (for example, note-taking, organization, and test-taking strategies).
5. Encourage students to ask questions.
6. Model correct language forms and employ appropriate wait times to allow students to respond.
7. Teach language routines to help the child in typical situations (for example, asking questions, getting what he or she needs, and providing information).
8. Use grammar drills and direct instruction.
9. Practice formalized or structured speaking.
10. Allow for code switching and code mixing (that is, the use of the primary language interspersed with English is natural as the second language emerges).
11. When students have reached a higher level of proficiency with English, use more complex sentences.
12. Explicitly teach vocabulary that is needed in the learning context.

Perhaps most important, in working to meet the needs of children who are English-language learners and who have communication disorders, we must establish a collaborative team that includes the classroom teacher, the bilingual education specialist, the special education teacher, the speech-language pathologist, and the child's parents.

Supporting communication is critical to the child's development.
(© Robin Nelson/Photo Edit)

HM VIDEO CASE

Cultural Responsiveness Teaching: A Multicultural Lesson for Elementary School

Watch this Video Case at the student website. How did this teacher draw on the students' life experiences to enhance their communication? What are the benefits of making academic activities personally relevant for students?

Augmented and Alternative Communication

Augmented and alternative communication includes all forms of communication other than oral speech that can be used to express thoughts, needs, wants, and ideas (ASHA, 2008). Individuals with severe speech difficulties can use augmentative and alternative communication to supplement or replace talking. Although there are many types of augmentative and alternative communication systems, they fall into two categories: unaided and aided. Unaided communication systems do *not* provide voice output, and so the person who is receiving the message must be physically present to understand what is being communicated. Because of this feature, unaided communication systems are not useful with telephones or for communication from room to room. Some examples of unaided communication systems are gestures, body language, sign language, and communication boards.

American Sign Language (ASL), a system of gestures that contain meaning, is one example of an unaided communication system. Another gesture system that is sometimes used is Signed English. The use of sign language to communicate is discussed in more detail in Chapter 10.

Another form of unaided communication system is a communication board. Communication boards vary in complexity from a board with simple pictures (for example, pictures of a glass of milk and a glass of juice) to sophisticated groups of letters, words, pictures, and special symbols (Beukelman & Mirenda, 1992; DiCarlo, Banajee, & Buras-Stricklin, 2000). The use of these aids has been shown to assist the child in acquiring language—many times without speech, but not always (McLean & Cripe, 1997).

Aided communication systems provide some type of voice output and so can be used in a variety of situations. Tremendous progress has been made in technologies that can be used to support speech (Zhao, 2007). Speech synthesis is a text-to-speech technology that allows a person to type a message into a computer, which turns the written message into speech. Although the quality of the synthetic voice may not be high, this technology allows an individual who has no speech to "talk" with others.

HM VIDEO CASE

Assistive Technology in the Inclusive Classroom

Watch this Video Case at the student website. In this case, you will meet Jamie, a kindergarten student who uses assistive technology to communicate. What are the benefits of using this assistive technology—for Jamie, for her classmates, and for her teacher? What are some of the potential challenges that may come up when using this technology in the inclusive classroom?

Family and Lifespan Issues

Parents are the child's first teacher, and in no area is this more true than in the language a child develops. If you look back at Table 7.1, you will see the amazing progress that children make in their language during the first few years of life. The parent or primary caregiver can do a lot to support early language development. In the first few years of life, talking with the child is essential. Talking about colors, counting, identifying the names of objects, playing word repetition games, and sharing nursery rhymes are all part of the early language stimulation of young children. The parent can also help the child become more aware of sounds by reinforcing the familiar sounds of the environment (for example, "The clock goes tick-tick-tick"; "The car goes vroom!"; "What does the cat say?"). Reading with young children further extends their understanding of language and can be the perfect time for discussions of pictures, ideas, and actions in the story. As the child grows, it is important that their early attempts to communicate are taken seriously. Children thrive when adults listen to them and seem interested in what they have to say. Often grandparents play a special role in the child's life because they take the time to listen to the child and are genuinely interested in what the child has to say.

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Parenting a child with language problems is not always easy, and this task can be made more difficult if the adults in the family also face challenges. Families with a history of language impairments tend to have children with language impairments (Campbell et al., 2003). There appears to be a genetic component that manifests itself in 50 percent of the children in families with a history of communication disorders (Dionne, Dale, Boivin, & Plomin, 2003). Children whose families have a history of communication disorders tend to have significantly lower language scores in comparison with their age-matched peers because both genetics and environment influence their acquisition rates (Flax et al., 2003). In these cases, the child and family may need additional support with the development of language.

What lies ahead for the child who has a communication disorder? The answer to this question depends on the nature and severity of the disorder. Children who have primary articulation disorders (that is, a speech or language disorder not associated with other disabilities) seem to have few related problems as adults. In contrast, follow-up studies of children with severe disorders show that some children with language deficits continue to have problems in academics, interpersonal relationships, and work. What we do know is that appropriate supports and interventions that are provided early and are continued for as long as necessary can help the child develop his or her communication skills.

Technology can enhance communication in many ways.
(© Able Images/Getty)

Transitions for Students with Communication Disorders

Important changes have come about in helping students with communication disorders make transitions from high school to college and the workplace. Many colleges and universities have support services and special programs for these students. Special clinics and help sessions are staffed by speech-language pathologists, learning disabilities specialists, and psychologists. Supports offered may include individualized techniques for note taking, class participation, and writing. Job coaches can help individuals with the pragmatics of work-related communication to allow individuals to be successful in employment settings (Montgomery, 2006). Augmentative and alternative communication systems can be developed to meet work-related needs, and assistive technologies can be used to support communication. Because communication is so critical to an individual's successes, every effort must be made to support effective and appropriate communication.

moral dilemma

Children with Communication Disorders

Collaboration among classroom teachers, special education teachers, and speech-language pathologists is essential to providing the full support that a child with communication disorders needs across all three tiers of intervention. A good example of collaboration was presented in the educational responses section of this chapter (see pages 240–244). But collaboration is not always easy to accomplish. What can you do if one of the professionals, who is key to the child's success, will not work as part of a team? What are some of the personal and professional obstacles to collaboration, and how can you help a colleague overcome these? What should you do if you feel a child is being harmed by a colleague's resistance to collaboration?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- *Communication* is an essential part of being human, and it requires a sender, a message, and a receiver.
- *Language* is a code in which signs, sounds, and symbols represent feelings, ideas, and information.
- Language is both *receptive* and *expressive* and can be described as having form, content, and function.
- Language *form* includes phonology, morphology, and syntax; *semantics* refers to content; and *function* includes *pragmatics* and *supralinguistics*.
- *Speech* is the systematic oral production of the words of a given language.
- Processes needed to produce speech are *respiration, phonation, resonation, articulation, audition,* and *symbolization/organization*.
- *Speech disorders* include problems with articulation, fluency, and voice.
- Understanding normal patterns of language acquisition is an important part of identifying children with language disorders.
- A comprehensive assessment is essential to identifying communication, language, and speech disorders.
- Understanding a child's cultural and linguistic background is necessary to support children with language disorders.
- Individuals with disabilities may also have communication disorders.
- Recognizing communication disorders in children whose primary language is not English can be challenging and may require a specialist who is both bilingual and bicultural.

- The role of the speech-language pathologist has expanded in the schools to include coteaching of children within the general education classroom.
- *Augmentative or alternative communication* may be needed for individuals with limited speech.
- Parents and families can provide essential support for a child's development of language.

Future Challenges

1. ***How can schools provide the time and resources needed to allow teachers to collaborate as they work to meet the needs of their students?***

   Collaboration between general education teachers and specialists is essential to supporting children with communication, language, and speech disorders, yet often teachers find that this is difficult to accomplish. Barriers to collaboration include a lack of time, limited shared resources, and difficulties with caseloads or class size. If we truly believe that collaboration is necessary, we must find ways to support teachers and related service providers so that they can work together meaningfully.

2. ***How can early intervention materials be made more available to parents and physicians?***

   Most speech disorders are not identifiable until a child reaches 2 years of age, when verbal language ability usually appears. Unfortunately, parents frequently do not recognize early signs of potential speech disorders in the prelinguistic stage as signs of a potential problem. How to make this information more available to both pediatricians and parents remains an issue.

3. ***How can we provide appropriate services for children with communication, language, and speech problems who are also English-language learners?***

   Our schools are serving increasing numbers of children whose primary language is not English. When communication, language, and speech problems exist in these children, it can be more difficult for school personnel to recognize, identify, and meet the children's needs.

Key Terms

American Sign Language (ASL) p. 244
articulation p. 225
articulation disorders p. 231
audition p. 225
augmented and alternative communication p. 244
communication p. 223
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dialect p. 233
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References of Special Interest

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Communication Disorders Quarterly
www.proedinc.com; www.cec.sped.org

Journal of Special Education Technology
http://jset.unlv.edu; www.cec.sped.org

Journal of Speech-Language, Pathology, and Audiology
www.caslpa.ca/english/resources/jslpa.asp

Journal of Speech, Language, and Hearing Research
professional.asha.org/resources/journals/JSLHR-index.cfm

Topics in Language Disorders
http://www.topicsinlanguagedisorders.com

Professional Organizations

American Speech-Language-Hearing Association **(ASHA) www.asha.org/**

Division for Communicative Disabilities and Deafness **http://education.gsu.edu/dcdd/**

Division for Communicative Disabilities and Deafness of the Council for Exceptional Children **www.cec.org**

Technology and Media Division of the Council for Exceptional Children **www.tamcec.org**

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CHAPTER

8

Children with Autism Spectrum Disorders

FOCUS QUESTIONS

- What are autism spectrum disorders?
- What are the three characteristics that most often define autism spectrum disorders?
- What are the presumed causes of these conditions?
- What are some of the educational programs designed for children with autism?
- What are some of the common elements of these programs?
- What are some special teaching strategies for working with these students?
- What specialized knowledge and skills should parents of children with ASD acquire?

Mike Dolan's Story

Mike Dolan was a poster boy of a child. With his blond curly hair and clear blue eyes, he was, as neighbors and relatives said, a beautiful 2-year-old. But Mike's parents were worried about him. Something was clearly wrong with their child. He wasn't talking as 2-year-olds do. He made a series of physical motions with his hands that he kept repeating. And, above all, he didn't interact socially with his parents or others the way he should. For example, he didn't look directly at people when they talked to him, and he appeared not to pay attention to many of the things his parents said to him. He seemed preoccupied with his toy trucks and would play with them incessantly. When he wanted something, such as a glass of milk, he would go to the refrigerator, grab a bottle, and hand it to his mother rather than ask.

Finally, Mrs. Dolan decided to take him to the family pediatrician. Dr. Phinney examined Mike and found nothing physically wrong with his development, with the exception of some motor incoordination. However, having seen a child with similar behavior two months before, the doctor suggested that the Dolans bring Mike to a university clinic that had the multidisciplinary staff to diagnose the condition.

Mike was evaluated by physicians, psychologists, and speech pathologists at the university clinic. Then they met with the Dolans and explained that in their judgment, Mike had a condition known as autism. The lack of communication, his inability to interact socially, his obsession with particular toys, and his strange motor movements all pointed in that direction. Yet it was fortunate that the Dolans had come to them so soon. Early treatment was essential, and it would be important to begin a treatment regimen right away.

The Dolans had many questions. What was this condition? What had caused the autism? Could other children that they might have contract the condition as well? Could it be cured, and if so, what would the treatment be? Mrs. Dolan wanted to know whether the schools could handle a child with this condition or whether Mike would need to go to a special school.

Those are all good questions, ones that any parent might ask in a similar situation. There has been increasing awareness of this condition called autism with its patterns of symptoms, such as Mike had, that can be recognized by age 2 or even earlier.

Pivotal Issues

- What might your answers to the Dolans be after reading this chapter?
- What is the importance of early identification here?

As this chapter is being prepared, the topic of children with autism spectrum disorders (ASD) is the most volatile and rapidly changing topic in the field of educating exceptional children. Over the past two decades, there have been major changes in the number of children diagnosed with ASD, major controversies about the causes of the condition, major legislative initiatives (the Combating Autism Act of 2006), and active advocacy groups of parents and professionals (Autism Speaks and Autism Society of America) that have been calling attention to these children and their educational and health needs. The boy introduced in the "Exceptional Lives, Exceptional Stories" box exemplifies many of the special characteristics of children with autism.

As we attempt to answer some of the Dolans's questions, it is important to keep in mind that there is still a great deal that we do not know about autism or about the most effective ways to treat it.

Autism Society of America
www.autism-society.org

What Are Autism Spectrum Disorders?

Autism spectrum disorders are a variety (or *spectrum*) of related disorders that affect a child's social development and ability to communicate and that include

unusual behavioral manifestations such as repetitive motor movements. Included in the category of autism spectrum disorders are **pervasive developmental disorders not otherwise specified (PDDNOS), Asperger's syndrome** (observable in high-functioning children with autism-like symptoms), and childhood disintegrative disorders, which cause children to regress in their development (for example, a child who once had speech but is no longer communicating; Lord, 2001).

These neurological disorders lead to deficits in the child's ability to communicate, understand language, play, develop social skills, and relate to others. The federal government's definition of autism is as follows:

> A developmental disability significantly affecting verbal and non-verbal communication and social interaction, usually evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movement, resistance to environmental change or change in daily routines, and unusual sensory experiences. (U.S. Department of Education, http://idea.ed.gov/explore/search/p/,root,regs,300,A,300%252E8)

A variety of conditions are included in the category of autism spectrum disorders, as is shown in Figure 8.1. Although the disorders vary in terms of onset, intensity, and cause, they possess a common set of characteristics, including lack of

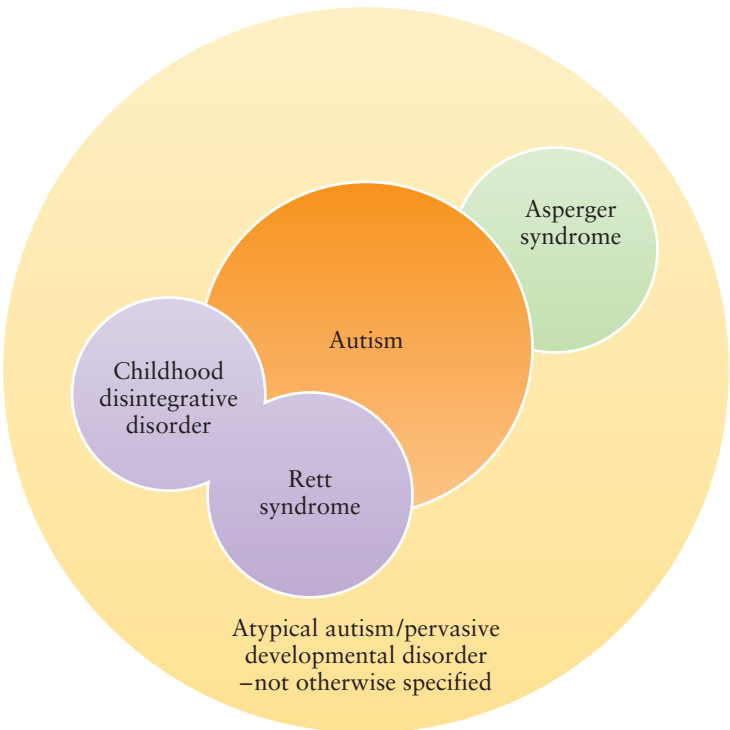


FIGURE 8.1
The Relationship Among ASDs
Relationship among autism spectrum disorders. Overlapping circles show that symptoms overlap, although the disorders do not. The prototypical disorder, autism, appears in the center; other disorders extend from this prototype in decreasing severity and in decreasing number of domains affected.

Source: From Lord and Risi, "Diagnosis of Autism Spectrum Disorders in Young Children," in a. Wetherby & B. Prizant (Eds.), *Autism Spectrum Disorders*, 2000, p. 12. Reprinted by permission of the publisher, Paul H. Brookes Publishing Co., Inc., Baltimore, MD, and the author, Catherine Lord, Ph.D.

eye contact, difficulty interacting with peers or adults, language delay, and sometimes random motor movements such as hand flapping (Lord & Risi, 2000).

Asperger's Syndrome

Of the related disorders special attention has been given to Asperger's syndrome, an autism spectrum disorder that has gained much public interest over the past few years. Named for Viennese physician Hans Asperger in 1944, this autism spectrum disorder has received renewed attention in recent years due to increased interest in the general condition of autism and to its increased prevalence. One of the distinguishing characteristics of students with Asperger's syndrome (AS) is an observable developmental imbalance. On the one hand, they can be of average or superior intelligence; on the other, they are unfailingly years behind in social development.

In addition, students with AS may have a preoccupation with certain subjects almost to the exclusion of other subjects (for instance, the solar system or insects) and can become experts in a narrow field that includes things, but not people. They may also show stereotyped behavior, such as "hand flapping" and various nonfunctional rituals, such as insisting that the objects on a shelf always be in the same place and order (Attwood, 1998). In addition, awkwardness in motor skills is often a part of the syndrome.

In American society today, both boys and girls are expected to show some minimum level of athletic skill. Tim, a boy with Asperger's syndrome, tells how his athletic incompetence and lack of motor skills affects his own self-image and his relations with his peers.

Exercises like these are are useful in helping students with Asperger's Syndrome feel more comfortable with eye contact.

(© AP/Wide World Photos)

Play from an Asperger's View

Anything related to the human body seemed to me bad news. In the fourth grade, when my affliction was most intense, I would be herded out to play kickball during our physical-education classes. Teams were chosen, and I was embedded among the strongest kids, to provide some chance of even battle. In memory, it is forever bases loaded with two outs when my turn at the plate comes, and I am as well suited as a giraffe to meet the big red ball that rolls toward me with frightening speed.

Still, for a moment, the same people who generally disdained or bullied me became my friends, cheering me on to hitherto unsuspected athletic glory: "You can do it, Tim!" If I could make the ball lose its gravity, as my best pal, Annie, did so effortlessly with those balletic *whomps* from her long legs, I might redeem myself. Our gym teacher, Miss B.—scowling, beefy, and, after four decades, the only person in the world I just might swerve to hit on a deserted road—had no such illusions and waited for the inevitable, with her festering contempt and ready whistle. Grinning stupidly, shirttail out and flapping, underwear pulled halfway up my back, I would lope toward the ball, which would eventually collide with my ankle or heel and then bounce off into the woods or into the waiting arms of the catcher. My chance was up, and I was a freak once more.

"So?" I wanted to scream. "There are things that I *know;* things that I can *do*. Can you name the duet from *La Bohème* that Antonio Scotti and Geraldine Farrar recorded in Camden, New Jersey, on October 6, 1909? What was the New York address of D. W. Griffith's first studio? How many books by *David Graham Phillips* have you read? Who was Adelaide *Crapsey*? I learned to play the entire Chopin Prelude in E Minor in a single night!" And then tears, of course, and the taunts redoubled.

In the years since the phrase became a cliché, I have received any number of compliments for my supposed ability to "think outside the box." Actually, it has been a struggle for me to perceive just what these "boxes" were—why they were there, why other people regarded them as important, where their borderlines might be, how to live safely within and without them.

Pivotal Issues

- How can we help Tim and motor-impaired students on the playground?
- How would his failure to help the team impact his social relations?

History

Autism significantly affects verbal and nonverbal communication and social skills.

The discovery of the condition of autism has been relatively recent. We have known about mental retardation for more than a century, but autism was first brought to our attention by Leo Kanner (1943), a psychiatrist at Johns Hopkins University. He described a group of children who did not relate to others, who had delays in speech development, who engaged in repetitive behavior, who were upset by changes in routines, and so forth. (See the box "The Discovery of Autism" for Kanner's description of one of the patients brought to his clinic in the late 1930s.)

Later on, in England, Michael Rutter (1996) reported a study that compared children diagnosed as autistic with children who displayed other emotional disorders. He found three characteristics that almost always were present in the children with autism, but only occasionally in children with emotional disorders:

1. Failure to develop social relationships
2. Language retardation with impaired comprehension
3. Ritualistic or compulsive behaviors

The Discovery of Autism

In October 1938, a 5-year-old boy was brought to my clinic from Forest, Mississippi. I was struck by the uniqueness of the peculiarities which Donald exhibited. He could, since the age of 2½ years, tell the names of all the presidents and vice presidents, recite the letters of the alphabet forwards and backwards, and flawlessly, with good enunciation, rattle off the Twenty-Third Psalm. Yet he was unable to carry on an ordinary conversation. He was out of contact with people, while he could handle objects skillfully. His memory was phenomenal. The few times when he addressed someone—largely to satisfy his wants—he referred to himself as "You" and to the person addressed as "I." He did not respond to any intelligence tests but manipulated intricate formboards adroitly. (Kanner, 1973, p. 93)

Whereas there has been general agreement on the nature of the syndrome of autism, the same cannot be said for understanding the causes of autism. During a period in the 1960s and 1970s, there was a widespread belief that the cause of autism was a cold and unfeeling mother (Bettelheim, 1974). The child's social and communication problems were attributed to this breakdown in relationships. It was a doubly unfortunate theory because, not only was it insulting to the mothers, but it was also incorrect.

There is now widespread acceptance of the idea that the child with autism has a neurophysiological condition with known brain differences in the amygdala, hippocampus, and cerebellum, and a wide variety of magnetic resonance imaging (MRI) studies are converging on these findings (Sandman & Kemp, 2007). So what were these "experts" seeing when they said the mother was at fault? They probably were seeing the end product of maternal frustration with a child who was not responsive to any of the mother's overtures and who was very distant from all social contact.

Prevalence

The prevalence of autism spectrum disorders has been steadily rising as the spotlight of attention focused on them. Fombonne (2003) reviewed the data in 10 countries, and he estimated a prevalence of 4.8/10,000, or about 1 in every 2,000 children. Other estimates suggest it may be as high as 1 in every 1,000; the Centers for Disease Control (2002) estimate 1.0–1.8 percent. It may now exceed the number of children with Down syndrome and children with fragile X syndrome. It has moved from a low-incidence condition to a high-incidence condition similar to mental retardation or emotional disturbance.

How Are Children with ASDs Identified?

The early identification of these children is made possible through a few tasks provided to pediatricians, who are often the first professionals to come into contact with the family. Children with autism have difficulty with pretend play (such as pretending to drink from a teacup), or imitating adult behavior (rapping on the table), or pointing to objects on request (point to the dog). The failure to respond well in these instances is often the cue to enter into a more comprehensive examination of child and family.

Holly Robinson Peete is one of several celebrities with an autistic child who is raising awareness of the disorder.
(© Michael Tullberg/Getty)

One of the screening devices that appear to be helpful with very young children is known as CHAT (Checklist for Autism in Toddlers). A portion of this checklist is included in Table 8.1. The originators of this checklist, Baron-Cohen and others (1996), claim that the absence of three key items at 18 months of age signals a more than 80 percent risk of autism. These three items are *protodeclarative pointing* (the infant points at an object in order to direct another person to

TABLE 8.1
Critical Questions in Diagnosis of Autism (from Checklist for Autism in Toddlers)

- Does your child ever pretend, for example, to make a cup of tea using a toy cup and teapot or pretend other things?
- Does your child ever use his/her index finger to point, to indicate interest in something?
- Get child's attention, then point across the room at an interesting object, and say "Oh look! There's a (name a toy)!" Watch child's face. Does the child look across to see what you are pointing at?
- Get the child's attention, then give a child a miniature toy cup and teapot and say "Can you make a cup of tea?" Does the child pretend to pour out the tea, drink it, etc.?
- Say to the child "Where's the light?" or some other unreachable object, if child does not understand the word "light." To record "yes" on this item the child must have looked up at your face around the time of pointing.

Source: Reproduced with permission from Baron-Cohen, S., Allen, J., & Gillberg, C. (1992). Can autism be detected at 18 months? The needle, the haystack, and the CHAT. *British Journal of Psychiatry, 161,* 839–843.

look at the object), *gaze monitoring* (the infant turns to look in the same direction in which an adult is looking), and *pretend play* (play involving object substitution: a stick becomes a gun or an airplane).

Possible Causes and Characteristics

Because autism spectrum disorders tend to run in families, a genetic defect is suspected. Autism is more common among boys, with about four times as many boys as girls identified. Some children with autism may appear to be developing normally until around 2 years of age. Others may be seen as different from early infancy.

During the 1970s and 1980s, it became popular in the social sciences to emphasize the effects of environment on children and adults. Now, with the growing capabilities of genetic research, it seems clear that many conditions that produced special needs in children are linked to an intertwining of genetics and environment. Conditions such as fragile X syndrome, mental retardation, attention-deficit/hyperactivity disorder (ADHD), and dyslexia (all learning disabilities), as well as autism, all seem to have genetic components (McGuffin, Riley, & Plomin, 2003).

Evidence is accumulating for a strong genetic linkage for autism.

There is a striking concordance of autism among monozygotic twins (those with identical genetic makeup) over dizygotic twins (those with similar but not identical genetic makeup). This result, obtained in a number of studies across several countries, strengthens the belief that genetics plays a major role in this condition (Bailey, Phillips, & Rutter, 1996; Odom et al., 2007).

The advances in our genetic knowledge through the Human Genome Project and other research have even identified two of the chromosomes (7 and 15) as the possible sites for the disorder in many children with autism. In addition, linkages between autism and conditions such as fragile X and untreated phenylketonuria have been established (Smalley, 1997). Environmental factors can have a secondary influence on the intensity of the problem—but no credible linkage has been found to reactions to vaccines, as has been proposed in the popular media (Taylor et al., 2002).

Some of childhood's remarkable achievements in development are often taken for granted because the great majority of children demonstrate them at the appropriate age. As Shonkoff and Phillips (2000) pointed out in their comprehensive review of early child development:

> The second and third years of life appear to be pivotal for the child's emerging capacities and inclination to be cooperative and considerate toward others. Toddlers are developing the cognitive skills to understand parental standards and apply them to their own behavior and achieving capacities for self-regulation that enable them increasingly to comply with internalized standards of conduct. (p. 241)

But what happens when the child does not automatically develop such behaviors and is unable to understand the feelings of others and consequently to express empathy for others in distress?

The Importance of Early Identification

Early identification of children with autism is one of the key elements of treatment. The development of language and social skills is critical at ages 18 months to 3 years, and these skills, in addition to imitation of motor behaviors and using eye gaze to communicate, need to be fostered at that time. If we wait for the child's autism to be discovered in kindergarten, we have lost valuable time that will be very difficult to recover.

Fortunately, a number of studies have shown that diagnosticians have the ability to correctly identify children with autism at age 2 or earlier (Baron-Cohen et al., 1996; Lord, 1995; Stone et al., 1999). This ability affords an early opportunity to begin therapy in language functioning and improvements in peer relationships. It is important for parents and pediatricians to be aware of the existence of such diagnostic services in their communities so that this early identification and treatment can be carried out. These disorders are very troubling to parents, who tend to seek a cure or a miracle to transform their once developing child back to age-appropriate developmental functioning (Cohen, 1998). As Cohen notes, there is almost a sense of desperation among parents trying an array of approaches that may work for some children, but rarely for many, and never for all.

The combination of parental stress and the uncertainties of the causes of autism spectrum disorders has led to many attempts to find a cause, efforts that fall outside standard scientific investigations. One of the most notable controversies involves a preservative, thimerosal, used in vaccines for over sixty years. A small group of parents have suggested that their children contracted autism after being vaccinated and have involved politicians (such as senators and congressmen) in their cause. The association in time between the taking of the vaccine and the appearance of symptoms of autism has led some to believe that there is a causative relationship between the two. Visit the website for this text, college.hmco.com/PIC/kirk12e, for more information about this controversial issue.

Numerous scientific inquiries have failed to implicate thimerosal, but publicity surrounding this supposed cause has caused some parents to refuse to have their children vaccinated, thus leaving them open to other dangerous diseases. The need for scientific closure on the causes of autism is very apparent.

For many years, scientists have puzzled about the collections of symptoms shown by children with autism: the lack of eye contact, limited social interaction, communication delays, and sometimes repetitive motor movements, such as rocking. What physiological, neurological, or genetic cause could lie behind such a curious mixture?

There now seems to be a possible answer with real potential. It centers on the discovery of **mirror neurons**, brain cells that respond equally whether we perform an action or someone else performs the same action. This capability of mirror neurons allows us to imitate others' actions or speech or even emotions (Winerman, 2005).

This mirror neuron system appears dysfunctional in children with autism, and one of the many remaining important questions is how to stimulate that mirror system of neurons to allow these children to experience what children with normal systems can when they watch others walk and hear them speak.

Special Characteristics of Children with Autism

Many persons have wondered what might be the fundamental mechanisms at the heart of the problems observable in children with autism, such as Mike Dolan. What is behind the inability to socialize or to communicate effectively with others?

Theory of Mind

One of the indicators of a fundamental developmental disability in autistic children has been lack of a **theory of mind**, the ability of human beings to understand the thinking and feelings of other people. A theory of mind is necessary for understanding, predicting, and shaping the behavior of others. Typical 4-year-old children have a developing theory of mind (Twachtman-Cullen, 2000).

One example of a test of *theory of mind* is known as the Sally and Anne Test (see Figure 8.2). In this, the child watches while a doll named Sally leaves a marble

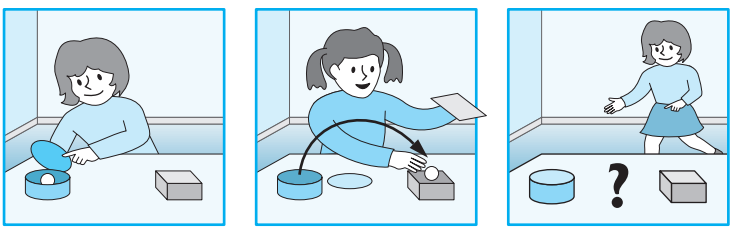
Austistic people have extreme difficulty perceiving, or even inferring, other people's throughts, feelings and intentions. In fact, autism is sometimes described as "mindblindness." Yet the condition is more than a disability. Autistic people excel at certain tasks.

THE IMPAIRMENTS PERCEIVING MENTAL STATES

1 Sally puts her marble in the basket, replaces the lid and leaves the room.

2 While Sally is gone, her friend Anne takes the marble out of the basket, moves it into the covered box and replaces both of the lids.

3 When Sally comes back into the room, the two containers look just the way she left them. Where do you think she will look for her marble?



A **normal 4-year-old** easily discerns that Sally will expect to find the marble in the basket where she left it.

Looking at the same scene, **autistic children** tend to predict that she'll look in the box, since that's where it is. They can't see things from Sally's perspective.

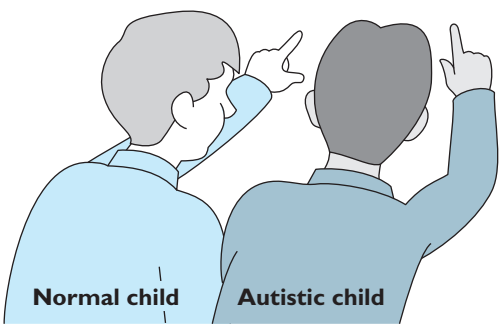


FIGURE 8.2
Theory of Mind: An Illustration

in a round box and leaves the scene. While she is away the other doll, named Anne, moves the marble to the square box sitting beside the round box. On Sally's return, participants are asked to predict where she will look for her ball. To answer correctly, one must be able to understand what Sally's mental state would be—namely, that since she put the ball in the round box, she would expect to find it there. Most children as young as 4 can correctly guess where Sally will look. But children with autism have a great deal of difficulty with this test, and this suggests that they are not able to get inside Sally's thinking processes. A variety of tasks that depend on understanding the feelings or thinking processes of others have been presented to children with autism, who do extremely poorly on them. An analysis of a series of studies on this topic (Yirmiya, Erel, Shaked, & Solomonica-Levy, 1998) revealed that children with autism have a major fundamental deficit in the development of theory of mind compared with children of typical development and that they seem even less able to do these tasks than children with mental retardation, who also have deficits in "theory of mind" ability.

Hypersensitivity to Sensory Stimuli

One of the characteristics shared by many persons with autism is a hypersensitivity to noises in the environment. It almost seems as if they have lost the ability to modulate sounds, as these sounds come through with terrifying impact. The following quote from Temple Grandin (1988), as an adult with autism, is typical:

> Loud, sudden noises still startle me. My reaction to them is more intense than other people's. I still hate balloons, because I never know when one

Autistic children are often withdrawn and unresponsive, but teachers and parents can reach them through a structured early educational program focusing on applied behavioral analysis and reinforcement in both school and home settings.

(© Elizabeth Crews)

> will pop and make me jump. Sustained high-pitched motor noises, such as hair dryers and bathroom vent fans, still bother me, lower frequency motor noises do not (Cowley, 200, p. 23).

This sensitivity is part of a larger condition called "sensory integration dysfunction" (or sensory processing disorder)—a huge problem for many individuals on the autism spectrum. In addition to sound sensitivity, sensitivity to stimuli can extend to the tactile—some children with autism are sensitive to touch and will shy away from relatives hugging them or from being touched by others—and to other sensory systems, such as the visual (seeking out or avoiding visual stimulation), oral (limited food repertoire, excessive chewing or mouthing of objects), and so forth. Such behavior can easily be misinterpreted and compound the social difficulties such children face. Kranowitz (2005) presents a series of activities designed to help children—whom she calls the "out of sync child"—who have a variety of hypersensitivities.

Motor Skills

Children on the autism spectrum also have difficulty with a range of motor skills—such as gross motor skills (such as running and jumping), fine motor skills, and motor planning (moving one's body in space). Although children with ASD may meet motor milestones on time, the quality of the child's movements can appear stiff or clumsy.

An example of a motor task that is particularly difficult for children with ASD is motor imitation. A careful study (Stone, Ousley, & Littleford, 1997) compared the ability of children of about 2–3 years of age to imitate actions of adults, from pushing a toy car across a table to clapping hands to opening and closing fists to banging spoons on a table.

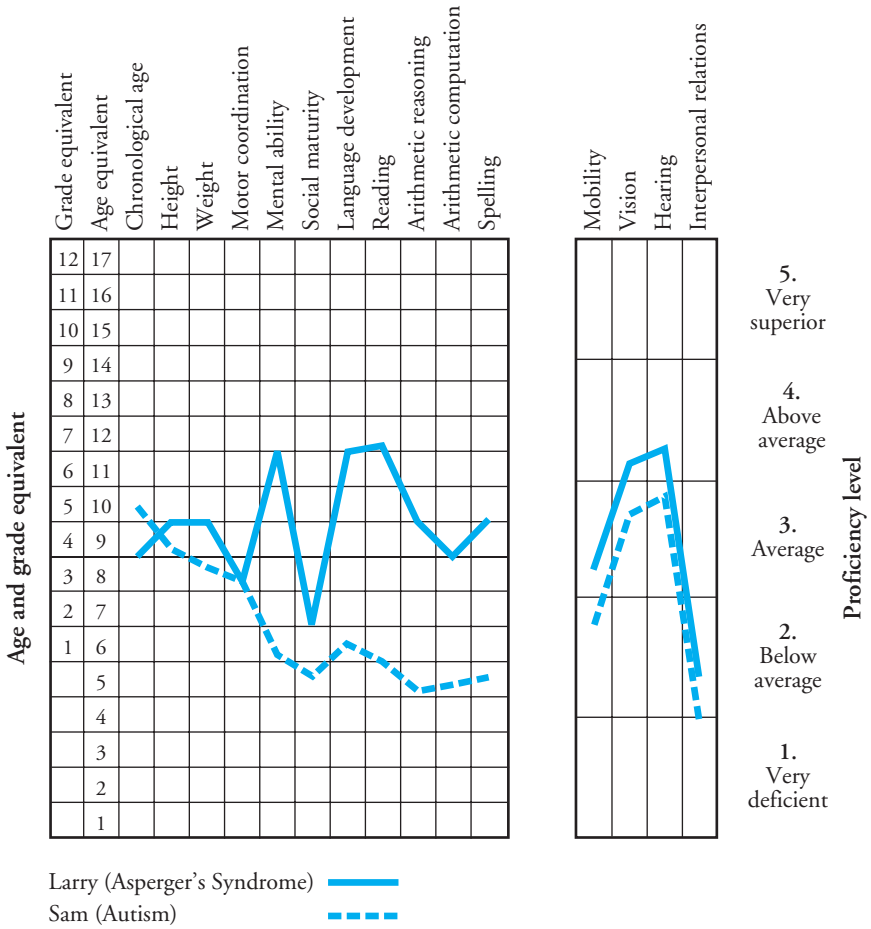
Three groups matched for mental age were tested: a group of 18 with autism spectrum disorders, 18 with developmental delays, and 18 with average development. The results clearly indicated that the group with autism was sharply inferior in motor imitation to the other two groups. The group with developmental delays approached the average group in motor imitation and was clearly superior to the group with autism.

It is important to note that although the group with autism had great difficulty in imitating, they still produced scores greater than zero. Therefore there is reason to believe that with careful training they could improve their current performance. Such findings seem to be concordant with the mirror neuron observations.

PROFILES OF TWO STUDENTS

Characteristics of Two Students with Autism Spectrum Disorders

The graph on page 262 indicates the development of two boys, one with autism (Sam) and one with Asperger's syndrome (Larry). Because there is great variation in the development of children with autism spectrum disorders, many different developmental patterns can be seen.



Developmental Profiles of Students with Autism Spectrum Disorders

Sam: Sam is 10 years old and of somewhat below average height and weight. His main problems are seen in school-related performance, in which his reading and arithmetic are at a first-grade level and on a par with his measured intelligence. Also, his interpersonal relations are at the bottom of the graph because of the special problems he has in relating socially. Because Sam is in the fifth grade (inclusion), he needs an enormous amount of support and help in both the academic and the social realms. The regular classroom teacher is ready to recommend him for another placement because she cannot get his attention in order to proceed with his lessons. In the response to intervention (RTI) model, she is asking that Sam be moved to the Tier II or Tier III level.

Larry: Larry, a child diagnosed with Asperger's syndrome, has a different type of profile from Sam's. In the area of academic performance, Larry appears to be above average in most of his academic work, and he is in the superior range of measured intelligence. His problems concentrate in the social area. His social maturity is that of a 7-year-old, and the teacher is forever reminding him that "we don't tolerate this silly kind of behavior." Like Sam's, Larry's interpersonal relationships are at the bottom of the graph. He does not seem to be aware of what to do to make friends or keep them (Schopler, Mesibov, & Kunce, 1998). His individualized education program (IEP) goals would focus on the development of social skills and social awareness, something his parents would dearly like to see improve. What would be some of the classroom activities that you think would be difficult for Sam and Larry?

Educational Responses to Children with Autism Spectrum Disorders

The emphasis on early diagnosis means that educational programming for the child with autism should begin early, sometimes as early as 2 years of age. During the preschool years, the goals are to help the child master basic skills that provide the foundation for future learning. The child must be able to communicate to others, so one major building block is to help him or her attain a *functional communication system*. Second, the child must be able to interact socially with adults and peers, so *basic social skills* (paying attention when others speak, not pushing people out of the way, and so forth) should be learned and practiced.

Functional behavioral assessment may be needed to cope with particular behavioral problems on an individual basis. Once these basic communication and social skills have been learned during the preschool period, the child with autism should be ready to participate meaningfully in the educational system, if there is proper staffing and support for the classroom teacher.

RTI Model and Treatment of Children with Autism Spectrum Disorders

The range and the intensity of the autistic spectrum disorders in individual children make it more than likely that all three tiers of the RTI model will be brought to bear on these issues. As we have noted before, Tier I is not merely the general education class without any additions. At the least, the general education teacher needs to be sensitized to the special needs of children with autism and have some instructional strategies to cope with problems that might arise in that setting. Having a number other than 911 to call for help would be desirable as well. It is likely that some degree of consultation with a specialist in autism is necessary if the child with autism is to remain in Tier I.

Tier II might be devoted to small-group or individual lessons built around applied behavior analysis to help the child develop language and learn some social skills. Obviously, a person specially trained in the use

Strong one-on-one attention seems needed to help children with autism interact socially.

(© Age fotostock)

of ABA will be necessary. Special educators with experience in interacting with children with autism should be close by, if not directly involved.

In Tier III, full-scale intensive work with special educators will be called for. The more intense the symptoms are, the longer should be the time period devoted to counteracting them by providing some alternative behaviors for these students. Most specialists in this field believe that twenty hours a week or more of special programming over a considerable amount of time will be needed to make a difference—a measure of how difficult these sessions can be before some tangible results can be expected (Lord, 2001). The systematic programs described later (Lovaas, TEACCH, LEAP, etc.) all presume Tier III activities.

Educational Programs for Early Childhood

A wide variety of treatment programs have been suggested for young children with autism spectrum disorders, based on the proposition that many of the social and linguistic skills that typical children learn easily by observation and experience must be learned by children with autism through direct instruction.

Because language and communication are key problems for children with autism, methods for stimulating communication have received a great deal of attention. For children who are essentially without language or who are noncommunicative, we must start with very basic steps, often using **applied behavior analysis (ABA)** methods to form the basis of communication. This means linking isolated words with objects such as a ball, a car, or a block and rewarding the child for correct identification and speech. This can be the beginning of social and educational interaction for the child.

The inability of children with autism to imitate or learn through observation means that they do not learn as well as other children do through incidental learning. Typically developing children, through observation and imitation, learn not to run to third base when they hit the ball or not to go to the front of the line in the cafeteria. Such basic life lessons have to

Children with autism often learn through direct instruction.
(© Age fotostock)

become part of the special curriculum for children with autism—some of whom can learn them only through direct teaching.

Later on, many therapists follow a developmental approach (Greenspan & Wieder, 2006). One of the common features of that approach is that it is "child directed." The child's environment is arranged to provide opportunities for communication, the child initiates the interaction or teaching episode ("I want a cookie!"), and then the teacher or communicative partner, perhaps a parent, follows the child's lead by being responsive to the child's communicative intentions and by imitating or expanding on the child's behavior.

Greenspan and Wieder (2006) make an important observation about teaching to the strengths of the child. The key point is that the diagnosis has to be based on the top of the range. If the child can walk sometimes, then the child can walk. If the child can relate with others sometimes, then he or she can relate, and we can help him or her to relate more often (p. 25). So, when we say the child with autism has difficulties in creating social relationships, it does not mean that the ability to do so is totally absent. It may mean that we have to put more energy and effort into nurturing such skills. The same is true of motor skills or language. A deficit is not an absence of a skill; it represents a delay or shortage.

In some cases in which the child is unable to respond even at this basic level, an approach known as augmentative and alternative communication (AAC) and assistive technology may be used. This approach includes supporting existing speech. Extensive use may be made of pictures displayed on communication boards so that the child, by pointing to the pictures, can communicate his or her wishes. (See pages 272–273.) AAC provides ways to communicate needs and can prevent the development of nonadaptive child behavior, such as head banging, biting, throwing objects, and so on, when the child is frustrated with his or her inability to communicate in standard ways.

The special nature of this condition has led to the development of special centers for research and treatment in which multidisciplinary staff members can be drawn together to work on these issues. Table 8.2 briefly notes some of the major treatment models available for preschool children with autism spectrum disorders. Some of these call for special comment.

UCLA Young Autism Project (Lovaas, Director)

This program has used the principles of applied behavior analysis or operant conditioning to directly provide positive rewards when the child behaves correctly. In this way, the child learns to pay attention to adults, to imitate, and to use language for social purposes ("I want some juice"). This one-on-one interaction, with trained students or parents, is often an intensive and painstaking process, and Lovaas insists that forty hours a week be spent on working directly with the child to ensure that he or she can be ready for first grade with typical children. The approach requires teaching many discrete skills, which are then chained into functional routines (Olley, 1999). The Lovaas program reports significant gains when these methods are closely followed (Lovaas & Buch, 1997).

The applied behavior analysis approach that has been a central part of the Lovaas method has been utilized by many others in the field who have adopted it and established treatment programs of their own. Subsequent results (Butter, Mulick, et al. 2006; Sallows & Graupner, 2005) confirm the usefulness of the ABA approach for many young children with autism.

TEACCH—University of North Carolina (Mesibov, Director)

TEACCH is a statewide program in North Carolina with six regional centers. Intensive work is done with parents to help them become teachers of their own child with autism. Pictures and other visual symbols are used extensively to help communicate with the child (for example, "Time to go to the bathroom"). The communication curriculum is based on behavioral principles but applied in more naturalistic settings (home and child care centers; Schopler, Mesibov, & Hearsey, 1995).

TEACCH has also developed an extensive curriculum (Eckenrode, Fennell, & Hearsey, 2007) that includes domestic skills, such as cleaning, cooking, and putting things away, and independent living skills, such as using calendars, hygiene, handling money, and so on. TEACCH makes parental counseling available to help parents cope with stress that is caused not only by daily stresses but also by their growing concerns about what their child is going to do in adulthood and how they, the parents, can help them on this path.

www.teacch.com

TABLE 8.2
Treatment Models for Preschool Children with ASD

Model	Primary teaching method	Hours/week	Setting	Efficacy evidence
Young Autism Project at University of California Los Angeles (Lovass, 1987)	Discrete-trial training	20–40	Center, school, & home based	• 6 studies with students with PDD/autism • 2 studies used blind evaluators (AII), 1 study used random assignment (BII), and 3 report generalization to other settings (educational placement; CI) • Additional studies were evaluated at AII and AIII (pre-post designs OR evaluators not blind to treatment conditions), BII BIII (small sample sizes—6–19) students), and CII and CIII (generalization to other settings or use of functional measures)
LEAP, Learning Experiences And Alternative Program for Preschoolers and Their Parents, (Strain & Hoyson, 2000)	Naturalistic teaching methods; peer-mediated intervention	15 hours school based; 10 hours home based	School & home based	• 3 studies • AIII (pre-post and historical designs), BIII (small sample sizes), CI (documented changes in a variety of settings)
Walden Early Childhood Program (McGee, Morrier, & Daley, 1999)	Incidental teaching	35	Center based	• 1 study • AIII (pre-post design), BII (well-defined cohort of 28 students), CIII (intervention in natural and inclusive setting)
PCDI, Princeton Child Development Institute, (McClannahan & Krantz, 2001)	Discrete-trial training	15 hours school based; 20 hours home based	Center & home based	• 1 study • AIII (pre-post with control group, evaluator not blind to treatment), BII (18 participants), CII (generalization to other settings)
Douglass Developmental Center (Handleman & Harris, 2006)	Discrete-trial training; incidental teaching; Pivotal response training	25 hours school based; 15 hours home based	Center & home based	• 3 studies • AIII (pre-post design with evaluator not blind to treatment), BII (20 participants), CII (generalization to other settings)
TEACCH, Treatment and Education of Autism and Related Communication-Handicapped Children, (Mesibov, Shea, & Schopler, 2005)	Visual information, structure, and organizational strategies	20–25	Center, school, & home based	• 3 studies • AII and AIII (experimental and control groups with evaluators both blind and not blind to treatment conditions), BII and BIII (small sample sizes—9–11 participants), CIII (intervention in natural settings using functional measures)

TABLE 8.2
Treatment Models for Preschool Children with ASD (*continued*)

Model	Primary teaching method	Hours/week	Setting	Efficacy evidence
Denver Model at University of Colorado Health Sciences Center (Rogers, Hall, Osaki, Reaven, & Herbison, 2001)	Naturalistic teaching methods—emphasizing interpersonal exchange	25	School, center, or home based	• 4 studies • AIII (pre-post with comparison group), BII (sample sizes up to 49 participants), CIII (intervention in natural settings)
Institute for Child Development, Children's Unit, at State University of New York (Romanczyk, Lockshin, & Matey, 2001)	Behavioral methodology (principles from applied behavior analysis and behavior therapy)	27.5	Center based	• No peer-reviewed studies in journals on overall efficacy of model
Children's Toddler School (Stahmer & Ingersoll, 2004)	Incidental teaching, discrete-trial training, and pivotal-response training	15	Center based	• 1 study • AIII (pre-post design with evaluator not blind to treatment), BII (20 participants), CIII (intervention in natural settings with functional measures)
Project DATA, Developmentally Appropriate Treatment for Autism, (Schwartz, Sandall, McBride, & Boulware, 2004)	Naturalistic, discrete-trial training	23 hours school based; 5 hours home based	Center & home based	• 1 study • AIII (pre-post design with evaluator not blind to treatment), BII (48 subjects), CIII (intervention in natural settings with functional measures)
Developmental, Individual-Difference, Relationship-Based Model (DIR; Greenspan & Wieder, 2006)	Floor time	Varies	School & home based	• 2 studies • 1 study AIV (retrospective record review) & 1 study AIII (pre-post), BIV (no information abut subjects) and BIII (74 subjects), CIII (intervention in natural settings)

Source: Odom, S., Rogers, S., McDougle, C., Hume, K., & McGee, G. (2007). Early interventions for children with autism spectrum disorder. In S. Odom, R. Horner, M. Snell, & J. Blacher (Eds.), *Handbook of developmental disabilities*, 2007 (pp. 206–207). New York: Guilford Press. Reprinted by permission of Guilford Publicaions, Inc.

LEAP—University of Colorado (Strain, Director)

This program, at its base, attempts to improve the social behavior of children with autism. The curriculum emphasizes independent play and social interaction in naturally occurring routines. Social skills are taught as discrete skills such as "play initiation." Applying the program in an integrative setting with typical children allows practice in social skills. LEAP has used peer-mediation skills intervention, training typically developing peers in ways of enhancing social interaction with children with autism. Numerous studies have demonstrated the effective acquisition of social skills

by preschool children with autism (Strain, Kohler, & Goldstein, 1996).

Pivotal Response Model—University of California at Santa Barbara (Koegel and Koegel, Directors)

This program often starts with discrete trial behavior analysis, similar to the UCLA model, but then moves on to a goal of social and educational proficiency in natural settings. The goal is to achieve change in pivotal areas that have broad generalizations. The emphasis is placed on self-management, motivation, self-initiation, and other abilities that can be transferred from one situation to another. Koegel and Koegel (2007) have developed specific curricula with an emphasis on parental involvement to obtain their reported positive results.

www.education.ucsb.edu/autism/NIMH.2003.in

Common Threads Among Treatment Programs

Despite the many unique features of the major attempts to treat children with autism, Dawson and Osterling (1997) identified five common elements of each:

1. *Common curriculum content.* This includes training in the ability to selectively attend to stimuli in the environment, stimulating imitative ability, and stressing receptive and expressive language, appropriate toy play, and social interaction skills.
2. *Highly supportive and structured teaching environment.* This includes various attempts to encourage generalization from these structural settings to the natural environments of classroom and playground.
3. *Predictability and routine.* All programs contain set routines each day. These increase the security of the child with autism, who can be very upset by changes in daily routines.
4. *Functional approach to problem behaviors.* Focus is placed on seeking the causes of problem behavior, such as task escape or social inattention, rather than on the specific problem behavior itself.
5. *Transition between preschool and kindergarten.* This involves teaching skills that are essential for functioning in integrated settings.

In addition, most programs put major emphasis on *family involvement,* although the nature of the involvement may vary from one program to another (Gresham, Beebe-Frankenberger, & MacMillan, 1999; Mesibov, 2006).

The major figures in the field agree that with early identification and treatment, substantial gains can be made by these children in a number of developmental areas. So the importance of early identification and early treatment becomes critical. The poem "Ironing Out the Wrinkles" on page 275 is a good illustration of personal progress.

Early intervention can greatly improve a child's social development and communication.

Inclusion in Context: School-Age Children with Autism

Children with autism at school age will undoubtedly have an individualized education program (IEP) planned for them. A multidisciplinary team will be necessary to provide a comprehensive set of plans and experiences for the child. Whether the child is successful or not will depend on the makeup of the team. There must surely be someone on the team who knows something about autism and its special issues.

HM VIDEO CASE

Including Students with High Incidence Disabilities

Watch this Video Case at the student website. You will meet at least one student with an autism spectrum disorder. Based on your observations, what aspects of school do you think are most difficult for this student? If you were the teacher, how would you explain to the rest of the class why you are spending more time with some of your students than with others?

TABLE 8.3
IEP Elements for Sam

Area	Goals	Short-term Objectives
Academic	1. Sam will improve reading skills to third-grade level. 2. Sam will master fundamentals of addition and subtraction.	1. Sam will complete a book relevant to class topics but directed to his limited reading skills. 2. Sam will be given tiered assignments to match his developmental level in arithmetic. He will reach 90 percent correct level in addition and subtraction problems with two numerals.
Social	1. Sam will improve his social skills. 2. Sam will reduce by one-half his episodes of challenging behavior (fighting).	1. Sam will be placed in cooperative learning groups that have been primed to include him in activity. 2. Functional behavior assessment will be carried out by specialist to determine appropriate replacement behaviors for Sam.
Behavioral	1. Sam will reduce by 50 percent the repetitive movements with his hands (hand flapping).	1. Tasks will be chosen that will require Sam to use his hands in a constructive manner. 2. The teacher will reduce sensory overload and provide calming periods for Sam.

We would not think of planning for a child who is deaf without engaging a specialist in the education of children with hearing disabilities, yet too often we engage in a program for these children with autism with only minimal expertise present.

It is important for the teacher to know that when things get difficult and she or he calls for help, someone will answer. Few things can be more depressing to the teacher than believing her- or himself totally alone in her or his attempts to help the children with autism and feeling that she or he has been given a burden that is not shared.

The academic lessons that the child with autism receives can be planned in advance by a team of teachers and aides so that they fit the child's own developmental level. The assignments can be short and not complex, so that the child can see progress and success in these appropriate tasks.

One would expect that each IEP would have some special plans for improving the social skills of the child and would also pay some attention to his or her language development, together with specific plans to cope with disturbing behavior patterns, if they are present.

Table 8.3 shows some elements of an IEP that might be planned for Sam. Such planning necessitates the presence of specialized assistance, consultation, aides, and others for the general education teacher if it is to work, because few such teachers have the skills or background knowledge or time to carry out the program unaided. Because Sam is behind in fundamental reading and mathematical skills, some specific attention is paid to special *tiered assignments* (assignments adjusted to the developmental level of the child).

Sam's social skills are in substantial need of improvement. Placing him in a small group stressing cooperative learning is one approach to giving him experience working with others toward a common goal. The question as to what Sam's fighting is achieving for him (perhaps security, revenge, attention, or status) can be addressed through a functional behavioral

analysis. We may be able to discover Sam's motivation and prepare some substitute or alternative behaviors to replace the fighting while still obtaining the same psychological result for him. One detriment to Sam's social adjustment has been his "hand flapping," which seems to emerge when he is under stress. His classmates view this repetitive motor movement with his hands as "weird," and that doesn't improve his social standing. It seems appropriate to work on all of these problems simultaneously, and that also requires more personnel than just one classroom teacher in this situation.

A child with ASD should have very clear educational objectives, systematically taught with structure and repetition. The classroom teacher should have aides present to help and should also have easy consultation available if needed.

Adapting Teaching Strategies

Structure and Routine

Because the child with autism often has difficulty confronting unorganized environments and becomes anxious in an unpredictable classroom, one adaptive strategy has been an approach called "structured teaching" (Mesibov, 1999). Presenting the child with autism with an individual daily schedule that describes what is going to happen at each time in the school day is a useful support and reduces stress for the child. Creating a consistent physical environment around the child (everything is in the same place from one day to another) can be another source of security. A daily schedule and a consistent environment are critical for a child with autism to feel secure.

Many of these children with autism need structure and order so that they can proceed academically. The teacher is encouraged to provide their assignments in a clear and predictable fashion, as follows (Hogan, 2000):

Child: What am I expected to do?

Teacher: Read pages 34 through 38 in your book *Airplanes of World War II*.

Child: How much am I expected to do?

Teacher: Write two paragraphs about the information you read in the book. Each paragraph should have five sentences.

Child: How will I know when I am finished?

Teacher: When you have finished writing, put your paper in the "Finished Assignments" bin on Mrs. Bates's desk.

Child: What will I do next?

Teacher: Check in your notebook for what is next on your daily schedule.

For a student who is not well organized, these precise instructions provide the structure he or she needs in order to make progress on his or her assignments.

Although the child with high-functioning autism can have generally good proficiency in language, they tend toward literal interpretation, which causes a lack of understanding of jokes that depend on plays on words, metaphors, or common idioms such as these (Attwood, 1998, p. 77):

Has the cat got your tongue?

Keep your eye on the ball.

You're pulling my leg.

Pull yourself together.

The literal-mindedness of the child with autism lends an appearance of naiveté that can interfere with socialization.

Improving Social Skills

Because one of the prime areas concerning the education of children with autism is the lack of social sensitivity and social skills that most typical children display, there have been many attempts to counteract that lack. Of course, children with autism are not totally devoid of social skills. McGee and her colleagues (McGee, Feldman, & Morrier, 1997) found that young children with autism engage to some degree in play, social participation, and social interaction, but they do so much less often than the typical child of the same age. The special needs of children with autism spectrum disorders often require a change in the teaching approach to the student. Neihart (2000) suggests frequent use of diagrams, visualization, and pictograms in the lessons provided to children with Asperger's syndrome or to

Using visual aids and pictures helps the child with autism to grasp concepts more easily.

Sample Social Story by a Third-Grade Boy with High-Functioning Autism

Sometimes my friend Toni tells me to "chill." This means I am getting loud and bossy. Toni doesn't want to sit with me when I am loud and bossy. I will lower my voice when Toni tells me to "chill." When Toni tells me to "chill," I can imagine putting my voice on ice. (Neihart, 2000, p. 227)

high-functioning children with autism, as they think best in concrete and literal pictures.

The teacher can use social stories, which involve the child writing a very short story that describes a specific social situation with which the child struggles. These social stories are designed to teach the cues and behaviors for specific social situations. See the box at the top of the page for an example of a social story.

One attempt to intervene on behalf of children with autism was described in a study in which photographs of various play areas are identified and the children with autism are asked to pick the areas they intend to play in (Morrison, Sainato, Benchaaban, & Endo, 2002). Their choices of photographs of play areas are placed on a bulletin board, and they are encouraged to follow their choices.

Children with autism can follow such a schedule with encouragement, and the result is that autistic children can engage in more effective and interactive play behavior with other children. The lesson here is that the teachers have to be active in designing activities that increase the play and social behavior of the child with autism.

A wide variety of approaches have been tried to enhance these children's social abilities, and an attempt to summarize the results of many studies of these various approaches has been completed (McConnell, 2000). McConnell divided these approaches designed to improve social skills into five major categories and then assessed what the research had to say about each as applied to children with autism.

Ecological Variations

Ecological variations are changes in the physical environment for that child or modifications in activity, schedule, or structure designed to enhance social interaction. "Ecological variations can, under some conditions, produce weak to moderate effects on the social interaction of young children with autism."

Collateral Skills Interventions

Collateral skills interventions are attempts to improve play skills, academic responses, or sociodramatic play. Do such improvements result in increased social interaction? "Collateral skills interventions may increase social interaction by bringing children with autism into contact with typically developing peers, and by activating social interaction processes by giving children with autism greater competencies and rewarding social contacts."

Child-Specific Interventions

These interventions may include general instructional interventions to improve social problem solving (social stories), using direct social skills training, and various generalization promotion techniques (particularly self-monitoring). "Child-specific interventions, in isolation, would seem to have limited potential since these interventions tend to focus more on social initiations, rather than other elements of sustained and high-quality social interaction."

Peer-Mediated Intervention Procedures

These are approaches in which the teacher helps peers to learn how to interact with the child with autism. By changing the related social behaviors of peers, they change the social interactions for young children with autism. "Peer-mediated interventions have demonstrated powerful and robust treatment effects across a number of studies. Such approaches must demonstrate lasting effects on the social behavior of children with autism to justify the efforts made."

Comprehensive Interventions

These contain two or more components of the other intervention styles reported previously. These include some form of social skills training for all children, some

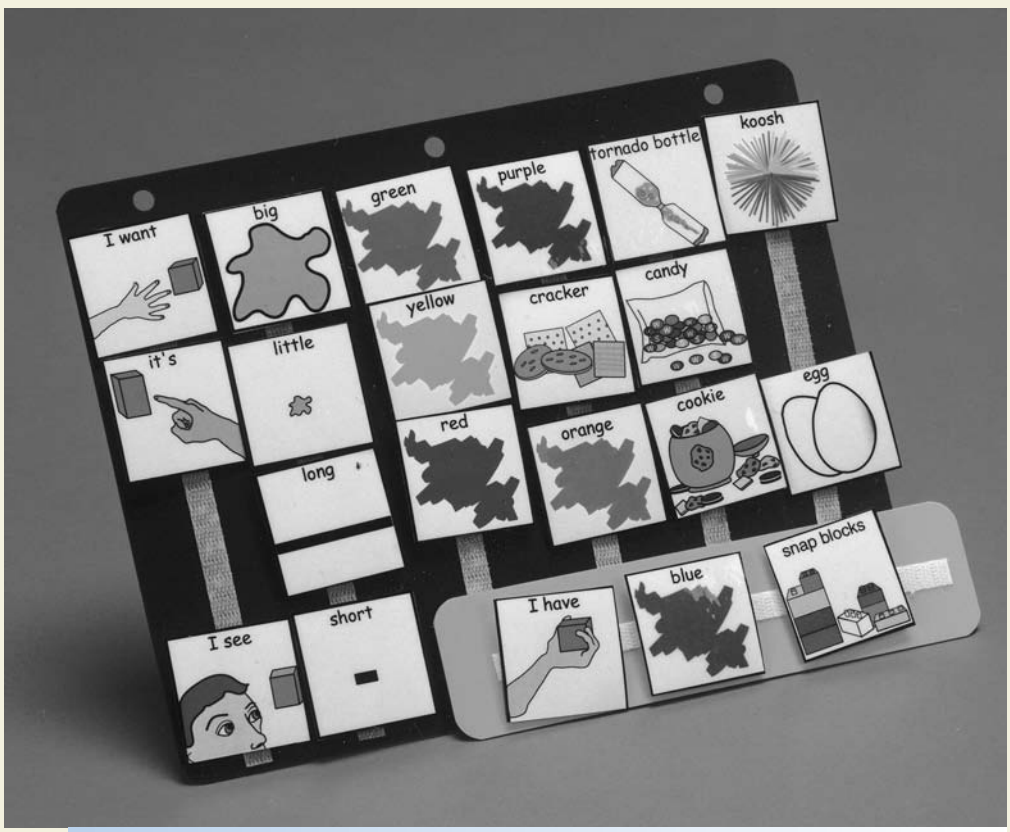
delivery of teacher prompts, reinforcement in free play, and the promotion of reciprocal interactions between children with autism and their peers. "Interventions directed to both young children with autism and their typically developing peers can produce pronounced effects on social interactions in intervention settings with some generalization to other settings."

Kennedy and Shukla (1995) have reported that children with autism can benefit from purposeful social interaction skills intervention. They believe that social interactions can be taught and learned, that "social interaction in typical settings can be successfully accomplished and substantial positive outcomes accrue." McConnell (2000) concluded that promoting social interaction development should be a routine component of any comprehensive treatment program for children with autism.

Functional Behavior Assessment

One of the favorite educational strategies designed to cope with some of the behavior manifestations of autism is *functional behavior assessment.* This means that instead of concentrating on the specific behavior of the child, the teacher, therapist, or parent tries to assess the meaning of that behavior to the child. If Mike attacks other people, in addition to dealing directly with the behavior, the educational team tries to understand how the attacks benefit Mike. Is he using this as a means for gaining attention, for communicating some need that he is unable to express verbally? We can then try to help him use alternative means for attaining his goals.

This does not mean, of course, that you allow Mike to continue to hit people while you figure out the true meaning of his behavior, but if these attacks have become a constant problem, it means trying



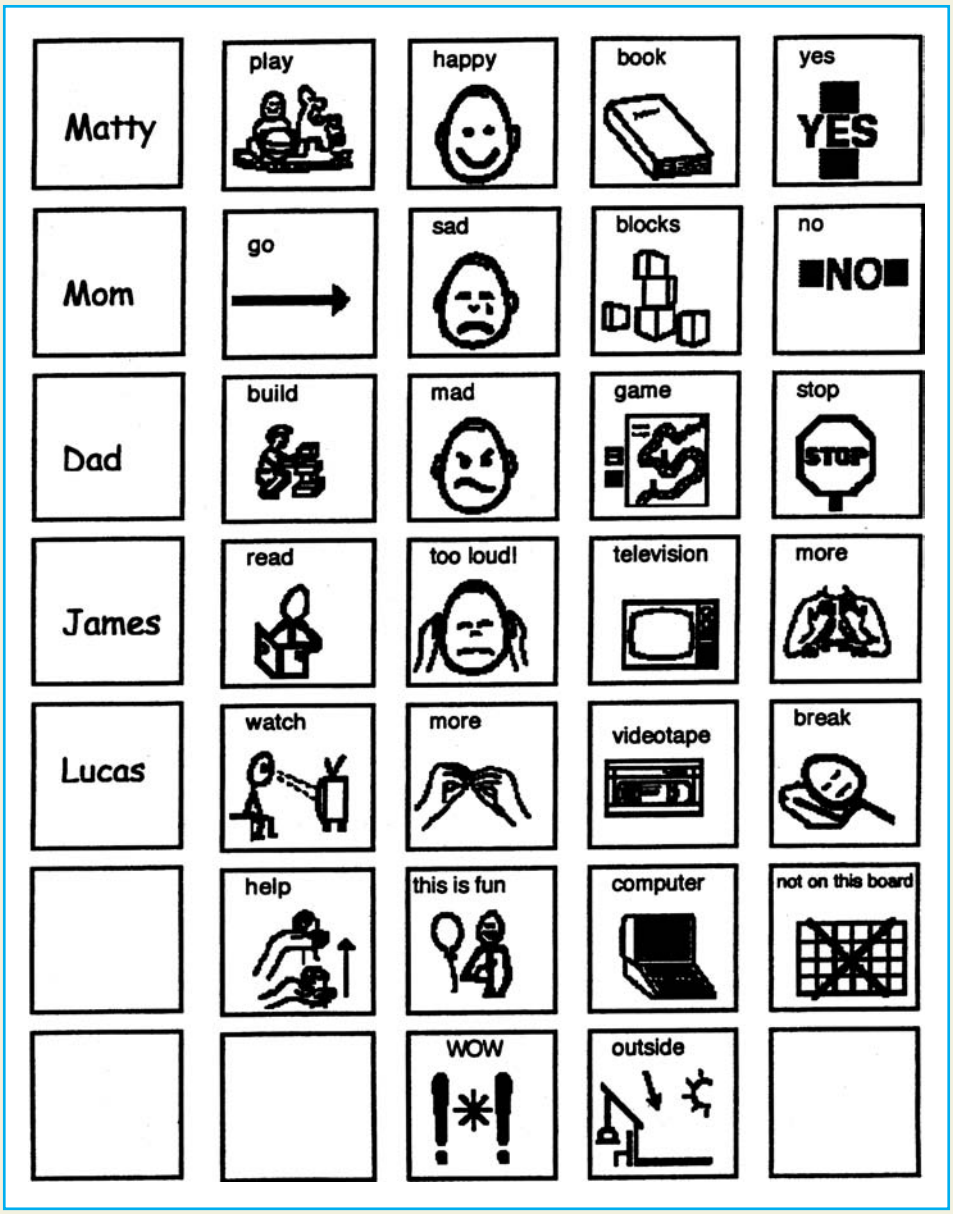
Example of a communication board used in The Picture Exchange Communication System (PECS©).

(© Pyramid Educational Products, Inc.)

to deduce the motivation behind it and substituting some more acceptable way or replacement behavior for him to use to achieve his goals of obtaining parental or teacher attention: perhaps a small bell to ring when he wants his parents' attention or a physical sign such as raising his arm. This search for the child's intentions has proven to be more effective in modifying the child's actions than using direct punishment for unacceptable behavior (see Chapter 6).

Adapting Technology

The importance of communication to the child with autism is universally agreed on. When the child does



Sample Communication Board

Source: The Picture Communication Symbols © 1981–2000, Mayer-Johnson, Inc., used with permission (www.mayer-johnson.com).

not develop speech and receptive language in the usual fashion, a wide variety of devices (called augmentative and alternative communication; AAC) are tried to augment or increase the child's communication skills (Fossett & Miranda, 2007). This may include the Picture Exchange Communication System (PECS) or, on occasion, teaching the child some elements of American Sign Language. (See the teacher website for an expanded list of assistive technology equipment.)

Sometimes a communication board is used, such as the one shown on page 273, so that basic communication is established between child and adult. The child can communicate basic needs and feelings, and the adult can respond in kind. The use of photographs to aid in this type of communication is increasing.

Children with autism may learn eye-hand coordination using a computer mouse. A touch screen helps a child understand sending commands to the computer by using a tactile approach.

Now available are other aids, known as Voice-Output Communication Aids (VOCA), to store recorded messages that the child can trigger. These can range from a series of twenty messages, each twenty seconds long, to complex messages that can be changed according to the situation so that the student can participate ("Hi, how are you today?").

Also, a computer can be combined with synthetic speech, allowing the child to enter the initial letter of a word to produce an onscreen list of common words that begin with the selected letter. Those who cannot read can use a mouse or arrow key to select words that are recited out loud by the speech synthesizer.

The improvement of communication devices also seems to have a favorable effect on controlling or reducing challenging behavior. Some challenging behavior seems to be caused by the inability to communicate needs and wishes. Augmentative communication aids that set up pictorial or written schedules help the individual to follow predictable sequences (Wood, Lasker, Siegel-Causey, Beukelman, & Ball, 1998), which, in turn, helps reduce these behaviors.

Transition

What happens to children with autism spectrum disorders when they become young adults? The National Academy of Sciences report (Lord, 2001) calls for more longitudinal research, but the truth is that the field has paid much more attention to young children with autism than to what happens to them when they leave school for the adult world. Mesibov, Schopler, and Hearsey (1999) did one follow-up of fifty-nine children with autism and found a decrease in physical movements and repetitive motor behavior but a continuation of the social difficulties so manifest in early autism.

It is easy to see why there has been so much attention to early childhood. There have been some major positive results from early intervention studies. However, the result of this emphasis on early life and schooling, and the relative newness of this field, means that we have all too little information on the long-term adaptation of such children and are forced to fall back on anecdotal reports from adults with autism (Attwood, 1998). A possible elevated rate of depression in adults with autism needs medical and psychiatric attention.

The general recommendation for vocational placements stresses the strengths of the child with autism and plays down the social problems. The requirement in IDEA for beginning planning for adult adjustment in the IEPs of teenagers

A Teenager with Asperger's Syndrome Reporting Her Struggles

IRONING OUT THE WRINKLES
Life was once a tangled mess.
Like missing pieces, in a game of chess.
Like only half a pattern for a dress.
Like saying no, but meaning yes.
Like wanting more, and getting less.
But I'm slowly straightening it out.

Life was once a tangled line.
Like saying yours, and meaning mine.
Like feeling sick, but saying fine.
Like ordering milk, and getting wine.
Like seeing a tree, and saying vine.
But I'm slowly straightening it out.

Life is now a lot more clear.
The tangles are unraveling.
And hope is near.
Sure there are bumps ahead.
But no more do I look on with dread.
After fourteen years the tangles have straightened.

—Vanessa Regal

Source: "Ironing Out the Wrinkles" by Vanessa Regal from Tony Attwood, *Asperger's Syndrome: A guide for parents and professionals* (London: Athenaeum Press, 1998), p. 153. Reprinted with the permission of the author.

Pivotal Issues

- What are the wrinkles Vanessa is referring to?
- How can we help Vanessa and other teenagers in their struggles?

with disabilities seems very appropriate here. We would expect these students with autism to be working with computers or going into engineering or a similar occupation that downplays social interaction and emphasizes focused work on inanimate objects.

One way to improve our limited knowledge is to have centers that treat children with autism maintain their contacts with these children as they go through adolescence and early adulthood so that we can find out more about the challenges they face in early adulthood and how they have adapted to them.

Family and Lifespan

To provide an appropriate education for their children, parents of children with autism need specialized skills. Prime among these are the mastery of specific teaching strategies, such as ABA, that enable them to help their child acquire new behaviors. Parents also need an understanding of the nature of autism and how it influences their child's learning patterns and behavior. They need to know special education laws and regulations and how to negotiate on behalf of their child. In addition, some parents need help in coping with the emotional stress that can follow from having a child with a significant developmental disorder. Many parents of children with ASD have become autism experts in their own right and create their own books, websites, and blogs in order to share information and support with other parents. Visit the Autism Bulletin website to see an example of a high-quality, news-driven weblog authored by a parent of a child with ASD.

Autism Bulletin
http://autismbulletin.blogspot.com

Successful vocational placements for teenagers with autism stress strengths and downplay social problems.
(© Robin Nelson/Photo Edit)

The siblings of children with autism can have their lives seriously disrupted, and they should be considered part of a comprehensive treatment program (Konidaris, 1997). Because siblings are often enrolled in the same school, a sensitive teacher can help a child respond to questions about his or her sibling's autism (Lord, 2001).

One of the promising attempts to modify the behavior of young children with autism focuses on the relationship between the parents and the child. Mahoney and Perales (2003) report a year-long intervention with twenty young children with autism spectrum disorders (80 percent under the age of 3, the rest under 6). The approach is a **relationship-focused intervention (RF)** and encourages parents to use responsible interaction strategies (for example, "take turns") during routine interaction with their children. Parents of children with autism were seen in one-hour sessions for an average of thirty sessions. The parents were taught a variety of techniques for "responsive interaction" with their child, and they reported using these strategies with that child at home for about two hours a day.

The authors reported significant improvements in social-emotional functioning that included decreases in detachment and underactivity and increases in social competence, including empathy and cooperation. The authors concluded that enhanced maternal responsiveness encourages children to use the behaviors necessary to attain higher levels of social-emotional and developmental functioning.

Gains in social behaviors and communication were reported in those children whose mothers showed substantial improvement in becoming more responsive, and few children gained when the mothers did not improve.

Koegel and Koegel (2007) reported on the importance of the child's mastering pivotal response behaviors such as attachment, empathy, cooperation, and self-regulation. These pivotal response behaviors then form the base for more advanced developmental behaviors for the child. It is extremely important that the parents be encouraged, or they may give up attempts to communicate with the child following initial frustrations and failure. A fine example of help for parents is shown in the box "Holiday Tips for Families Living with Autism."

Holiday Tips for Families Living with Autism

The holiday period can be a stressful time for those on the autism spectrum because it is a breach in their daily routine. However, if we anticipate the holidays and what they entail before they arrive, the person with autism can be made more comfortable and at ease—ensuring joy for all throughout the holidays.

"Everyone in the Car!" Starting Off on Successful Outings

- To help day trips run more smoothly, travel in two cars so that one person can return home with your loved one on the autism spectrum if he or she gets distressed.
- Eat before leaving home or bring food with you.
- Bring a quiet toy, like a calculator, to a restaurant, during religious services, or other social activity.

"We Are Going to Grandma's!" Tips for Social Gatherings

- When going to large social gatherings, arrive early to let the person on the autism spectrum get accustomed to the growing number of people.
- If he or she becomes distressed during a social gathering, pick a quiet place to go or take him or her out for a walk.
- When visiting someone's home, ask for breakables to be removed from reach; think carefully about visiting those who refuse to accommodate your request.
- Bring a preferred item, favorite toys, or stuffed animals to a family gathering or other social event.
- Before going to a family event, look at individual pictures of family members and teach your child their names.
- Before going to a social event, use "social stories" and practice simple courtesy phrases and responses to questions, either verbal, with pictures, or gestures. ("How are you?" "I am fine." "How is school?" "Good.")
- Let trusted others spend time with your child if they volunteer.
- Ask for help if you need it. Families and friends are often eager to participate.

(*continued*)

"Do We Have to Go to the Mall?" Shopping Without Stress

- To help your loved one with autism get used to malls, go early before the stores open. Walk around, get familiar with the building, buy a snack when the stores open, and leave. Extend the amount of time at the mall each time you go.
- When shopping, be positive and give small rewards, such as a piece of candy, for staying with you.
- To teach your child not to touch things when shopping, visit a clothing store or another store with unbreakable objects; this gives him or her an opportunity to model behavior and minimize risk.
- When shopping, bring a helper to have an extra set of eyes and hands until you are confident of a safe experience.
- Provide headphones or earplugs to the person with autism spectrum disorder to moderate the noise and activity around him or her.

Source: Adapted from Autism Society of America (2007) http://www.autism-society.org/site/PageServer?pagename=holiday_tips&JServSessionIdr009=h07erh3wu3.app26a. Reprinted by permission of the Autism Society of America.

We can sum up the family issues for the child with autism as follows:

1. Parents can learn how to teach adaptive skills and manage the behavior of their child with autism.
2. For some families, having a child with autism creates measurable stress, and support services should be available for the parents.
3. Parents' use of effective teaching methods for their child with autism can have a measurable impact on the reduction of family stress.

Currently, we do not have extensive information as to what happens to the greater number of children with autism when their time in school is finished and they must find a way into the larger world. We do have some individual memoirs by persons with autism (Grandin, 1995), which remind us that even though the basic condition remains, these adults have made effective adaptation and are gainfully employed. One of the next steps, surely, is how we can help youths with autism to make the shift from school to work.

Many parents of children with autism have found to their dismay that although legislation has established their children's right to a free and appropriate education (FAPE), this does not mean that these laws and regulations will be implemented at the local level. The huge expense (often $20,000 to $60,000 per child) of the intensive treatment programs have led local schools to plan for something less than the intensive treatment that many Lovaas followers and others insist on. Indeed, the National Academy of Sciences report *Educating Children with Autism* recommends no fewer than twenty-five hours of treatment a week for young autistic children—far fewer than the forty insisted on in the Lovaas program (Lord, 2001).

Should There Be New Policies?

Do we need new educational policies for children with autism? A number of parents and advocates for children with autism wish to develop new legislation to ensure that these children will receive the maximum educational benefits. There are others, however, who have pointed out that the Individuals with Disabilities Education Act 2004 (IDEA) really covers the essential needs of such children. To see how this works, we can go back to the six fundamental legal rights embedded in the original Education for All Handicapped Children Act (PL 94-142), now IDEA.

1. *Zero Reject.* All children with disabilities must be provided a free and appropriate public education.

   For children with autism, this means that no such child, regardless of degree of impairment or manifestation of difficult behavior, can be denied educational services.

2. *Nondiscriminatory Evaluation.* Each student must receive a full individual examination with tests appropriate to the child's cultural and linguistic background before being placed in a special educational program.

   For children with autism, this means an appropriate evaluation to be carried out by personnel with experience in the use of the appropriate tests and protocols for such children.

3. *An Individualized Education Program (IEP).* An IEP must be written for every student with a disability who is receiving special education.

   For children with autism, this is an important provision, because it requires the schools to develop a program that fits the needs of this particular child and not to just routinely place the child in a special education program that already exists for other children with special needs.

4. *Least Restrictive Environment.* As much as possible, children with disabilities must be educated with children without disabilities. The educational philosophy is to move the child with special needs as close to the normal setting as feasible.

   For children with autism, this means that there is an expectation that these children should be interacting on a regular basis with children without autism if at all possible. When another placement is recommended, the school must make a special statement as to why a child will not be placed in the regular classroom.

5. *Due Process.* Due process is a set of legal procedures to ensure the fairness of educational decisions and the accountability of both professionals and parents in making those decisions.

   For children with autism, this means that the parents can call a hearing when they do not agree with the school's plan for their children. They can obtain an individual evaluation from a qualified examiner outside the school system or take

other action to ensure that both family and child have channels through which to voice their interests and concerns.

6. *Parental Participation.* Parents are to be included in the development of the IEP and have a right to access their child's educational records.

   For children with autism, this means that parents can obtain the test results and educational evaluations of their children and can participate as equals in the development of the IEPs.

The Courts and Autism Spectrum Disorders

The importance of the courts in the development of programs for children with special needs has been noted in previous chapters. In no other category have the courts played such a significant role than with children with autism. A total of nineteen cases were brought into federal court between 1998 and 2002 as a result of disputes between parents and school districts on the appropriate way of educating autistic children (Nelson & Huefner, 2003).

In many instances, the parents insisted that the school district employ a particular method, applied behavior analysis (ABA), whereas the school system wished to provide an alternative training program. The parents' intensity of feeling is not hard to understand, because the Lovaas program, which uses ABA, has claimed that children under this program reached "normality" in many instances. (Furthermore, ABA is the only intervention proven by scientific research to be effective, according to *Educating Children with Autism,* a report published by the National Research Council; Lord, 2001). The school districts, however, aware of the high expense and the stringent requirements of the Lovaas approach, often seek alternatives to this method (or try to do it cheaply). This results in parental distress and legal disputes.

In general, the courts were unwilling to substitute their judgment for that of the school system as to what was appropriate for an individual child, assuming that the districts worked closely with the parents and followed the provisions of IDEA. One case established the legal standard for sound education policy in these disputes (*J. P.* v. *West Clark Community Schools,* 2002):

1. Can the school district articulate its rationale or explain the "specific benefits" of using that approach for the given child?
2. Do the teachers and special educators involved have the necessary experience and expertise to do so successfully?
3. Are there "qualified experts in the educational community who consider the school district's approach to be at least adequate under the circumstances"?

If the answer to these questions is yes, the school system will prevail in such disputes.

Although these three requirements would seem to be reasonable propositions, many school systems may have difficulty in meeting them, especially in poor or rural districts. Until there exists a much larger cadre of specially trained teachers or other support personnel capable of meeting the needs of children with autism, it is likely that these disputes will continue.

How Legislation Affects the Education of Children with ASD

Over the past few years, a growing number of parents and advocates became concerned that their children with ASD were not receiving proper education and treatment within the public schools. They also wondered whether the Centers for Disease Control and other authoritative voices were giving appropriate weight to the concerns of those who believed that diet or vaccines were possible causative factors of ASD.

The popularity of inclusion as an educational strategy also worried some parents, who wondered who was going to provide the specialized lessons or instruction that their children needed and how that would be accomplished.

In 2006, this alliance of parents and professionals was able to persuade Congress to pass the Combating Autism Act of 2006 (P.L.109-416), and President George W. Bush signed it into law.

This act

- Authorizes establishment of regional centers of excellence for autism spectrum disorders research
- Authorizes activities to increase public awareness of autism, to improve the ability of health care providers to use evidence-based interventions, and to increase early screening for autism
- Calls on the Interagency Autism Coordinating Committee (a state multidisciplinary group) to enhance information sharing

It is still uncertain what level of funding will be appropriated to support this legislation given the wide variety of priorities facing the nation, but the support necessary to pass the legislation was obviously present.

moral dilemma

Jerry's Situation

Jerry Boyd, age 8, has been diagnosed as having high-functioning autism and has the various solitary interests that mark this condition. He loves playing computer and video games but pays little attention to his peers. He has no interest in team games or in attending birthday parties or other social functions of his class and age group.

This is upsetting to Mrs. Boyd, his mother, who thinks that this lack of interest in social matters will hurt his adjustment later on in

school and community. She has embarked on campaigns to have other students sleep over. She also enrolled Jerry in dance classes and encourages him to participate in Little League baseball.

So far, Jerry couldn't care less about his mother's campaigns and wants her to stop. Mr. Boyd, his father, is uncertain whether to support Jerry in his wishes or to support his wife, who has Jerry's long-range adjustment in mind.

What should the Boyds do? What is your strategy? If Jerry was your student, how would you advise his parents?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- Autism is a pervasive developmental disorder affecting communication and social development and causing, at times, a variety of unusual behaviors and unusual reactions to sensory stimulation.
- This condition of autism can be recognized in a child as early as 2 years of age. Beginning intensive treatment for language development and social skills immediately is strongly recommended.
- Although the majority of children with autism seem to be developmentally delayed, there is a subgroup, children with Asperger's syndrome, who can be highly intelligent and academically able but who have the same social problems as children with autism.
- The prevalence of children with autism spectrum disorders appears to be steadily rising. It now is estimated at 1 in 200, or even more. The reason for the increase is not clear. It may be that we are now identifying as autistic many children who previously would have been labeled differently (mentally retarded, for example). Or there may be a genuine increase in autism, for reasons not yet known. The gender ratio remains constant: Four times as many autistic boys are found as girls.
- Focus on social skills development includes changes in environment, the teaching of collateral skills, direct social skills training, or peer-mediated intervention.
- Improvements in communication are often carried out in natural environments, both home and school, using the child's natural interests in play to develop and expand communication.
- For children without the use of language, augmentative and alternative methods of communication are employed, such as pictures that are organized especially for communication.
- Many programs of treatment exist, often in competition with one another. All report clinical successes in terms of improving social and academic skills, but we still need careful research to document these treatments and their long-term effects.

- Despite the variety of approaches, all major treatment programs include common elements, such as similar curriculum content, structured teaching environments, predictable routines, functional approaches to problem behavior, and the teaching of transition skills to prepare children for kindergarten.
- The major problems with implementation in the schools are the high costs of such treatment and the lack of trained personnel to administer it.
- We need more information on the adult adjustment of children who were given early help through the schools.

Future Challenges

1. ***Will there be enough trained personnel?***

   The education of children with autism requires very special preparation. Few teachers, in either general or special education, have mastered the methods of applied behavior analysis or the other instructional strategies designed to enhance the social development and communication skills of children with autism. How will these needs for trained personnel be met?

2. ***Will new medical treatments become available?***

   To date, medical or pharmaceutical treatments have had uncertain effects on children with autism. With our increasing sophistication and understanding of brain function and the genetic code, can there be some future help for families affected by autism?

3. ***Who will pay for expensive educational treatments?***

   Some states have established emergency funds to aid the ability of local schools to supplement the education costs for these children. Medicaid has been used in other states to defray the education costs. No easy way out seems currently available.

4. ***Will there be enough funding to research new methods for developing social skills and communication?***

   We should anticipate the further validation and dissemination of the various methods used to improve the functioning of children with autism in behavior management, social skills, and communication, given sufficient research and development funds that would be obtained mainly from the federal government.

Key Terms

applied behavior analysis (ABA) p. 264
Asperger's syndrome p. 252
collateral skills interventions p. 271
ecological variations p. 271
mirror neurons p. 258
pervasive developmental disorders not otherwise specified (PDDNOS) p. 252
relationship-focused intervention (RF) p. 277
theory of mind p. 259

Resources

References of Special Interest

Attwood, T. (1998). *Asperger's syndrome: A guide for parents and professionals*. Philadelphia: Kingsley. One special variation in autism spectrum disorders is Asperger's syndrome. Although they have many of the standard characteristics of children with autism, such as inability to socialize, clumsy and ill-coordinated movements, and intense absorption in certain subjects, children with Asperger's syndrome often show high intellectual ability. This book is a fine introduction to a fascinating variation on the autistic condition sometimes referred to as *high-functioning autism*.

Boswell, S. (2005). *TEACCH preschool curriculum guide: A curriculum planning and monitoring guide for young children with autism and related communication disorders*. Chapel Hill, NC: TEACCH. A detailed description of activities in the preschool age range that can enhance the language and social development for the child with autism.

Greenspan, S., & Wieder, S. (2006). *Engaging autism*. Boulder, CO: Perseus. A comprehensive review of Stanley Greenspan's floortime approach to helping parents cope with children with autism spectrum disorders. He takes a developmental approach, encouraging parents to interact with their child. Floortime means exactly what it says: The parents need to get down on the floor for twenty to thirty minutes a day and communicate, play, and interact with their child. Many helpful suggestions for parents.

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Winerman, L. (2005). The mind's mirror. *Monitor on Psychology, 36*(9), 1–5. The description of mirror neurons and their impact on the development of the child.

Journals

Journal of Applied Behavior Analysis
www.envmed.rochester.edu/wwwrap/behavior/jaba/jabahme.htm

Journal of Autism and Developmental Disorders
www.teacch.com/publications/journadd.htm

Journal of Child Psychology and Psychiatry
http://journals.cambridge.org/action/displayJournal?jid=CPP

Topics in Early Childhood Special Education
www.decs.act.gov.au

Professional Organizations

Autism Network International
www.ani.ac

Autism Research Institute (ARI)
www.autism.com/ari

Autism Society of America
www.iidc.indiana.edu/irca

Online Asperger's Syndrome Information and Support (OASIS)
www.udel.edu/bkirby/asperger

The National Information Center for Children and Youth with Disabilities (NICHCY)
www.nichcy.org

Visit our student website for additional Video Cases, information about CEC standards, study tools, and much more.

CHAPTER

9

Children Who Have Gifts and Talents

FOCUS QUESTIONS

- How do public schools define children who have gifts and talents?
- How do multiple intelligences challenge teachers?
- How do high intelligence and creativity mesh?
- What are some characteristics of children with gifts and talents?
- How can we modify curriculum to accommodate a student's special gifts and talents?
- How can students with gifts and talents from diverse cultures be better identified and served?
- What happens to students with gifts and talents over time?

We can all picture the two or three most intelligent persons that we have ever met. We have been impressed by the breadth of their knowledge and skills and sometimes are envious of how effortlessly they learn or play an instrument.

We may have even wondered where such talent came from. Was it merely a lucky roll of the genetic dice, or did their parents and teachers have something to do with the flowering of this talent? Were they always so superior in development? Are there others in our society who have great talent that, for a variety of reasons, are not discovered and not enhanced?

One thing is certain: As educators we need to do more than stand in awe of their abilities. We need to find ways to help them develop and extend these creative abilities, because from many of these persons will come the new art, the new science, the new businesses of the future.

No matter how intelligent they are, these persons won't discover algebra on their own nor learn how to write a sonnet or play a saxophone or violin. Their abilities are raw materials that need to be nurtured. This chapter attempts to describe these gifted individuals and what we have learned about the best ways to educate them.

Definitions

Children from all cultural groups, economic levels, and areas of human endeavor show outstanding talents.

The term *gifted* traditionally has been used to refer to people with intellectual gifts, and we use it here in the same way. Each culture defines *giftedness* in its own image, in terms of the abilities that that culture values. Ancient Greeks honored the philosopher and the orator, and Romans valued the engineer and the soldier. From a society's definition of giftedness, we learn something about the values and lifestyles of the culture. We also learn that the exceptional person often is defined by both individual ability and societal needs.

In the United States, early definitions of giftedness were tied to performance on the Stanford-Binet Intelligence Test, which Lewis Terman developed during and after World War I. Children who scored an intelligent quotient (IQ) score above an agreed-on point—such as 130 or 140—were called gifted. They represented from 1 to 3 percent of their age-group population (Terman & Oden, 1947).

Essentially, a high score on the Stanford-Binet or the Wechsler Intelligence Scale for Children (WISC) or on other intelligence tests meant that children were developing intellectually more rapidly than their agemates. What was unique was not so much *what* they were doing as *when*, developmentally, they were doing it. A child playing chess is not a phenomenon, but a child playing chess seriously at age 5 is. Many children write poetry, but not at age 6, when most are just learning to read. Early rapid development is one of the clear indicators of high intellectual ability, and that is what intelligence tests measure.

It was long thought that intelligence was distributed in society in conformity with the normal curve, with many students likely to have about average IQ scores of 100 and much fewer expected to score extremely high. This "normal curve" distribution of scores was one of the reasons for assuming that intelligence was a biological property, as other characteristics such as height and weight showed similar normal curve distributions.

But now we have evidence that intelligence scores do *not* form a normal distribution, certainly not at the extreme ends (Robinson, Zigler, & Gallagher,

Chess is one game that can reveal special gifts and talents in young children.
(© Bob Daemmrich/The Image Works)

2000; Silverman, 1997). Few children's IQ scores fall below 70 without some pathological cause, and there seem to be many more youngsters at the top end of the distribution (scoring over 140) than would be expected on the basis of a normal curve distribution (Silverman, 1997).

When we combine this discovery with investigations that suggest that entire populations of countries are performing better on tests of ability than they had a generation before (Flynn, 1999), we must confront the notion that IQ scores are *not* fixed for an individual or a society but can be improved with education and experience. We are *not* limited in the number of highly intelligent students we can produce but have as a prospect a gradually increasing supply of highly intelligent people—if we are wise enough to create the conditions for their development.

A typical prevalence figure of children with gifts and talents has been 2–5% of the school population.

Over the past few decades, periodic efforts have been made to broaden the definition of giftedness to include more than abilities directly related to schoolwork. See "Federal Definitions of Students Who Are Gifted" for a federal definition of children who have gifts and talents. Within the definition are many phrases that reveal our current thinking about these students. The phrase "show the potential for performing" means that we accept the idea that children can have special gifts without showing excellent performance. "Compared with others of their age, experience, or environment" means that we accept the important role of environment and context in producing students with gifts. The phrase "require services . . . not ordinarily provided" means that we expect that school systems will and should modify their services and programs to take into account the different levels of development of these students. "Outstanding talents are

present in children…from all cultural groups, across all economic strata" means that we expect to find gifted abilities in all racial and ethnic groups.

Federal Definition of Students Who Are Gifted

Children and youth with outstanding talent perform, or show the potential for performing, at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.

These children and youth exhibit high-performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools.

Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor.

Source: P. Ross (Ed.). (1993). *National Excellence*. Washington, DC: U.S. Department of Education.

As far back as one can go in recorded history, concern about the nurturing of children with gifts has been evidenced. Plato, for example, was convinced that Athenian democracy could sustain its greatness only by providing the best educational opportunities for selected young people, who would then become the society's leaders. Other leaders expressed these ideas in similar fashion (Tannenbaum, 2000).

One Gift or Many?

Should giftedness be regarded as one overriding general mental ability or as a series of special abilities? Howard Gardner is one of the latest of a group of psychologists to view giftedness as a series of special abilities (Ramos & Gardner, 2003). He has proposed a list of nine distinct and separate abilities called **multiple intelligences** that need specific educational attention: *linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal,* and *naturalist. Existential* is another ability which is often included, but it is unconfirmed. (See the textbook website for more detailed descriptions of Gardner's multiple intelligence theory.)

HM VIDEO CASE

Multiple Intelligences: Elementary School Instruction

Watch this Video Case at the student website. Frederick Won Park is an elementary school teacher who uses multiple intelligence theory as a component of his teaching. How can we use all of a student's senses to stimulate his or her learning? In what ways did the children draw on their individual strengths to support their own academic growth?

Everyone knows persons who are particularly good at one or two of the abilities listed by Gardner but who are not superior at them all. Think of a student who is a math whiz but is not expert in linguistic or interpersonal intelligence. Some students seem to be particularly gifted in spatial intelligence but have only above-average ability in other areas. Although all these abilities seem to be positively correlated with one another, and although students who have outstanding talents in one area are usually good in the other areas as well, we can find concrete examples of specialists in outstanding performance. Consequently, the

Extraordinarily high ability has been found in all racial and ethnic groups and genders.
(© Corbis)

educational issue becomes not only how to plan one *overall* program for students who have talents in many of these areas but also what should be done with students who have specialized talents in a single area such as mathematics, visual perception, or interpersonal relationships.

High ability is not the predictor of student productivity but only the base on which the student must build. *Extended practice, dedication,* and *high motivation* to succeed are the characteristics necessary to complete the portrait of a productive person. Because they are easily recognized components of the successful athlete or musician, this should be of no surprise to educators. The school and educators can play a significant role in exciting the student about learning, providing resources and access to advanced knowledge that keep a student's high motivation alive.

In one piece of educational research, Dweck (2007) provided school-age students with an explanation of how the brain develops, an explanation that, in turn, increased their motivation and drive to learn. She explained that the brain is like a muscle—the more they exercise it, the stronger it becomes. They learned that every time they try hard and learn something new, their brain forms new connections that, over time, make them smarter. They learned that intellectual development is not the natural unfolding of intelligence but rather the formation of new connections brought about through effort and learning (Dweck, 2007, p. 38). This is important information for all educators to have.

Children of Extraordinary Ability

It is generally accepted today that superior intellectual ability often predicts high academic performance and personal adjustment. But doubts linger about the

youngster of extraordinary ability—the 1 in 100,000 at the level of an Einstein. What happens to the student who is seven or eight years ahead of his or her age group in development?

Is there a relationship between extraordinary intelligence and later development? As IQ scores increase, do we see an increase in later accomplishments? Feldman (1984) compared two groups of adults among Terman's participants (see p. 317). As children, one group had obtained IQ scores of more than 180; the other, randomly selected from the average range of scores, had IQ scores in the area of 150. There was some evidence that men in the "very high IQ" group had accomplished more than men in the "high IQ" group. For example, one was an internationally known psychologist, and another was a highly honored landscape architect. Still, many of the men in the lower group were successful, if not eminent. Feldman also found a difference between the women in the two groups. Those with IQ scores around 180 tended to have full-time careers; those in the lower group tended to be homemakers. Despite the difference he found between the groups, Feldman concluded that *genius* is not solely a function of intelligence but rather reflects a combination of intelligence, personality, motivation, and environmental variables.

The great developmental distance between these youngsters and their age peers necessitates individual programs for them, not unlike the individualized education programs (IEPs) proposed for children with disabilities. Such programs and services would consider acceleration, moving the student through the system more rapidly, and some form of tutoring or mentoring by adults with special knowledge in the student's area of special interest (Silverman, 1998).

Extraordinarily precocious students represent one of our greatest and rarest natural resources. We must learn more about them to understand the origin of their giftedness and ways to help them adapt to an often difficult social environment.

PROFILES OF TWO STUDENTS

The Extraordinary Abilities of Terry and Lenny

Thanks to Dr. Julian Stanley, who began the Study of Mathematically Precocious Youth (SMPY) in 1971, we have gathered a picture of children of outstanding ability over time. Two of the most outstanding are Terry and Lenny, whose mathematical abilities flourished early. The schools they attended and their parents were flexible enough to adapt to the special abilities of these boys (Muratori et al., 2006).

Terry: Terry, who grew up in Australia, taught himself to read by watching *Sesame Street* at age 2. By age 3 he had learned to read, type, and solve mathematical puzzles designed for 8-year-olds. At age 5 he was placed in a split first- and second-grade class but took math with fifth graders. In 3 years he had mastered the elementary curriculum and was placed in 11th-grade mathematics. He finished undergraduate work at age 15 and received a PhD in mathematics from Princeton University at age 21.

His parents and mentors took care that he had social interaction with his peers and was not distracted by the notoriety that accompanied his obviously unusual development. Terry's father commented on his friendly personality. When he was little he was liked by his classmates and

teachers, and now he is equally liked by his colleagues, peers, and students. He is now a parent himself and a professor of mathematics at UCLA. When asked what advice he would give to other talented students, he said:

> Well , don't be afraid to explore and be prepared to learn new things continually…. I remember in high school thinking I understand what mathematics and physics were all about only to discover so many wonderful things about these subjects in college that I had no idea existed in high school. (p. 313)

Lenny: Lenny grew up in a university town in North Carolina. Lenny came to the attention of many people when, as a 10-year-old, he earned a perfect score on the SAT mathematics tests. During his participation in SMPY, he was referred to as "the smartest kid in the United States," yet he was a friendly and gregarious boy interested in music and sports, interests he has carried into adulthood.

He excelled on various tests, obtaining a perfect score on the College Board Test of Standard English at age 11 and also on all three parts of the Graduate Record Examination. He led the United States team in the International Mathematical Olympiad and helped the team win two gold medals and one silver medal, the first time the United States was able to do so. He also won distinction in the National Spelling Bee and the Westinghouse Science Competition.

Unlike Terry, Lenny was not moved through the school program so rapidly, skipping only the third grade. His parents discouraged rapid acceleration in favor of good social and emotional development, although he took many university classes while in high school and eventually went to Harvard University at age 16. He now has his PhD from the Massachusetts Institute of Technology and is a professor at Duke University. Despite growing up on different continents, Terry and Lenny both had intelligent and well-educated parents who wished for their boys' good achievement but also happy social and emotional development. They will likely make major contributions to mathematics and to our country's scientific advancement. (Students who wish to learn more about Terry and Lenny through their own accounts of their childhood and schooling may visit our website to read detailed interviews with the two men.)

Not all stories of outstanding talent have such happy endings. One counterexample is provided by the early life of Norbert Wiener, another famous mathematics prodigy who coined the word *cybernetics*. His unhappy childhood is detailed in his autobiography, *Ex-Prodigy: My Childhood and Youth* (Wiener, 1953).

What is clear is that such unusual talent has to be guided in an intelligent way, with the education system remaining flexible and adaptive to these students' needs. If this occurs, there is no reason not to expect other happy stories such as those of Terry and Lenny.

Creativity

Creativity is a process that has fascinated educators and philosophers for centuries. How does one create something novel that was not there before? How did Da Vinci, Picasso, the Brontës, Einstein, Curie, Mozart, and many thousands of others accomplish their outstanding works? Can we as educators discover and enhance these talents that seem to be at the apex of human endeavor?

One researcher defined creativity as the ability to generate ideas, products, or solutions that are considered novel and useful for a given problem, situation, or context (Beghetto, 2008). (Note the emphasis on usefulness; many people with schizophrenia also produce "novel" thoughts.)

From the early days of Paul Torrance (1969) and Getzels and Jackson (1962), we have tried to unravel the concepts of intelligence and creativity in order to study and stimulate each. The recognition is growing that creativity is not so much a personal characteristic as it is a process that involves both thinking and personality. Treffinger, Young, Shelby, and Sheperdson (2002) present four different dimensions of the creative process, shown in Table 9.1

Generating ideas requires cognitive flexibility, whereas digging deeper into ideas requires more synthesis and reasoning power. Personality becomes more central to the courage to explore ideas, requiring risk taking and openness to experience. The final stage, listening to one's inner voice, deals with clearly envisioning what you wish to accomplish and determining to overcome obstacles—again, personality characteristics.

One reason that such disagreement exists among observers as to the essence of creativity is that different persons focus on different properties. Some stress generation of ideas; others, the courage to explore ideas. What is clear, though, is that educators can help individuals develop these characteristics and reward them when the characteristics are acquired. It is also clear that no one is creative all the time or has all four of these components perpetually in play.

TABLE 9.1
The Dimensions of Creativity

Dimensions	Behaviors Needed
Generating ideas	Producing multiple ideas to meet a task Cognitive characteristics like fluency, flexibility and originality, elaboration
Digging deeper into ideas	Desire to understand complexity Analyzing, synthesizing, resolving ambiguities, bringing order from disorder
Courage to explore ideas	Curiosity, playfulness, risk taking, sense of humor, tolerance of ambiguity, openness to experience, self-confidence
Listening to one's inner voice	Understanding of who you are, where you want to go, commitment to do whatever it takes to get there Persistence, self-direction, concentration, work ethic

Source: D. Treffinger, G. Young, E. Selby, & C. Sheperdson, *Assessing creativity: A guide for educators* (Storrs, CT: National Research Center on the Gifted and Talented, 2002). Reprinted with permission.

Students with high native ability still need support and help from their families, schools, and society to make the most of their outstanding abilities. The failure of these outside forces to provide support may result in such a reduction of usable talent that the student may no longer be referred to as "having gifts" (Frasier, 1999) and no longer be eligible for special services.

Many investigators and observers have studied the characteristics linked to creativity. Simonton (1999) has generated a list of creativity facilitators that gives us some clues as to how creativity comes about; see the accompanying box.

Superior intellectual talent enables students to generate new and better solutions to problems.

Characteristics Linked to Creativity

- A wide range of interests, providing a base for unique associations
- Openness to novel experiences, which stimulates creativity
- Ability to think of unrelated ideas at the same time
- Cognitive and behavioral flexibility, allowing investigation along unconventional paths
- Introverted personality, permitting solitary contemplation
- Being an independent, autonomous, and nonconventional thinker

Source: Simonton (1999).

It is increasingly clear that many general education classrooms, with their standard curricula, worksheets, and routine management, are destined to impede the development of independent thinking without meaning to do so. It is also clear that if one of your instructional goals is for students to think independently, you will need to plan carefully to bring about this desired result.

Creativity can be seen as an interaction among persons, products, and environment. Creativity can be stimulated by small-group activities.

A Poem Written by a Gifted Seven-Year-Old

INDECISION
She wears a colourful summery skirt
A thick dark purple coat.
Her house has a very dark blue roof
And a light yellow base
Her shutters are half closed half open

She likes to play with Crazy and Adventurous
But every time she goes to see them
She walks out the front door,
Then thinks she should have
Gone through the back door.

She really would like to eat hot food
But she prefers cold food.
She loves to cook
But normally eats out.

She would do things in the weekend
Except it takes till Monday to decide what.

(Katrina, age 7)

Source: D. Fraser, From the playful to the profound: What metaphors tell us about gifted children, *Roeper Review 25* (4) (2003): 180–184. Reprinted with permission.

Characteristics of Children with Gifts and Talents

Are children born with gifts and talents? Do outstanding abilities emerge no matter what opportunities or education a person has? What role does heredity play in giftedness? How important is the context of the child with gifts?

Heredity and Environment

More than one hundred years ago, Francis Galton, in a study of outstanding Englishmen, concluded that extraordinary ability ran in families and was genetic in origin. (Galton overlooked the environmental advantage of being born into an upper-class family.) Ever since, there has been a strong belief in the powerful role that heredity plays in producing mental ability. Certainly, studies of twins and the close relationship of the abilities of adoptive children to the abilities of their natural parents demand that we recognize a hereditary element (Plomin, 2003).

One of the strongest arguments for hereditary influences on giftedness lies in the small—but still impressive—number of **prodigies**, children who develop extraordinarily fast.

The family plays a major role in the development of gifts and talents.
(© Michael Newman/PhotoEdit)

Family

Although researchers make a strong case for the importance of heredity in giftedness, environment, or the context of the child, is important, as well. Extraordinary talent may be shaped by heredity, but it is nurtured and developed by the environment. We have discussed the role that society plays in defining gifts and talents and rewarding them. A more powerful influence, because it is closer, is the family. We stress that intellectual production is more than talent; it is also persistence, hard work, and desire. It is clear that the family plays a major role in the development of these traits (Webb et al., 2007).

Gender

The observation of gender differences in various aptitudes in students with gifts has been often noted, although such differences have sometimes been linked to differential encouragement and opportunity. Strand, Drury, and Smith (2006) analyzed a representative sample of 320,000 11- and 12-year-olds in the United Kingdom and found striking gender differences in favor of boys at the upper reaches of ability in quantitative reasoning. In general, males seemed more diverse, having both more high scores and more low scores than the girls.

The impact of gender on how students decide to manage their giftedness has been an area of interest to many scholars (Coleman & Cross, 2001; Kerr & Cohn, 2001; Reis, 2003; Roeper, 2003). Sociocultural standards regarding appropriate roles for boys and girls are very clear and may conflict with the emergence of giftedness in some instances. Let's look at how this might work for girls who have gifts and talents.

For girls with gifts, the message to be "feminine," meaning to be passive, modest, dependent, nurturing, and unselfish, can conflict with their expectations of such factors as independence, risk taking, full development of their potential, assertiveness, and a certain degree of competitiveness. These conflicting messages can mean that some girls with gifts elect to camouflage their abilities in order to fit in better with society's expectations (Reis, 2003). Although societal messages have changed somewhat since the women's movement of the 1960s (Roeper, 2003), these dilemmas remain critical for many girls with gifts and talents.

Social and Emotional Development

Despite their demonstrated ability to make friends and generally to adapt well, people who have gifts and talents may shoulder some challenges that stem from their exceptionality.

A volume produced by members of the National Association for Gifted Children presented a summary of what was known about the social and emotional status of students with gifts (Neihart, Reis, Robinson, & Moon, 2002). There have been substantial differences of opinion with regard to the linkage of giftedness to such issues as depression, delinquency, perfectionism, suicide, and response to stress.

Giftedness does not provide an inoculation against emotional problems. The question is whether it provides a buffer against them because of these students' cognitive abilities to solve problems and to

HM VIDEO CASE

Gender Equity in the Classroom: Girls in Science

Watch this Video Case at the student website. How did Mr. Cho and the other teachers support the participation of girls in science? How can our own biases affect our students? How does this special program for girls in science help to cultivate student interest and talent?

examine their own feelings. Silverman (2002) discusses the special problem of *asynchronization of development* of students with gifts: namely that, for example, some may be 14 years old cognitively but only 8 years old physically and socially. This asynchronization causes problems both for those students and for adults around them who are not aware of this atypical development.

Perfectionism

Another characteristic that seems to be a part of the emotional and social lives of some students with gifts and talents is *perfectionism.* Perfectionism is the combination of thoughts and behaviors associated with high standards or high expectations for one's own performance. Superior performance depends on setting high standards for oneself, and such standards would seem an essential part of the high productivity expected of such students. But now the question is whether perfectionism shades over into neurotic performance. From their earliest years, children with gifts tend to be successful in almost everything they try—because they are being underchallenged. If perfectionism becomes neurosis, students can become "failure avoidant." Perfectionist students can have a depressive reaction if they receive a 95 on a paper instead of the usual 100. In such instances it is important for teachers and others to point out to the student that great accomplishments usually are accompanied by failure in some part of the process.

Webb et al. (2007) point to issues of intensity, perfectionism, and stress that many students who have gifts and talents are trying to cope with. Intensity of feelings may affect them to the point at which parents see them weeping over a TV story of starving children in other countries. Or their advanced understanding may have them worrying about the end of the world after realizing that the Earth may not always be here.

These children are distraught at the thought of not getting a perfect score on tests and seem to expect much more of themselves than their parents would ever wish. Jack, who was used to doing well in everything, once struck out three times in a Little League game. He wept uncontrollably. "I'm a failure, a failure," he cried. He could not match his behavior to his expectations. Parents can sometimes help by recounting similar events in their own lives, letting the child know that everyone eventually faces these experiences.

The notion that everyone makes mistakes is a lesson that is difficult for such students to learn, even though their parents might want them to relax and enjoy life. Parents can help by showing that they don't expect perfection from themselves and that their children are loved even if they sometimes get a B in a subject.

Suicide

Cross (2008) pointed out that an increasing incidence of suicide among adolescents in general would seem to mean that the incidence would likely be increasing in the gifted populations as well. There is some indication that youngsters who are extremely creative artistically are more vulnerable to mental illness than are their classmates with other academic gifts. Periodically the question arises of the relationship between emotional disorder and giftedness and between suicide and giftedness. It is clear that many well-known personalities, scientists, and artists, such as Vincent Van Gogh, have committed suicide, and periodically news stories appear about highly gifted students who have committed suicide. The question lingers.

Suicide is the third most prevalent cause of death in teenagers (American Association of Suicidology, 2004), so what about teenagers who have gifts and talents? We do know that depression, which is often closely linked to suicide, is neither higher nor lower in adolescents with gifts and talents (Baker, 1995).

Cross, Cassady, and Miller (2006) explored suicide ideation in 153 teenagers applying to a residential school for advanced mathematics and science and found no higher rates of suicide in this group than is present in the normal population. Because this was a select group of students of high achievement applying to such a school, however, it still leaves unanswered the question about underachievers with gifts and their emotional status.

PROFILES OF THREE STUDENTS

Characteristics of Three Students with Gifts and Talents

We would like you to meet three children, Cranshaw, Zelda, and Pablo. They are 10 years old and in the fifth grade. Cranshaw probably meets the criteria for intellectual, creative, and leadership giftedness; Zelda, the intellectual criteria; and Pablo, the criteria for hidden giftedness. Their developmental profiles are shown in the accompanying graphs.

Cranshaw: Cranshaw is a big, athletic, happy-go-lucky youngster who impresses the casual observer as the "all-American boy." He seems to be a natural leader and to be enthusiastic over a wide range of interests. These interests have not yet solidified. One week he can be fascinated with astronomy, the next week with football formations, and the following week with the study of Africa.

His past history in school has suggested that teachers have two very distinct reactions to Cranshaw. One is that he is a joy to have in the classroom. He is a cooperative and responsible boy who not only

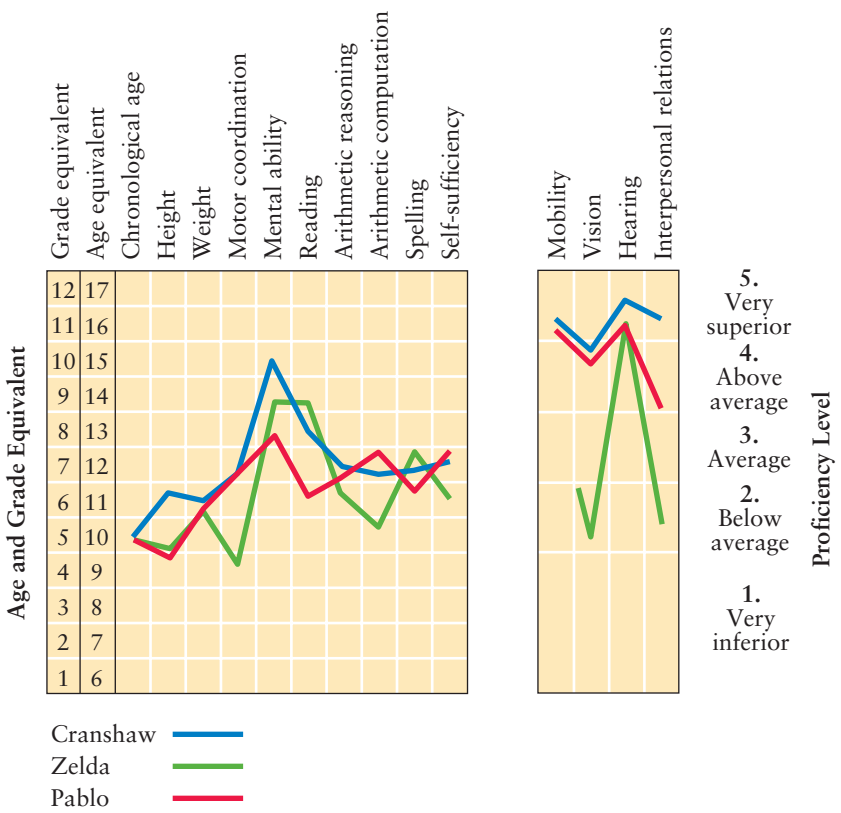


FIGURE 9.1
Profiles of Three Gifted Students Show Cranshaw/Zelda/Pablo

Source: From J. Gallagher and S. Gallagher, *Teaching the Gifted Child,* 4th ed. (p. 12). Copyright © 1994 by Allyn and Bacon. Reprinted by permission.

performs his own tasks well but is also a good influence in helping the other youngsters to perform effectively. On the other hand, Cranshaw's mere presence in the class also stimulates in teachers some hints of personal inferiority and frustration, as he always seems to be exceeding the bounds of the teachers' knowledge and abilities. The teachers secretly wonder how much they are really teaching Cranshaw and how much he is learning on his own.

Cranshaw's family is a well-knit, reasonably happy one. His father is a businessman, his mother is an elementary school teacher, and the family is moderately active in the community. Their attitude toward Cranshaw is that he is a fine boy, and they hope that he does well. They anticipate his going on to higher education but, in effect, say that it is pretty much up to him what he is going to do when the time comes. They do not seem to be future-oriented and are perfectly happy to have him as the enthusiastic and well-adjusted youngster that he appears to be today.

Zelda: Zelda shares similar high scores on intelligence tests to those manifested by Cranshaw. Zelda is a chubby girl who wears rather thick glasses that give her a "bookish" appearance. Her clothes, although reasonably neat and clean, are not stylish and give the impression that neither her parents nor Zelda have given a great deal of thought to how they look on this particular child. Socially, she has one or two reasonably close girlfriends, but she is not a member of the wider social circle of girls in her classroom and, indeed, seems to reject it.

Teachers respond to Zelda with two generally different feelings. They are pleased with the enthusiasm with which Zelda attacks her schoolwork and the good grades that she gets. At the same time, they are vaguely annoyed or irritated with Zelda's undisguised feeling of superiority toward youngsters who are not as bright as she is; they tend to turn away from Zelda when she tries to act like an assistant teacher or to gain favors that are more often reserved for the teachers.

Zelda and her family seem to get along very well with each other. The main source of conflict is the fact that the family has values that Zelda has accepted wholeheartedly but that are getting her into difficulty with her classmates. Her parents are college professors, her father in history and her mother in English literature. They seem to value achievement and intellectual performance almost to the exclusion of all other things.

Their social evenings are made up of intellectual discussions of politics, religion, or the current burning issue on the campus. These discussions are definitely adult-oriented, and Zelda is intelligent enough to be able to enter occasionally into such conversations. This type of behavior is rewarded much more by her parents than is the behavior that would seem more appropriate to her age level (Gallagher & Gallagher, 1994).

Cranshaw's adjustment is as good as his academic achievement; Zelda has social difficulties. She is not accepted by her agemates and doesn't understand why. The pattern of development is different for each of these students because of differing environmental factors.

Pablo: Pablo, a short compact boy with enormous energy, has a very different profile from the other two students noted as having gifts (see the figure). As a matter of fact, 10 years ago he would not have been included in services for students with gifts and talents at all. Now, with a broader definition of what it means to have gifts and talents, he becomes a member in good standing.

Pablo came to this country with his parents 5 years ago from Central America, and so he speaks two languages, English and Spanish. His father works long hours on construction projects, and his mother stays at home with the four children. They were somewhat surprised when the school system told them Pablo was eligible for the program for students with gifts, but now they are very proud and want to help Pablo succeed in his new role.

Pablo is very athletic and physically active. He does best in school with those tasks that require him to think, but his performance in English-related subjects, spelling and reading, lags somewhat behind his other abilities. The psychologist says that his mental ability score represents a minimal estimate. Pablo gave evidence on the test of a higher level of ability.

Pablo qualifies as having "hidden" gifts. The standard measures would not have found him, but classroom observation and new teaching techniques, such as *problem-based learning*, allowed him to show his bright and inquiring mind and encouraged his teacher to refer him for further evaluation. If energy and effort means anything, and it does, Pablo will be a success. He puts as much effort into his lessons as he does on the basketball court.

His special teacher, however, will still have to be careful with his assignments, perhaps playing down his weaker verbal skills and stressing his artistic contributions, which are considerable. It is not enough just to place him in a group of students with gifts and talents; the teacher must also be sensitive to his cultural background and his shyness with others if he is to thrive.

The social pressures that gifted students feel to conform to the dominant peer norm are very strong.

When we look at the profiles of Cranshaw, Zelda, and Pablo, we are reminded that individuals within any category of exceptional children are first and foremost *individuals*. Each has his or her own pattern of strengths and areas of need. Indeed, within any category of exceptional children, the intraindividual differences of a single child can seem more important than the interindividual differences across the group. Nevertheless, we need to remember that what they all have in common is an advanced cognitive ability that will require teachers to provide a more challenging curriculum in these students' areas of strengths.

Identification

Before we can provide children who have gifts and talents with special services to match their special needs, we have to find them. Identification is not always an easy task. In every generation, many such children pass through school unidentified, their talents uncultivated (Johnson, 2004).

Identifying these students requires an understanding of the requirements of the program for which they are chosen. If we wanted to choose a group of students for an advanced mathematics class, we would use a different approach than we would if we were looking for students with high aptitude for a creative writing program. Specific program needs and requirements shape the identification process.

Any program for identifying children who have gifts and talents in a school system should include both subjective and objective methods of evaluation. Classroom behavior, for example, can point out children's ability to organize and use materials and can reveal their potential for processing information, sometimes better than can a test. Products, such as superior essays and term projects, can be kept in a student portfolio and serve as an indication of special gifts.

Project U-Stars (Using Science Talents and Abilities to Recognize Students) capitalizes on the teachers' knowledge of their students to help identify young children with outstanding potential (Coleman, 2003). The U-Stars approach relies on three key elements:

1. Teachers who know what to look for (how to recognize potential)
2. Teachers who know how to structure their classrooms so that children will be engaged
3. Teachers who know how to provide a psychologically safe environment in which students can show their best abilities

The structured observation approach used by U-Stars includes an observational note-taking system that gives teachers specific behaviors to look for. In this case children to be observed would include those who learn easily, show advanced skills, display curiosity and creativity, have strong interests, show advanced reasoning and problem solving, display spatial abilities, are motivated, show social perceptiveness, and have leadership strengths. The basic belief underlying this approach and similar ones is that we must go beyond the use of IQ scores and standardized measures of achievement if we hope to identify "hidden giftedness." Other programs that focus on using observational data to help teachers recognize students with outstanding potential have used problem-based learning experiences as the observational platform. (See the textbook website, college.hmco.com/PIC/kirk12e, for more on structured observations.)

The visual and performing arts use expert judgment to identify talented students.

In the visual and performing arts, talent usually is determined by the consensus of expert judges, often in an audition setting. Experts in the arts are not

enthusiastic about tests of artistic ability or musical aptitude. They trust their own judgment more, although their judgment is susceptible to bias. Sometimes it is possible to judge the quality of a series of products or a portfolio of drawings or compositions that students produce over a period of time (Clark & Zimmerman, 1998).

Most schools have test scores available from group intelligence tests or group achievement tests. Such data can serve as a starting point for selecting candidates for a special program, but they do have limitations:

- Group intelligence tests are not as reliable as individual tests.
- Group tests seldom differentiate abilities at the upper limits because they have been designed largely for the average student.
- Group tests rarely measure creative thinking or cognitive areas beyond academic aptitude.
- Some children do not function well in a timed testing situation.

Despite those limitations, group intelligence tests are a practical means of screening large numbers of students, although the scores of students from culturally diverse families such as Pablo are likely to be underestimated because tests tend to be culturally biased. It is financially prohibitive, however, to give all children individual examinations. Achievement tests are even less discriminating. Emotional disturbance, family problems, peer-group values, poor study habits, a non-English-speaking background, and many other factors can affect a child's ability to perform academically.

Classroom behavior can point out children's ability to organize and use materials and can reveal their potential for processing information.
(© Will and Demi McIntyre/CORBIS)

Underachievers Who Have Gifts and Talents

One of the many myths surrounding children with gifts is the "cannonball" theory. The idea, simply put, is that such children can no more be stopped from achieving their potential than a cannonball, once fired, can be diverted from its path. Like most simplistic ideas about human beings, this one, too, is wrong. There is a subgroup of children referred to as **gifted underachievers,** students whose academic performance consistently falls far short of expectations despite high cognitive abilities (for example, a consistent C average or dropping out).

A substantial proportion of students never achieve the level of performance that their scores on intelligence and aptitude tests predict for them. In the Terman longitudinal study, the researchers identified a group of 150 men who had not achieved to the level of their apparent ability and compared

them with 150 men who had done well (Terman & Oden, 1947). In their self-ratings and in ratings by their wives and parents, four major characteristics separated the underachieving men from the achieving men: *greater feelings of inferiority, less self-confidence, less perseverance,* and *less of a sense of life goals.* More striking was an examination of teacher ratings that had been made on the men 20 years earlier, while they were in school. Even at that time, their teachers believed that the underachievers lacked self-confidence, foresight, and the desire to excel.

A recent study looked at the predictors of underachievement for gifted students (McCoach & Siegle, 2003). Five factors were examined: academic self-perception, attitudes toward school, attitudes toward teachers, motivation/self-regulation, and goal valuation. The last two factors, motivation and academic goals, were the best predictors of underachievement. Interestingly, the academic self-perceptions of underachieving students with gifts were high; they knew that they *could* do the work, and their attitudes toward school and teachers were mixed. The authors recommended that "teachers and counselors who work with gifted underachievers should assess whether these students value the goals of school and whether they are motivated to attain those goals" (McCoach & Siegle, 2003). The authors further pointed out that if these students value neither the specific task they are given (such as solving problems in algebra) nor the outcome of completing the task (an A in math), their motivation is likely to be low.

Students with gifts who are seen as underachievers may benefit from enrichment activities based on investigating real problems.

A different approach to underachievement, one using the Renzulli enrichment triad model, seems to have some promise (Baum, Renzulli, & Hebért, 1995). For that model, seventeen underachievers in grades 3–9 were selected by their teachers as students who would qualify for the program for students with gifts and talents but who were judged to be underachievers. The basis for the underachievement was judged in different children to be social and emotional problems, poor self-regulation, or negative response to the standard curriculum.

The teachers engaged each of the seventeen students in an enrichment activity, the goal of which was to provide an opportunity for the student to actually investigate real problems through suitable means of inquiry and to bring his or her findings to bear on realistic audiences. The authors reported that positive gains in attitude, interviews, achievement tests, and other areas are evidence that carefully designed programs over an extended period of time can make a positive difference in the academic and social performance of underachievers. Yet very few school systems offer these programs. Why? Because underachievers who have gifts and talents do not often come to the attention of special educators. They don't fail in school, yet they can't perform at the level that would place them in programs for students who have gifts and talents (see also Supplee, 1990).

HM VIDEO CASE

Motivating Adolescent Learners: Curriculum Based on Real Life

Watch this Video Case at the student website. How does connecting the curriculum to real-world problem solving motivate students? In what ways did this activity reflect what you know about problem-based learning? How does this kind of teaching and learning support students who have gifts and talents?

It is difficult to change the maladapted patterns of students who for eight to ten years have been developing precisely the wrong approach to academic stress or challenge. This task requires great intensity of effort on the part of both the student and those trying to help that student change. The best-known educational intervention strategies have

Students who have gifts and talents can be challenged by participating in Outward Bound activities, such as these high schoolers on a nature hike with their teacher.

established either part-time or full-time special classrooms for underachievers with gifts and talents (either Tier II or Tier III in the RTI model). In these classrooms, as reported by Reis and McCoach (2000), "educators strive to create a favorable environment for student achievement by altering the traditional classroom organization. A smaller student-teacher ratio exists, teachers create less conventional types of teaching and learning activities, teachers give students some choice and freedom in exercising control over their atmosphere, and students are encouraged to utilize different learning strategies" (p. 164).

Culturally Diverse Students with Gifts and Talents

A consensus is growing about what is needed to help students from disadvantaged environments to prosper. A range of health and social services should be available for such students. There should be teachers available with broad training in special education methods and understanding of the cultural milieu (Callahan, 2007).

Just about every research project cites as positive forces in such families a home environment characterized by warmth and stability of mother-child interactions, opportunities for learning (reading books and being read to), and a neighborhood with play resources and security for children and youths (Ford, 2007). Whatever can be done to encourage and help create these favorable ecological conditions seems worthwhile.

Kitano (2007) specifically urges "universal access to high-quality early childhood programs for those who face extreme poverty in the first four years of life." Such programs would include a multicultural curriculum, early literacy development, and support for creative thinking, as well as health and social services.

Van Tassel-Baska (2004) has summarized the need for special curriculum units for low-income students with gifts and talents who are shown to be different from more advantaged students with gifts in their greater interest in social acceptance and their lesser interest in reading, abstract ideas, and long-term academic performance.

Van Tassel-Baska proposed curricula that place emphasis on openness to experience and that allow creativity and fluency in thinking, opportunity to express ideas through the arts rather than verbally, preference for hands-on applications, and preference for oral expression. The **problem-based learning (PBL)** approach contains many of these characteristics and has been shown to be effective with low-income populations with gifts and talents. This approach is discussed in more detail later in the chapter.

HM VIDEO CASE

Elementary School Language Arts: Inquiry Learning

Watch this Video Case at the student website. Although inquiry learning approaches are good for all students, what about them makes them especially useful with students who have gifts and talents? What specific strategies does Ms. Williams use to help students expand their knowledge and understanding?

Children with Disabilities Who Have Gifts and Talents (Twice Exceptional)

A student's inability to see, hear, or walk does not mean that he or she is not intellectually gifted (Hua & Coleman, 2002). It only means that the child stands a good chance of having special talents overlooked. Coleman (2002) studied the coping strategies used by students who had both gifts and learning disabilities. She found that the students who had gifts and learning disabilities had constructive coping strategies, whereas the students with both average ability and learning disabilities often displayed learned helplessness, escape/avoidance, and distancing.

Another condition in which giftedness and another exceptionality may be mixed is autism. Although the majority of children identified as autistic have average or below-average ability, a subset of children, those sometimes diagnosed with Asperger's syndrome, can be highly intelligent (Attwood, 1998; see also Chapter 8 in this volume). This high intelligence takes on a special flavor with such children, who can be encyclopedic in their knowledge but very poor in their social relationships. Their *theory of mind* function (the ability to perceive the intentions and thoughts of others) remains a serious problem for them. They need special help in social adaptation, regardless of their academic proficiency.

Educational Responses to Students with Gifts and Talents

As noted earlier, we have to consider three major questions when we propose to adapt the current program to take into account the special needs of exceptional children: *Where* will the adaptation take place? *What* content changes will be necessary? *How* will the instruction be modified?

Much of the early attention given to the education of students with gifts and talents focused on the location of educational adaptations. The probable reason is that moving students around in various groupings creates administrative challenges; thus parents, principals, and superintendents become involved and concerned. Actually, location is less important than what takes place once students arrive at the new location. The change was made in order to provide services and curriculum that would not have been possible in the normal setting.

RTI Model and Children with Gifts and Talents

The RTI model is also appropriate in thinking about the special educational needs of students with gifts and talents. As with other children with special needs, the general education curriculum should be extended to meet the needs of students who often are two or three grades advanced in their knowledge over their classmates.

Although Tier I represents the general education classroom, there are special additions needed to meet the educational needs of these students. The No Child Left Behind Act places emphasis on basic proficiency and has often led the class to focus on exercises that have long been mastered by these advanced students.

In some instances the problem-based learning approach will first present a problem to all students (TIER I) and then sort out some students for additional assignments or projects based on their performance on the original problems (TIER II). A gifted education consultant can work with students doing advanced projects while the general education teacher is busy with other lessons.

Tier II also clusters high performing students for special activities. Advanced Placement courses at the secondary level are an example of modest curricular changes to accommodate students at this level. Special summer programs that present brief but intense experiences in mathematics, science, or creative writing are also a popular way to satisfy the curiosity and desire for learning among children with special gifts and talents. Gifted underachievers can also receive special counseling designed to remediate their performance as part of their Tier II activities.

Tier III represents a separation from the regular program as recognition of the huge knowledge and aptitude differences between some students and the average program. Residential programs such as the North Carolina School of Science and Math are a Tier III activity, as are special class programs chosen by identifying extraordinary talent and providing a quite different program for them. Tutoring programs for especially talented students in arts and music also fit into Tier III activities.

Consider the following three general educational objectives for programs or services for students who have gifts and talents:

- Mastering important conceptual systems that are at the level of their abilities in various content fields
- Developing skills and strategies that enable them to become more independent and creative
- Developing pleasure in and excitement about learning that will carry them through the routine that is an inevitable part of the learning process

What holds us back in reaching such objectives?

Values and Schools

Two major values, *equity* and *excellence*, have driven American education for many years. We wish to ensure that every child, whatever his or her background, disability, or ethnic origin, gets a fair and equal opportunity for quality educational services (*equity*). We even accept the concept of *vertical equity*, the unequal treatment of unequals in order to make them more equal. Programs such as Head Start and legislation such as No Child Left Behind reflect that value of equity. Next, we also want to make sure that all students, including those with extraordinary talent in the arts, sciences, business, and other fields, have full opportunity to develop their gifts (*excellence*). We do this because we

recognize that their excelling in these fields means that our society as a whole will flourish.

Because scarce resources must be divided among our needs and goals, these two values, equity and excellence, sometimes bump into one another. In the first part of the twenty-first century, the scales seem to tip strongly in the direction of equity. So at the present time there are far fewer public resources available for children with gifts and talents than for children who need special help to survive academically and socially in this culture.

Students with gifts and talents are different in many key ways from the other groups of exceptional children discussed in this text. They have already achieved more than average students have and may be operating at two or three grade levels above their own. Yet students with a surplus of ability or talent can pose a problem for the classroom teacher. We should concern ourselves with such students because of evidence that they will fill many leadership positions and roles in our future society. They will make many of the new scientific discoveries and shape our future artistic productions. It is in the best interest of society as a whole to see to it that these students with gifts and talents perform to the best of their potential—and we have evidence that this is not happening now.

One of the strong motivating forces supporting special educational opportunities for students who have gifts has been negative reports about how U.S. students perform in comparison with students in other countries. Our best students, in an academic sense, do not compare favorably with the best students from other countries. We have come to assume that Americans hold first place in everything. However, a series of international comparisons indicates that this assumption is not true.

A wake-up call to American educators came with the publication of the results of the Third International Mathematics and Science Study (TIMSS, 1998). This study, which involved about fifteen thousand schools around the world in tests of their students' mastery of mathematics and science at fourth-, eighth-, and twelfth-grade levels, revealed disturbing results for American students.

At fourth grade, American students appeared to be performing above average among the fourteen countries that participated in the TIMSS study. That result changed, however, at the middle school level, with American students falling below average in both subjects. The twelfth-grade results were even more devastating, with the American students at or near the bottom among more than twenty countries with which they were compared. American middle school students are below average in math and science compared with students in other countries. See Table 9.2 for important results from the TIMSS study.

One of the myths about students who have gifts is that they have it easy. Their school assignments

TABLE 9.2
U.S. Performance Relative to the International Average at a Glance

Content Area	Fourth Grade	Eighth Grade	Final Year of Secondary School	Advanced Math & Science Students
Mathematics Overall	Above	Below	Below	—
Science Overall	Above	Above	Below	—
Advanced Mathematics	—	—	—	Below
Physics	—	—	—	Below

Sources: National Center for Education Statistics. (1998). *Pursuing Excellence: A Study of U.S. Twelfth-Grade Mathematics and Science Achievement in International Context.* Figure 1, Figure 5, Figure 9, Figure 16. Washington, D.C.: NCES.

are done effortlessly, they often do their homework in school while waiting for the other students, and they generally can float through school with few demands. Actually, the story is very different for those students who wish to develop their gifts and talents. An extended period of time spent developing their talents is necessary. Nobel Laureate Herbert Simon has commented that it takes ten or more years of extensive practice before one can expect to become an expert in a particular field.

Dorothy DeLay, who was a master teacher of violin at the Juilliard School, said that four to five hours' practice a day over some years is necessary if one wishes to be a world-class violinist. (Actually, consistent practice on a musical instrument is necessary even if your wish is not to punish the listening audience.) Students with gifts in math and science report working fifty-five to sixty hours a week and expect to do so for the rest of their lives (Lubinski & Benbow, 2006). No matter what your basic talents, long hours of practice and learning are necessary if it is to be translated into usable performance. That is why persistence is often mentioned as a key characteristic of gifted performers. Far from having an easy life, these performers will be working much longer hours than the average citizen for as long as they live.

Adapting the Learning Environment (Where to Teach)

Teachers can change the learning environment in many ways, but most of those ways are designed to bring children who have gifts together for instruction for a period of time. The aim is threefold:

- To provide students who have gifts with an opportunity to interact with one another and to learn with and be stimulated by their intellectual peers
- To reduce the spread of abilities and performance within the group on instructionally relevant dimensions (past achievement, for example) to make it easier for the teacher to provide instructionally relevant materials
- To place students who have gifts with an instructor who has expertise in working with such students or in a relevant content field

Because changes in the learning environment affect the entire school system, they have received more attention at the school district level than have changes in skills and content, which remain primarily classroom issues. Still, the three elements are closely related: Changes in the learning environment for students who have gifts are often necessary to meet the instructional goals of special skills and differential content mastery.

A number of strategies are being used to modify the placement of gifted students to meet their special needs. The strategies are of two main types.

Flexible Pacing

A variety of educational adjustments allow students to move more rapidly through the standard curriculum after they have shown mastery of the standard lessons. Accelerating a student to the next grade is one approach, or students may be allowed to "test out" of courses if they can show consistent mastery of the material. Students who manifest clearly advanced development can be considered for early entrance to the next level, whether it be kindergarten or college (Colangelo, Assouline, & Gross, 2004).

Grouping

This strategy brings students with gifts together for learning so that they can go at an advanced pace and be stimulated by others of like ability. This can be done through a special class, a part-time special class, or *cluster grouping*, which brings six to ten gifted students together (Tier II activities) to form a subgroup within the larger classroom.

The great current interest in the strategy of *inclusion* for children with disabilities has also influenced education for students who have gifts. Despite efforts at inclusion, many school systems rely on pull-out programs and resource rooms conducted by specially qualified teachers to modify the regular program in important ways to meet the educational needs of students with special gifts and talents (Tomlinson, 2008).

The **magnet school** is a recent addition to the options available to bright students and is a type of *performance grouping*. Magnet schools often specialize in subject matter such as mathematics or in an activity such as art, and they encourage interested and qualified students to attend. Students who have gifts are interested in magnet schools that allow them to study

at advanced levels and with other highly motivated students. Students are encouraged to volunteer for magnet school participation (Tier III activity).

Among other recent developments are the designs for *charter schools,* which are freed from some of the standard rules for public schools so that they can try innovative approaches to education. Students with gifts and talents can often find a more comfortable setting in these schools, with their emphasis on individual performance and accomplishments. Another type of educational setting for students with gifts is about as far away as one can get from general education inclusion: *residential schools.* Established in ten states, these schools bring together highly talented students for their last two or three years of secondary school. Instead of floating through their last two years of high school, as many students with gifts do, students in these residential schools are given a rigorous introduction to higher level thinking and study (Kolloff, 2003).

Student Acceleration (Flexible Pacing)

We can adapt the educational program by abandoning the traditional practice of moving from grade to grade and by varying the length of the educational program. Because more and more knowledge and skills must be acquired at the highest levels of the professions, students who have talents and gifts, and who are seeking advanced degrees or professional training in fields such as medicine, can find themselves still in school at age 30 and beyond. While skilled workers are earning a living and starting families, students with gifts are often dependent on others for a good part of their young adult lives. The process of **student acceleration**—passing students through the educational system as quickly as possible—is a clear educational objective for some children. Stanley (1989) described six ways of accelerating students:

- *Early school admission.* The intellectually and socially mature child is allowed to enter kindergarten at a younger-than-normal age.
- *Skipping grades.* The child can be accelerated by completely eliminating one semester or grade in school. The primary drawback here is the potential for temporary adjustment problems for the student.
- *Telescoping grades.* The child covers the standard material but in less time. For example, a three-year middle school program is taught over two years to an advanced group.

Discovery can be an exciting stimulus to learning.
(© Tony Freeman/Photo Edit)

- *Advanced placement*. The student takes courses for college credit while still in high school, shortening the college program.
- *Dual enrollment in high school and college*. The student is enrolled in college while finishing high school.
- *Early college admission*. An extraordinarily advanced student may enter college as young as 13 years of age.

From early admission to school to early admission to college, research studies invariably report that children who have been accelerated, as a group, have adjusted as well as or better than children of similar ability who have not been accelerated (Gallagher, 2002).

Despite these findings, some parents and teachers continue to have strong negative feelings about acceleration, and some educational administrators do not want to deal with these special cases. The major objection to the strategy is the fear that acceleration can displace individual children who have gifts from their social and emotional peers, affecting their subsequent social adjustment. The result of these misgivings is that many students who have gifts spend the greater part of their first three decades of life in the educational system, often locked in relatively unproductive roles, to the detriment of themselves and society.

As more longitudinal studies are completed, it becomes possible to learn what actually happened to students who were accelerated, instead of what people hoped or feared would happen. Lubinski, Webb, Morelock, and Benbow (2001) conducted a ten-year follow-up of 320 students with profound gifts who scored high enough on the Scholastic Aptitude Test to qualify as the top student among ten thousand. Of these 320 students, 95 percent had taken advantage of various forms of acceleration (grade skipping, taking college courses while in high school, taking exams for college credit, entering college early, and so forth).

The perceptions of these students regarding their acceleration were highly favorable. They saw the procedures as an advantage in their academic progress and in maintaining their interest in learning. They found little or no effect of such acceleration on their social lives or peer relationships. By their early 20s, twenty-three had already attained PhDs, nine had law degrees, and seven were doctors of medicine. Another 150 or so of this sample continued to work toward advanced degrees. These results are even more positive than those of similar studies and clearly suggest that the fears of educators and parents that such acceleration would harm the students socially are largely unfounded.

Ideas on Why Schools Hold Back America's Bright Students

- Schools' lack of familiarity with the research on acceleration
- A belief that children must be kept with their age peers
- A belief that acceleration "hurries" children out of childhood
- A concern that acceleration could hurt students socially
- Political concerns about "equality" for all
- The concern that other students will be offended

None of these concerns is supported by research. Instead, the report *A Nation Deceived* (Colangelo et al., 2004) finds highly favorable results for these acceleration approaches.

There is also little evidence to show that highly gifted students who are radically accelerated (more than two to three years) suffer unfavorable social or emotional effects, either (Gross & Van Vliet, 2003). These students do not burn out; they do not lose interest in their area of talent; and they do not suffer from large gaps in their academic or social knowledge. Rather, radical acceleration appears to offer extraordinary benefits for these children in both their intellectual development and their social and emotional health.

A comprehensive report on the impact of educational acceleration brings together the views of a variety of scholars and research data to examine the reasons that schools do not use acceleration more often as one tool in the education of students with gifts (Colangelo, Assouline, & Gross, 2004).

Adapting Curriculum (What to Teach)

Effective Education Programs

An important question to raise in the education of gifted students—and in all education—is: Are the practices we are using beneficial, or do they just represent established practice, which through repetition becomes the established way of doing things?

Effective education programs support the cognitive and affective needs of all students with gifts.

Although a number of practices, such as problem solving, problem finding, and use of microcomputers, can be used effectively with all students, acceleration and high-level curriculum seem to be especially relevant to students with gifts (Robinson, Shore, & Enerson, 2007).

How does one differentiate the curriculum for students with gifts and talents? Do we expect teachers to compose their own curricula? It is enough that they employ the special curriculum with grace and style, as a concert pianist would play music that he or she has not composed. We should not expect individual teachers to design differentiated curricula, but they are capable of implementing quality curricula that are given to them.

Perhaps the educator who has come closest to providing us with a useful approach to differentiating curriculum is Joyce Van Tassel-Baska (2003). Her integrated curriculum model is composed of three interrelated dimensions that are responsive to the learner with gifts:

1. Emphasizing advanced content knowledge that frames disciplines of study
2. Providing higher order thinking and processing
3. Focusing learning experiences on major issues, themes, and ideas that define both real-world applications and theoretical modeling within and across areas of study (Van Tassel-Baska, 2003)

Curriculum Compacting

One strategy to help gifted students avoid the chronic boredom of having to "learn" things they already know is **curriculum compacting.** The basic principle of compacting is that if students already know something and have the basic skills to apply the knowledge, they should be allowed to move on to other areas of learning (Reis, 2008). The critical point of compacting is that students are allowed to show their knowledge when *they* are ready; they do not have to wait until the whole class is prepared for the assessment (Renzulli, and Reis, 1997).

Showing their knowledge can involve a major test and a portfolio of work samples. The level of documentation needed to allow a student to move on depends on the amount of content being compacted. As a rule, the greater the amount of content being compacted, the more extensive the documentation needed. The most appropriate curriculum areas for compacting are those that focus on mastery of basic knowledge and skills. These might include vocabulary, basic application skills (such as grammar, arithmetic, and spelling), factual knowledge in a given subject, and basic comprehension in reading. These areas can be readily assessed to document student mastery. Once students have shown mastery of the basics, they can be released from further direct instruction, guided practice (class work), and independent practice (homework) on this set of knowledge and skills. Essentially, curriculum compacting allows students to "buy time" for other, more appropriate learning experiences. How can this time be used?

Content Sophistication

Content sophistication challenges students who have gifts to use higher levels of thinking to understand ideas that average students of the same age would find difficult or impossible to comprehend. The objective is to encourage children who have gifts to understand important abstractions, scientific laws, or general principles that can be applied in many circumstances. One example of content sophistication would be to introduce the abstract concept of *change* (see Table 9.3). The focus of the study is not on changes in culture, nor on changes due to the discovery of DNA, nor on change due to graduation from the football team, but on the process of change itself. The notion that there are properties of change that remain constant regardless of the particular focus of change is a substantial insight for a student with gifts, and the idea that change is pervasive, affecting all aspects of our lives, is also a sophisticated insight. An instructional unit on change could generate a variety of independent study projects, each with a different content focus, from literature to popular music to the aging process.

TABLE 9.3
Generalizations About Change and Outcomes

Generalizations	Outcomes
Change is pervasive.	Understand that change permeates our lives and our universe.
Change is linked to time.	Illustrate the variability of change on the basis of time.
Change may be perceived as systematic or random.	Categorize types of change, given several examples. Demonstrate the change process at work in a piece of literature.
Change may represent growth and development or regression and decay.	Interpret change in selected works as progressive or regressive.
Change may occur according to natural order or be imposed by individuals or groups.	Analyze social and individual change in a given piece of literature.

Source: From J. Van Tassel-Baska, *Guide to teaching language arts curriculum for high-ability learners* (Williamsburg, VA: College of William and Mary, Center for Gifted Education, 1999). Reprinted with permission.

Adapting Teaching Strategies (What Skills to Teach)

One of our goals in educating students with gifts—and all students—is to capitalize on skills they already have—that is, the ability to generate new information from existing information. If I tell you that "Mary is taller than Joyce and Joyce is taller than Betty," you most likely will generate the conclusion that "Mary is taller than Betty." You have generated new information from old knowledge.

The ability to generate new information from old is extremely valuable. The cognitive processes for doing so can be simple exercises such as the preceding example of girls, or they can lead to a new solution for global warming, the discovery of genes linked to cancer, or an improved transportation system. All students need to increase their ability to generate new information from old, but particularly so for students with gifts, who have the capability to deal with problems of greater complexity than do their agemates (Lium & Shore, 2008).

Few students, no matter how bright, will be likely to discover, on their own, calculus, the scientific method, or the creation of depth perspective in art. These must be taught, and we expect students to produce findings and results that will demonstrate that they have learned the skills required for the generation of new knowledge or information.

Students need to be taught how to cultivate higher-level thinking skills such as creativity, problem solving, and problem finding.

Problem-Based Learning

There are specific strategies to help students learn search techniques so that they themselves can gather information that will allow them to solve a problem. The essence of *problem-based learning* (PBL) is as follows:

1. *The students are presented with an ill-structured problem.* For example, a student has suddenly become ill with a number of odd symptoms. The cause of this condition is not evident.
2. *The students are made stakeholders in the problem.* They are to play the role of medical detectives tracking down the diagnosis for the condition and must use a variety of search techniques, such as surfing the Internet, to arrive at an answer.
3. *The instructor plays the role of metacognitive coach, not information giver.* The teacher may point out possible sources of information or ways of accessing various sources, perhaps even suggesting that students interview community medical personnel, but will not provide the answer.

Using a combination of small-group and individual work, the students try to arrive at the answer. (In the

Students use brainstorming to extend their intellectual fluency by discussing a particular problem and suggesting as many answers as possible for the problem. During brainstorming, criticism and evaluation are delayed until all ideas have been presented.
(© Susie Fitzhugh)

Structured teacher observations have proved useful in recognizing gifted students from culturally and linguistically diverse and/or economically disadvantaged families.

preceding problem, they finally decided that the cause was the West Nile virus. They recommended control of mosquitoes but not closing the school, as the disorder is not contagious.)

Teachers receive special training for the role of coach in the PBL model. These PBL methods have been used to teach economics, social studies, language arts, science, and even medical school subjects. The observations from diverse PBL programs are remarkably similar: The students are energized by the nature of the problems presented, play an active and enthusiastic role in seeking new knowledge to solve each problem, and report excitement and increased interest as a byproduct of the PBL approach (Barrows, 1988; Doig & Werner, 2000; Gallagher & Stepien, 1996; Maxwell, Bellisimo, & Mergandoller, 2001).

One example of the use of the response to intervention (RTI) approach in education for gifted students is a problem-based-learning unit on the Black Death (Gallagher & Bray, 2002). The process begins with the entire class of low-income sixth-grade students taking the roles of council members in a medieval Italian town who have heard that a terrible plague is coming.

Their task is to determine how to protect their fellow citizens and what actions they need to take as a council. The students study in small groups, explore the Internet, and have discussions and sometimes debates about what should be done. From this Tier I whole-class exercise, a number of high-performing students were identified and placed in a

HM VIDEO CASE

Constructivist Teaching in Action: A High School Classroom Debate

Watch this Video Case at the student website. Why did the teacher choose this activity to help her students learn about political history? In addition to the content knowledge, what other skills do the students gain from this type of activity? Why would this kind of lesson be ideal for students with gifts and talents?

special group that met three times a week (Tier II). They were given special lessons in self-assessment, discussed career goals, and were encouraged to believe in themselves and their special abilities (Gallagher, Cook, & Shofner, 2003).

Some of these students were then given individual tests and interviews to determine whether they qualified for the school program for students with gifts (Tier III). Using a version of the RTI model, the instructional staff was able to provide exciting adventures for all of the students (Tier I), to offer specialized work for a smaller group of high-performing students (Tier II), and finally to include some of those students in the regular program for students with gifts and talents (Tier III).

In educating children with disabilities, we find many students who need help but do not qualify for special education services. They fall into Tier II of the RTI model, in which some curriculum differentiation seems called for based on the needs of individual children. Similarly, we have students who do not qualify as having gifts but who still need special instruction because of their enhanced talents and abilities. This is particularly true of students who come from culturally different backgrounds and who in some instances need extra stimulation to develop their talents. So students with gifts and talents, as well as with other exceptionalities, may receive services under Tier II. This may be particularly true for minority students who have special talents but have not had as many opportunities to learn as more mainstream students have had.

Cultural Differences

Once students with gifts and talents from a variety of cultures are identified, by whatever method, we must develop an educational plan for their special needs and circumstances. One objective is to encourage a child's understanding of and respect for his or her own cultural background. Biographies and the works of noted writers or leaders from the particular cultural group are often the basis of special programs. Because there are so many groups with such diverse backgrounds, these programs are usually unique (Baldwin, 1987; Bernal, 1979).

Ford and Harris (1999) are concerned about retaining black children in programs for students with gifts. Placing a child in a program does not guarantee that he or she will be happy to be there or will want to stay. This fact underscores a general rule about exceptional children: Merely placing the exceptional child in a different setting is not sufficient for his or her success; special steps need to be taken to ensure that the child's adaptation is appropriate.

Ford (2002) mentions irrelevant curriculum; social, racial, and cultural backgrounds that are incompatible with those of the majority of the students; and even a lack of support from those parents who find themselves torn between the culture of the school and the culture of the home, as reasons for dropping out of a special program.

Time

The failure to recognize *time* as the enemy of teachers and teaching is at the heart of many teachers' disputes. The question is often posed, "Cannot the average student learn what is being taught to students who have gifts?" The answer is "yes," if you disregard the time factor. For example, middle school students with gifts can be taught about the solar system and the various theories about its origin in an enrichment lesson because they have already mastered the required curriculum in less than the time allotted. Could average students also master these theories? Of course, *if* they are given enough time. But they have not yet mastered the required lessons of the regular curriculum, and they also have greater difficulty with the concepts of distance, of orbits, and of centrifugal force—difficulty that will extend further the time they need to master the theories.

Time is a fixed constant. Between 180 and 200 days are available in a school year, so the period in which students can master needed knowledge and skills is not unlimited. Youngsters who learn faster than others will be able to master more knowledge and practice more of the necessary skills than will other students in the same amount of time. Such differences are a fact of life that we, as educators, must adjust to, instead of pretending that they do not exist.

Adapting Technology

The rapid development of educational technology has made mountains of knowledge easily accessible to every student who has access to a computer. This development is a boon for students with gifts and talents. An entire encyclopedia is available on a single

small disk—it's like having a library inside the home. The challenge for the teacher is to ensure that students learn the best ways to use the computer as a learning tool.

If teachers know how to access major references or sources of information, they can open the door to more knowledge for their students, who can then explore for themselves. (Students with gifts can—and often do—surpass their teachers in understanding selective fields.) Of course, teachers have access to these new sources of information as well and, by using the same technology, can become continuous learners themselves. (See the teacher website for an expanded list of assistive technology equipment.)

One of the advantages of increasingly accessible technology is that more challenging assignments can be legitimately given to students with gifts. For example, some California schools have a senior high school project (the Quest senior project) that lasts the entire senior year, is designed by the student, and makes extensive use of outside resources to develop a credible project (Mrazik & Lind, 2003). Such projects, rather than routine statewide tests, can provide legitimate accountability for students with gifts and talents.

One of the limitations that face some students with gifts and talents in small high schools or rural areas is the lack of sophisticated coursework to challenge them. The availability of computers and the Internet has helped this situation. One example is the online high school at Stanford University (the Education Program for Gifted Youth [EPGY], 2006). This program is a diploma-granting three-year online independent high school that offers such challenging core courses as "History of Science and Culture" and "Democracy, Freedom, and Rule of Law." All of the courses emphasize writing, discussion, and argumentation. The admission standards are high, stressing superior past performance and student and parent interviews. The cost is impressive at $12,000 per academic year, but some financial aid is available.

Education Program for Gifted Youth
http://epgy.stanford.edu/ohs

Distance-learning classes are increasingly becoming available at many sites and should be a great benefit for students with gifts who have exhausted the available coursework in their local schools. Another form of distance learning—interactive television—can bring complex ideas to remote areas. The North Carolina School of Science and Mathematics, a special statewide school for highly talented students, constructed a precalculus course and now shares it with all areas of the state (Wilson, Little, Coleman, & Gallagher, 1997).

The role of the local teacher will be changed by technology from one of *direct instruction* to that of *instructional coach* of individual students. Teachers also need to help students evaluate information they obtain from such sources as the Internet. The largely unscreened communications on the Internet allow many outrageously incorrect statements to be widely broadcast. A new challenge is teaching students the difference between legitimate information and spurious information.

Teachers can help gifted students explore new areas of knowledge by teaching them to distinguish between legitimate information on the Internet and less credible information.

Teacher Standards

At this point you may be wondering where teachers can acquire the special teaching skills we have been discussing. One of the finest examples of professional collaboration lies in the development of professional standards for teachers of students who have gifts and talents. Such standards provide the base for university training programs and represent a new era in consensus on what teachers must understand and the competencies they must demonstrate to be certified to teach students with gifts and talents.

A working group composed of representatives of the Association for the Gifted (TAG) and the National Association for the Gifted (NAGC), with the collaboration of the National Council for Accreditation for Teacher Education (NCATE), has developed a set of teacher standards for students with gifts and talents. The new standards emphasize differentiating programming and an emphasis on student diversity. The entire list of standards may be obtained from the textbook's website. Teachers interested in instructing students with gifts and talents might study these standards to see what would be expected of them.

Family and Lifespan Issues

Homeschooling

One of the educational phenomena of recent years has been a movement toward **homeschooling,** involving more than one million children who have been receiving their educations at home (Kunzman, 2008). Although homeschooling originated with parents anxious to maintain a religious element in their children's education, it has also become a vehicle for many parents of students with gifts and talents. Many of these parents have despaired of the public schools' ability to meet the needs of their exceptional children. Estimates are that between 1.1 and 2.0 million students may be being homeschooled (National Center for Education Statistics, 2004).

Such education has now become feasible through the Internet. No longer is the school the gatekeeper or exclusive dispenser of knowledge. The access that the Internet provides opens wide the door to knowledge of all sorts. The student can focus on a particular project without having to stop at intervals to change classes, and children being homeschooled do not have to limit themselves to grade-level books or curricula. The concern that such homeschooled children would be deprived of social opportunities has been proven largely untrue, for parents make plans for their children to join clubs, recreational sports, and other activities (Kearney, 1998).

There have been few serious efforts to evaluate the overall impact of homeschooling on students, but there have been favorable reports from parents seeking an educational alternative for a child with gifts. It has also caught the attention of educational administrators, who are aware of losing some of their better students to this alternative and who therefore seek ways to entice these children back into public school programs.

Prolonged Schooling and Financial Considerations

The economic and vocational prospects for most individuals with gifts and talents are bright. The vocational opportunities awaiting them are diverse, including the fields of medicine, law, business, politics, and science. Only in the arts, in which a limited number of opportunities exist to earn a comfortable income, do people who are gifted encounter major social and economic barriers to their ambitions.

It is virtually certain that when most students who are gifted finish secondary school, they will go on to more schooling. They often face from eight to ten *more* years of training before they can expect to begin earning a living. This is especially true if they choose careers in medicine, law, or the sciences. The delay in becoming an independent wage earner creates personal and social problems that researchers are just beginning to study. Prolonged schooling means that individuals who have talents and gifts must receive continued financial support. The most common forms of financial support are assistance from family and subsidies from private or public sources. If financial aid takes the form of bank or government loans, then a man or woman who has special gifts may begin his or her career with a substantial debt. This period of extended schooling also tends to cause individuals with gifts to postpone marriage and raising a family.

The psychological problems that result from remaining dependent on others for financial support until the age of thirty or beyond remain unexplored. We need to consider these issues before we burden students who have gifts with more schooling requirements intended to meet the demands of this rapidly changing world.

Longitudinal Studies of Students Who Have Gifts and Talents

One of the most often asked questions about gifted students is, What actually happens to them as adults? Do they continue to do well, or do they slump and become average or even underachievers? One way to answer that question is to use longitudinal studies that follow children into adulthood. We now have a number of longitudinal studies that can address that question.

After his revision and the publication of the Binet-Simon Tests of Intelligence in 1916, Lewis Terman, a professor of psychology at Stanford University, turned his attention to children with gifts and talents. In 1920, he began a study of 1,528 such children, which was to continue for more than sixty years.

Terman used teacher nominations and group intelligence tests to screen California students. He based the final selection of children on their performance on the Stanford-Binet Intelligence Scale. The characteristics of this group of high-IQ students were, on average, favorable in practically every developmental and socioemotional dimension. The group did well not only in school and career but also in areas such as mental health, marriage, and character.

The final volume in the Terman series captures this population in their 60s and 70s (Holahan & Sears, 1995). The group continued to be superior in health, psychological well-being, and survival rates. The overall portrait was one of a privileged group of children who contributed substantially to their society as adults.

However, we have come to realize that Terman did not balance his sample of individuals with gifts. Through his identification process of young children using IQ tests as the tool for selecting students for his sample, he eliminated many potentially bright youngsters of low economic or immigrant status from the sample. For example, he failed to find two future Nobel Prize winners who were in school at the time of his study. As a consequence, what we are looking at in these lifespan results is largely what happens to gifted students from already well-established professional or managerial families. We don't know what happens to low-income or culturally different children who are gifted.

The Speyer School, a special elementary school in New York, was established through the work of Leta Hollingworth (1942), a pioneer in the education of children with special gifts. White and Renzulli (1987) conducted a forty-year follow-up of graduates of the school. Like the subjects in the Terman study, the majority of the men had entered professions, whereas the women tended to combine career and family. Their memories of the school were vivid. And "they all believed that their experience at Speyer School was instrumental in providing them with peer interaction for the first time, exposing them to competition, causing them to learn and like school for the first time, giving them a strong desire to excel" (1987, p. 90).

Although no one in the group had made an earth-shaking discovery or contribution, most seemed to be contributing substantially to the quality of society in what they were doing. Remember that individuals can be extraordinarily successful and make major contributions in their own field, such as business, science,

the arts, or religion, and still be virtually unknown to the general public. (Can you name three of the country's outstanding biochemists? Can you name one?)

One of the recurring questions regarding longitudinal studies such as the one that Terman and his associates did is, Are the results due to the students or to the culture and times (the context) in which the study took place? A more recent study provides some information on this issue (Subotnik, Kassan, Summers, & Wasser, 1993). In the 1940s, a special elementary school was established at Hunter College in New York City. The school was highly selective in the students it enrolled. In educational attainment, the results were similar to those reported by the Terman group. Over 80 percent held master's degrees, and 68 percent of the men and 40 percent of the women held doctorates in medicine, law, or some other area. They were in good health, mentally and physically, and were earning incomes as impressive as their educational attainments would suggest.

One major difference between the Terman and the Hunter Elementary samples was in the careers of the women. The vast majority of the women in the Hunter Elementary sample were employed and were satisfied with their careers. Fewer than 10 percent were homemakers exclusively. The interviews made it clear that the women's movement (context again!) had a decided effect on their becoming more oriented to work outside the home.

Subotnik and the other authors of the study (1993) were somewhat disappointed by the lack of drive for success or for extraordinary achievement that they found in the Hunter Elementary group. Most members of the group seemed content to do their professional jobs and enjoy their social lives and the opportunities their vocational success provided. The well-rounded students had become well-rounded, complacent adults. One of them remarked,

> This is a terrible thing to say, but I think I'm where I want to be—terrible because I've always thought that there should have been more challenges. I'm very admired and respected where I work. . . . I don't want to be a senior vice president. . . . I want to have time to spend with my family, to garden, to play tennis, and see my friends. I'm very happy with my life. (p. 78)

On average, children who are identified as having gifts grow up to become well-adjusted adults, successful in their chosen careers.

There is little difference in emotional adjustment when comparing groups of students with gifts with students of average ability. On the other hand, the vast majority of these students became productive and useful citizens, and we might well ask whether we should expect more of them than that.

moral dilemma

Who Shall Decide?

Keith Jenkins was always known as a very superior student, even in elementary school. In his early teens he took the SATs and earned perfect scores with 800s in both math and language. His college counselor noted his outstanding record and also that he had chosen a music curriculum for his career effort. The counselor asked to have a chat with Keith and pointed out to him the great need that this society has for creative scientists in order to prosper or even survive in the twenty-first century. He asked

Keith if he didn't want to reconsider. Keith said that the violin had fascinated him from his early years and that he wanted to continue down that road.

Whose wishes should prevail? Keith's personal interests or the interests of the larger society? Should society add enticing scholarships and salaries to convince Keith to make another choice? What is the right thing to do?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- Children who have gifts may show outstanding abilities in a variety of areas, including intellect, academic aptitude, creative thinking, leadership, and the visual and performing arts. They also can show talent in superior self-knowledge and interpersonal relationships.
- Intellectual giftedness appears to be created by a strong combination of heredity and environment, with a close and continuing interaction.
- Longitudinal studies indicate that most children who are identified as having gifts are healthy and well adjusted and achieve well into adulthood. There are some exceptions, called *underachievers*.
- International comparisons of U.S. students with students from other countries in mathematics and science revealed that even top-level U.S. students lag behind top-level students of other countries.
- Ability grouping, combined with a differentiated program, has been demonstrated to be an effective strategy that results in improved performance by students who have gifts and talents.
- Cognitive strategies—problem finding, problem solving, and creativity—are the focus of many special programs for students who have gifts.
- Creativity depends on the individual's capacity for divergent thinking, a willingness to be different, strong motivation, and a favorable context.
- Acceleration, the more rapid movement of gifted students through their long educational span, appears to have positive results for them.
- Society's traditional expectations of gender roles may provide special obstacles for girls with gifts, limiting their willingness to explore the full range of their talents.
- Some students with gifts may be labeled as underachievers due to personal characteristics (such as feelings of inferiority, low self-confidence, expectations of failure), whereas others may underachieve because of their resistance to traditional educational programs and practices.
- Many students possess giftedness that is "hidden" by differing cultural perspectives, linguistic backgrounds, and life experiences. A variety of tests, observations, and performance indicators seem necessary to discover these students.

- Children with physical and sensory disabilities can have intellectual gifts, but often their abilities are undiscovered because less has been expected of them.
- The abilities of all students with gifts and talents can be enhanced by comprehensive and rigorous programming to meet their special needs.

Future Challenges

1. ***Will gifted students receive an appropriate education?***

   The conflicting education priorities between equity and excellence seem to be tilted in favor of equity. It will take deliberate planning and commitment to national excellence to provide our gifted students with a challenging education.

2. ***Are there programs for young children who are gifted?***

   The early years are increasingly seen as fundamental to a developing intellect. Prekindergarten programs are blossoming across the country and will need to provide for gifted prekindergarten students who already can read and do basic arithmetic. This is an early challenge for educators to develop a differentiated curriculum.

3. ***How can we ensure that gifted and talented students from culturally and linguistically diverse and/or economically disadvantaged families are recognized and served appropriately?***

   We continue to face the challenge of underrepresentation of some groups of children in our programs for students with gifts and talents. Given the rapidly changing demographics across the country, this disproportionate representation will likely increase unless we take proactive steps to address it. We need to look to models that help teachers recognize and nurture potential, using structured observations of students engaged in meaningful and dynamic work.

4. ***What are best practices for identifying students with gifts and talents?***

   What can we do to (1) ensure that students who need services provided through education programs for students with gifts are not overlooked and (2) make sure that we do not identify as having gifts students who do not need those services? We need to use multiple types of information and multiple sources of input in the identification process; we need to match the information directly with the kinds of services that will be provided.

Key Terms

content sophistication p. 311
creativity p. 293
curriculum compacting p. 311
gifted underachievers p. 302
homeschooling p. 316
magnet school p. 308
multiple intelligences p. 289
problem-based learning (PBL) p. 305
prodigy p. 295
student acceleration p. 309

Resources

References of Special Interest

Colangelo, N., Assouline, S., & Gross, M. (Eds.). (2004). *A nation deceived: How schools hold back America's brightest students. The Templeton national report on acceleration.* Iowa City, IA: Bolen & Blank International Center for Gifted Education. This report is a comprehensive compilation of the effects of educational acceleration on gifted students. Eleven specialists have written chapters reviewing research and practice.

Colangelo, N., & Davis, G. (Eds.). (2003). *Handbook of gifted education* (3rd ed.). Boston: Allyn & Bacon. Over forty well-known authors in the field of gifted education have contributed chapters to this volume, which includes sections on instructional models, creativity and thinking skills, and psychological and counseling services.

Karnes, F., & Bean, S. (2005). *Methods and materials for teaching the gifted* (2nd ed.). Waco, TX: Prufrock Press. This volume is devoted to updated strategies and resources for differentiating the instruction of learners who have gifts and talents. The twenty-two chapters are organized in four sections: characteristics and needs of learners with gifts, instructional planning and evaluation, strategies for best practices, and supporting and enhancing gifted programs. The emphasis is on teaching strategies rather than the changes in content fields themselves.

Neihart, M., Reis, S., Robinson, N., & Moon, S. (Eds.). (2002). *The social and emotional development of gifted children.* Waco, TX: Prufrock Press. A comprehensive review in twenty-four chapters of what we know about the special social and emotional problems of students with gifts. The book covers topics such as perfectionism, depression, delinquency, and so on. It includes a section on promising practices and interventions and recommendations for future action.

Robinson, A., Shore, B., & Enerson, D. (2007). *Best practices in gifted education.* Waco, TX: Prufrock Press. This is an effort to bring together the evidence to support the various educational and personal attempts to improve the development of children who have gifts and talents. A relatively small number of educational changes (twenty-nine) have been identified by the authors as significant, and these have been subdivided into suggestions for the home (developing specific talents), the classroom (inquiry-based learning and teaching), and school (acceleration). The reason for the limited set of practices is no doubt the lack of available funds for the research that would be necessary to meet the evidence-based criteria.

Van Tassel-Baska, J., & Stamburgh, T. (2007). *Overlooked gems: A national perspective on low-income promising learners.* Washington, DC: National Association for Gifted Children. A collection of sixteen essays by the ranking authorities on students with gifts from low-income environments, addressing issues from how to discover them to how to enrich their educations.

Journals

Educational Leadership
www.ascd.org

Gifted Child Quarterly
www.nagc.org

Journal for the Education of the Gifted
www.prufrock.com

Journal for Secondary Gifted Education (now *Journal of Advanced Academics*)
www.prufrock.com

Parenting for High Potential
www.nagc.org

Roeper Review
www.roeperreview.org

Professional Organizations

National Association for Gifted Children
www.nagc.org

The Association for the Gifted (TAG)
www.pacec-sped.org/Divisions/TAG.htm

Visit our student website for updated information on the websites and journals listed above, additional Video Cases, information about CEC standards, study tools, and much more.

PART THREE

Low-Incidence Exceptionalities

The three chapters in Part 3 describe the educational needs of exceptional children who constitute less than 0.5 percent of the students in our schools. Special planning and individualized programming are important to support children who are deaf or hard of hearing, children with visual impairments, and children with physical or multiple and severe disabilities. In Chapters 10 through 12, we highlight how these exceptionalities affect students and discuss the supports and services needed to help students with these exceptionalities meet with school success.

CHAPTER

10

Children Who Are Deaf or Hard of Hearing

FOCUS QUESTIONS

- How did the field of deaf education evolve, and what is the history of the debate between oral and manual communication?
- How are the terms *deaf* and *hard of hearing* defined?
- Why must we consider the degree, type, and age of onset of a hearing loss?
- What is the prevalence of individuals who are deaf or hard of hearing?
- What are some genetic and environmental causes of hearing loss?
- How do hearing losses affect a child's cognitive, academic, and language development, and what can be done to maximize a child's communication potential?
- What is the Deaf culture, and how can being a member help a student who is deaf or hard of hearing?
- How have new technologies changed the impact of a hearing loss? What is the effectiveness of cochlear implants?
- Why are family involvement and early intervention so critical for children who are deaf or hard of hearing?

Connecting with the world around us through our senses is important. We learn through what we see, touch, smell, taste, and hear, and when one of our senses is limited, our access to information can be reduced. According to the information-processing model (IPM) (see Chapter 4), *taking information in* is the first component of learning. We take information in through our senses. Building and maintaining strong connections with the world can be challenging when sensory input is reduced, and living without sensory input can feel isolating. Think of all the information you take in with your ears and all that you would miss if you could not hear. Listen for a moment to all of the sounds in your environment and think about all that you learn from them. The cars going by outside, the siren, the music from your neighbor's room, the rain falling on the window all provide information that helps you understand and connect with your world. Hearing individuals are surrounded by a sea of sounds and often take the information gathered through listening to these sounds for granted. For individuals who are deaf or hard of hearing, the world of sound is limited, and information that most people gain through sound must be gained in other ways. Now think about how the loss of sound would affect your ability to form relationships with others.

Chapter 7 detailed how important our ability to communicate is to our feelings of belonging. Belonging to a cultural group in which you are accepted and understood is critical, and for many individuals who are deaf or hard of hearing, this acceptance is received within the Deaf community (the capitalized term *Deaf* is discussed later in the chapter). In this chapter we further explore the role of communication in learning and in social relationships, and we look at a variety of ways that communication can be enhanced for individuals with hearing losses—both within the Deaf community and within hearing society. We discuss the history of education for individuals who are deaf or hard of hearing, review definitions of what it means to have a hearing loss, and consider the supports and services that individuals and families need to help them thrive.

History of Education for Individuals Who Are Deaf or Hard of Hearing

Over the past three decades, we have seen a growing acceptance within the hearing society of individuals who are deaf or hard of hearing. This growing acceptance has come about in part because several individuals who are deaf or hard of hearing have come into prominence in their fields. Phyllis Frelich, an actress who is deaf, won a Tony award for her performance in the Broadway play *Children of a Lesser God*. Marlee Matlin, also deaf, received an Oscar for her performance in the motion picture based on the same play, and she starred in the television dramatic series *Reasonable Doubts* as a deaf lawyer. Miss America of 1995, Heather Whitestone McCallum, is deaf. Following in the athletic footsteps of Luther Taylor, who played baseball from 1900 to 1908, Kenny Walker played professional football in the 1990s and now coaches for the Iowa School for the Deaf. During the 2000 Olympics, Terrence Parkin, a swimmer who is deaf, won a silver medal. Today there are doctors, lawyers, directors of government agencies, and professionals in every walk of life who are deaf. The president of Gallaudet

Heather Whitestone became the first deaf Miss America in 1995.
(© Alen MacWeeney/CORBIS)

University, Robert R. Davila, is deaf. There are many students who are deaf or hard of hearing in regular schools and more adults who are deaf or hard of hearing in the workplace. But general acceptance by the hearing society of individuals who are deaf or hard of hearing has not always been the case.

The acceptance of individuals who are deaf or hard of hearing has been greatly assisted by government mandates, regulations, and continued advocacy for the rights of all people. Commissions established by Congress in 1986 and 1988 led to the establishment of the National Information Center on Deafness and the Helen Keller National Center for Technical Assistance. Rules and regulations in 1990 that required statewide telephone relaying systems helped ensure phone access for individuals with hearing impairments, and stipulations in 1993 that all television sets with screens 13 inches or larger sold in the United States must be equipped to receive captioned broadcasts have expanded media access. The Individuals with Disabilities Education Act (IDEA; PL 101-476), the Americans with Disabilities Act (PL 101-336), the Rehabilitation Act (PL 102-569), and other laws and regulations have increased public awareness of the talents and educational needs of persons who are deaf and hard of hearing. Some states, such as Colorado, have passed a Deaf Child's Bill of Rights to help ensure that children get the education that they need. The key points of this important law are included in the accompanying box.

Synopsis of the Colorado Deaf Child's Bill of Rights (1996)

- Recognizes the unique needs of children with low-incidence disabilities. Identifies the specific educational needs of children who are deaf or hard of hearing.
- Requires the committee that prepares an individual educational program for a child who is deaf or hard of hearing to consider the child's specific communication needs, including the child's mode of communication; the availability of peers, adult models, and staff with whom the child can communicate; and the availability of appropriate educational services.
- Specifies reasons for which a child may not be denied education in a particular communication mode or language.
- Allows a child to receive education in multiple communication modes or languages.
- Requires that a child receive education in the communication mode or language that is deemed beneficial for the child.
- Clarifies that the committee does not have to ensure the availability of a specific number of peers, that the provisions of the act do not abrogate a parent's statutory rights to educational choice, and that no school district is required to expend additional resources or hire additional personnel to implement these requirements.

You may wish to review Chapter 2 as you think about how our laws work to protect individuals with special needs. Through legislation, court actions, and growing societal awareness the world is becoming more accessible to individuals who are deaf or hard of hearing.

In spite of these gains, we still face challenges. Our speech-language-oriented society has not yet accepted **American Sign Language (ASL)** as a true language, and a lack of understanding can still cause barriers in the acceptance of individuals with differences. Because we are a speech-dominated society, some educators of persons who are deaf or hard of hearing strongly advocate the use of oral-speech language. Others advocate sign language or some combination of both. The dispute over how to teach communication skills to a child with hearing losses is not new; it began in Europe, with Samuel Heinicke in Germany stressing oralism (speech) and Abbé de l'Eprée in France stressing manualism (gestures). An early conference held in Milan in 1880 stressed oralism and claimed that sign language impeded language development (Paul & Quigley, 1994). The debate was intense, with firm believers on both sides.

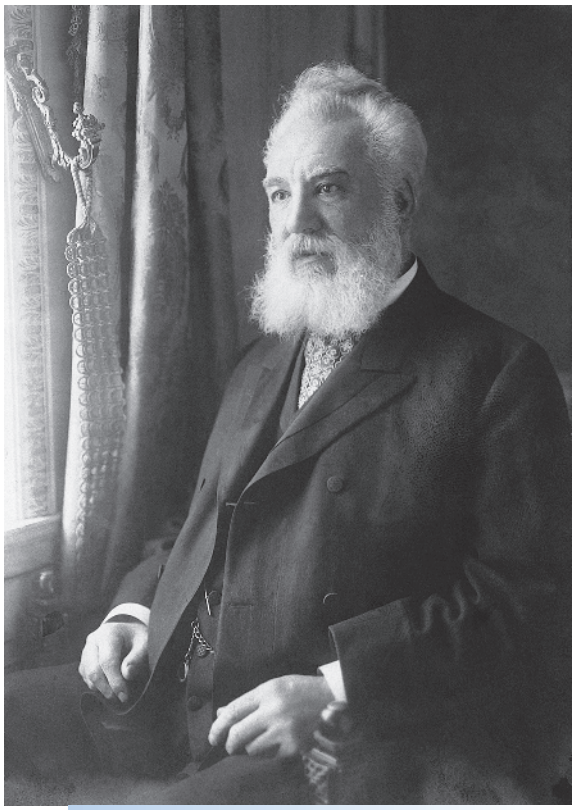
National Deaf Education Center
www.clerccenter.gallaudet.edu/infotogo

In the United States, the sign language approach was spearheaded by Thomas Hopkins Gallaudet, who, with Laurent Clerc, founded the first school for the deaf in Hartford, Connecticut, in 1817. Gallaudet College was founded in Washington, D.C., in 1884, and its patron, Abraham Lincoln, signed the school's charter. During the next one hundred

HM VIDEO CASE

Foundations of Education: Aligning Instruction with Federal Legislation

Watch this Video Case at the student website. In this video, teachers discuss their legal and ethical responsibilities. What specific issues do teachers face when they have a student who is deaf or hard of hearing in their class? How can teachers ensure the safety and well-being of their students with exceptional needs?



While best known as the inventor of the telephone, Alexander Graham Bell was also an advocate of the oral approach.
(© Bettmann/CORBIS)

years, from 1817 to 1917, schools for the deaf were founded in most of the states. The oral approach to instruction was advocated by Alexander Graham Bell, inventor of the telephone, audiometer, and (as you may remember from Chapter 7) the founder of the School of Vocal Physiology in 1872. Interestingly, both Gallaudet and Bell had mothers with severe hearing losses, and each man was firmly convinced of the correctness of his approach.

Not until the 1970s did Bob Holcomb (Gannon, 1981), a college graduate with a severe hearing loss, advocate the use of both systems and coin the term **total communication method** to describe this approach. In total communication, some type of manual communication is used simultaneously with speech. Because our hearing culture seems to prefer that people learn to speak, educators of students who have hearing losses may stress oral language within the total communication approach (Lynas, 2000). The most important thing, however, is to teach the child a communication system that the child can master, regardless of whether it is manual, oral, or a combination of both. The combination of manual and oral systems in a total communication approach is now being more widely recommended for those with hearing losses, regardless of whether the loss is moderate or severe (Moores, 2000).

As use of the total communication method increases, the recognition of American Sign Language as a true language will become very important. Through this recognition, individuals whose primary language is ASL can receive protection and support services covered under the Bilingual Education Act as English-as-a-second-language users.

Recent technological and medical advances with hearing aids and cochlear implants have greatly increased our ability to capitalize on an individual's residual hearing and through this to expand his or her ability to communicate. The impact of a hearing loss can vary widely depending on the degree of loss, the type of loss, and the age of onset at which the loss occurs.

It is critical to teach each child a communication system that he or she can master, regardless of whether it is manual, oral, or a combination of both.

Recent technological and medical advances now allow individuals to fully use their residual hearing to expand their ability to communicate.

Characteristics of Children Who Are Deaf or Hard of Hearing

The individual patterns of children with a hearing loss can vary widely. This chapter presents the cases of three children Kiesha, Carlos, and Raymond, each of whom has a hearing loss that will affect his or her learning and possibly also his or her social skills. Kiesha is hard of hearing. Carlos has a postlingual hearing loss, and his situation is complicated by the fact that his first language is Spanish. Raymond has prelingual deafness and moderate intellectual delays. The intraindividual differences among these children show the heterogeneous nature of children who have hearing losses.

PROFILES OF THREE STUDENTS

Characteristics of Three Students with Hearing Losses

Kiesha: Kiesha has a moderate hearing loss of 45 decibels. This means that without her hearing aids she will miss most normal conversations. (See Table 10.1 on page 328 for a reference on levels of hearing loss.) Kiesha is of average height, slightly below average weight, and has average motor coordination. She also shows average cognitive abilities and social maturity for her age. Her language development is slightly delayed, and she has some difficulty with articulation, so she receives speech therapy. The language delays have affected Kiesha's reading and spelling skills, but her achievement in math is at her grade level (fifth). Kiesha was first fitted with hearing aids when she was in preschool; as she has grown, she has received new hearing aids each year. Kiesha goes to the audiologist every year for a full evaluation, and the special education teacher and the speech-language pathologists work with her to make sure that her hearing aids are functioning well in the school environment. As a fifth grader, Kiesha receives support from the speech-language pathologist once a week, and she works with the special education teacher periodically when she needs some extra help with school tasks.

Even though Kiesha's development and educational achievement are close to those of her peers, she does need some special support from the classroom teacher. Her hearing aids and slight speech differences sometimes make her feel different from her friends, and this may become more of a problem as she moves into middle school. Kiesha's hearing also fluctuates somewhat when the weather changes or when she has a cold. Teachers who are not aware of this fluctuation may not realize that in some circumstances Kiesha may miss key information if she is not encouraged and supported to participate fully in the learning activity.

Carlos: Carlos was born with normal hearing but suffered a severe hearing loss in both ears at age 4 due to a high fever. Because he was already speaking when he lost his hearing, he is classified as having postlingual hearing loss. Carlos's needs are complicated by the fact that his first language is Spanish, and so, although his hearing loss is postlingual, he still has difficulties with English. Carlos's height and weight are typical for his age, and his motor coordination is above average. He is an intelligent young man, but because of his challenges, his language, academic development, and social maturity have lagged behind. The one area of academics in which he performs at grade level is mathematical computation. On audiometric testing, he showed a hearing loss of 75 decibels with the amplification provided by his hearing aids; this is a severe hearing loss. Fortunately, Carlos learned to talk before his loss of hearing, and by age 4 he had already developed considerable language ability. Because of this he is able to draw on his early language foundation for learning, and with hearing aids, speech therapy, and other special education services, he is moving ahead. For the first three years of schooling, Carlos attended a

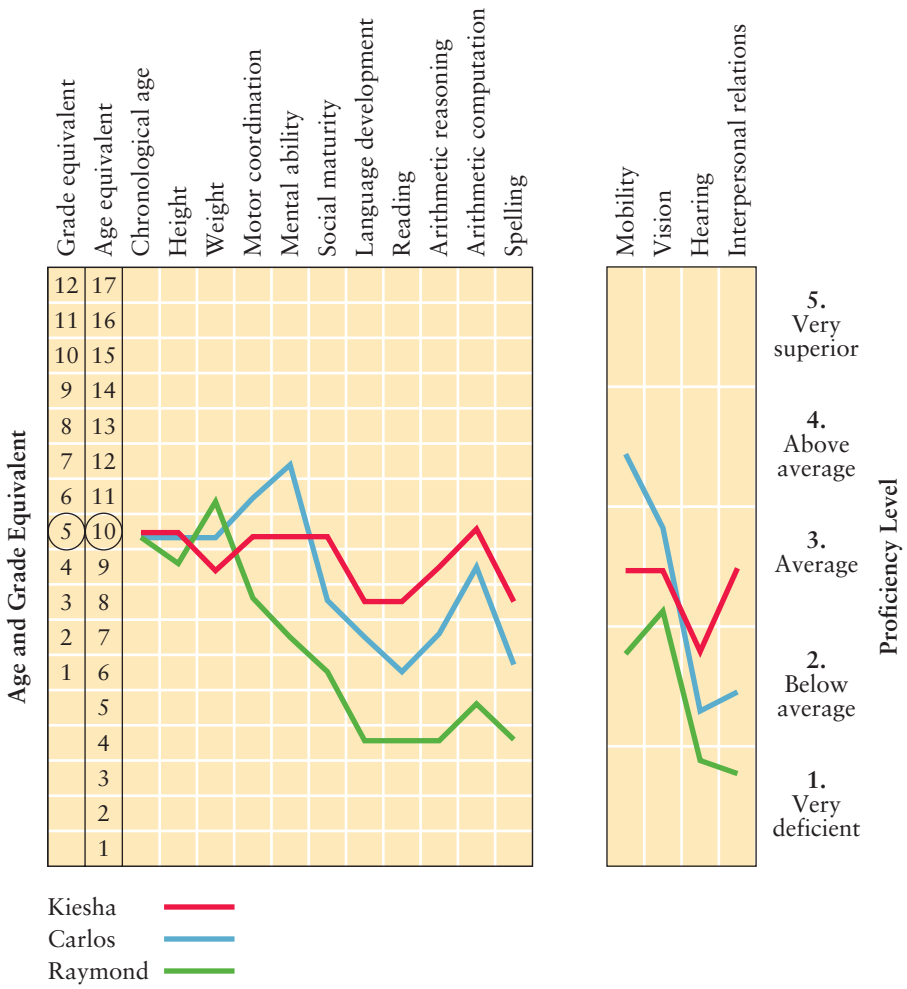


FIGURE 10.1
Profiles of Three Students with Hearing Losses

bilingual special education class for two hours each day. In this class he received academic support in both Spanish and English. He is now receiving weekly speech language support and special education services in reading. Carlos relies a good deal on his lip-reading skills, and he sits at the front of the classroom, facing the teacher. He still needs extra help in developing social skills and making friends.

Raymond: Raymond's hearing loss is profound, testing at more than 95 decibels. Raymond was born deaf and has never heard a spoken word. Raymond also has intellectual delays that are estimated at around four years, and he has mild problems with physical coordination. Because of the severity of Raymond's hearing loss and the difficulties with learning that he encounters due to his cognitive delays, he is in a self-contained special class. Raymond's limited speech is difficult to understand, and he uses alternative

communication picture boards to express his needs. In reading and other academic subjects, Raymond is several grades behind his agemates.

Raymond's communication with his family and peers is limited; so are his sources of information and his social experiences. He often reacts to social situations in ways that are characteristic of a much younger child. Raymond will need intense support throughout his schooling and will need careful transition planning as he moves into adulthood.

The three students presented here show the wide range of needs that individuals with hearing losses can have. Later in the chapter we look at the supports and services needed to help students with hearing losses achieve success in school and life.

Definitions of Deafness, Hard of Hearing, and Central Auditory Processing Disorders

The degree of the loss, the type of loss, and the age at which the loss occurred all must be considered as we define *hearing loss*.

A hearing loss is defined by the degree of loss, the type of loss, and the age at which the loss occurred. The Individuals with Disabilities Education Act (IDEA, 2004) defines deafness as a hearing impairment that is severe enough that the child cannot process linguistic information through hearing, even when using amplification or hearing aids. This hearing loss adversely affects the child's educational performance (Council for Exceptional Children, 2006). Being hard of hearing is defined as an impairment in hearing that may be permanent or fluctuating and that adversely affects a child's educational performance but that is *not* included under the definition of deafness (CEC, 2006). What we see in both definitions is that the hearing loss can adversely affect the child's education and that we must make special educational adaptations to support children with hearing losses.

In this chapter we use the term *deaf* to refer to a profound or complete inability to hear and the term *hard of hearing* to refer to all other categories of hearing loss. We also use a capital *D* when referring to the Deaf culture or community (discussed later in the chapter). On occasion, we also use the term *hearing losses* to describe these impairments in children. Because hearing losses can differ in degree, type, and age of onset, their impact on the child can vary widely.

Degree of Hearing Loss

The severity of hearing losses is determined by the individual's reception of sound as measured in **decibels (dB).** A loss of between 15 and 20 dB is considered slight; increasing degrees of loss range from mild (20–40 dBs) to moderate (40–60 dBs) to severe (60–80 dBs) to profound (more than 80 dBs) hearing loss, or, to use a more common term, deafness (American Speech-Language-Hearing Association

The identification during infancy and in early childhood of children who are deaf or hard of hearing means that these children have the opportunity for early access to instruction and assistive technology. This increases their potential for communication development and academic success.
(© Elizabeth Crews)

[ASHA], 2008). Table 10.1 presents the range of degrees of hearing impairments, their descriptive classification, and their possible causes. Individuals classified as hard of hearing may be able to hear and understand speech, or they can be helped to do so with hearing aids. Only a small percentage (less than 1 percent) of persons who are deaf are unable to hear speech under any conditions.

Types of Hearing Loss

The ear is a complicated structure (Figure 10.2), and it functions in a complex way. The outer ear is composed of the **pinna**, the **temporal bone**, and the auditory canal, or **external auditory meatus**. The middle ear is composed of the tympanic membrane, or **eardrum**, and the three ear bones: the **malleus**, the **incus**, and the **stapes**. The stapes lies next to the oval window, called the gateway to the inner ear. The inner ear contains the **cochlea**, the **vestibular apparatus**, and the **cochear nerve**, or **auditory nerve**. Problems with hearing can be due to either the structure or the function of the ear. Hearing losses can be classified into four categories: **conductive losses**, **sensorineural losses**, **mixed hearing losses**, and **central auditory processing losses**. The first three types of hearing loss are considered to be due to problems with **auditory acuity**, or the ability to take in sounds and get these to the brain successfully. The fourth type of hearing loss is an **auditory processing** difficulty, which means that the individual can "hear"

TABLE 10.1
Levels of Hearing Loss

Level of Hearing Loss (Measured in Decibels)	Description	Possible Causes	Sounds Heard
15–20 dB	Slight hearing loss	Otitis media, or fluid buildup in the middle ear due to ear infections; damage to the ear through injury, illness, or noise exposure	Hears vowel sounds clearly; may miss unvoiced consonant sounds (f, s, sh)
20–40 dB	Mild hearing loss	Otitis media; prenatal exposure to infections (e.g., rubella, cytomegalovirus/CMV, herpes simplex virus); damage to the ear through illness, injury, or noise exposure	Hears only some louder-voiced speech sounds
40–60 dB	Moderate hearing loss	Chronic otitis media; middle ear anomalies; sensorineural damage; prenatal exposure to infections; genetic factors; and damage to the ear through illness, injury, or noise exposure	Misses most speech sounds at normal conversational level
60–80 dB	Severe hearing loss	Middle ear anomalies; sensorineural damage; prenatal exposure to infections; genetic factors; and damage to the ear through illness, injury, or noise exposure	Hears no speech sounds at normal conversational level
More than 80 dB	Profound hearing loss	Same as severe hearing loss	Hears no speech or other sounds

Source: Adapted from the American Speech-Language-Hearing Association (ASHA) website, www.asha.org. Retrieved February 11, 2008.

the sounds but has problems understanding them. Within the information-processing model, the first three types of hearing loss are related to problems with input—getting the information to the brain—whereas the fourth type is due to difficulties in processing the input once it is received.

A *conductive hearing loss* occurs when something blocks the sound passing through the outer or middle ear (ASHA, 2008). The blockage can be caused by wax, ear infections (otitis media), or any type of malformation of the ear canal. Conductive hearing losses make hearing faint sounds more difficult. This type of loss is usually temporary and can often be corrected by surgery or medication, but the child will also need educational supports to help him or her with language development and may need speech-language support to help overcome articulation problems (ASHA, 2008; Herter, Knightly, & Steinberg, 2002).

Sensorineural hearing losses are caused by damage to the inner ear (cochlea) or to the auditory nerve, particularly in the delicate sensory hairs of the inner ear or in the nerves that supply them. Sensorineural hearing losses affect both the ability to hear faint sounds *and* the ability to hear clearly, and this can make understanding speech sounds difficult. These hearing losses may be caused by genetic syndromes, diseases, injuries, or exposure to loud noise (Salvia, Ysseldyke, & Bolt, 2007). Hearing aids will likely be useful for the majority of individuals with sensorineural hearing loss, and **cochlear implants** can be considered for individuals with profound hearing loss in both ears who cannot benefit from hearing aids (ASHA, 2008). Educational support and related speech-language services will be needed to help the child be able to achieve successfully.

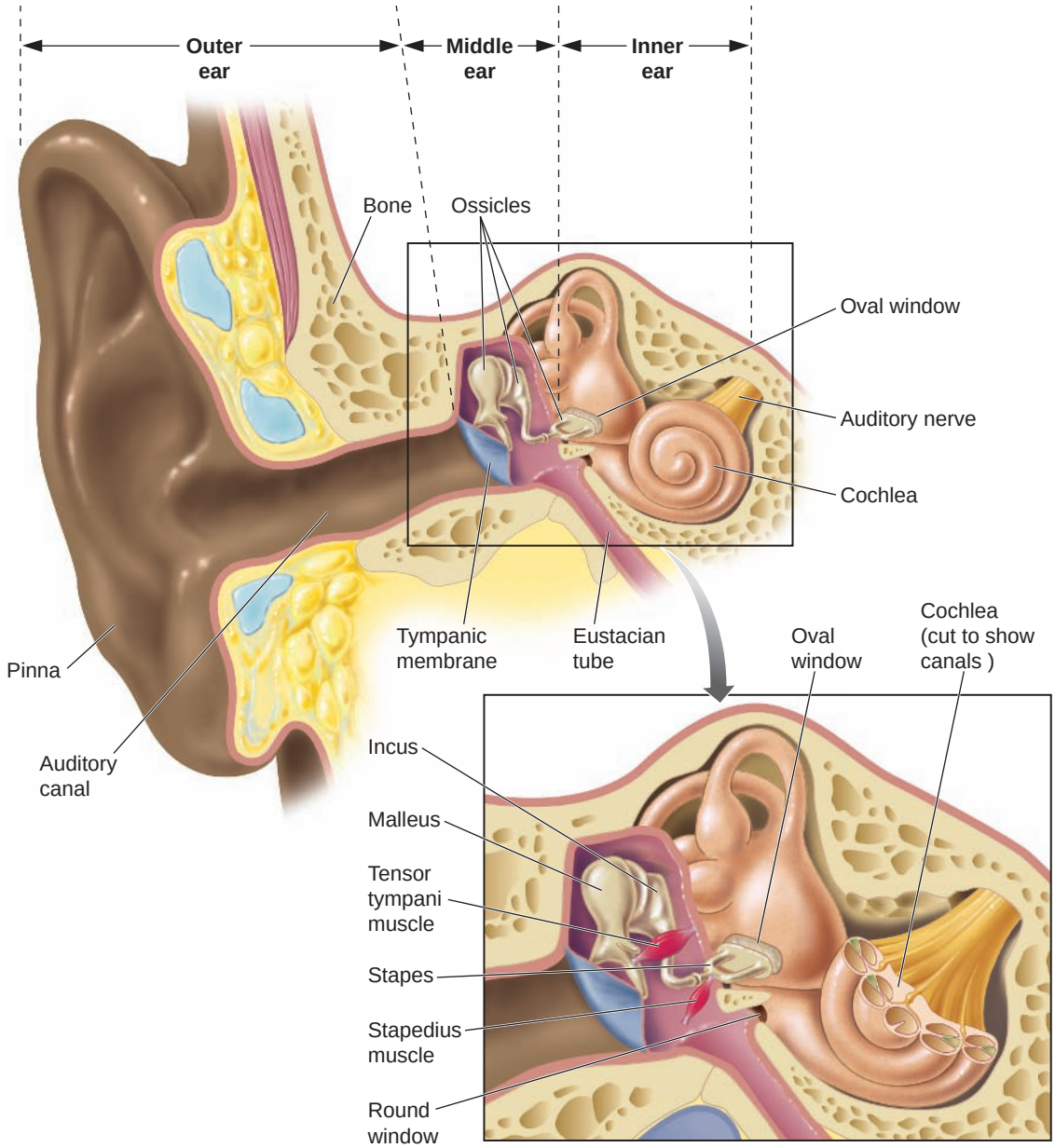


FIGURE 10.2
Anatomy and Structure of the Ear

From Freberg, L., (2006). Discovering biological psychology. 192. Used by permission of Houghton Mifflin Harcourt Publishing Company.

Mixed hearing losses result from problems in the outer ear, as well as in the middle or inner ear, combining both conductive and sensorineural difficulties (ASHA, 2008). Persons with this type of loss may hear distorted sounds and have difficulty with sound levels. Depending on the specific site of the difficulty, a combination of medical treatment and amplification with hearing aids can be used to increase hearing. As with sensorineural hearing losses, some individuals may benefit from cochlear implants, and all will need educational and related service supports.

In addition to the loss of hearing due to auditory acuity problems, an individual may have difficulties processing auditory information. *Central auditory processing* difficulties are considered a type of hearing loss because they limit the individual's ability to use auditory information (ASHA, 2005; Salvia et al., 2007). An individual with a **central auditory processing disorder (CAPD)** may have difficulties with sound localization, auditory discrimination, understanding speech sounds against a noisy background, auditory sequencing, memory, and pattern recognition, sounding out words, and reading comprehension (ASHA, 2005; Salvia et al., 2007). Like individuals with other hearing losses, individuals with CAPDs will need the support of a multidisciplinary team to provide appropriate supports and services. We continue to discuss these supports and services later in this chapter.

Age of Onset of Hearing Loss

A hearing loss can be either **congenital**, meaning present at birth, or **acquired**, meaning that it has occurred in either childhood or adulthood. The timing of an acquired hearing loss will have a critical impact on the child's language and speech. A hearing loss that occurs before the child's language has developed is a **prelinguistic hearing loss**, and one that occurs after the child has acquired some speech and language is called a **postlinguistic hearing loss.** The timing of the hearing loss is critical because it shapes the child's early communication, language, and speech development. If the hearing loss occurs congenitally, the child will have no experience with the sounds of speech and will encounter greater difficulties understanding and producing speech. If the loss occurs before the child has acquired speech, the language delay is likely to be greater than it would be if the child had already developed a solid language and speech foundation. The stronger the child's speech and language foundation is prior to the loss of hearing, the more the child can draw on it to support his or her communication.

The timing of the hearing loss will determine the child's early communication, language, and speech development.

Prevalence of Hearing Loss

In 2004, an estimated 31.4 million persons in the United States, or 10 percent of the general population, were reported to have some degree of hearing loss (Better Hearing Institute, 2008). Of these, less than 1 percent are likely to be deaf. Hearing losses span the generations, affecting the following estimated numbers:

- Three in ten people over age 60
- One in six people ages 41–59
- One in fourteen people ages 29–40
- Approximately 1.4 million children and youths under the age of 18 (Better Hearing Institute, 2008)

An estimated three in one thousand infants are born with serious to profound hearing losses, and, as infant screening increases, this number could be proven to be a low estimate (Better Hearing Institute, 2008). During the 2000–2001

Supporting enriched social interactions between students is an important step in developing social competence.
(© Robin Sachs/Photo Edit)

school year, 70,767 students were listed as deaf or hard of hearing (ASHA, 2008). Although students with hearing loss reportedly account for 1.3 percent of students with disabilities, this figure is likely to be a low estimate, because many students with hearing losses have other disabilities as well (ASHA, 2008). Students who are deaf or hard of hearing can be served in different educational settings. In 2001, 43 percent were served primarily in regular classes (spending over 80 percent of their time in general education classrooms), 19 percent received services in both the resource room and general classroom, 24 percent received services primarily in special education classes (over 60 percent of their time), and 14 percent attended separate environments or residential schools (U.S. Department of Education, 2005).

Causes of Hearing Loss in Children

Many factors may produce hearing loss in children. The causes are estimated to be one-third genetic, one-third environmental or acquired, and one-third of unknown origin (Herter et al., 2002).

Genetic Causes of Hearing Loss

Genetic factors are likely to be involved in more than half of all the incidents of congenital hearing losses (losses present at birth). Seventy documented genetic syndromes exist, as well as many other single genetic causes of deafness and partial deafness. Genetically caused hearing losses are inherited from one or both of the parents and can be inherited from either a hearing parent or a non-hearing parent (ASHA, 2008).

Children with genetically-related disabilities may also have associated hearing problems. For example, children with Down syndrome (a genetic disorder associated with intellectual and developmental delays) often have narrow ear canals and are prone to middle-ear infections, which may cause hearing losses. Individuals with cleft palates (an opening in the lip and aboral ridge) also may have repeated middle-ear infections, which can result in conductive hearing losses (Herter et al., 2002).

Congenital conditions such as Rh hyperbilirubinemia can develop when a mother who has a negative Rh factor carries a fetus with a positive Rh factor. When Rh incompatibility occurs, the mother's immune system begins to destroy the fetus's red blood cells as they enter the mother's circulatory system. As a result, the fetus may become anemic and die in utero. If the child survives, he or she is likely to have a high-frequency hearing loss. Fortunately, these problems can be avoided with early prenatal care. The drug RhoGAM is available to block the formation of antibodies in the mother's system. Usually, the first pregnancy is not affected, but all subsequent ones are if the condition is not identified and treated (Ward & McCune, 2002).

Not all hearing loss is due to genetic problems that appear at birth. Babies born with perfectly normal hearing may lose hearing in months or years as a result of hereditary factors (Herter et al., 2002). Teachers should be aware that a hearing loss can occur in a child who previously exhibited a normal range of hearing and that continued monitoring of their students for signs of hearing loss is important.

Environmental Causes of Hearing Loss

Environmental causes include exposure to bacteria, viruses, toxins, and trauma, as well as infection during the course of pregnancy or in the birth process (Herter et al., 2002). The environmental effects that begin before birth are associated with illness or infections the mother may have had during pregnancy. For example, uncontrolled diabetes in the mother may cause a hearing loss in her child. A group of infections that affect the mother and that can also cause severe hearing losses in the fetus have been labeled **TORCHS** (Newton & Stokes, 1999) (see Table 10.2).

The *TO* stands for toxoplasmosis, a parasitic disease common in Europe that may be contracted by handling contaminated cat feces or eating infected lamb

TABLE 10.2
Maternal Infections That May Cause Hearing Loss to the Fetus: TORCHS

TO	Toxoplasmosis
R	Rubella (German measles)
C	Cytomegalovirus (CMV)
HS	Herpes simplex virus

that has not been cooked sufficiently (Batshaw & Perret, 1992). The *R* stands for rubella (German measles), which, if contracted by the mother, can cause not only serious hearing losses in the child but also blindness and cognitive delays as well. With the advent of the rubella vaccine, very few cases of the measles are occurring (Steinberg & Knightly, 1997), but this vaccination must be renewed periodically. The *C* stands for cytomegalovirus (CMV), an infection in the mother's uterus, which is a major environmental cause of deafness in the United States. CMV can go undiagnosed, or it can be misdiagnosed (sometimes as the flu). It is a particularly harmful virus that can pass through the placenta and affect the fetus. It can also be passed through the mother's milk in nursing (Strauss, 1999). CMV is so strongly associated with low-birth-weight and premature infants that it has been considered as a possible cause of prematurity, as well as of hearing loss. Whereas the incidence of rubella has decreased by 1 percent, that of CMV has increased from 1 percent to 2 percent (Holden-Pitt & Diaz, 1998). The *HS* stands for herpes simplex virus, which, if untreated, can lead to death in 60 percent of infected infants. It is also a cause of serious neurological problems and potential hearing loss.

Asphyxia (lack of oxygen) during the birth process may bring about a hearing loss (March of Dimes, 2008). Premature and low-birth-weight infants, particularly those born weighing less than four pounds, are at greater risk of hearing loss. Because of increasingly successful lifesaving techniques now being used in neonate nurseries, we are seeing an increase in the number of infants with hearing losses (March of Dimes, 2008; Raus-Bahrami, Short, & Batshaw, 2002). Infections after birth, such as *meningitis* (an inflammation of the membranes covering the brain and spinal cord), can damage the auditory nerve. Because the antibiotics given to treat the infection may also cause damage to the auditory nerve, the dosage for the infant must be measured carefully (Batshaw & Perret, 1992). Noise pollution, particularly loud and persistent noises, can also cause hearing loss. Damage to any part of the ear due to injury can also result in hearing loss.

Otitis media (an ear infection) is the most common cause of hearing loss in young children.

The most common cause of hearing loss for young children in their preschool years is **otitis media**. A middle-ear infection almost universal in children of preschool age, otitis media can lead to hearing loss and language difficulties. Figure 10.2, the structure of the ear, shows an area called the middle ear, where the malleus, the incus, and the stapes are located. When a child has otitis media, this area fills with a fluid that decreases the child's ability to hear. Depending on the frequency and severity of infections, the hearing loss may be mild or even moderate (ASHA, 2008). Children are susceptible to ear infections because their eustachian tubes are small and often more horizontal than those of adults, so fluids do not drain as effectively (ASHA, 2008). Later in the chapter we look at specific strategies teachers can use to support children who may have hearing losses due to otitis media ear infections. The most important thing is to detect or identify the hearing loss as early as possible.

Assessing Hearing Loss in Children

Hearing losses can be detected at birth, and many states require a hearing screening for newborns. Because 20 to 30 percent of hearing losses occur during early childhood, further screenings should be conducted at regular intervals.

If a hearing loss is identified at birth, a comprehensive auditory evaluation can be conducted by 3 months of age, and the infant may be fitted with a hearing aid or may receive a cochlear implant (more information on cochlear implants is found on page 351). Early diagnosis also alerts the parents that the child is deaf and may need to learn a sign language in order to avoid developmental delays (Herter et al., 2002). Testing for a hearing loss will take somewhat different forms depending on the age of the child.

Measuring a Hearing Loss

To assess hearing in an infant, we must determine whether the ear is functioning appropriately and whether the brain is receiving the sound signal; auditory brainstem response (otoacoustic emissions) is currently the preferred method of evaluating this. In the ear of a hearing child, when a click sound is played into the ear, an echo is generated. This echo happens because as sounds move through the ear canal to the middle ear, they stimulate thousands of hair cells, causing them to vibrate. By using a small microphone placed in the child's ear, it is possible to receive and record this echo (Mauk & White, 1995). If no echo is received, further evaluation is indicated.

A **bone-conductor test** is a second way that we can assess hearing in infants and preschool children younger than 3 years of age. A bone-conductor test measures the movement of sound through the bone and the hearing system to the brain, bypassing the ear. The reception of this sound in the brain (auditory brainstem recognition) is recorded on a graph that charts the brain's response in vibrations (Salvia et al., 2007). By comparing the child's responses to the responses of a population of hearing persons, the audiologist can ascertain hearing abilities or losses. A bone-conductor test should *not* be done in a school setting, as a special environment is needed.

Play audiometry can be used with very young children to assess their ability to hear. Tests are conducted in a pleasant environment with toys that move and make sounds. The toys are used to elicit responses, such as eye blinks and changes in respiration or heartbeat (slower heartbeats indicate attention).

The child is brought into a room with his or her caregiver. An examiner distracts the child with an attractive toy. Sounds are piped into the room. A change in sound indicates that a curtain will be raised to reveal a more attractive toy. The child is not told that this will happen. Children without hearing losses hear the change of sound and turn to look at the hidden toy before the curtain is lifted to reveal it. If the child does not turn when the sound is changed, hearing losses are suspected (Herter et al., 2002).

Play behavioral assessments are based on principles of conditioning children to respond to sound by rewarding them when they indicate that they hear it. The reward is usually allowing them to play with the toy. Play audiometry has long been accepted as both a reliable and feasible technique for assessing hearing in young children (Paul & Quigley, 1994); however, it is not suitable for infants (ASHA, 2008).

The most frequently used hearing assessment is **pure-tone audiometry**. Pure-tone audiometry can be used with children about 3 years of age and older. The audiometer—an instrument for testing hearing acuity—presents pure tones (not speech) to the individual, who receives the tones in a headset (Salvia et al., 2007). The audiometer presents a range of sounds and measures the frequency (vibrations) and intensity (pitch) at which the individual is able to hear these

Hearing screening is an essential part of early intervention, and early detection is critical to mitigate the impact of the hearing loss on a child's development.

sounds. The individual being tested responds to the sounds by raising his or her hand (or speaking into a microphone) if he or she can hear the tone. These responses are recorded on a graph called an audiogram. From an examination of the results, an audiologist can determine the degree and range of hearing loss.

Impact of a Hearing Loss on Language, Speech, and Communication

A hearing loss is a silent disability. It is not accompanied by pain, fear, or physical problems, and it is apparent only when verbal demands are made on the child (Lillo-Martin, 1997). During the first year of life, which is called the *prelinguistic* period (meaning without speech), infants with hearing losses will exhibit the same behaviors as hearing infants. As you may recall from Chapter 7, these early language behaviors include crying, making comfort sounds, and babbling to parents. In babbling, the child produces his or her first sounds that resemble words (*baba, dada*), and the parents reinforce these sounds and transform them into words. What many parents do not realize is that these language behaviors are innately programmed and will appear whether the infant can hear or not. "The evidence that language is a biologically determined, species specific, genetically transmitted capacity is simply overwhelming" (Knight, 2003, p. 306).

Infants who can hear typically produce their first word around 12 months of age. For the infant who is deaf, babbling does not develop into words. However, in a seminal study, Petitto and Marentette (1991) found that children with severe hearing losses gesture at about the same developmental age at which hearing children babble. They concluded that infants are innately predisposed to learn language and that they do so by stimulating the environment with babbling; if they cannot hear, they use babbling-like hand movements that are sign equivalents of speech sounds. These signs are not words, but they are similar to the babbling sounds. Parents who are deaf recognize these signs and begin teaching a manual form of communication; often this is American Sign Language. Each language, spoken or manual, proceeds in similar fashion. If the parents do not help the child form signs into a language, the child may develop his or her own sign system, called *home sign*.

The sequence that children who are deaf or hard of hearing follow in language development is essentially the same as for children who can hear .

The innate language mechanism is so strong that children who hear will develop a spoken language and children who are deaf will develop a manual one. Each will develop the language of his or her home. For the child who can hear, it will be whatever language is spoken in the home. For the child who is deaf, it will be the sign system taught in the home or one developed by the child (Goldin-Meadow, 1998). A major complication is that 90 percent of children who are deaf or hard of hearing are born into homes with hearing parents who do not recognize the child's early attempts at a manual communication system and so these attempts are not reinforced, and the child's language development is delayed.

The pattern of language development for children who are deaf or hard of hearing and for children who can hear is essentially the same. Most children

When reading is taught visually or by a gestural method, deaf children are better able to learn how to read, write, and use language logic forms and to succeed in school.

(© David Young-Wolf/Photo Edit)

produce their first word by 12 months of age. By 18 to 22 months of age, they master the logic forms of the language used in their home, and they begin on their own to figure out the rules of language from the spoken examples provided by their environment (see Chapter 7 to review typical language development). This ability to independently generate the rules of grammar (particularly syntax or word order) tends to disappear after around 6 years of age. If the child masters these rules of grammar by age 6, he or she can build on them through instruction. If the child has not acquired these rules, it is extremely difficult or almost impossible to teach them to the child.

The Importance of Early Intervention for Children with Hearing Losses

Children with severe prelinguistic hearing losses who are not provided with amplification or cochlear implants and early intervention supports will not have the experiences that they need with spoken language to allow them to figure out its grammar. Not surprisingly, grammar and syntax are two aspects of language that children with prelinguistic hearing losses have difficulty mastering. This is, in part, why early intervention and support for language development is critical (Moeller, 2000; Yoshinaga-Itano, Sedey, Coulter, & Mehl, 1998).The 1989 National Information Center on Deafness (NICD) statement on the unique early communication needs of children with profound hearing loss still captures these needs. It states that these children:

> have unique communication needs; unable to hear the continuous repeated flow of language interchange around them, children with severe

Brittany's Success

My name is Brittany Sinclair and I am a 14-year-old student who is deaf. For as long as I can remember, I have worked with my mother to help develop my lip-reading skills. As I grew up, I was able to participate fully in the hearing world. My skills in lip-reading were already strong at a very early age, and so by the time I was six, doctors refused to believe that I was deaf.

My mother and Dr. Geraldine Detosta, who was the head of the child study team at a local hospital, arranged for a brainstem audio test. . . . It . . . produced evidence that erased all doubt—I have severe profound neurosensory deafness.

One of the major obstacles my family and I had to overcome was the ongoing dispute between whether I should attend the mainstream versus the deaf school, as well as signing versus oral communication. While I can sign, I have always been able to speak and read lips. It was difficult when I was very small to sit by as doctors told me that I should be mute and my lack of hearing would cause me to be delayed in my academic development. So each day, I go to school with my hearing aids, FM (a device that works with hearing aids which relays the voice of the teacher who is using a microphone), and my book-bag. Mainstreamed in the Walter T. Bergen public school in Bloomingdale, New Jersey, I attend honors classes and participate as if I were a hearing adolescent. I was invited to attend the summer gifted project at Boys Town, in Omaha, Nebraska, in the summer of 1995. This fall [1998], I will start high school.

Learning from the Best

My Mom and Dad have always encouraged me. They are my biological grandparents who adopted me at birth. They have always made me feel that I can do whatever I want to, without letting my deafness stand in my way. . . .

I love music and I play several instruments. The eight instruments that I play are the flute, piccolo, trumpet, piano, organ, drums, guitar, and clarinet. I come from a family with a gift for music, as my mother is also talented. With my hearing aids in and from the vibrations of the instrument, I can tell that I am playing the right notes. I play with the Butler High School Band and I was appointed to the State Regional Band. . . .

Last year, I achieved the Excellence in Art award for my school. I also gained recognition at the state "Mini-Model Congress" for excellence in bill writing. I authored and debated a bill to have captioning put in movie theaters so that people who have hearing impairments could enjoy the latest movies without using an interpreter. I feel strongly that closed captioning should be available in all theaters.

Motivation

I am fueled by my desire to help students with disabilities feel safe and secure in the hearing world. The great financial burden of the many devices needed for the hard of hearing led me to request the Lions Club to obtain flashing fire alarms for the hard of hearing at little or no cost to them, thus hopefully saving lives. Two thousand people die in fires each year because they did not hear the alarm. This is devastating. Being deaf makes you feel vulnerable. No one wants to feel unsafe. When you feel safe, it gives you hope and makes you feel that you are not at a disadvantage. It makes you feel that you are as important as anyone else.

I am very social and love to be the center of attention. At the moment, I am between boyfriends, but that is not a problem because I have good friends to spend time with. . . .

Making my friends laugh is one of my favorite things. Because of my deafness, my voice sounds a little different and people who don't know me will ask me what country I am from. I sometimes say France, but I will say any country that pops into my head. I answer this way because whenever I explain that I am deaf, I notice a change in the way strangers act toward me; they are astonished and want to know how I can talk. I have a good sense of humor about everything. I don't mind that I sound like "The Nanny" from television! . . .

Speaking Up

In the future, I hope to graduate law school. Since I enjoy problem solving, like the idea of protecting people, and need to have action in my life, I will probably become either a lawyer or an FBI agent. My music and acting are something that I can keep as a secondary pursuit.

I have learned from my parents that I can do anything I set out to do. I would say to other parents of kids with disabilities, do not hold them back! If your children are discriminated against, stand up for them, since they cannot do it themselves. My parents also taught me that if there is anything that you have to do that is difficult, deal with it head on and don't dodge it. Then it doesn't seem so hard after all.

Source: From Brittany Sinclair, Talking back, *Exceptional Parent* (July 1998), 45. Reprinted with permission.

Pivotal Issues

- What factors contribute to how well Brittany has adjusted socially and personally?
- What kind of educational adaptations might Brittany need to accommodate for her deafness?
- What types of communication methods does Brittany use?
- What other types of assistive devices or instructional technology might be useful to her?

> hearing impairments are not exposed to the enormous amounts of language stimulation experienced by hearing children during the early years. For children with severe hearing losses, early, consistent, and conscious use of visible communication modes (such as sign language, finger spelling, and cued speech) and/or amplification and aural/oral training can help reduce this language delay. Without such assistance *from infancy,* problems in the use of English typically persist throughout the child's school years. With such assistance, the language learning task is easier but by no means easy. (p. 21; italics added)

This statement reinforces the importance of *every* parent or teacher of a child who is deaf learning the communication system that the child is best able to use. Early and intense communication with children, particularly in infancy and the preschool years, when the child's central nervous system is ready to learn language, is critical (Moeller, 2000). The language of the child's culture, whether it is expressed in signed or oral form, must be provided with strong parental involvement if the child is to learn to communicate. The teacher's and parents' abilities to sign not only will aid the child in developing a communication system but also will enhance the child's academic success and his or her social skills, peer interaction, and play (Luetke-Stahlman, 1994; Spencer, Ertling, & Marschark, 2000).

During infancy and the preschool years, when the child's central nervous system is ready to learn language, early and intense communication is critical.

Cognitive Development of Children with Hearing Loss

The most important thing to remember about children who are deaf or hard of hearing is that most possess normal intelligence and some are intellectually gifted. A hearing loss will not impact a child's overall cognitive abilities; but because the children cannot hear as well as children with normal hearing he may experience developmental delays. As children with hearing losses mature, however, they will have different background experiences, communication histories, and knowledge, and so they will also have different needs. They will need specialized instruction to reach the same cognitive and developmental milestones as children who can hear (Marschark, Lang, & Albertini, 2002). Furthermore, a hearing loss may be accompanied by disabilities that require more complicated interventions.

The presence of a hearing loss does not affect a child's level of intellectual abilities.

A child whose primary language is ASL must be given the same assessment accommodations that would be used with any child whose primary language is not English.

It can be difficult to determine the intellectual level of children with hearing losses in part because intelligence tests used to measure cognitive abilities were not designed for children with hearing losses. Orally (speech) administered intelligence tests often greatly underestimate the abilities of a child whose primary language is manual (Salvia et al., 2007). To assess children who are deaf or hard of hearing in written English is also problematic if the child's primary language is American Sign Language, because the vocabulary, syntax, and grammar of ASL are significantly different from those of English. A child whose first language is ASL should receive the same assessment accommodations that any child whose primary language is not English receives. This means that the assessment should be conducted in the child's primary language (ASL) and that the assessor should be bilingual and if possible bicultural. Furthermore, appropriate assessments must address both the child's access to the stimulus (spoken or printed words) and his or her ability to respond to the test prompts (either by speaking or writing; Salvia et al., 2007). When nonverbal tests are used with a sign system familiar to the child, children often perform well within the normal range (Bellugi & Studdert-Kennedy, 1984).

Academic Development in Reading for Children with Hearing Losses

Reading levels for children with hearing losses are often substantially lower than those for hearing children, but this may be changing as we use visual strategies to teach phonics and as more children gain access to speech sounds.

Reading levels of children who are deaf or hard of hearing tend to be substantially lower than those of their hearing peers, but we may be closing this gap (Teachers College Record, 2007; McCough & Barbara, 2005; Trezek & Wang, 2006). A child who has not heard the sounds of the language will not be able to decode print if he or she is taught in the usual method of matching speech sounds—phonemes—to print. Because phonemic awareness, or the ability to use speech sounds, may be limited for children who are deaf or hard of hearing, alternative methods must be used to teach reading (McGough & Schirmer, 2005; Trezek & Wang, 2006). If reading is taught visually or by a manual method (e.g., American Sign Language or finger spelling), children who are deaf or hard of hearing are able to learn how to read, write, and use appropriate language forms, such as past tense, questions, and logical propositions such as *if-then* or *either-or* (Trezek & Wang, 2006; Yoshinaga-Itano et al., 1998).

This picture may be changing, however. As early hearing screening and educational, technological, and medical interventions reach more children, we may see the achievement gap in reading decrease. The demand for cochlear implants for children is increasing by around 20 percent each year (Martindale, 2007). And increasing numbers of young children are receiving hearing aids and early supports for language development. With these changes, more young children with hearing losses are gaining access to speech sounds, and this is likely to help them in learning to read (Martindale, 2007).

A study compared teaching methods for teaching reading to children who are deaf or hard of hearing with the similar methods used to teach children who can hear (Luckner, Sebald, Cooney, Young, & Muir, 2005/2006). The findings of this review were compared with the National Reading Panel's recommendations for reading instruction (National Institute of Child Health and Human Development, 2000), and key areas of overlap were identified. The promising elements of reading instruction identified in this study for children who are

deaf or hard of hearing are given in the accompanying box (Luckner et al., 2005/2006).

Promising Elements of Reading Instruction for Children Who Are Deaf or Hard of Hearing

- Rehearsal of information
- Direct teaching of sight words and morphological rules (how sounds are combined to make words)
- Explicit vocabulary instruction and practice with short passages
- Use of high-interest reading materials
- Instruction in the grammatical principles of ASL and how these translate to written English
- Teacher-modeled discussions of stories and explicit instruction in reading comprehension strategies
- Interaction with text and peers in learning
- Reading to young children
- Use of captions
- Intensified instruction
- Use of word processing
- Use of simple stories and word recognition practice with young readers
- Use of general curriculum for reading reinforcement

Source: Information was drawn from Luckner et al. (2005/2006). An examination of the evidence-based literacy research in deaf education. *American Annals of the Deaf, 150*(5), 443–456.

In addition, there is a movement to teach reading by the whole-word method. First, students learn to read words that stand for persons or things with which they are familiar; for example, *ball*. Then, after students have acquired a basic reading vocabulary, the teacher introduces phonics as a part of a continuing emphasis on teaching whole words (Hammil, 2004). For children who are deaf or hard of hearing, a picture of the object or person may accompany the presentation of the word, and a visual cue can be used for the word sounds (phonons). The child who can hear may have already made the association between the word and the object or person, but one cannot assume that the child who is deaf or hard of hearing has done so.

In summary, through improved teaching strategies, earlier intervention, new technology, and medical treatments (cochlear implants), children who are deaf or hard of hearing are making solid gains in learning to read. In spite of all we do know, however, there is still a critical need for additional research on instructional methods that work with children who are deaf (Luckner et al., 2005/2006; McGough & Schirmer, 2005).

Social and Personal Adjustment of Children with Hearing Loss

Many youngsters who are deaf or hard of hearing will make friends with both their hearing and nonhearing peers. Brittany's story in this chapter shares her successes with social skills and forming friendships. Luckner and Muir (2001) conducted interviews with twenty successful students who are deaf and who were receiving most of their education in general educational settings. They found that many of the students attributed their success to working hard, studying, paying attention, advocating for oneself, getting involved in sports, and *making friends*. Most students acknowledged the importance of their families and the help and support they received from teachers, interpreters, and note takers, but every student spoke about the importance of his or her friends (Luckner & Muir, 2001). The students in this study had all done well and were recognized by their teachers as being successful, and forming friendships was part of this success. But friendships may be difficult for some children who are deaf or hard of hearing. A hearing loss may bring with it communication problems, and communication problems can contribute to social and behavioral difficulties.

Consider the boy with prelinguistic hearing loss who has limited speech and who wants a turn on the playground swings. He cannot simply say, "I want my turn" or "It's my turn now." What does he do? He may push another youngster out of the way. Obviously, this kind of behavior is going to cause the child difficulties with interpersonal relationships. And when it is repeated many times, it can create serious social adaptation problems. Lack of verbal language makes it difficult for children who are deaf to make friends with children who speak and do not sign. Several factors should improve the social adjustment of children who are deaf or hard of hearing (Luckner & Muir, 2001):

- Early identification and intervention that markedly improve the child's overall functioning and increase feelings of self-esteem
- Family support and acceptance of the child
- Sophisticated technological aids such as the Internet that provide access to information and social contacts
- Participation in extracurricular activities (sports, Scouts, service clubs)
- Skilled and caring professionals who work with the child and family

Promoting Alternative Thinking Strategies (PATHS) is a curriculum designed to improve social competence and to reduce behavioral problems for children who are deaf. It teaches self-esteem and interpersonal competencies. It aims at assisting students to achieve self-control. The curriculum focuses on problem-solving techniques to resolve social problems and overcome

frustrations. PATHS is useful from late preschool to sixth grade (Calderon & Greenberg, 2000).

Being able to communicate is an interactive process that enables a person with hearing loss to participate fully in his or her environment. Hearing is not the issue; communication is (Bodner-Johnson & Sass-Lehrer, 2003). Recall that 90 percent of the parents of children who are deaf or hard of hearing are not able to communicate fully with their children through speech. Therefore, parents will have to master a communication system that is appropriate for their child.

Communication is central to full participation with others.

When expressing frustration over inadequate communication in their homes, five young adult deaf students mentioned family members with limited signing skills, attending gatherings with numerous untrained relatives, and watching television with family members who would summarize the program but not give the details (Bodner-Johnson & Sass-Lehrer, 2003). These students' main complaint was that communication issues prevented them from participating fully in family life. It is rare for all the hearing members of a family to learn a sign language. Communication difficulties may mean that individuals with hearing losses may prefer being with others who share their language and communication needs. It is not surprising that some children with severe hearing losses prefer to be with children like themselves, with whom they can feel socially accepted and comfortable (Guralnick, 2001). This desire extends into adulthood and has led to the formation of the Deaf culture or community.

The Deaf Culture or Community

The Deaf community exists as a separate cultural group within our society and has exhibited considerable cohesiveness for more than a century (MSM Productions, 2008; Moores, 2000). It is a very diverse group whose members are composed of many different religious, social, and ethnic backgrounds. The shared bonds, however, are similar values and traditions, a common language (ASL), and specific behavioral protocols that are known to and practiced by group members. Membership in the Deaf community is a part of the individual's identity, and allegiance to the group is often strong. Parents who are deaf often teach ASL to their children who are deaf, and many adults who are deaf learned ASL from their peers in residential schools, where they established close, long-lasting friendships (Stinson & Foster, 2000).

The Deaf community has state and local networks, holds world games for the deaf and a Deaf Miss America Pageant (Moores, 1996), and publishes a newspaper, as well as other material. The community is strongly bonded, and most adults who are deaf in the United States move toward membership and involvement in it. The Deaf community has the status of a minority group within the mainstream culture. Its members are bilingual, using ASL for communication with others and American English for reading and writing. They provide one another with a sense of belonging and pride, and they help one another overcome possible isolation from mainstream society.

Educational Responses to Children Who Are Deaf or Hard of Hearing

RTI

Students who are deaf or hard of hearing, like most other populations of students with special needs, are a very heterogeneous population (Wachs, 2000). Because of this each child will need an individualized educational program (IEP), and most will require services provided within all three tiers of the RTI model.

The multidisciplinary team is critical in planning for children with hearing losses. This team usually includes an audiologist, a speech-language pathologist, and sign language interpreters, in addition to the child's teachers and parents. The audiologist is a critical member of the team because he or she can assess the degree, type, and extent of the hearing loss and can help to monitor the child's use of hearing aids and cochlear implant supports. The speech-language pathologist provides support for speech development and communication skills, and interpreters meet the child's communication needs within the classroom. The classroom teacher is responsible for the general education content, and the special education teacher works with the child on special needs (for example, reading support using finger spelling and visual cues, use of picture boards for augmenting communication, intensive reinforcement of academic skills, and teaching strategies to help the child with academic and social tasks). The parents are critical team members, as they can both help the teachers understand the child's needs and work at home to support the child's development.

Tier I Supports for Children Who Are Deaf or Hard of Hearing

Like most children with a hearing loss, Kiesha, the child we met at the beginning of the chapter, is in a general education classroom for most of her day. Her classroom teacher, Ms. Langley, works to make sure that she is included in daily activities. Ms. Langley is also careful to check in with Kiesha periodically to make sure that she understands key information. The classroom library also has reading materials that are of high interest to all the students, and Ms. Langley is always on the lookout for readings on horses, fashion, and women's soccer because these are Kiesha's favorites.

Team members work with students to increase autonomous functioning.
(© Susie Fitzhugh)

The instructional strategies that she uses with Kiesha include more explicit instruction in vocabulary, additional hands-on materials for math and science, and word processing support for writing. Many of Ms. Langley's other students also benefit from these supports. One of the major differences for Kiesha is the presence of her interpreter, Mr. Jackson. Kiesha uses American Sign Language as part of her communication, and the interpreter helps her understand what the teacher is saying. Because of the slight delay in timing between the time Ms. Langley asks a question and Mr. Jackson interprets it for Kiesha, it is sometimes hard for Kiesha to participate in class discussions. To help with this problem, Ms. Langley introduced a new procedure to the class, called "stop and think time," for some of the class discussions. Using this procedure, the class members must count to five before they raise their hands to answer a question, and during this time they must "stop and think." This has slowed down the discussions and allowed Mr. Jackson and Kiesha to keep up and participate more. Interestingly enough, it has also increased the quality and length of the student's responses and has created time for a more reflective dialogue. Although the interpreter is key to Kiesha's understanding in the classroom, he is not able to help in many informal situations, such as the playground or cafeteria when Kiesha is with her friends, so building Kiesha's own communication skills is also critical for her success (Stinson & Foster, 2000).

Kiesha is strong in math, and so she often helps other students, and she leads the math talks for the class. This has built her confidence in speaking and has helped her with social relationships. Kiesha's parents know that reading is critical, and they also work with her on special reading comprehension materials that Ms. Langley sends home. In addition to the Tier I supports, Kiesha also receives more intensive services at Tier II.

Tier II Supports for Children Who Are Deaf or Hard of Hearing

The supports that a child receives at Tier II provide more intensive instruction in the academic areas and can also address special learning strategies, or study skills. For Kiesha, Tier II activities include one-on-one work with her interpreter. During these sessions, they often preview topics and skills that Ms. Langley plans to teach the following week, or they review key things that have just been taught. Sometimes the special education teacher, Mrs. Cooke, works with small groups of children on study skills and organization strategies; Kiesha usually participates in these sessions. The guidance counselor also provides some Tier II supports in helping students become better self-advocates, and Kiesha has participated in several small-group sessions learning and practicing ways to help others understand and meet her needs. Planning for the Tier II activities is usually collaborative, and Ms. Langley often works with other members of the multidisciplinary team to determine the kinds of supports that Kiesha needs. This collaboration is like a rhythmic dance, with different professionals taking the lead and others following, depending on the child's needs, but with everyone in tune and staying mindful of the importance of appropriate services to help the child be successful (Luckner & Muir, 2001). Even with extensive supports at Tier II, Kiesha, like most children who are deaf or hard of hearing, needs the individualized support of Tier III.

Tier III Supports for Children Who Are Deaf or Hard of Hearing

The supports that a child with a hearing loss will receive at Tier III vary depending on his or her specific needs. Often support includes specific instruction on the use of hearing aids or cochlear implants. Instruction in speech reading and speech production is also important for many children. Specific instruction on communication skills and language development is always needed, though the specific form this takes will be determined by the child's needs. The website for this text gives examples of several manual communication approaches, including American Sign Language, Pidgin Sign English, Signing Exact English, cued speech, and finger spelling.

Textbook website
college.hmco.com/PIC/kirk12e

Of these manual communication approaches, American Sign Language (ASL) is the only actual language with its own grammar and syntax. The others are manual coding approaches that use the structure of English, preserving its grammar and syntax. With greater emphasis on total communication, Tier III instruction is likely to focus on approaches that combine manual communication with oral methods.

HM VIDEO CASE

Cooperative Learning: High School History Lesson

Watch this Video Case at the student website. This video shows high school students working in cooperative learning groups. What strategies and supports would you need to put in place to ensure that students who are deaf or hard of hearing could participate fully in this type of small group work?

Kiesha's Tier III services, for example, include continued lessons in ASL and speech reading. Kiesha is given direct reading instruction using visual prompts and reading comprehension strategies. She also receives special instruction to help her in developing abstract language. This instruction includes a focus on multiple word meanings (*mole* as an animal and as a spy collecting classified information), similes (*he has a head like a rock*) metaphors (he is a moose), onomatopoeia (the *whir* of the engine), idioms (*he pulled himself up by his bootstraps*), and inferences (the inference taken from *the cold wind blew snow around the house* is that it is winter). Explicit instruction that reinforces abstract language is often necessary for children with hearing losses to ensure that they do not miss critical nuances in communications by making literal interpretations of the message (ASHA, 2008). The combined services in Tiers I, II, and III all help to ensure that students have the supports they need to be successful. In addition to meeting the educational needs of children, the general classroom teacher is also key in recognizing warning signs that a child might have a hearing problem.

The General Education Teacher's Role in Recognizing Hearing Problems

How does the classroom teacher identify a child with a possible hearing loss so the child can be referred for comprehensive examination? Indicators of a hearing loss can show up in several ways that allow teachers to recognize the potential problem. A general education teacher can help identify a child with a possible hearing loss by observing his or her articulation, need for a higher volume of sounds, requests that information be repeated, and inattentiveness or unresponsiveness.

The accompanying box gives specific student behaviors (Stephens, Blackhurst, & Magliocca, 1982) that can help teachers recognize potential problems with hearing.

Warning Signs That Should Alert the Teacher to Potential Hearing Problems in Children

- *Does the child appear to have physical problems associated with the ears?* The student may complain of earaches, discomfort in the ear, or strange ringing or buzzing noises. Teachers should note these complaints and also be alert for signs of discharge from the ears or excessively heavy waxy buildup in the ear canal. Frequent colds and sore throats are occasional indicators of infections that could impair hearing.
- *Does the child articulate sounds poorly and particularly omit consonant sounds?* Students who articulate poorly may have a hearing problem that is preventing them from getting feedback about their vocal productions. Omission of consonant sounds from speech is often indicative of a high-frequency hearing loss.
- *When listening to radio, television, or records, does the student turn the volume up so high that others complain?* Because many young people

may turn up the amplification of music, this determination will sometimes be difficult to make. Teachers can get clues, however, by observing students listening to audio media that are not producing music, such as instructional materials and movies.

- *Does the student cock his or her head or turn toward the speaker in an apparent effort to hear better?* Sometimes such movements are obvious and may even be accompanied by a "cupping" of the ear with the hand in an effort to direct the sound into the ear. In other cases, actions are much more subtle. Teachers often overlook such signs, interpreting them as symbols of increased inquisitiveness and interest.
- *Does the student frequently request that what has just been said be repeated?* Although some students pick up the habit of saying "Huh?" as a form of defense mechanism when they are unable to produce what they perceive as an acceptable response, such verbalizations may also indicate a hearing loss. When a particular student frequently requests repeated instructions, teachers should further investigate the possibility of hearing loss.
- *Is the student unresponsive or inattentive when spoken to in a normal voice?* Some students who do not follow directions or do not pay attention in class are frequently labeled as "troublemakers," which results in negative or punitive treatment. Often, however, these inappropriate school behaviors are actually caused by the student's inability to hear. They can also be caused if the sounds that are heard appear to be "garbled."
- *Is the student reluctant to participate in oral activities?* Although reluctance to participate orally may be indicative of other things, such as shyness, insecurity with respect to knowledge of subject matter, or fear of failure, it also may be due to hearing loss. The child might not be able to hear the verbal interactions that occur in such activities.

Source: From T. Stephens, A. Blackhurst, & L. Magliocca, (1982). *Teaching mainstreamed students* (New York: Wiley), pp. 43–44.

Several instructional strategies can be used to enhance participation for children who are deaf or hard of hearing.

Instructional Strategies to Enhance Participation for Children with Hearing Losses

With most children who have hearing difficulties served in the general classroom for most of their day, it is essential that teachers incorporate strategies to help students be successful (Antia, 2007; Luckner & Muir, 2001; Luckner, 2006). The ideas listed in Table 10.3 were developed to help children who have frequent otitis media infections succeed in the general classroom setting. You may recall that otitis media, an infection in the middle ear, is the most common cause of hearing loss for children, and these strategies will help any child with a hearing loss.

Assistive and Instructional Technology

Assistive technology is the term for any equipment or product that assists the learner with special needs. Federal law requires that assistive technology be considered for every student with an identified disability (CEC, 2006).

Alerting devices and **alarm systems** have been developed for the deaf and hard of hearing that show flashing lights or use vibration. There are numerous

TABLE 10.3
Listening and Language Strategies for a Child with Frequent Otitis Media

Make Speech Louder or Clearer	• Get down on the child's eye level to talk whenever possible. Get close (no more than three feet away) and face the child to provide clear visual and auditory information. • Gain the child's attention before speaking to make sure that the child is listening. Remind the child to listen when necessary. • Speak clearly and repeat important words but use a natural speaking intonation or pattern. • When possible, use visual support to help the child understand what he or she is hearing. For a young child, point to objects, pictures, or people and gesture when talking. For an older child, give written as well as verbal instructions. • When there is a speaker in the classroom, seat the child close to the speaker but where the child also can see other children (e.g., at the side of the room).
Minimize Background Noise	• Turn off record players, radios, recorders, and television playing in the background, which can interfere with children hearing ongoing conversation. • Repair noisy appliances (e.g., air conditioners, heaters, fans, vacuum cleaners) that make it hard to hear speech clearly. • Reduce distractions by using movable barriers (e.g., bookshelves, flannel boards) to create small areas in a classroom where small-group and one-to-one interactions can take place. • Hang washable draperies over windows to absorb sound, and close doors and windows, if there is noise that makes it hard to hear.
Promote Language Learning	• Show an interest in what the child is talking about and in things that interest the child, and follow the child's topic. • Play interactive games with children to encourage turn taking (e.g., peekaboo). • Model desired language by describing ongoing activities. • Respond immediately and consistently to a child's communication attempts. • Pause to give the child time to talk. • Check with the child to see if directions and new information are understood. • Give positive feedback for language attempts. • Elaborate on what the child says by adding words to the child's utterances. • For older preschoolers, encourage discussions that explain things, predict what will happen next, describe feelings, and refer to children's own experiences.
Increase Children's Attention to Language	• Sing simple songs with repeated words and phrases (e.g., "The Wheels on the Bus"). • Play word and listening games (e.g., I Spy) in which children listen to familiar patterns and fill in words. • For older preschool children, play rhyming games (e.g., cat, fat, bat). • Read frequently with children, labeling and describing pictures and referring to children's own experiences.

Source: From J. E. Roberts & I. Wallace, *Otitis media in young children: Medical, developmental, and educational considerations* (Baltimore: Paul H. Brookes, 1997), p. 155. Reprinted with permission.

devices of this kind, including alarm clocks, fire alerts, doorbell signals, phone signals, and a baby-cry alarm.

Hearing aids provide essential amplification for many individuals who are deaf and hard of hearing. The technology of hearing aids has advanced rapidly, and today's aids are small, powerful, and have special features to help differentiate speech sounds from background noise. In addition to hearing aids, there are several devices that facilitate hearing. These include assistive listening devices (ALDs), which increase the volume of the voice received and reduce other sounds in the environment; an induction loop device, which is an audio loop

system that surrounds a seating area connected to a microphone and amplifies the sound received by the hearing aid; frequency modulated (FM) systems, in which the teacher wears a microphone that sends a direct signal into the child's hearing aid; infrared devices, which transmit sound via invisible light waves; and vibrotactic aids, which transmit sound through vibrators worn on the skin. More information on all of these technologies can be found through the Better Hearing Institute and the American Speech-Language-Hearing Association (ASHA).

Better Hearing Institute
www.betterhearing.org

American Speech-Language-Hearing Association
www.asha.org

Abledata Assistive Technology database
www.abledata.com

Cochlear implants involve a surgical procedure in which electrodes are inserted into the cochlea. A microphone worn behind the ear receives environmental sounds and sends them through the auditory system (Edwards & Tyskiewicz, 1999; Steinberg & Knightly, 1997). Cochlear implants bypass the damaged part of the ear and stimulate the hearing nerve. They do not restore hearing, but they do provide a sound system that can assist the user in understanding incoming auditory stimuli (Marschark, Lang, & Albertini, 2002). They appear to be effective over a longer period of use if worn consistently. Recent research indicates that children who receive implants, particularly during the preschool years, develop language and reading at nearly normal rates and in sequences similar to those of children who are not deaf or hard of hearing (Deafness Research Foundation, 2000; Martindale, 2007; Serry & Blaney, 1999).

Cochlear Implant Association
www.cici.org

Whereas hearing aids simply amplify sounds, cochlear implants with twenty-two to twenty-four wires send sounds of different frequencies to the brain, thereby providing a direct connection between speech and sounds in the environment. Currently more than 250 hospitals offer this surgery; 25,000 people in the United States have received cochlear implants (half of these are children), and the demand for implants is increasing by 20 percent each year (Martindale, 2007). However, these implants cost between $40,000 and $50,000 initially, with a follow-up expense of approximately $20,000 per year (Marschark, Lang, & Albertini, 2002). The Deaf community has not fully accepted cochlear implants, as many feel that they convey a negative impression of deafness.

Speech Viewer III provides a variety of visual displays, such as a balloon getting larger in proportion to the loudness of the speaker's voice. The program is designed to improve voicing, pitch, timing, and sustained production (Mahshie, 1998). Another program, the CyberSign project, provides students with line illustrations of a number of signs (Nakamura, 1997).

Speech-to-print systems reproduce the classroom dialogue on a computer screen. In some cases a captioner who is in the room types the dialogue as it occurs, but more frequently the computer is equipped with voice-activated software. These approaches have a dual advantage in that the student can read the discussion as it is taking place and can review it later in either a printout or electronic form (Stinson & Foster, 2000).

Telecommunications and **media access** have increased dramatically over the past few decades. Captioned telephone relay services are available in forty-two states; phones with text messaging and access to the Internet allow real-time communication; pagers are available; and the media industry is increasingly using captions for movies and productions. *The National Directory and Resource Guide for Telecommunications and Media Accessibility for People Who Are Deaf, Late-Deafened, Hard-of-Hearing, or Deaf-Blind* (2007) provides up-to-date information on how to use these resources.

Telecommunications for the Deaf and Hard of Hearing, Inc.
www.tdi-online.org

Instructional software programs are being developed at a rapid rate. High-speed computers make it possible to combine print, videos, sounds, and signs to help the student who is deaf or hard of hearing understand instruction. Multimedia programs are also available that contain video dictionaries of sign language (usually ASL). When the user encounters an unfamiliar word, he or she moves the mouse and clicks the appropriate key, and a video appears with a person signing the word.

In addition to the breakthroughs with assistive technologies, advances have been made in instructional technologies.

The usefulness of computers to children with hearing losses is comparable to their usefulness to those

who have learning disabilities (see Chapter 4). Applied computer technology has advanced to such an extent that special word processing systems can be used to translate written English into graphic finger spelling signed on the computer screen. The computer enables the student with severe hearing losses to practice both signed and written English. Speech recognition software moves speech to print and print to speech, allowing communication in a variety of settings. (Because advances in technology are so rapid, you may wish to locate more information by visiting the websites listed throughout the chapter.)

Diversity: The Bilingual-Bicultural Approach

The **bilingual-bicultural approach** asserts that persons who are deaf are bicultural in that they belong to the Deaf culture, as well as to the broader culture of the society in which they live. Many are also bilingual because they use a sign language system (usually ASL) to communicate and also use the spoken or written language of their culture. In the United States, the primary language is English, and those that speak a different first language would be considered trilingual if they mastered two verbal and written languages and ASL, as well (Baker & Baker, 1997; Easterbrooks, 1999; Moores, 2000).

Some specialists believe that children should be taught a sign language first and be introduced to oral language as a second language after the sign language. Children with hearing losses who were taught in this manner would be considered bilingual, using ASL as their first language and the written or oral form of English as their second language. It should be noted that studies of persons who are bilingual indicate that they may develop full proficiency in only one of the two languages they speak. Therefore, an individual who is able to code-switch from ASL to the written or oral form of English with considerable linguistic skill may still be more proficient in the first language, in this case ASL.

Mexican American children who are deaf are one of the fastest growing minorities in the U.S. school-age population. Think back to Carlos, one of the children we met at the beginning of the chapter. Carlos would be a trilingual child, with Spanish, ASL, and English. Clearly he needs support in all three languages to achieve success.

Residential Schools for the Deaf

Currently, the population in residential schools has dropped to about 10,000, with only 2,500 full-time students (Marschark, Lang, & Albertini, 2002). Many factors have led to the shrinking attendance in residential schools. These include the increase in newborn screening programs and early intervention, decreasing incidence of severe to profound deafness, increasing numbers of children with cochlear implants, federal legislation directed at providing access to general education curriculum and setting, and the closing of state schools for the deaf (Luckner & Muir, 2001). Students who do attend residential schools tend to have more severe hearing losses, to come from lower income and lower socioeconomic status families, and to have poorer spoken-language skills. Also, a greater number have parents who are deaf or hard of hearing (Marschark et al., 2002). Although the trend is clearly toward fewer students attending residential schools, these schools still provide an essential service for students who are deaf.

Many general education classrooms do not offer equality of education to children who are deaf or hard of hearing. In some cases the student must take the core curriculum in one room and receive special instruction in another. A dual-track education can make social relationships more difficult (Marschark et al., 2002). In addition, although interpretation is provided, if students have to look at a visual representation while a lecture is being conducted, their attention is divided between the visual and the interpreter, and they miss part of the lesson. With these and other possible problems, some parents choose residential placement so that full attention can be given to the individual needs of the student from the very heterogeneous population of the deaf and hard of hearing (Marschark et al., 2002).

The advantages of residential schools from the parents' perspective are that the teachers are better prepared to deal with children with hearing impairments and that the child is in a population of students who are similarly challenged, so he or she can relate to and establish friendships with classmates, develop a positive self-image, and achieve emotional security (Marschark et al., 2002). The parents need the option of residential schools so that they can decide whether this is the best setting for their child.

Family and Lifespan Issues

The family provides essential support for the child who is deaf or hard of hearing (Luckner & Muir, 2001). As members of the multidisciplinary team, the family helps to shape the educational program for the child and reinforces the intervention in the home. Family-oriented approaches have led to the attainment of better communication skills by children who are deaf or hard of hearing. Moreover, when stress is reduced within a family, better interaction usually occurs among its members (Spencer, Ertling, & Marschark, 2000).

Focusing on the family system requires recognition of its strengths and respect for its values, beliefs, choices, and aspirations. It helps the family to recognize the critical role that sign language plays in the development of children who are deaf or severely hard of hearing. The child's development is facilitated when family members adopt interactive strategies, encouraging the child to request, respond, and take the initiative. All these interactive patterns are important factors in effective learning, and they also stimulate the child to use language.

When the parents of a child who is deaf are also deaf, they are likely to prefer having the child learn a sign or manual language, usually ASL, first. Children in this situation are fortunate because they learn a language early and probably

Families who provide rich social interactions help children who are deaf develop their communication skills.
(© Louis Quail/CORBIS)

develop more quickly than children who are deaf and born to hearing parents, who may not recognize their child's condition for some time.

Most parents who can hear have little or no experience with deafness and may not know how to proceed with a child who is deaf. In many instances, they initially misperceive the condition, believing it to be an inability to speak rather than an inability to hear. The earlier the hearing problem is identified, the sooner appropriate support can be provided to the child and the family.

Encouraging Academic Achievement at Home

Many of the early education programs for preschoolers with severe hearing losses focus on the parents. Some provide counseling to help family members accept and adjust to the diagnosis of the severe hearing losses and to understand the condition. Others support parents in taking an active role in teaching their children and carrying out in the home developmental tasks that reinforce the interventions. The extent of the parents' involvement is a function of their readiness to participate and the willingness of educators to include them. What most intervention programs for infants and toddlers who are deaf have come to stress is the parents' role in teaching a communication system to their child, preferably in a natural environment (IDEA, 2004; Spencer, Ertling, & Marschark, 2000). Some of these strategies for parents are:

- Develop a perception that is accepting of deafness.
- Learn a sign language, preferably ASL.
- Use gentle facial touch to gain the child's attention.
- Use facial expressions to help the child understand the sign.
- If the child looks away, allow him or her to do so before trying to continue communication.
- Use short utterances.
- When referring to things, make signs and gestures near the object.
- Exaggerate, repeat, and prolong signs to make sure that they are seen and recognized.
- Use signs more slowly than you would speak words to an adult.
- Sign near the object to be identified or move the object into the child's gaze.
- Learn an oral or an aural approach.
- Provide amplification of residual hearing.
- Consider cochlear implants if the child is eligible for them (Jamieson, 1995; Koester, Karkowski & Traci, 1998; Lytle & Rovins, 1997; Marschark et al., 2002; Martindale, 2007; Masataka, 1996; Waxman, Spencer, & Poisson, 1996).

Early intervention for children who are deaf or hard of hearing begins in the home as soon as the child is identified and is continued in early intervention centers. It has been shown to be very effective in assisting children who are deaf or hard of hearing to achieve optimal development (Moeller, 2000). Although

Identifying students' interests and strengths is critical to supporting their transitions to post-secondary options.
(© Ellen Senisi)

the early intervention support is critical, the family continues to play a key role as the child grows. Parents in a study completed by Luckner and Muir (2001) shared stories of moving to a specific location to access better services, driving long distances to get needed supports, learning sign language so they could communicate, securing technology and medical support for their child, and working to provide additional social opportunities for their child. Parents also help to ensure that their child's educational experiences are appropriate and meet his or her needs.

Transitions for Students Who Are Deaf or Hard of Hearing

Transition planning for students who are deaf and hard of hearing must begin in high school and should address the student's interests, strengths, and support needs. Identifying the postsecondary options for each student early in high school is helpful as the student and family begin preparing for young adulthood. Students who are deaf or hard of hearing face the same question as hearing students: What do I want to do when I grow up? The role of the high school guidance counselor is to help the students explore their options and to help the families plan for these options. This exploration may include vocational school, job training, and college. For each option a close look at the student's interests and strengths is essential to see whether it is a good match. If college is the choice, the next step is to identify the school that best fits the student's needs. Although most colleges have support services for students with special needs,

TABLE 10.4
Questions to Ask Colleges About Supports and Services for Students Who Are Deaf or Hard of Hearing

Key Question	Related Questions
Who is eligible for support services?	What are the identification criteria? Are further diagnostic assessments required or available? What costs are associated with services? Are qualified personnel available who have experience working with students who are deaf or hard of hearing?
What academic supports are available for students who are deaf or hard of hearing?	Are qualified interpreters available who use the student's communication methods? Can the students have note takers, modified tests, learning strategies support, tutoring, writing labs, math labs, study sessions, computer support? Is financial assistance available to help cover costs of assistive technology that may be needed by the student?
What kinds of counseling supports are available?	Personal and social adjustment support? Self-advocacy? Career guidance?
What are the college's policies regarding . . .	Number of credit hours that count as full time Extended drop and add periods Taping classes and lectures Transferring credits from community colleges Auditing classes prior to enrollment for credit Substitution for foreign language (does ASL count?) Grade point requirements for graduations Priority scheduling for students with special needs Selection of academic advisors Academic probation Office hours for faculty Teaching loads for faculty
What lifestyle modification can be made?	Can students have access to study carrels equipped with their technology needs? Are health services appropriate? Is an audiologist available?
What extra curriculum and social supports are available?	Is there a Deaf community network on campus? What religious affiliations are available and accessible? Are clubs, sports, and other campus activities accessible?

Source: Adapted from M. R. Coleman, (1994). Postsecondary educational decisions for gifted/learning disabled students, *Journal of Secondary Gifted Education, 5*(3), 53–59. (Prufrock Press). Adapted with permission.

some are more comprehensive. Key questions that should be asked to help make the choice of a college are given in Table 10.4. Many of these questions would be helpful for any student with special needs, and you may want to adapt these as you think about the transition needs of students with disabilities discussed in the other chapters.

Students who are deaf and hard of hearing also have another key decision to make about college: whether to attend a college designed specifically for their needs, such as Gallaudet University, or to attend a mainstream college with additional supports. The exciting thing is that more and more students with hearing loss are attending colleges across the country.

moral dilemma

Students Who Are Deaf or Hard of Hearing

Family-centered intervention is critical to providing appropriate support for the child, and parents are key members of the multidisciplinary team. The involvement of the family is essential for children who are deaf or hard of hearing because families support and reinforce early communication skills with the child. You are working with the parents of Tony, a preschool child who is deaf. Tony has been fitted with hearing aids but still needs extensive manual communication to support his understanding, and the professionals on the team feel that he should learn American Sign Language. Tony's father is adamant that his child will be normal, will speak, and will *not* use sign language, which he believes will make his son look like a "freak." You believe that Tony's mother is more open to the idea of incorporating ASL as part of Tony's total communication system.

How can you bridge the gap between the professionals and the parents? How can you support the mother and the father as they wrestle with this decision? What stress does the difference in beliefs place on the family? And how do you as a professional know when to push for what you feel the child needs, in spite of the stress this might cause, and when to back off?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- Individuals who are deaf or hard of hearing are a heterogeneous group with different strengths, interests, and needs; what they share is difficulty hearing.
- The impact of a hearing loss will depend on the degree of loss, type of loss, and age of onset when the loss occurred.
- The ear is a complex organ, and problems with any part of the ear or the auditory nerve can result in hearing loss.
- Central auditory processing disorders (CAPD) are considered to be a hearing loss because they prevent the individual from making full use of the sounds in his or her environment.
- A prelingual hearing loss will have a greater impact on language development than a postlingual hearing loss.
- Hearing losses span all age groups, affecting approximately 1.4 million children and youths under the age of 18.

- There are both genetic and environmental causes of hearing loss. Otitis media is the most common cause of hearing loss in children.
- Early identification and intervention is essential to help the child develop the communication skills that will be the foundation for his or her later success.
- While a hearing loss does not affect a child's overall cognitive level; some children are also gifted and talented, but others have developmental delays.
- Students who are deaf or hard of hearing may need additional support for social adjustment.
- The Deaf culture or community provides its members a shared social identity with strong bonds.
- A multidisciplinary team is critical to the educational support of children who are deaf or hard of hearing, and an audiologist is a key member of this team.
- Total communication combines oral and manual methods to enhance the child's ability to communicate.
- Education services will likely be needed across all three tiers of intervention in the RTI model.
- Technological advances have had a tremendous impact on the ability of individuals who are deaf or hard of hearing, allowing greater communication and access to information.
- Medical advances, especially cochlear implants, have dramatically changed the ability to hear speech for many individuals who are deaf or hard of hearing.
- Family support is critical for the child's development.
- More and more students who are deaf or hard of hearing are attending college.

Future Challenges

1. ***As hearing screening for infants increases, will we be able to provide adequate early intervention support for the children and their families?***

   Early intervention is key to the success of individuals who are deaf or hard of hearing. As infant screening programs increase, we are likely to see growing numbers who need early intervention. How can we ensure that the infrastructure of professionals and resources needed to provide early intervention supports and services is in place?

2. ***How can we make sure that the needs of students who are deaf or hard of hearing and who are served in general education classrooms are met?***

   With the majority of students who are deaf or hard of hearing being placed in general education classrooms for part or most of the day, making sure that their needs are met is essential. How can we ensure that the

multidisciplinary team includes an audiologist, that the interpreter has had experience working with young children, and that the teacher receives the support she or he needs to be most effective with the child?

3 ***How will the expanding use of cochlear implants affect individuals who are deaf or hard of hearing?***

The demand for cochlear implants is growing each year, and implants are being used with more infants. Cochlear implants seem to have dramatically opened access to speech sounds for individuals who are deaf or hard of hearing. Preliminary research suggests that when cochlear implants are in place and are used, the language and academic trajectory for the child is significantly improved. Yet because this is still a relatively new technology, there are still questions. What impact will these changes have on the Deaf community? How will we ensure equitable access to this technology for children whose parents cannot afford the expensive procedures?

Key Terms

acquired hearing loss p. 333
alerting devices/alarm systems p. 349
auditory acuity p. 330
auditory brainstem response (otoacoustic emissions) p. 335
auditory nerve p. 330
auditory processing p. 330
bilingual-bicultural approach p. 352
bone-conductor test p. 337
central auditory processing disorder (CAPD) p. 333
central auditory processing loss p. 330
cochlea p. 320
cochlear implant p. 331
cochlear nerve p. 320
conductive loss p. 330
congenital p. 323
decibel (dB) p. 329
eardrum p. 330
external auditory meatus p. 330
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play audiometry p. 337
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Speech Viewer III p. 351
stapes p. 330
telecommunications p. 351
temporal bone p. 330
TORCHS p. 335
total communication method p. 326
vestibular apparatus p. 330

Resources

References of Special Interest

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Journals

American Annals of the Deaf
Gallaudet University

Communication Disorders Quarterly
http://www.ingentaconnect.com/content/proedcw/cdq

Journal of Deaf Studies and Deaf Education
http://jdsde.oxfordjournals.org

Journal of Speech, Language and Hearing Research
American Speech-Language-Hearing Association
www.asha.org

The Volta Review
Alexander Graham Bell Society

Professional Organizations

Alexander Graham Bell Association for the Deaf
www.agbell.org

Division for Communicative Disabilities and Deafness (DCDD) of the Council for Exceptional Children
http://education.gsu.edu/dcdd/

Gallaudet University
www.gallaudet.edu

National Association of the Deaf Captioned Film/Video Program
www.nad.org www.cfv.org

National Deaf Education Center (formerly known as the National Information Center on Deafness, NICD)
http://gri.gallaudet.edu/

Some Special Contacts

American Speech-Language-Hearing Association (ASHA): 10801 Rockville Pike, Rockville, MD 20802, 301-897-5700 TTY, 800-638-8255 Voice, 301-571-0457 FAX, actioncenter@asha.org/professional@asha.org, www.asha.org

ASHA is a professional and scientific organization for speech-language pathologists and audiologists concerned with communication disorders. Provides informational materials and a toll-free HELPLINE number for consumers to inquire about speech, language, or hearing problems. Also provides referrals to audiologists and speech-language pathologists in the United States.

Better Hearing Institute (BHI): 515 King St. #420, Alexandria, VA 22314-3137, 800-EAR-WELL / 702-684-3391, 703-84-6048 FAX, mail@betterhearing.org, www.betterhearing.org

BHI is a nonprofit educational organization that implements national public information programs on hearing loss and available medical, surgical, hearing aid, and rehabilitation assistance for millions with uncorrected hearing problems. Promotes awareness of hearing loss through television, radio, and print media public service messages. BHI maintains a toll-free "hearing helpline" telephone service that provides information on hearing loss, sources of assistance, lists of local hearing professionals, and other available hearing help to callers from anywhere in the United States and Canada.

Gallaudet University (GU): 800 Florida Ave. NE, Washington, DC 20002, 202-651-5000 www.gallaudet.edu

Gallaudet offers more than fifty undergraduate and graduate degree programs and numerous continuing education and summer courses. Gallaudet also serves the national and international deaf communities by providing them with information and by conducting research on deafness.

National Theatre of the Deaf (NTD): 139 N. Main Street, West Hartford, CT 06107, 800-236-4193, 860-236-4163 FAX, info@ntd.org, www.ntd.org

NTD concentrates on artistic and theatrical professional development of deaf actors. Tours the United

States and abroad. Also presents Little Theatre of the Deaf productions in schools, theaters, museums, and libraries. Sponsors a professional school and Deaf Theatre Conference for deaf individuals.

Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI): 8630 Fenton St #604, Silver Spring, MD 20910-3803, 301-589-3006 TTY, 301-589-3786 Voice, 301-589-3797 FAX, info@tdi-online.org, www.tdi-onlineorg, www.cepintdi.org

Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI) is a nonprofit advocacy organization that promotes equal access to telecommunications and media and information technology for individuals who are deaf, late deafened, hard-of-hearing, and deaf-blind. Since 1968, TDI has successfully advocated for a variety of federal legislation to improve the lives of people with hearing loss, including the Hearing Aid Compatibility Act of 1988, the Americans with Disabilities Act and the Television Decoder Circuitry Act, both of 1990, and the Telecommunications Act of 1996. In addition, TDI advocates for administrative rules and policies that would provide greater access to wireless technology, as well as complete and high-quality captioning of television programs. TDI annually publishes a National Directory and Resource Guide, commonly known as the Blue Book, which is a popular resource book for people with hearing loss, as well as the *GA-SK Quarterly* news magazine.

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CHAPTER

11

Children with Visual Impairments

FOCUS QUESTIONS

- What effects do limited visual experiences have on the development of children with visual impairments?
- How is visual impairment defined?
- Why is learned helplessness a problem for many children who are visually impaired?
- How do we adapt the instructional program for youngsters with visual impairments?
- What role does orientation and mobility play in the education of children with visual impairments?
- What effects has technology had on the communication skills and mobility of children and youths with visual impairments?

Many children have correctable visual problems; they are not our concern in this chapter. For about one child in a thousand, visual impairments are so severe that they cannot be corrected. In this chapter, we discuss the special needs of children who are visually impaired and the educational adaptations that are—or should be—made for them.

Definitions

Visual impairment is a general term for a visual loss that affects learning in a school environment. Legally, a definition of children with visual impairments divides these children into two large groups on the basis of their ability to use the visual sense for learning after maximum correction. A child who is **blind** cannot use vision for learning but still can be responsive to light and darkness and may have some visual imagery.

Children with **low vision** have difficulty accomplishing visual tasks, but they can learn through the visual sense by the use of various special technologies and teaching techniques. The major educational distinction is that children who are blind use their tactile or auditory senses as their primary learning channels, whereas children with low vision can, with aid, still use the visual sense as their major avenue of learning.

Association for Education and Rehabilitation of the Blind and Visually Impaired
www.aerbvi.org

Prevalence of Visual Impairments

Children with visual impairments qualify as having a low-incidence disability and make up a very small percentage of the school population. There are only about four of these children for every ten thousand students (U.S. Department of Education, 2003), so it would be very difficult to cluster them for instructional purposes unless they were in a very large community or enrolled in a state school for the blind. Today there is a strong effort to provide them with an education within local schools. Another complication, described by a teacher of the visually impaired, is that many children with visual impairments also have other conditions, such as cerebral palsy, mental retardation, autism, and so on, that challenge the education planning for such students.

The Human Eye

Vision, or visual interpretation, is a function of the brain, experience, and the adequacy of the sense organ that receives stimuli from the outside world: the eye. Faulty visual interpretation can result from a defect in the brain, inadequate experience, or a defective eye. The process of visual interpretation is as

Vision is a function of the sensation and perception of light.

follows: Light enters the eye, focuses on the retina, and is transmitted along the optic nerve to the brain, where visual information is interpreted. Two people with well-functioning sense organs can interpret a visual experience differently, depending on their training and experience.

Educators of children with visual impairments are concerned primarily with adapting instruction to the impairment. To accomplish this, they need to understand how healthy eyes operate and what some of the conditions are that can cause problems.

The human eye is a complex system of interrelated parts (see Figure 11.1). Any part can be defective or become nonfunctional as a result of hereditary anomaly, disease, accident, or other causes. The eye has been called a camera for the brain. Like a camera, the eye has a diaphragm, the **iris.** The iris is the colored muscular partition that expands and contracts to regulate the amount of light admitted through the central opening, or **pupil.** Behind the iris is the lens, an elastic biconvex body that focuses onto the retina the light reflected from objects in the line of vision. The **retina** is the light-sensitive innermost layer of tissue at the back of the eyeball. It contains neural receptors that translate the physical energy of light into the neural energy that results in the experience of seeing.

As Figure 11.1 shows, other protective and structural elements in the eye can affect vision. The **cornea** is the transparent anterior (front) portion of the tough outer coat of the eyeball. The **ciliary muscles** change the shape of the lens so

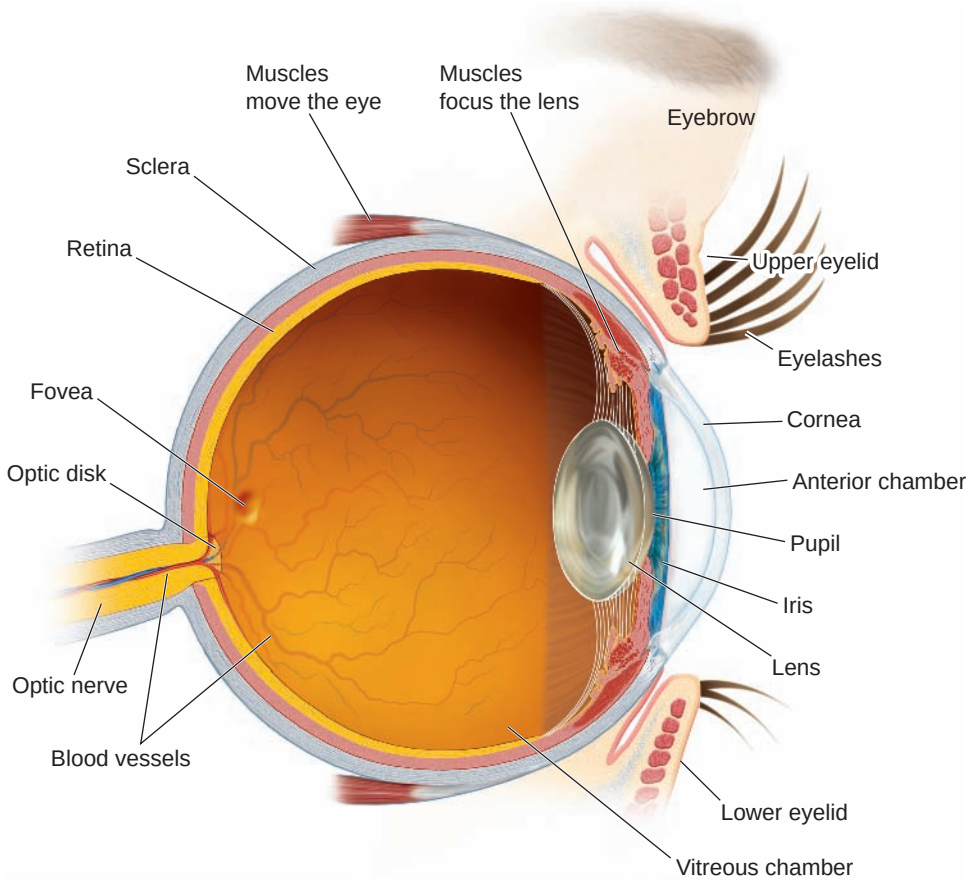


FIGURE 11.1
The Human Eye
From Freberg, L. (2006). Discovering biological psychology. Reprinted by permission of Houghton Mifflin Harcourt Publishing Company.

the eye can focus on objects at varying distances. In the normal mature eye, no muscular effort is necessary to see clearly objects 20 feet or more away. When the eye looks at an object closer than 20 feet, the ciliary muscles increase the convex curvature of the lens so that the closer object is still focused on the retina. This change in the shape of the lens is called **accommodation.**

Extrinsic muscles control the movement of the eyeball in the socket. The change made by these muscles is known as **convergence** and refers to the movement of two eyes toward each other when focusing on an object at near range.

Causes of Visual Impairments

A wide variety of conditions can cause serious visual impairments in children from birth to age 5. The potential causes include hereditary conditions, infectious diseases, cancer, injuries, and various environmental conditions. The actual cause of the disorder is not of primary interest to the teacher, who must deal with the functional consequences of the disorders; those functional consequences would seem to be similar from one condition to another. So whether the cause was an infection or a hereditary condition, the teacher faces a similar problem of limited vision.

The widely scattered prevalence of these conditions makes it difficult to assign percentages to particular causes, but some of them are reasonably well known. One of the most common infectious diseases is rubella (German measles), contracted by the mother during pregnancy. Rubella can cause serious birth defects, mental retardation, and hearing loss, in addition to visual problems, but improved control measures and education have combined to reduce the percentage of children blinded by this and other infectious diseases.

Another major cause of visual impairment is **retinopathy of prematurity** (formerly called *retrolental fibroplasia*). This disorder was widely believed to be caused by the overadministration of oxygen to premature infants in an attempt to save the life of a child who was threatened by other conditions. However, the condition appears to be more complicated. For example, it seems to be associated with low birth weight as well. For additional information on blindness and multiple disabilities, see Chapter 12.

Because future projections predict that more children will have multiple disabilities, it is likely that more children will have visual problems. These children will need to be educated, and their conditions may be complicated by a variety of other problems.

Characteristics of Children with Visual Impairments

Children with visual impairments tend to develop at a slower pace than children without disabilities. There is a wide variation in the development of children with visual impairments, and with a rich physical environment and

with encouragement to take reasonable risks, parents can increase the adaptive skills of their children.

A Visit to the Beach for a Child Who Is Blind

Imagine that a girl who is blind goes to the beach for the first time with someone who takes pleasure in introducing her to the joys of summer. Her companion, who may be sighted or blind, has described where they are going so that she has some preparation for what awaits her as she first sets foot on the beach. She anticipates eating a picnic lunch on the beach, and she has helped to buy the food and pack it in the ice chest. The two beachgoers have loaded the chest into the car and carried it from the car to the beach. Together, they have paused to pick up some sand and feel it sift through their fingers before they venture to the shore. Her friend has pointed out how the sand becomes damper the closer they get to the water. She may have picked up some more sand on her own to examine the change in texture. She has helped spread the blanket on the sand, noticing how the wind makes it difficult to spread it flat. When she has listened to an explanation of why it is important to protect her skin from the sun, she is prepared to rub the parts she can reach with sunscreen and to ask for help with the parts she cannot reach. Her attention to the sounds, smells, and tactile sensations at the beach is appreciated and forms an important part of the friends' conversation. With assistance, she has stashed her shoes in a bag on a particular corner of the blanket; her friend hopes she will remember where to retrieve them when it is time to put them on and go home.

The day has been rich in information and less scary than it might have been. Her friend has answered questions and shown her, in small, understandable, and pleasant steps, what is enjoyable and interesting at the beach. She may not comprehend how huge the ocean looks or how beautiful the sky is that day, but she has had a better chance of relaxing in the sun, enjoying a swim, and feeling like one of the magicians who produced the lovely picnic at the beach.

Source: F. Liefert, Introduction to visual impairment, in S. Goodman & S. Wittenstein (Eds.), *Collaborative assessment: Working with students who are blind or visually impaired, including those with additional disabilities,* (pp. 1–22) (New York: American Foundation for the Blind, 2003). Reprinted with the permission of the American Foundation for the Blind.

The Office of Special Education Programs in the U.S. Department of Education funded a large longitudinal study of young children with visual impairment (birth to 5 years) in seven sites around the country. This enabled the investigators to assemble data on a population of 202 youngsters receiving services from these sites and to draw some conclusions about their visual acuity, behavior, temperament, and environment in an effort to discover any differences between these children and typical children of similar age. This longitudinal study was named Project PRISM, and it has administered 2,446 standardized tests to the 202 children during the course of the project (Ferrell, Shaw, & Deitz, 1998).

Some of the major findings from this effort were as follows.

- Sixty percent of these children had additional disabilities, and two-thirds of these disabilities were considered severe.

- The leading diagnoses for these children were cortical visual impairment (21 percent), retinopathy of prematurity (19 percent), and optic nerve hypoplasia (17 percent).
- The majority of developmental milestones for these children were delayed, in comparison with those of typical children. Children with additional impairments achieved these milestones later than children without such impairments.
- Measures of social maturity and cognitive development showed delay.
- Measures of parental stress found more high scores among the parents of these children with visual impairments.

These findings tended to underscore the importance of providing services to the child and family as early as possible and also emphasize the importance of special attention to those children with more than one disability.

Cognitive Development

In the 1940s and 1950s, educators generally believed that the intelligence of children with visual impairments was not seriously affected by their condition, except for their ability to use certain visual concepts (colors and three-dimensional space, for example). The thinking then was that intelligence unfolds on a genetically determined schedule and is affected by only the most severe environmental trauma.

Visual impairment can hamper cognitive development.

Today, we hold a different view of cognitive development of children with visual impairments. We recognize that what we measure as intelligence in school-age children has been notably affected by their cumulative experiences in the early years of development. Lack of vision, then, is both a primary impairment and a condition that can hamper cognitive development because it limits the integrating experiences and the understanding of those experiences that the visual sense brings naturally to sighted children. These limitations are especially notable if the children do not receive early intervention in the preschool years. At present, the verbal section of the Wechsler Intelligence Scale for Children (WISC) would seem to provide the best measurement of intelligence for children with visual impairment.

Language Development

Sighted children acquire language by listening, reading, and watching movements and facial expressions. They express themselves first through babbling and later by imitating their parents and siblings. Children with visual impairments acquire language in much the same way, but their language concepts are not helped by reading or visual input. A sighted child develops the concept of a ball by seeing different balls; a child with blindness develops the same concept through tactile manipulation of different balls. Both are able to understand the word *ball,* and both are able to identify a ball.

A series of investigations into the language development of children with visual impairments yielded the following conclusions. Visual impairment does not interfere with everyday language usage or communication abilities. The language of children with visual impairments is similar to that of their sighted peers. However, the children with visual impairments had less understanding of words as vehicles of, or as standing for, concrete experiences, and they were slower than sighted children to form hypotheses about word meaning. Children with severe

For children with visual impairments, language development, self-esteem, and self-acceptance are nurtured by positive interactions with sighted peers.
(© Peter Arnold)

visual impairment appeared to be restricted to word meanings from their own personal experience, whereas vision allowed children to broaden and generalize the meanings of words.

Visual impairment calls for major efforts in vocabulary development.

Warren (1994), in a review of the literature that summarized the language of those with visual impairments, arrived at these conclusions:

> It is clear from the literature that the vocabulary of children with visual impairments is heavily grounded in their own perceptual experience and is not simply a parroting of sighted vocabulary. . . . This underscores the importance of the parents' role in ensuring not only that the child's perceptual experience is adequately rich, but also that it is embedded in a context of shared communication. (p. 326)

Sensory Compensation and Perception

Vision is a continuous source of information. We depend on vision to orient ourselves, to identify people and objects, and to regulate our motor and social behavior. People without sight have to rely on other senses for information and for all the other tasks that vision performs. How this is accomplished has been the focus of much speculation and research. The false doctrine of **sensory compensation** holds that if one sense, such as vision, is deficient, other senses are automatically strengthened, in part because of their greater use. Although this may be true in certain cases, research does not show that the hearing or touch sensitivity of children with visual impairments is superior to that of sighted children (Huebner, 2000).

Personal and Social Adjustment

No personal or social problems *inevitably* follow from being visually impaired. However, the restricted mobility and consequent limited experiences of children who are visually impaired appear to cause, in some children, a state of passivity and dependency.

Students with visual impairments may tend to spend more time in sedentary activities than their sighted peers.

The increasing interest in the social adjustment of students with visual impairments resulted in a study of the lifestyles of adolescents with blindness, low vision, and sight (Sacks, Wolffe, & Tierney, 1998). Using a device called a time diary, in which the students identified their primary and secondary activities in one-hour blocks of time over a twenty-four-hour period, the investigators found that students with visual impairments spent more time on the telephone, engaged in more sedentary activities, spent more time alone, and were bound to their homes by their inability to travel independently. One could anticipate that children with multiple impairments would fare even worse in the social domain than did these students.

What this study seems to indicate is a need for continued implementation of programs designed to prepare students with visual impairments for adult life. That would mean curricula that focus on career development and social skill competencies. Of course, the study also underscores the importance of mobility training as a key component to social contact for these students.

There is a need for programs that prepare students with visual impairments for adult life.

The teacher of the visually impaired must deal with many realistic issues; for example, spatial perception and communication. It is understandable that the teacher might overlook an issue that turns out to be one of the most important—how the child feels about his or her situation. Recently, there has been an attempt to focus on the child's feelings and to make them a significant part of the instructional program. The child who is deeply depressed and feeling helpless is not a good candidate for braille, print reading, or anything else (Tuttle & Tuttle, 1996). For example, a child who is trying to deny the reality of visual impairment may resist special learning devices such as viewers or magnifying glasses because these symbolize the disability.

Successful Coping

Several principles have formed the basis of a strategy to help the child go beyond these feelings of despair and create a climate of self-expression and self-esteem.

Successful coping includes the following:

- What a person *can do* is emphasized.
- The areas of life in which the person can participate are seen as worthwhile.
- The person plays an active role in molding his or her life constructively.
- Accomplishments are appreciated in terms of their benefits to the person and others and not depreciated because they fall short of some irrelevant standard.
- Pain that is suffered or difficulties that exist are felt to be manageable.
- The person is overcoming difficulties or lessening them through the application of medical procedures, the use of prostheses and other aids, the learning of new skills, and environmental accommodations (social, legal, economic, and so on).
- The person is living on satisfactory terms with his or her limitations. (Tuttle & Tuttle, 1996, p. 169)

Many people who have not had experience with persons with disabilities react to them by lowering their expectations. But those students do not want this kind of favor. "Don't treat me like I'm helpless. Let me do it on my own" is their response to well-meaning people who attempt to "help" them.

Great interest has been shown in the self-esteem of students with visual impairment. However, self-esteem appears to be the by-product of good performance on tasks deemed socially valuable (for example, effective mobility around class and school). Good academic and social behavior will result in good self-esteem, rather than the other way around.

What happens to children with visual impairments over time? Does their lack of experience with the world around them cause developmental problems in motor and social domains? These questions have been difficult to answer because the relative infrequency of such children made it hard to bring together a sufficient number of children to conduct a convincing study.

A national study of children with visual impairments was combined with agency data from a southern state to create a sample of 186 children (ages 1–7) who had developmental curves that could answer these questions (Hatton, Bailey, Burchinal, & Ferrell, 1997). The majority of these children had visual impairments that stemmed from retinopathy of prematurity, optic nerve hypoplasia, cortical visual impairment, and albinism. Forty percent of the sample also had co-occurring conditions of mental retardation or developmental disabilities. Personal and social development improved as the visual disability lessened. The addition of another disability created more difficulty, requiring more professional attention and planning. (See chapter 12 for more on multiple disabilities.)

When adapting instruction to the educational needs of children who are visually impaired, teachers should emphasize concreteness and tactile experiences.

(© Age fotostock)

One Person's Reflections on the Consequences of Using a Unique Standard

I don't know when it began, this pervasive expectation that others would naturally give me a break because I am blind—probably as a very young child. I do remember in the first grade the teacher asked for volunteers to help me during recesses "so [I] wouldn't get hurt." I didn't need the help, but I have to admit I enjoyed the extra attention.

In fourth and fifth grades, the teachers let me complete only even-numbered problems in arithmetic homework while my classmates had to do them all. They told me that they were making this exception because I was blind and it took me longer to do my work. I had a teacher in seventh grade who required six book reports during the year for an A, but then turned to me and announced that four would be good enough for an A. Who was I to argue with such good fortune? Through high school, I guess I began to work the system to my advantage. I learned that if I looked uncomfortable, I wouldn't be called on in class; if I turned in partial work, I would often get full credit; if I happened to be late turning in assignments, it was OK because I was blind. Before long, I expected everyone to give me a break because of my blindness.

My first summer job after my junior year in high school really jolted me to reality. I was hired by a used car dealer to wash, wax, and vacuum six cars a day. At the end of the first week I questioned my paycheck—I thought they shortchanged me. My boss didn't pull any punches. "You serviced four cars a day this week, so I paid you for four cars a day. If and when you get up to speed and you finish six cars, I'll pay you what we agreed upon." I didn't argue—I knew he was right. I got myself organized, hustled a bit more, and put in some extra time that next week. I was proud to get my first paycheck on Friday; I knew I had earned it fair and square.

Source: Reprinted from D. Tuttle & N. Tuttle, Psychosocial needs of children and youths, in M. C. Holbrook & A. J. Koenig (Eds.), *Foundations of education* (2nd ed.), Vol. 1, *History and theory of teaching children and youths with visual impairments* (p. 167) (New York: AFB Press, 2000) American Foundation for the Blind.

Pivotal Issues

- What was the cumulative effect on the student of all the "help" provided because of his blindness?
- Have you ever had your offers of help indignantly rejected? What do you believe was the psychological basis for that rejection?

PROFILES OF TWO STUDENTS

Characteristics of Students with Visual Impairments

People with normal sight wonder from time to time what it would be like to be blind. It is obvious that adapting to sensory loss has implications that are profoundly personal and social, as well as educational. A comprehensive special education program must involve all areas of development and adjustment. We introduce developmental profiles here of two visually impaired children to highlight some of the problems children with visual handicaps have in adapting to their disability. The graph on page 372 shows the patterns of development of Renaldo and Susan. Renaldo has a severe visual disability; Susan has been blind since birth. Both are educated in public schools in which special provisions, personnel, and equipment are available.

Renaldo: Renaldo is a tall, slim 11-year-old who has a severe visual impairment for which maximum correction has been obtained with the aid of thick glasses. He can read print material and, in the early grades, was able

to make a reasonable academic adjustment. As the profile in the graph shows, Renaldo scored slightly above average in intelligence as measured by an adaptation of the Stanford-Binet and is currently doing average work as measured by achievement tests administered with no time limits. Yet this profile, though favorable, tends to mask the academic problems Renaldo is likely to encounter. He will be required to use higher thought processes as he progresses through the educational system, and he is already beginning to experience the shift from concrete arithmetic to the more difficult (for him) abstractions of algebra and spatial concepts of geometry.

Renaldo spends most of his time in school with a regular sixth-grade class but leaves the program for about an hour a day to work with a specially trained resource teacher. Only three or four other students are in the resource room with Renaldo, so the teacher can give him a good deal of tutoring in the academic areas in which he needs help.

Of more concern is how Renaldo feels about himself. His visual handicap is serious enough that he is sometimes unsure whether he belongs to the sighted community or to the blind community. He feels deeply about his awkwardness and inability to perform in athletics—an important dimension in the life of an 11-year-old—but he does not discuss this with his schoolmates.

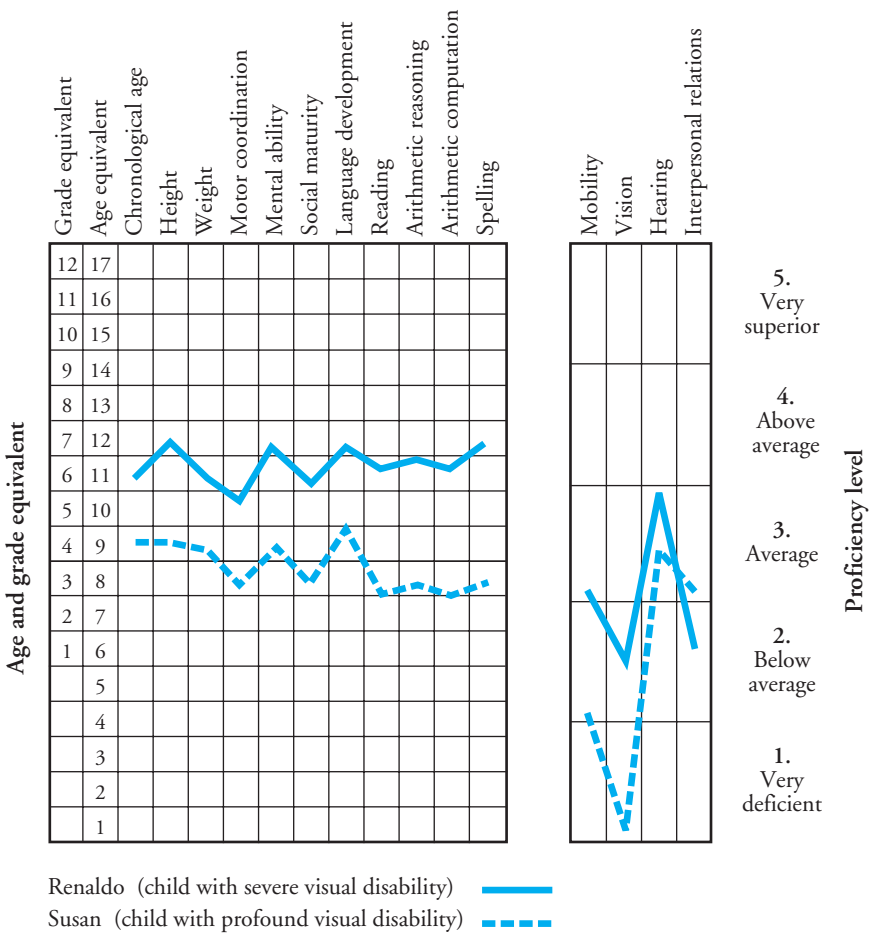


FIGURE 11.2
Profiles of Two Students with Different Degrees of Visual Impairment

Renaldo also has some interpersonal problems. He reacts with a sharp tongue and a quick temper to any slights or negative comments, real or imagined, about his impairment. Consequently, many of his peers ignore or avoid him except when class participation requires interaction. Above all, Renaldo is beginning to wonder about his future: What is he going to do

with his life when he grows up? How can he be independent? How will he establish friendships with girls? This is a topic of great importance to his older brother, Brian, who is in high school and whose life seems to revolve around girls. Brian's behavior is a source of amusement to Renaldo now, but in a few years he will have to face social relationship problems more seriously.

Susan: Susan's profile is also shown in the graph. She is an average-looking 9-year-old. Like many children who are visually impaired, she has limited light perception that helps her move around. She has mastered a braille system that uses contractions, letter combinations, and shortened forms of words to save time and space in reading. In some respects, Susan is making a better adjustment than Renaldo, despite her blindness. She has a warm, understanding mother who has given her strong emotional support and a professional father who provides a comfortable income for the family. Her mother has tried to be a companion for Susan and has read to her extensively from the time Susan was 3 or 4 years of age. She has helped Susan through some difficult times, particularly when Susan was having trouble developing independent living skills. Susan's father is more distant; he doesn't seem to know how to approach her.

Susan shows some signs of mild neurological damage, which tends to make her physically awkward, but this condition is not serious enough to classify her as multiply disabled. As the developmental profile shows, Susan's performance on tests of mental ability and her development in speech and language are average, a testimony perhaps to the intensive work with her mother in the early years. But in arithmetic and spelling, her performance is somewhat below average.

Susan has been affected in an important way by the educational trend of placing exceptional children in the least restrictive environment in their own school systems. Susan lives in an urban area with a large population in which a number of children have visual impairments. The school system buses these children from around the district to a school that provides a special program for them. Susan is well accepted by her classmates and has one or two close friends who are sighted. She has not yet had to face problems in relationships with boys.

In the next three or four years, her mother and father will have to decide whether they want her to attend a residential school that provides advanced curriculum and educational facilities for youngsters with visual impairments. But for now, they are happy that she is at home and able to get special help within the local school system.

Early Intervention

A child's experiences during the period from birth to age 5 are critical to subsequent development. It is especially important that the systematic education of visually impaired children begin as early as possible. Sighted children absorb a tremendous amount of information and experience from their environment in the ordinary course of events. Parents and teachers must specially design parallel experiences for children who are visually impaired (see Chapter 3 for more information).

The characteristics we observe in a 10-year-old who has visual impairment are often a blend of the primary problem (loss of vision) and a number of secondary problems that have developed because the child has missed certain sequential experiences. For example, many youngsters with a visual impairment are passive. Passivity is not a natural or inevitable by-product of low vision; it is present because the child does not have a well-established motivation to move.

Children with visual impairments can be very active when they are under supervision.
(© Mitch Wojnarowicz/The Image Works)

For the sighted child, the environment is filled with visual stimulation: toys, bottles, people, color, and shapes. The child has a natural impulse to move toward these elements. The child with a severe visual disability is not aware of these elements unless someone points them out. For an infant who is blind, the feeding bottle appears magically. The child is not motivated to go after it; in fact, the child does not even realize that he or she can do something—be active—to get the bottle.

An easily understood concept for the sighted child is **object permanence.** By the age of 6 or 7 months, sighted children realize that even when objects disappear from their visual field (mother left the room; the ball rolled under the couch), they still exist. This knowledge makes the world more orderly and predictable. And it makes sense to go after objects even if they are not in the line of sight. Object constancy is a more difficult concept for children with visual disabilities to understand. They need deliberate instruction and an organized environment before they can understand the concept and begin to act on it.

It is important to let children take control of a task once they demonstrate an ability to do so.

Although it is important to help visually impaired youngsters learn tasks, it is also important to let them take over when they are able. Ferrell (1986) described a technique called **fading**, or gradually cutting back help as a child becomes competent at a task. She showed how the process works with the task of eating:

1. Begin by placing your hand completely around the child's hand as the child grasps the spoon. Move the child through the scooping and eating motions.
2. As the child gains control, continue the scooping and eating motions with your hand on the child's wrist.
3. Gradually move your hand from the wrist to the arm, and then to the elbow.
4. Eventually, just touch the arm to remind the child what he or she is supposed to do.

By teaching young children with visual disabilities to do things for themselves, we give these children some of the important experiences that sighted children get naturally.

Children with visual impairments may need special help in developing their play skills.

The importance of starting education early for children with visual impairments was pointed to in a study of thirteen children with visual impairments who were 40 months of age (Hughes, Dote-Kwan, & Dolendo, 1998). The study looked at the play behavior of these children in a special play setting. The results agreed with earlier studies in that the children with visual impairments were significantly delayed in their play skills, particularly symbolic play. Because the children were functioning at expected developmental levels in other domains, such as receptive language, the study underlined the importance of helping these children to develop and facilitate their play behavior. This is particularly important considering the heavy emphasis on play in most inclusive preschool settings.

The Individuals with Disabilities Education Act (IDEA), which mandates services for infants and toddlers with disabilities (see Chapter 2), provides for earlier identification and earlier professional services for children with vision

impairment. Such early intervention programs should reduce the number of secondary problems shown by children who did not have the advantages of earlier services. The work cited in Chapter 3 on early intervention provides additional evidence on the usefulness of early attention.

Identification and Assessment

Most children with severe and profound visual impairment are identified by parents and physicians long before they enter school. The most common exceptions are children with multiple disabilities. It is possible for another condition—for example, cerebral palsy or autism—to mask a visual impairment. The key to identification is a comprehensive examination. Many of these components do not require formal testing, just the observations of those around the child. For example, the family can be very helpful in determining whether a child has mastered functional living skills. And a classroom teacher is a good source of information about a child's social and emotional development.

Most states require preschool vision screening, which identifies children with moderate vision problems. Throughout this textbook, we discuss the importance of early experiences in cognitive development. Obviously, early identification allows us to broaden those experiences for the child with a visual disability through maximum correction and preschool programs.

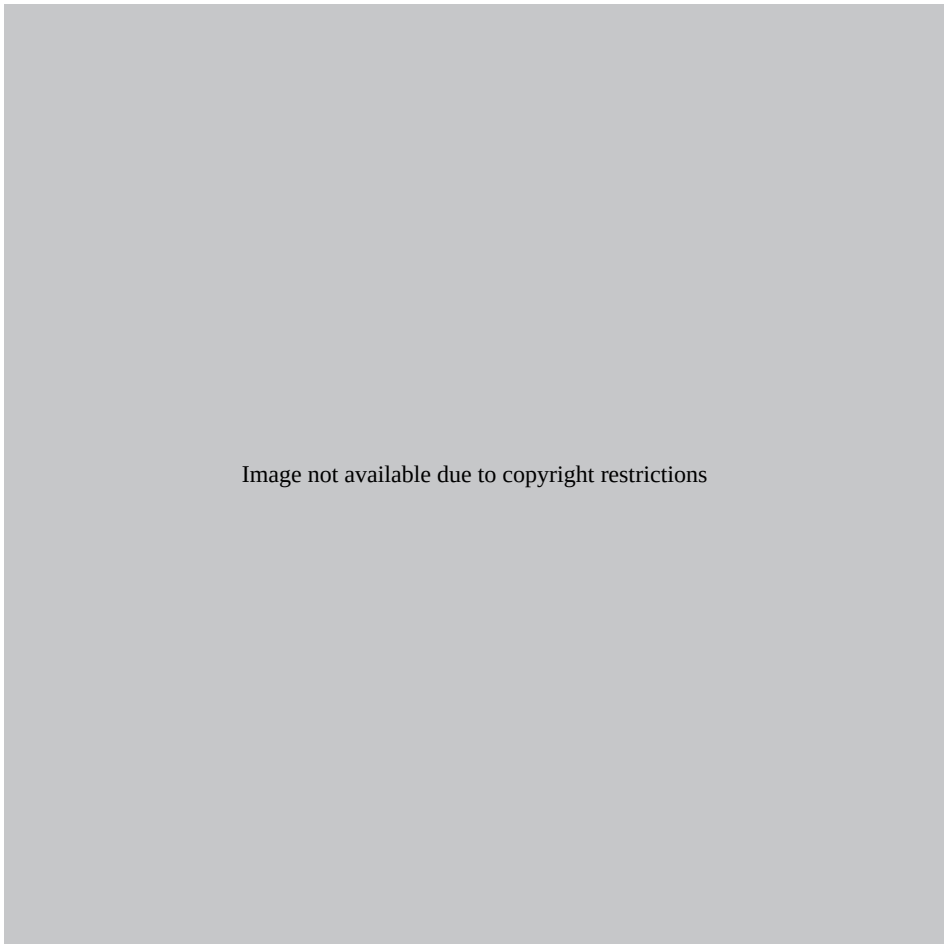
The term *assessment* describes a process that must occur before a student with a suspected disability receives special educational services. Four specific steps are taken in assessments: screening, eligibility, instructional planning, and progress evaluation (Lewis & Russo, 1998).

Routine vision screenings are administered to many students before they enter school. Whereas severe visual impairments are readily apparent without formal screening, some milder problems might escape notice. Screening merely identifies students with possible developmental problems. A medical diagnosis of blindness is often sufficient to demonstrate the need for special educational services, but sometimes a functional visual evaluation may be necessary to determine the degree of usable vision. These results can do much to shape the approach taken by special education teachers.

The standard school screening instrument is the Snellen chart, which has rows of letters in gradually smaller sizes that children read at a distance of 20 feet. A variation that is useful for screening young children and people who do not know letter names consists of capital *E*s pointing in different directions. The individual is asked to indicate the direction in which the arms of the *E* are pointing. Scores are based on how accurately the person identifies the letters (or directions of the *E*s) using one eye at a time. A reading of 20/20 is normal.

The National Society to Prevent Blindness
www.preventblindness.org

The National Society to Prevent Blindness is the oldest voluntary health agency involved in preventing blindness. For preschoolers and school-age children, it has developed a number of screening tests that use the Snellen chart or modifications of it. For infants, evaluation is based on observation of how the eyes are used. For 3- to 5-year-olds, both observation and the Snellen *E* chart are



used. The consensus is that early diagnosis and treatment can prevent visual impairments in some children.

See the examples above of some near-acuity cards provided by Lighthouse International. These lists would seem to have considerable advantage over the typical Snellen chart for children with low vision. It becomes important to know what the students can read at near point, and the gradations of print here can give some understanding of the student's limits in responding to print.

More extensive tests use elaborate equipment (such as the Keystone Telebinocular and the Bausch & Lomb Orthorater) to measure vision at far and near points and to test muscle balance, fusion, usable vision, and other characteristics. The Titmus Vision Tester (manufactured by Titmus, P.O. Box 191, Petersburg, VA 23804) is the most widely used test of visual acuity and is used to screen vision in preschool children, school-age children, and adults. Most people who have taken a driver's license test have been screened for vision problems by the Titmus.

Just as the pediatrician is the first line in identifying children with disabilities in preschool years, so the teacher is the prime source of identification of mild disabilities in school-age youngsters.

A National Agenda

Table 11.1 provides a roster of national agenda items for children with visual impairments. The items include students' and parents' rights, appropriate and timely service, and appropriate caseloads and personnel preparation programs. This list presents the professional expectations of what should be happening if good educational practice for children with visual impairments is to be observed. For those programs that are not meeting these needs, it is a wake-up call that they are falling short of appropriate norms for good practice. The list itself can be a checklist for parents and others who want to make sure good practice is being adhered to.

TABLE 11.1
National Agenda Goal Statement for Children with Visual Impairments

1. **Early Referral.** Students and their families will be referred to an appropriate education program within 30 days of identification of a suspected visual impairment.
2. **Parent Participation.** Policies and procedures will be implemented to ensure the right of all parents to full participation and equal partnership in the education process.
3. **Professional Personnel.** Universities, with a minimum of one full-time faculty member in the area of visual impairment, will prepare a sufficient number of educators of students with visual impairments to meet personnel needs throughout the country.
4. **Case Loads.** Service providers will determine caseloads based on the needs of students and will require ongoing professional development for all teachers and orientation and mobility instructors.
5. **Array of Services.** Local education programs will ensure that all students have access to a full array of placement options.
6. **Assessment.** Assessment of students will be conducted, in collaboration with parents, by personnel having expertise in the education of students with visual impairments.
7. **Access to Instructional Materials.** Access to developmental and educational services will include an assurance that instructional materials are available to students in the appropriate media and at the same time as their sighted peers.
8. **Expanded Core Curriculum.** Educational and developmental goals, including instruction, will reflect the assessed needs of each student in all areas of academic and disability-specific core curricula.
9. **Transition.** Transition services will address developmental and educational needs (birth through high school) to assist students and their families in setting goals and implementing strategies throughout the life continuum commensurate with the student's aptitudes, interests, and abilities.
10. **Professional Development.** To improve student learning, service providers will engage in ongoing local, state, and national professional development.

Source: A. L. Corn & K. M. Huebner (Eds.), *A Report to the Nation: The National Agenda for the Education of Children and Youth with Visual Impairments* (New York: American Foundation for the Blind, 2001).

Educational Response to Students with Visual Impairments

Formal efforts in the United States to educate children with visual impairments began in Boston in 1829 with the establishment of the residential school now called the Perkins School for the Blind. Not until 1900 was the first public school class for children who were blind organized in Chicago. Some thirteen years later, another class for children with severe visual impairments was established.

Prior to the twentieth century, no distinctions were made between children with low vision and children who were functionally blind. During the past few decades, a rapid growth in public school services for children with visual impairment has been stimulated by the Education for all Handicapped Children Act (PL 94-142). Currently, there are teacher preparation programs and orientation and mobility (O&M) programs based in universities that prepare professionals to work with children with visual impairment (Goodrich & Sowell, 1996).

Throughout history, children with multiple handicaps that included visual disabilities were often refused education in schools for the blind and were placed in settings that focused on their other disabilities while often ignoring the visual problems. As Hatlen (1998) pointed out, it is no longer possible for educators of students with visual impairments to ignore students with multiple impairments.

> Today, these previously underserved students constitute the majority of students who have visual impairments. Reported increases in the percentage of students who have visual impairments with other disabilities are dramatic. Since the mid-1980s estimates regarding the prevalence of these children have risen from 50% to as high as 75% of the total number of children with visual impairment. (p. xv)

Adaptations in both materials and equipment are needed to fully utilize the visually handicapped person's senses of hearing, touch, smell, vision, and even taste. Lowenfeld (1973), a pioneer in educating children with visual impairments, proposed three general principles that are still important for adapting instruction to the educational needs of children who have visual impairments:

1. *Concrete experiences.* Children with severe and profound visual disabilities learn primarily through hearing and touch. To understand the surrounding world, these children must work with concrete objects they can feel and manipulate. Through tactile observation of real objects in natural settings (or models, in the case of dangerous objects), students with visual handicaps come to understand shape, size, weight, hardness, texture, pliability, and temperature.

2. *Unifying experiences.* Visual experience tends to unify knowledge. A child who goes into a grocery store sees not only shelves and objects but also the relationships of shelves and objects in space. Children with visual impairments cannot understand these relationships unless teachers allow them the *experience* of the grocery store. The teacher must bring the "whole" into perspective, not only by giving students concrete experiences—in a post office, on a farm—but also by explaining relationships.

   Left on their own, children with severe and profound visual impairments live a relatively restricted life. To expand their horizons, to enable them to develop imagery, and to orient them to a wider environment, it is necessary to develop experiences by systematic stimulation: Lead children through space to help them understand large areas, and expose them to different sizes, shapes, textures, and relationships to help them generalize the common qualities of different objects and understand the differences. Their verbalization of similarities and differences stimulates mental development.

   Children with visual impairments need teachers to give them concrete experiences and to explain the relationships among those experiences.

3. *Learning by doing.* To learn about the environment, these children have to be motivated to explore that environment. A blind infant does not reach out for an object unless that object attracts the child through other senses (touch, smell, hearing). Stimulate the child to reach and to make contact by introducing motivating toys or games (rattles, objects with interesting textures).

For the teacher, that means organizing material, giving specific directions, providing firsthand experiences, and using sound principles of learning.

To design an instructional plan, one must first find out what the student's current level of achievement is, what his or her potential is, and other information about learning style and responsiveness to various forms of instruction. A comprehensive assessment would contain information about the child's skills (see Turnbull, Turnbull, Shank, & Leal, 1995):

- Concept development and academic skills
- Communication skills
- Social and emotional skills
- Sensory motor skills
- Daily living skills
- Orientation and mobility skills
- Career and vocational skills

In addition to a variety of formal tests designed to capture the preceding skill areas, assessment is made from observations and criterion reference tests. For example, if you want to know whether the student can borrow in subtraction, you give him or her some additional problems and watch what the student does (Lewis & Russo, 1998; Silberman & Brown, 1998).

All this information is drawn together with input from the parents into an individualized education program (IEP) meeting in which the basic goals and objectives of the program for the student are determined, together with the strategies that will be used to reach those goals.

Finally, there is the question of whether the student is progressing toward these goals in a satisfactory manner. If a student is not progressing satisfactorily, readjustments in the IEP and the instructional program are called for.

Adapting the Learning Environment

The goal of moving students with visual impairments into the general education classroom or as close as possible (least restrictive environment) is proceeding, as Figure 11.3 indicates. Sixty-two percent of children with visual impairments are found in the general education classroom sixteen or more hours a week, another 18 percent are out of the classroom 20–60 percent of the time, and 19 percent are away more than fifteen hours a week. Less than 10 percent of these children can now be found in residential schools. Many of these students, but by no means all, probably have a variety of disabilities requiring very specialized education and care.

If a student is not progressing toward the IEP goals, the IEP should be revised.

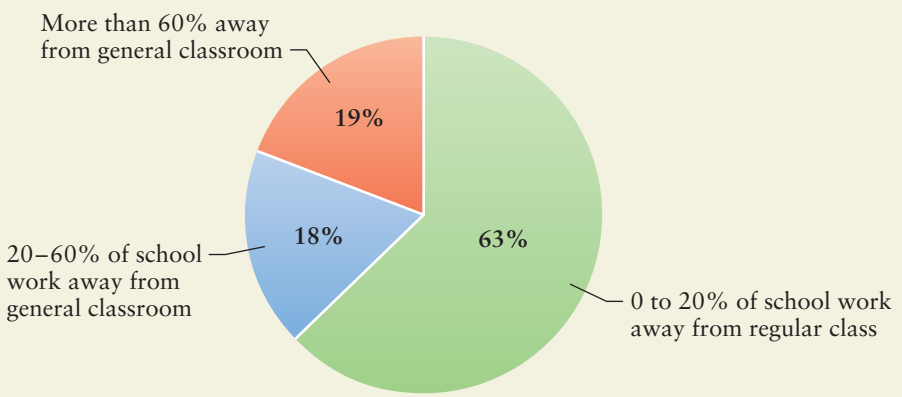


FIGURE 11.3
Time Spent in School Services by Students with Visual Impairment
27th Annual Report to Congress (2005) Office of Special Education Programs, U.S. Department of Education

As is true of children with other kinds of exceptionalities, the various learning environments provided for children with visual impairments represent a continuum of services. The goal of full inclusion is modified by the particular needs of the individual child and, sometimes, by the availability of services.

Inclusion in Context

There are serious arguments within the profession about the merits of integration compared with the merits of having specially trained personnel and special equipment such as can be found in a residential or day school for the visually impaired.

Erwin (1993) laid out a series of guidelines for the effective inclusion of young children with visual impairments. Not surprisingly, merely placing the child within a typical preschool setting, without careful planning and without support personnel, will not produce good results. An important aspect of the integrative approach that Erwin describes is partnership and teamwork between the classroom teacher and the visual consultant teacher; otherwise, the visually impaired child may be socially isolated in integrated settings, particularly when the only focus in such a setting is academic (Kekelis & Sacks, 1988).

Placement in a typical preschool requires careful planning and support personnel.

Collaborating with the Education Team: The Itinerant Teacher

The move toward inclusion has made the role of the itinerant teacher very important for children with visual impairments. These teachers travel from school to school providing special materials, consultation with school personnel, and individualized instruction. An unsolved problem is how to provide within the framework of the ordinary school the specialized training that children with visual impairments need. It is clear from Figure 11.3 that the vast majority of children with

Social interaction within the classroom is an important part of the education program.
(© Ellen Senisi)

visual impairments are being educated in general education classrooms.

The successful inclusion of the exceptional child requires a well-thought-out plan and capable people; otherwise, the possibility for social isolation of the child is great. An additional complicating factor is cultural differences between the child with visual difficulties and the school. For example, a child who is blind and from a Hispanic background has numerous challenges to overcome, as well as, possibly, a language barrier and a set of family values that differ from the values taught at school.

Wherever the child with visual impairments is placed, ideally one professional—the classroom teacher or the teacher with special skills in instructing students with visual impairments—should take the role of **case coordinator.** This individual brings together all the information that relates to the child (the comprehensive assessment, for example) and leads a team of professionals who, with the parents, develop an IEP for the student. A working team made up of persons of different backgrounds and skills is of paramount importance in producing an IEP.

Itinerant teachers (Silberman, 2000) are especially important for general education teachers, most of whom have had limited experience in meeting the special needs of children who are visually impaired. Well-prepared itinerant or resource room teachers can help classroom teachers understand the problems faced by children with visual impairments.

The itinerant teacher ensures that instructional materials can be used easily by children with visual impairments.

For example, the classroom teacher of a boy with a severe visual impairment was upset because he wanted to sit near the closed-circuit television monitor and because he tended to hold books close to his eyes. The teacher was afraid he would damage his vision. The expert advice of an itinerant teacher dispelled that misconception. Another classroom teacher believed that a very bright light should always be available for children with visual disabilities. In fact, dim light does not harm the eyes and may be more comfortable for students with cataracts, albinism, and certain other conditions.

Dim light may be more comfortable for students with low vision.

Children with Other Exceptionalities

As we noted earlier in the chapter, many children with visual impairments may have other disabilities, such as learning disabilities, neurological disabilities, behavioral disorders, or deaf-blindness (Silberman, 2000). It has been estimated that the prevalence of children with visual impairments who have dual or multiple disabilities may be over 50 percent (Hatlen, 1998). The more involved cases of such multiple disabilities, including children with deaf-blindness, are covered in detail in Chapter 12.

Silberman (2000) considers the *transdisciplinary* model the most desirable. In this model, therapists and other specialists provide direct services to students in classrooms or other natural environments as part of the daily routine, instead of in some isolated therapy room. The IEP needs to reflect the goals of all of the professionals working with the child.

Multicultural Issues

As in the case of children with additional exceptionalities, the presence of children from different ethnic or racial backgrounds adds an element of complexity to the planning and programming for children with visual impairments. This is particularly an issue whenever English is not the primary language of the child or family (Milian, 2000). Again, a collaborative team of professionals seems called for, although in this case it might include a translator familiar with the first language of the student. Consultations between the English Language Learners (ELL) teachers and the teachers of students with visual impairments can yield positive results. An ELL teacher can learn how to modify the curriculum to take visual problems into account, while the teacher of children who have visual impairments can learn about the sequence of acquiring a second language.

Additional support may be needed if the visually impaired child's first language is not English.

A substantial percentage of children with visual impairments come from African American homes (perhaps 10–15 percent), so cultural factors such as family views on education, on child-rearing practices, or on the origins of disability have to be factored into the plans for the student. Adding to the challenge of planning is a shortage of minority teachers in special education, but a determined effort to recruit more

teachers from these ethnic or racial backgrounds is under way (Milian & Ferrell, 1998). The same types of adaptations are obviously called for in regard to families of other cultural backgrounds.

Individualized Education Programs

The IEPs for children with visual impairment should include a variety of goals—some focusing on the effective use of the learning environment, some on instructional content, and some on skills that the student will need to perform effectively in the inclusive classroom. It will likely take a team of professionals to implement the goals.

As Sacks and Silberman (1998) pointed out, one of the consequences of the diversity of children with visual and other disabilities is that the teacher becomes a team member rather than teaching in isolation.

> They are working as members of a team that includes professionals in specializations such as visual impairment, severe disabilities, deaf-blindness, early childhood, learning disabilities, general education and occupational and physical therapies and also includes the families of these children and youth. (p. xx)

Some sample IEP goals for such a child are shown in Table 11.2. Note that Jerry has both academic and social goals in his IEP, reflecting the comprehensive goals of the program. The general education classroom teacher may need some help from an itinerant teacher to carry out these objectives successfully.

Special Schools

Before the emphasis on the least restrictive environment and the inclusive classroom began in the 1980s, the education of children with visual impairments was often conducted in large residential state schools. There are still fifty-one residential schools in the United States and Canada (Hoetling, 2004).With the rapidly growing trend for such students to be educated in the local schools, the question of what happens to the residential school and its often elaborate facilities arises.

Erin (1993) pointed out that the children attending residential schools may have additional disabilities and that the schools have been redesigned to provide an effective environment for such children. Also, these schools provide outreach services, offering information, assessment, and technical assistance to students who are visually impaired and to their teachers in the public schools. Erin proposed a future in which such schools could play three distinct roles:

- *Resource centers for students with visual impairments*. These facilities would function as state or regional sites to distribute materials and provide technical assistance and outreach services to neighborhood schools. They would also participate in professional preparation activities.

TABLE 11.2
Sample IEP Goals and Objectives for a Student Who Is Visually Impaired

Long-Term Goals	Short-Term Objectives
Jerry will use special devices and materials in order to perform at grade level in reading and mathematics.	1. Jerry will demonstrate effective use of various tools of magnification. 2. Jerry will demonstrate effective keyboarding skills that allow him to do word processing. 3. Jerry will score within one grade level of the class norm in academic achievement tests.
Jerry will establish effective social relationships with some of the nondisabled members of the class.	1. Jerry will join and participate in one of the clubs or organizations in the school that stress social interactions. 2. Jerry will receive a number of votes by other students to work on class projects with them. 3. In class parties, Jerry will join in the activities and interact with other class members.

Source: Reprinted from A. Corn, P. Hatlen, K.M. Huebner, F. Ryan, and M. Siller, National Agenda for the Education of Children and Youths with Visual Disabilities, Including Those with Multiple Disabilities, Revised. Kathleen M. Huebner, Brunhilde Merk-Adam, Donna Stryker, and Karen Wolffe, pp. 5-6, New York: AFB Press, American Foundation for the Blind, 2004.

- *Life skills centers for students with severe disabilities*. These centers would specialize in assisting students with severe and multiple disabilities, with an emphasis on those with visual impairments.
- *Magnet schools for students with visual impairments*. These schools would provide direct instruction for the academic learner with a visual impairment. Short-term placements that would be arranged by contract with individual school districts and that would address functional needs would be common.

In short, residential schools would address children with diverse needs while playing a role in the future education of children with visual impairments.

Another reason for placing a child with visual impairment in a special school is to receive a curriculum that cannot be provided in the general education classroom. The Texas School for the Blind and Visually Impaired, for example, is implementing a career education model that begins in the elementary school and continues through secondary school and beyond. At the elementary school level, the emphasis is on career awareness. Students may interview persons about their jobs and what they do to function in those jobs. At the middle school level, the emphasis is on career investigation. Students take a course in Introduction to Work and assess their own abilities, aptitudes, and interests. At the secondary school level, students focus on career preparation and career specialization, and the academic subjects are tailored to those objectives.

Obviously, such a curriculum would not be appropriate for students without disabilities in the public school. For children with visual disabilities who attend public schools during the school year, the Texas School for the Blind and Visually Impaired also provides summer programs with an emphasis on career education.

RTI Model

The special needs of children with visual impairments necessitates a heavy investment in Tier II and Tier III activities since they often need special personnel and communication activities to carry out the program for the student. Nevertheless, Tier I of the RTI model, the enhanced regular classroom reportedly serves 62 percent of children with visual impairments (U.S. Department of Education, 2007). Such children will need additional help to prosper in Tier I activities if they are to keep up with their sighted peers. A specialist trained in visual impairment instruction needs to supervise, if not directly be a part of, the intervention. The following additions are important:

- Technology to aid student's visual acuity in reading and using computer programs
- The regular use of the extended core curriculum for those students who need it
- A teacher of the visually impaired who can give help to the regular classroom teacher and provide occasional tutorial work with individual students

Tier II activities would concentrate on individual or small group instruction in independent living skills such as eating, household chores, money, and time management. Orientation and mobility training for safe and independent travel will also require close supervision until the skills have been mastered.

Tier III activities, which require a separate curriculum and the learning of braille and other means of communication, can often be done in a separate setting such as individual tutoring, magnet schools, or state schools for the blind. The extended core curriculum becomes especially important for students with serious visual impairment so that the senses of hearing and touch become the primary channels for learning. The learning of the braille system may be a central part of these Tier III activities. Nineteen percent of children with visual impairment fit into this group (USDE, 2007).

Adapting Curriculum

Two major challenges related to the curriculum for children with visual impairments face special educators. Table 11.3 lists the existing core curriculum and the expanded core curriculum. In the existing core curriculum, major adaptations have to be made to the standard lessons in English, social studies, science, and so forth to allow children with visual impairments to absorb the concepts.

In addition, there is need for an expanded core curriculum exclusively for children with visual impairments that deals with the use of assistive technology, orientation and mobility, independent living skills, and career education. Specially trained teachers who have learned how to present the expanded core curriculum to these students will be needed.

TABLE 11.3
Curricula for Children with Visual Impairments

Existing Core Curriculum		Expanded Core Curriculum	
English/language arts	Other languages to the extent possible	Compensatory academic skills, including communication modes	Orientation and mobility
Mathematics	Science	Social interaction skills	Independent living skills
Health	Physical education	Recreation and leisure skills	Career education
Social studies	History	Use of assistive technology	Visual efficiency skills
Economics	Business education		
Fine arts	Vocational education		

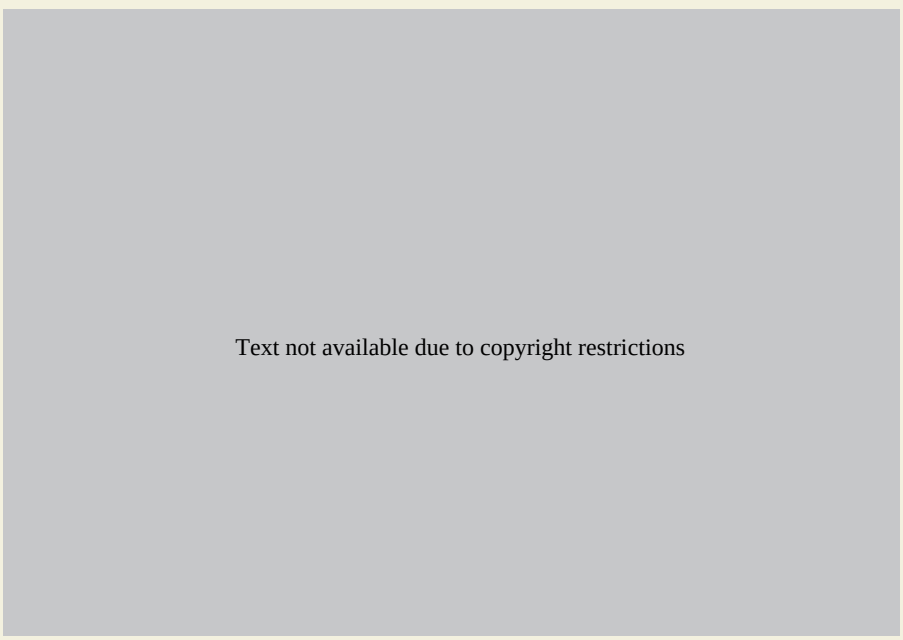
Source: From P. Hatlen, The core curriculum for blind and visually impaired students, including those with additional disabilities, in A. J. Koenig & M. Cay Holbrook (Eds.), *Foundations of education* (2nd ed.), Vol. 2, *Instructional strategies for teaching children and youths with visual impairments* edited by A. J. Koenig and M. Cay Holbrook, (p. 781) (New York: AFB Press, American Foundation for the Blind, 2000).

Existing Core Curriculum

How are we to educate children who have visual impairments, when so much of the standard education is based on the ability to see? Table 11.3 shows the components of both a core curriculum and an expanded core curriculum for children with visual impairments. The core curriculum makes clear that there are expectations that these children will and should master the standard curriculum of such subjects as language arts, mathematics, social studies, and science.

Literacy

An important thing to realize in the increasing trend toward including children with visual impairments in the general education classroom is that they require special adaptations of the environment and the instruction, as well as specially trained personnel.



For example, a common practice in typical elementary classrooms is *round robin reading,* or having each student read to the class in turn. Such a practice can be discouraging for children with visual problems because it highlights their reading problems and their need to use magnification tools.

Koenig and Rex (1996) suggest targeted practice in reading fluency so that a student with visual impairment becomes comfortable with the use of the optical tools and also comfortable reading in front of others. Other devices, such as *echo reading* (teacher and student reading together) and *choral reading* (small groups of readers read aloud at the same time), can bring more confidence to the child with visual problems.

Choral reading brings confidence to the child with visual problems.

The writing skills of students with visual impairments can be helped by the use of bold-lined paper, felt-tipped pens, and mounted magnifiers. Manuscript and cursive writing are always desirable and need to be practiced, but keyboarding skills are equally important. Computers can be equipped with screen enlargement programs and **synthetic speech** output to allow students to use all aspects of the writing process: prewriting, drafting, revising, editing, and publishing.

Computers with an enlargement screen or synthetic speech allow students with visual impairments to work on writing skills.

Mathematics

With children who are visually impaired, direct teaching of mathematical concepts is essential and should not be left to incidental learning. Because mathematics involves the manipulation of symbols, as well as of words, the teacher has to have a well-organized set of lessons so that the fundamental understandings of arithmetic and the most abstract algebra and geometry can be grasped.

Special attention must be paid to the use of measurement tools and to the concepts underlying the addition, subtraction, multiplication, and division of fractions, difficult for many students with visual impairments. Creating examples of these operations can test the ingenuity of the teacher but is essential if the student is to master these abstract ideas (Kapperman, Heinze, & Sticken, 2000).

Blind children in kindergarten through third grade can master fractions by working with three-dimensional circles of wood and placing them in a form board nest that can include fractional parts to make up a full circle. Once they have placed a whole circle, the children can learn to assemble blocks representing a third of a circle and put them together in the nest to form the whole. This kind of tactile experience helps children who are blind not only master the idea of fractional parts but also discriminate among the relative sizes of various fractional parts (for example, halves versus quarters), along with their sighted peers.

In the middle grades (fourth through eighth or ninth grade), students who are visually impaired work

with supplementary materials to help themselves absorb the information that sighted children learn.

A standard tool for learning mathematics is the abacus, used in many Asian countries to instruct all children. The Cranmer Abacus, a special version of the device, is a substantial help to persons who are visually impaired. The beads in the Cranmer Abacus do not move as rapidly as the beads in the usual abacus and thus can be read more easily by touch.

Expanded Core Curriculum

In addition to adjustments to the core curriculum, Hatlen (2000) points out that there needs to be an *expanded core curriculum* that includes those skills needed especially by the child with visual impairments. One of these is *orientation and mobility,* which enables a child to master spatial concepts and physical environments. Trained specialists (certified orientation and mobility specialists, or COMS) help children who are blind learn to orient themselves in space and to travel safely around their homes or their communities. The goal is to make children with visual impairments as independent as possible.

A student with visual impairment may have a diverse curriculum that includes science, algebra, choir, mobility, and even cheerleading as an extracurricular activity.

Independent living skills also need to be specifically taught. These would include dining skills, bathing, toileting, and so on (Koenig & Holbrook, 2000). These need to be taught in natural environments at home and in school, and they are needed to combat **learned helplessness**, the child's feeling that he or she cannot do anything worthwhile or useful.

Other aspects of the expanded core curriculum are learning about *recreation and leisure skills* and *career education*—which can begin with identifying jobs, community workers, and skills such as cleaning up, restacking books, using audiotapes, and more (Wolffe, 2000). Students also can learn to use *assistive technology* to communicate, with the help of some additional switches or expanded computer keyboards, for instance. Finally, the teacher of the visually impaired can help the students increase their *visual efficiency* in the school day by enhancing localization, visual fixating on a point or object, scanning or examining the object, or tracking, following objects in space.

One of the assistive technology devices is a *closed circuit television* that will present enlarged print material from a monitor. The background and the font size can be adjusted to the individual student.

Universal Curriculum

The **Universal Design for Learning (UDL)** framework helps us to see that inflexible curricular materials and methods are barriers to diverse learners, just as inflexible buildings with stairs as the only entry option are barriers to people with physical disabilities. Universally designed curricula include a range of options for accessing, using, and engaging with learning materials—recognizing that no single option will work for all students (Hitchcock, Meyer, Rose, & Jackson, 2002).

The increasing emphasis on inclusion as a policy for all of special education has led policy makers to try to ensure that children with visual impairments receive the special services that they need. The IDEA Amendments of 2004 (PL 105-17) provide that Individual Education Program (IEP) teams are required to make provision for instruction in braille and the use of braille for children who are blind or visually impaired, unless the IEP team determines that instruction in braille or the use of braille is not appropriate.

A similar addition to the "related services" part of the law adds "orientation and mobility services" to the list of supportive services identified, so there is no doubt that such services should be made available to students in need of them.

Social Interaction Skills

Fulfilling social needs should be one of the most significant dimensions of educational programs for children with visual impairment. Such needs can be shortchanged in inclusive settings if the general education teacher knows little about the special needs of visually impaired children. Organized efforts to improve social skills are required, because visually impaired children are rejected by classmates more often than other children.

Training packages have been designed to help visually impaired children with their posture, facial expressions, assertiveness, and speech (Kekelis, 1992). In one instance, attempts were made to bolster the social skills of these children by means of teacher instruction and peer prompting. The training consisted of modeling, using prompts, discussing the need for social behaviors, and role playing. The peer-mediated training turned out to produce more improvement than did the

teacher instruction, and the social behavior that the children learned was maintained over time.

Sacks and Kekelis (1992) pointed out that recess and lunchtime offer opportunities for students to practice social skills and interactions.

The teacher may ask himself or herself a number of questions:

- Does the visually impaired student play with and talk to peers as much as his or her classmates?
- Do students talk with their classmates with visual impairments in the classroom, play with them on the playground, and invite them to after-school and weekend activities?
- Does the child with visual impairment show affection and display preferences for classmates?
- Do I observe interactions during recess and, when necessary, intervene so that the visually impaired child is not isolated on the playground? (Kekelis & Sacks, 1988)

A negative answer to any of these questions calls for constructive action by the special teacher working in collaboration with the general education classroom teacher. Although the field of educating children with visual impairment was one of the first to include students in the general education classroom, opinions differ about the usefulness of the inclusive approach as it is now being conducted. For example, educators disagree about whether the child with visual impairments is harmed by being labeled as a student with special problems. Instead, the treatment program, for many professionals, includes the student's acceptance of his or her visual impairment as part of his or her identity. Also, placing all services in a noncategorical program with children with other disabilities may result in children with visual impairments not receiving the special services (such as braille and mobility) that they need in order to perform well in the educational setting. Hatlen and Curry (1987, p. 7) asked, "Can 'generalists' in special education teach blind children to prepare lunch—let alone fulfill the children's basic instructional needs?"

Teamwork is a prerequisite for a successful educational plan for the student with a visual impairment. One problem that such students need to overcome is the tendency to lapse into passivity because they lack the skill to assert themselves in a socially acceptable way. There are few existing studies on social interactions for children with visual impairments across the range of general elementary and secondary programs.

An investigation of the social interactions of nine children with visual impairments who were enrolled in six different preschool programs (Crocker & Orr, 1996) was performed and then matched with social interactions of nine sighted children of the same age and gender. The investigators found that the children with visual impairments were capable of social interactions, but they also found that the children with visual impairments rarely initiated social contacts and that those they did initiate were often with the teacher.

Recreation and Leisure Skills

Recreation and leisure skills are important, as they offer opportunities for relaxation and social interaction. The teacher might wish to assess the student's ability to manage leisure time; to play independently or with friends; and to acquire skills related to physical games and sports, arts and crafts, and music and dance (McGregor & Farrenkopf, 2000).

Many people find amazing the range of sports and leisure activities that students with visual impairments can participate in, given special instruction and aids. Such activities include bowling, bicycling, skiing, swimming, ice skating, and wrestling. In addition, card games and board games such as Scrabble and various arts and crafts are well within their capabilities when the materials are modified to fit the child with a visual impairment. It must be stressed, though, that special instruction is needed before the student with a visual impairment will feel comfortable and seek out such activities.

One way to think about this issue is to think of a recreation or leisure activity that you enjoy. Analyze the activity on the following basis.

- What modification would need to be made for a blind person or someone with low vision to participate in the activity?
- Would someone with a visual impairment need to take more time in order to participate in the activity?
- Are there other benefits of this activity (social interactions, physical fitness)? (McGregor & Farrenkopf, 2000)

Orientation is especially important for children with visual impairments.
(© Ellen Senisi)

Orientation and Mobility

One of the greatest problems imposed by blindness is becoming oriented to one's environment and to one's need for mobility in that environment. The situations that force dependence and can cause the greatest personal and social problems for individuals who have visual impairments usually involve mobility. To improve mobility, adults use tools such as long canes, guide dogs, and sighted guides. But children also must learn to move about their environment independently and safely, so *orientation* and *mobility* have become part of the curriculum in all programs for children with visual impairments.

Simply defined, **orientation and mobility (O&M) training** involves an understanding of one's location in a given environment (orientation) coupled with the ability to physically move through that environment safely and independently (mobility) (Cioffi, 1995). It is not uncommon for young people to have one of these skills in greater amount than the other, so attention has to be focused on one of them. The goal of any mobility program is to bring the individual to his or her highest desired level of safe, independent travel.

The goal of an O&M program is to develop a child's mobility skills to the safest, most independent level possible.

A key element of special education for such children has been O&M services. Much of the O&M training involves teaching visual skills that can be used. One of these visual skills is *scanning*, which is the use of head and eye movements to search for and localize a target. Horizontal scanning can pick up vertical targets such as poles that hold street

The general education teacher can help by identifying landmarks and clues in the classroom, for example, attaching braille markers to important areas in the room.

signs, and vertical scanning helps locate the street sign itself.

Orientation and Mobility Specialists

Because learning mobility with a degree of personal independence is one of the most desirable educational goals, special teachers provide O&M instruction to teach the child to use sensory information to establish and maintain his or her position in the environment and move safely, efficiently, and gracefully (Hill, 1992). The skill areas that are covered in such instruction include the following:

- Ability to identify and make use of landmarks and clues
- Knowledge and use of compass directions
- Knowledge and use of indoor and city number systems
- Ability to align the body to objects and with sounds for the purpose of maintaining a straight line of travel
- Use of systematic search patterns to explore novel objects and environments
- Recovery skills
- Knowledge of where, when, and how to solicit aid (Hill, 1992, pp. 25–26)

The ability of many children and adults with visual impairments to avoid obstacles has been noted. Research a half century ago (Cotzin & Dallenbach, 1950) determined that it is the sense of hearing that helps them sense an obstacle in front of them. It is *not* that persons with disabilities have a special sense, but merely that they use their remaining senses with greater efficiency than do sighted persons.

Despite a variety of experiments with more sophisticated devices to aid in travel, the long white cane, so long recognized as a symbol of the individual with visual impairments, continues to be the instrument of choice, even with preschoolers (Pogrund, Fazzi, & Lampert, 2002). There seems to be a consensus among active O&M practitioners that the cane has numerous advantages over alternatives, even though there is little firm research evidence to support that position (Leong, 1996). It certainly extends the mobility of young children during a period in which exploration and orientation to objects in the environment are very important.

O&M practitioners believe the cane has many advantages.

Personal mobility and independence have particular importance for adolescents who are ready to break away from family restraints and protection. The ability to control oneself and one's environment is essential to becoming independent and gaining the respect of peers. The schools are using physical education programs to sharpen the orientation and mobility skills of visually impaired youngsters. Barraga and Erin (1992) suggested that "for children who are blind or who have low vision, movement may be the most accurate replacement for vision in clarifying information about the world" (p. 45).

Removing Barriers

In most cases, we increase the mobility of individuals who are visually impaired by teaching them ways to get around or to use available tools. But there is another way to ease the restrictions on those who are blind. Society has a responsibility to remove obstacles wherever possible. That responsibility became law in 1991 with the passage of the Americans with Disabilities Act, which directs businesses and public officials to remove barriers for persons with disabilities (see Chapter 2). Removing barriers includes attaching braille symbols to elevators, widening aisles for wheelchair access, and making public telephones accessible.

Independent Living Skills

Independence at School

The itinerant teacher in the public school must often instruct students and classroom teachers on some of the special skills that the child with visual disabilities should master. Some of these skills are important keys to the child's effectively mastering the learning environment (Torres & Corn, 1990):

- *Fire drills*. The child with visual disabilities needs to be instructed to take hold of the nearest moving child or adult and quickly follow the others. No particular child should be assigned to the task of aiding the child because he or she might be absent or away when needed.
- *Field trips*. Giving prior notice to the staff in the place these children will be visiting is important.

The person in charge (such as the museum director) might be able to make adaptations that will aid the child with vision problems.

- *Auditorium.* The child should be allowed to sit close to the stage to get the maximum amount of information from the experience.
- *Lunchroom.* Some type of orientation is needed so the child with visual disabilities learns where the essential things are. The cafeteria staff can be alerted to help the student with food choice, and peers can help him or her to find a seat.

Independence at Home and in the Community

Mastering the environment is especially important for the physical and social independence of children with visual impairments. The ease with which they move about, find objects and places, and orient themselves to new physical and social situations is crucial in determining their role in peer relationships, the types of vocations and avocations open to them as adults, and their own estimation of themselves.

How do we help children who are blind master the environment? We have to teach them, from a very early age, not to be afraid of new experiences or injury.

Life Skills Training for Children with Visual Impairments

How do people with visual impairments pay for things when they can't see their money?

Coins are easy to recognize by feeling them. Dimes are small and slim with ridges around the edges; pennies are small with smooth edges; nickels are bigger and thick; quarters have ridges and are bigger but thinner than nickels.

People who are visually impaired use this trick to recognize dollar bills: In their wallet, one-dollar bills are left unfolded; five-dollar bills are folded in half the short way; and ten-dollar bills are folded in half the long way.

How do children who are visually impaired find their toys and clothes?

Children with visual impairments have to be very neat. They have to put their things in the same place every day in order to find them.

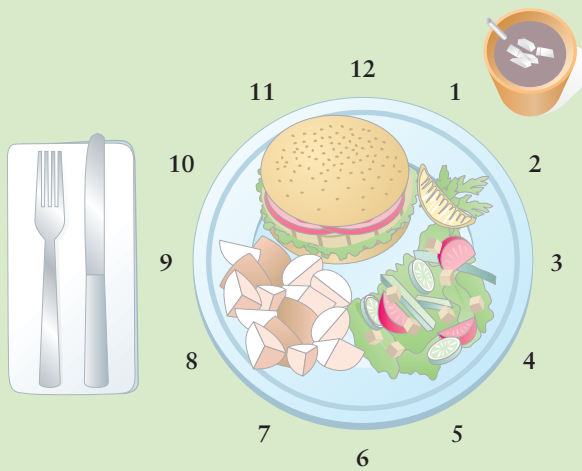
To pick out what to wear in the morning, children who are visually impaired can feel the texture of their clothes. They know jeans feel different from wool pants. Or they may remember in what order their clothes are hung in the closet.

To decide what top matches what bottom, aluminum clothing tags can be sewn in each piece of clothing. On the tags, braille markings indicate the color. Children with visual impairments must learn what colors go together.

How do children with visual impairments find the food on their plate?

To find the food on their plate, imagine the plate is a clock. They are told at what clock time the food is placed.

On this plate, the hamburger is at 12 o'clock, the salad is at 3 o'clock, and the French fries are at 8 o'clock.



Source: R. Tannebaum. *A Different Way of Seeing.* New York: American Foundation for the Blind, 1988. Reprinted with permission from the American Foundation for the Blind.

TABLE 11.4
Home and Community: Some Early Experiences for Young Children

Home Experiences	Community Experiences
• Helping prepare a snack or bake cookies • Picking up the morning newspaper • Helping stack dishes in the dishwasher • Helping rake leaves or plant flowers • Picking up clothes or toys • Playing with siblings or friends in the backyard • Calling grandmother and grandfather on the telephone	• Playing at the city park with siblings and friends • Splashing in the wading pool at a public swimming pool • Exploring the grocery store and stores at a mall • Visiting a farm with animals and machinery • Eating at a fast-food restaurant and at a more formal restaurant • Visiting a petting zoo • Visiting public places such as the post office, fire station, and library

Source: From Alan J. Koenig, Growing into literacy, in M. Cay Holbrook (Ed.), *Children with visual impairments: A parent's guide* (Bethesda, MD: Woodbine House, 1996). Reprinted with permission.

Sighted children skin their knees, bump their shins, fall from trees, and step in holes. Children who are blind must have the same chance if they are going to learn to control themselves and the environment. This means encouraging risk taking.

Children with visual impairments should be taught to feel the difference in the weight of their forks when they have successfully cornered a few peas and when they have not. They also should learn a system of marking and organizing clothes for both efficiency and good grooming.

Table 11.4 lists a number of home and community experiences that are within the easy reach of most children with visual impairments. The child can even compile such a list. As the child begins to extend his or her repertoire, the list will grow longer and longer, showing that an impressive set of skills and knowledge has been mastered.

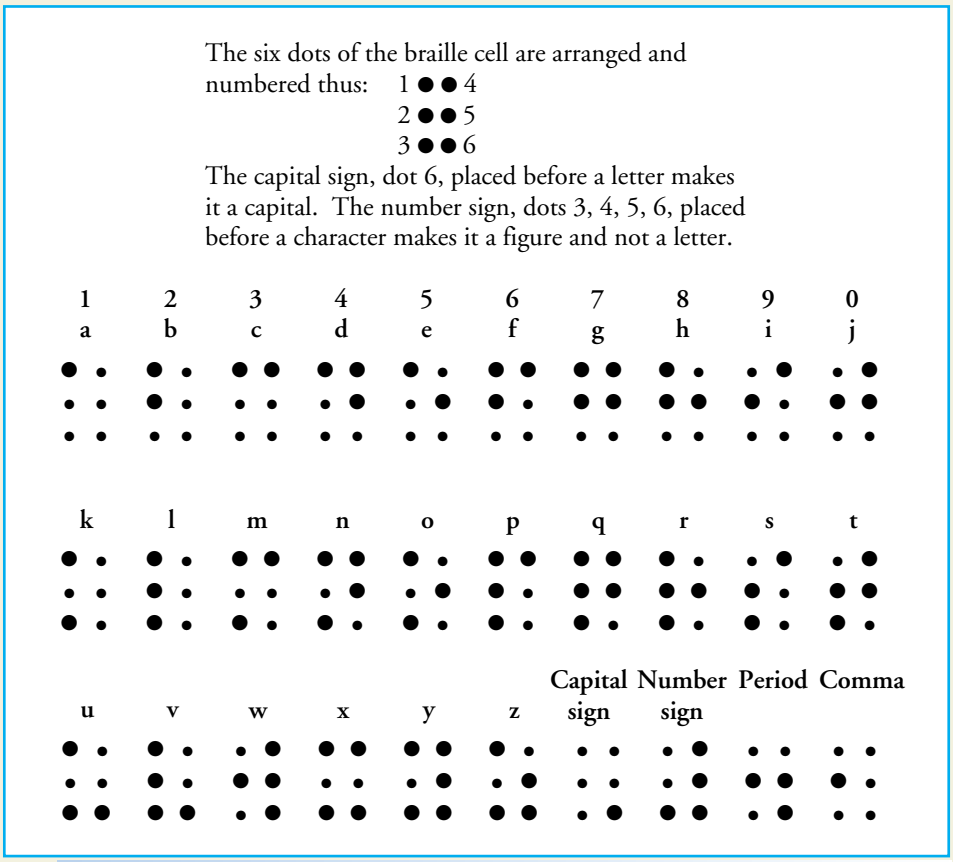
It is important for schools to provide time and practice for children to learn braille.
(© Peter Arnold)

Adapting Teaching Strategies

Communicating with Print and Braille

Some students can be instructed in both print and braille. They learn readiness skills and word identification strategies in this style of parallel instruction, and the decision about which channel to emphasize is postponed until the teacher and the school gain experience with the child's learning style.

The language experience approach to reading offers many advantages. It uses students' actual



Braille Alphabet and Numerals

Source: Division for the Blind and Physically Handicapped, Library of Congress, Washington, DC 20542.

experiences as the basis for reading instruction and is a highly motivating approach for a student. But adaptations have to be made for children with visual impairments. For example, the class visits a local fire station. Afterward, the student with a visual impairment dictates a story about the experience, and the teacher writes down exactly what the student says, using a braille writer or a special slate and stylus. The student and the teacher then read the story together. They can continue to discuss and elaborate on the story, and the teacher can develop reading strategy lessons using the story as a base—for example, thinking about the firefighters' various activities at the firehouse and when fighting a fire.

Recordings for the Blind and Dyslexic
www.rfbd.org

National Library Service (NLS) for the Blind and the Physically Handicapped
www.loc.gov/nls

Listening Skills

In order to learn through the auditory sense the most important skill a child with visual impairment can learn is listening. This directed listening begins at birth when the child turns his or her attention to speakers and listens to language that describes the child's environment. Directed listening continues in preschool, when young children listen to their classmates telling about experiences and describing favorite objects brought from home. The most direct teaching of listening skills occurs during orientation and mobility instruction, in which auditory cues are used for orientation to the environment and for safe travel (Koenig & Holbrook, 2000).

As the child with visual impairments grows older, he or she tends to gather information from audiotaped materials and books. Talking books become a favorite source of information and pleasure, and a number of organizations provide specially prepared tapes for these students. However, the child with visual impairments should be cautioned to not use these auditory aids exclusively. There should be a proper balance between the use of listening skills and the development of literacy skills in braille and/or accessible print.

The use of *live readers* to read aloud mail, memos, bills, textbooks, and so forth is another way to develop listening skills. As with other devices or tools, working with the live reader requires practice and effective interaction between the reader and the student. The student can ask the person who is the live reader to skip around or to read the table of contents or summaries of materials. This gives the listener more flexibility than the audiotapes.

Teaching Braille or Print

People with profound visual disabilities must develop a series of special communication skills. For children who are blind, using braille is a key skill for communicating with the sighted world.

Braille is a system of touch reading developed in 1829 by Louis Braille, a Frenchman who was blind. The system uses embossed characters in different combinations of six dots arranged in a cell two dots wide and three dots high (see the "Braille Alphabet and Numerals" box on page 393). The symbols are embossed on heavy paper from left to right, and users usually read with both hands, one leading, the other following. Advanced readers may use the second hand to orient themselves to the next line while reading the line above, and they may read as much as one-third of the lower line with the second hand. Punctuation, music, and mathematical and scientific notations are based on the same system. Standard English braille was accepted in 1932 as the system for general use, although many other communication systems have been tried.

One of the problems faced by teachers and administrators is whether the child is capable of being a print reader or should be taught how to read braille. Such a decision has long-term implications for the student. Table 11.5 lists characteristics of candidates

TABLE 11.5
Characteristics of Candidates for Print Reading and Braille Reading Programs

Characteristics of a Likely Print Reader	Characteristics of a Likely Braille Reader
• Shows interest in pictures and demonstrates the ability to identify pictures or elements within pictures	• Shows a preference for exploring the environment tactilely
• Uses vision efficiently to complete tasks at near distances	• Uses the tactile sense efficiently to identify small objects
• Identifies his or her name in print or understands that print has meaning	• Identifies his or her name in braille or understands that braille has meaning
• Uses print to perform other prerequisite reading skills	
• Has a stable eye condition	• Has an unstable eye condition or a poor prognosis for retaining the current level of vision in the near future
• Has an intact central visual field	• Has a reduced or nonfunctional central field to the extent that print reading is expected to be inefficient
• Shows steady progress in learning to use his or her vision as necessary to ensure efficient print reading	• Shows steady progress in developing the tactile skills necessary for efficient braille reading
• Is free of additional disabilities that would interfere with progress in a developmental reading program in print	• Is free of additional disabilities that would interfere with progress in a developmental reading program in braille

Source: Adapted from A. J. Koenig & M. C. Holbrook, *Learning media assessment of students with visual impairments: A resource guide for teachers* (Austin, Texas: Texas School for the Blind and Visually Impaired, 1995). Reprinted with permission.

for print reading and for braille reading and can help educators decide which path is appropriate for a given youngster.

In many communities, itinerant teachers manage a growing caseload of children. These teachers have less and less time to teach braille or to transcribe print to braille for their students. Teachers in some communities have only three hours a week on average to provide direct services to children with visual impairments, and many teachers have even less time. Under such circumstances it is understandable that these children are not able to read rapidly or efficiently (Ferrell & Suvak, 1995). When highly-specialized instruction is needed so that a youngster can learn other material—whether the child has auditory problems and is trying to learn total communication or has visual problems and is trying to learn braille—it becomes very important for the school to provide sufficient time and practice so the children master these crucial skills at a functional level.

Braille, by its very nature, will be read more slowly than print. A reasonably good braille reader will read at a rate of around 100 words per minute. A reasonably good print reader will read at a rate of 250 to 300 words per minute. Thus the sighted high school reader will cover three times as much material in the same period of time as a braille reader. (This is not a condemnation of braille; it reflects the differences between visual reading and tactile reading.) Therefore, most blind high school students use recorded books or live readers as a supplement to braille to cover the amount of reading material they are assigned in a regular school (Hatlen, 2003).

It is ironic that in these days of including greater numbers of visually impaired students in the general classroom and curriculum, instructional materials are becoming more elaborate and ever more difficult to use. On a single print textbook page, there are likely to be sidebars, boxes, graphs, pictures, boldfaced words, colored words, words of all different sizes, italicized words, and charts. What was once a simple format consisting of words printed in uninterrupted lines has now become an exciting multimedia production for the sighted student.

Children may be reluctant to use technology that can assist persons who are visually impaired.

Adapting Technology

It is likely that of all the groups of students with special needs, students with visual impairments have profited the most from developments in technology. As reported by the American Foundation for the Blind (2007), students with visual impairment can complete homework, do research, take tests, and read books along with their sighted classmates thanks to advances in technology. Advances in computer technology have been responsible for students with visual impairments being able to receive information and also to deliver information to others.

Often, the biggest stumbling block to using assistive technology is the child's reluctance. Many youngsters are self-conscious about devices that make

Many items can be adapted for the visually impaired.
(© AFP/Getty)

TABLE 11.6
Assistive Technology Devices

Assistive technology device: any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities (P.L. 100-407, P.L. 101-476). May include low vision aids, bold line paper, braille writers, screen readers, braille printers, communication devices, etc.

Adaptive keyboard	This offers a variety of ways to provide input into a computer through various options in size, layout (i.e., alphabetical order), and complexity.
Augmentative communication device	A device that provides speech for people unable to communicate verbally. The device may talk; the user indicates communication through the use of tactile symbols, auditory scanning, large-print symbols, and so on.
Braille embosser	A braille printer that embosses computer-generated text as braille on paper.
Braille translation software	Translates text and formatting into appropriate braille characters and formatting.
Braille writing equipment	Manual or electronic devices used for creation of paper braille materials.
Closed-circuit television	As an assistive device, it magnifies a printed page through the use of a special television camera with a zoom lens and displays the image on a monitor.
Portable note takers	Small portable units that employ either a braille or standard keyboard to allow the user to enter information. Text is stored in files that can be read and edited using the built-in speech synthesizer or braille display. The file may be sent to a printer or braille embosser or transferred to a computer.
Refreshable braille displays	These provide tactile output of information presented on the computer screen. Unlike conventional braille, which is permanently embossed onto paper, refreshable braille displays are mechanical in nature and lift small, rounded plastic pins as needed to form braille characters. The displays contain twenty, forty, or eighty braille cells. After the line is read, the user can "refresh" the display to read the next line.
Scanner	A device that converts an image from a printed page to a computer file. Optical-character-recognition (OCR) software makes the resulting computer file capable of being edited.
Screen magnification	Software that focuses on a single portion (1/4, 1/9, 1/16, etc.) of the screen and enlarges it to fill the screen.
Screen reader	Software program that works in conjunction with a speech synthesizer to provide verbalization of everything on the screen, including menus, text, and punctuation.

them look "strange" or "weird." To overcome this self-consciousness, it is important to introduce these tools in a positive way (by playing games, for example) when the children are young.

Technology has given us the capability to transcribe printed language into spoken language and braille. It also allows us to move easily from one form of communication to another, such as transferring braille to print and back again. Obviously, this technology has enormous potential for students with visual impairments and for their teachers.

There is a wide range of assistive technology devices to help children with visual impairments exchange information with sighted persons. Table 11.6 provides a brief summary of the more common of these devices (Hatlen, 2003).

Blindness Is Not a Barrier

Sure but sightless, Timothy Cordes arrived on the campus of the University of Notre Dame four years ago, an 18-year-old freshman from Eldridge, Iowa, who wanted to enroll in the biochemistry program.

Faculty members tried, politely, to dissuade him. Just how, they wondered aloud, could a blind student keep up with the rigorous courses and demanding laboratory work of biochemistry?

Mr. Cordes graduated Sunday from Notre Dame with a degree in biochemistry and a 3.991 grade-point average on a four-point scale. . . . His German shepherd, Electra, led him to the lectern to deliver the valedictory speech as his classmates rose, applauded, and yelled his name affectionately.

Mr. Cordes starts medical school in two months, the second blind person ever admitted to a U.S. medical school. He does not plan to practice medicine, preferring research. "I've just always loved science," he said. . . .

Armed with Electra, a high-powered personal computer and a quick wit, Mr. Cordes received the top grade, A, in all his classes save for an A-minus in a Spanish class. Two weeks ago, he earned a black belt in the martial arts tae kwon do and jujitsu.

"He is really a remarkable young man," said Paul Helquist, a Notre Dame biochemistry professor. Mr. Helquist had doubts at first but ultimately recommended Mr. Cordes for medical school. "He is by far the most brilliant student I've ever come across in my 24 years of teaching." . . .

"I don't see myself as some sort of 'Profiles in Courage' story," [Mr. Cordes] said. "If people are inspired by what I've done, that's great, but the truth is that I did it all for me. It was just hard work. It's like getting the black belt. It's not like I just took one long lesson. It was showing up every day and sweating and learning and practicing."

His sophomore-year roommate, Patrick Murowsky, said: "The thing about Tim is that he's fearless and he just seems to have this faith. Once we were late for a football game and we had to run to the stadium. He had no qualms about running at top speed while I yelled 'jump,' or I would yell 'duck' and he would duck. And we made it. He is simply amazing to be around sometimes."

Mr. Cordes has Leber's disease, a genetic condition that gradually diminished his vision until he was blind at age 14.

When doctors at the University of Iowa first diagnosed the disease when he was age 2, "it was the saddest moment of my life," his mother, Therese, said. She said the doctors told her, "He won't be able to do this, and don't expect him to be able to do this."

"So I went home," she said, "and just ignored everything they said." . . .

The study of biochemistry relies heavily on graphics and diagrams to illustrate complicated molecular structures. Mr. Cordes compensated for his inability to see by asking other students to describe the visual aids or by using his computer to re-create the images in three-dimensional forms on a special screen he could touch. . . .

"Tim has always exceeded people's expectations of him," said Therese Cordes, who, with her husband, Tom, watched him graduate. "He really does inspire me."

Source: From Jon Jeter, Blind student leaps barriers [originally titled "Blind Valedictorian Is Headed to Med School"], *Washington Post*, May 18, 1998. Copyright © 1998 The Washington Post. All rights reserved. Used by permission and protected by the copyright laws of the United States. The printing, copying, redistribution or retransmission of the Material without express written permission is probibited.

Pivotal Issues

- What are some of the ways you can encourage students with visual impairment in your classroom?
- How can you instill in them the confidence that people with visual impairments can achieve their dreams of attending college?

Career Education: From School to Work

The transition from school to work is an extremely important aspect of the total educational program. Although there have been attempts to use sheltered workshops, in which students produce goods in a protected setting that is publicly

subsidized, the newer emphasis is on placement in real job settings whenever possible. The secondary school program then becomes a part-time academic and part-time workplace program to give the student a chance to experience employment while still in a supervised setting. The academic program focuses on functional reading and other skills that can enhance the student's chance of success in the workplace.

John, a teenager with a visual disability, was exposed to several jobs and learned a series of generic work skills (such as greeting and conversation skills). This type of experience should serve John well in whatever occupation he decides to enter.

Family and Lifespan Issues

In the preceding chapters, we have been concerned with what happens to exceptional children after they leave school and try to make their way in the world. After all, educational programs are supposed to prepare students for life in the community. We have the same concerns for children with visual impairments.

As for what happens to children with disabilities after secondary school, and what kind of life adjustment they make as young adults, there is increasing evidence that social adjustment, rather than specific vocational training, is what is central to successful adult adaptation.

In recent years a careful study was made of groups of children who were blind, children who had low vision, and children who were sighted. Sixteen students ages 15–21 were in each group. Extensive questionnaires about their daily activities and interests were given to students and parents, along with time diaries asking the participants to identify their activities in one-hour blocks over a twenty-four-hour period (Sacks, Wolffe, & Tierney, 1998).

This investigation yielded a variety of interesting facts. The majority of students with sight had worked for pay, whereas only 31 percent of students with low vision and 19 percent of students with blindness did likewise. The majority of the students with blindness and low vision reported that they spent their after-school time alone. Many of the students who were visually impaired, particularly those with low vision, required extensive support to succeed academically in inclusive school environments. Adaptive computers and other devices specially designed for such students were not widely used. The authors of the study concluded that the secondary curriculum for adolescents with visual impairments should include a stronger focus on career development and social skills competencies and that travel training also seemed advisable.

A Final Word

We need to remember that comparisons of children with visual impairments and sighted children reveal only what *is* rather than what *could be* with a more comprehensive intervention program. As Warren reminds us, "In virtually

every area of development there are visually impaired children whose developmental progress is at least at the norm for, and at the high end of the distribution for, sighted children" (1994, p. 334). In this area, as in others, individual differences should be used to guide educational strategies, not some general average that may not be applicable to a particular child.

moral dilemma

To Braille or Not to Braille

Ruth, age 8, is a severely visually impaired girl who has been having trouble adjusting to the regular school program and has been referred for evaluation. After a comprehensive examination, the IEP committee has decided that Ruth needs to receive braille training to aid her ability to master her lessons. Ruth, however, is seriously resisting such a move and is close to outright rebellion about the idea. The source of Ruth's concerns is clear. She is afraid that if other children see her using braille, they will brand her as a blind girl, and Ruth desperately wants to be like other children. After all, a number of the girls in her class wear glasses. Ruth would much prefer to continue to struggle with trying to decipher her lessons visually, even if unsuccessfully.

What should be the approach of the teacher in such a situation? What would you say to Ruth or to her classmates? Should her academic progress be bought at the price of social isolation?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- Children with visual impairments are classified in several ways. Educational classifications rest on the special adaptations necessary to help these children learn.
- A visual impairment can hamper the individual's understanding of the world, but such understanding can be enhanced through extending the experiential world of the child with visual impairments.
- Hereditary factors are one major cause of visual impairments in young children. Other causes are infectious diseases, injuries, and poisonings.
- Today most educators agree that the cumulative experiences of children as they develop affect intelligence. Youngsters with visual impairments lack the integrating experiences that come naturally to sighted children. The challenge for educators is to compensate for this lack of integration through special instructional programs.

- One of the byproducts of restricted mobility and limited experience can be a passive orientation to life. Teachers play a critical role in helping students with visual impairments be active and independent.
- It is important for parents and teachers to help children with visual impairments develop their skills. It is equally important to let these children do things for themselves and to experience as much as possible the things that sighted children experience.
- Inclusion of children with visual impairments has left many such youngsters without the special skills training they need to live independently.
- Braille reading is slower than regular reading, a fact that can affect the academic performance of students with profound visual impairments.
- Orientation and mobility training are critically important parts of the curriculum for children with visual disabilities. Such services should be available in the public schools.
- Technology is improving the means of communication for those with visual impairments. It has also broadened their occupational choices. Keyboarding and word processing are particularly useful skills, along with access to necessary technology.
- One of the important areas of curriculum adaptation is how to modify the standard core curriculum (e.g., math, language arts, social studies, science) to take into account the special needs of children with visual impairments.
- Another major need is to implement the expanded core curriculum. That includes such items as orientation and mobility, independent living skills, uses of assistive technology, and so forth. Very specially trained personnel are needed for this expanded program.

Future Challenges

1 ***Will technology become more accessible for students with vision impairment?***

Technology is wonderful—when it is usable. The widespread distribution of technological developments for those with visual disabilities has been impeded by the cost and size of equipment. In the same way, we have to increase accessibility to the computers and word processors that are transforming the academic and work worlds of those with visual disabilities.

2 ***Where will the specially trained teachers come from?***

There has always been a thin supply of teachers with expertise in dealing with children with visual impairments. This situation has grown worse because of the many complications and multiple disabilities that are becoming the responsibility of the special education teacher. We are sure to face a major teacher shortage despite the financial help given by the Office of Special Education Programs in the U.S. Department of Education.

Key Terms

accommodation p. 365
blindness p. 363
braille p. 394
case coordinator p. 382
ciliary muscles p. 364
convergence p. 365
cornea p. 364
fading p. 375
iris p. 364
learned helplessness p. 387
low vision p. 363
object permanence p. 375
orientation and mobility (O&M) training p. 389
pupil p. 364
retina p. 364
retinopathy of prematurity p. 365
sensory compensation p. 368
synthetic speech p. 386
Universal Design for Learning (UDL) p. 387
visual impairment p. 363

Resources

References of Special Interest

Corn, A., & Koenig, A. (Eds.). (1996). *Foundations of low vision: Clinical and functional perspectives*. New York: American Foundation for the Blind. This book of eighteen chapters by many different contributors focuses on what low vision really means to the person who lives with it. It stresses the psychological and social implications of low vision and provides up-to-date information on mobility training and the instruction of children with low vision in academic programs.

Goodman, S., & Wittenstein, S. (Eds.). (2002). *Collaborative assessment*. New York: American Foundation for the Blind. The theme of this book is appropriate assessment of children with visual impairments through a multidisciplinary team, each member bringing his or her own specialty to an overall collaborative assessment. Separate chapters are written by speech-language pathologists, psychologists, orientation and mobility specialists, and others. This professional collaboration is stressed not only in the initial planning for the child but also as continuing through the core curriculum.

Holbrook, M., & Koenig, A. (Eds.). (2000). *Foundations of education:* Vol. I. *History and theory of teaching children and youths with visual impairments* (2nd ed.). New York: American Foundation for the Blind. This volume, along with the companion Volume II, provides a solid basis for anyone interested in the education of children with visual impairments. The book focuses on the special developmental issues and problems that children with visual impairments face—challenges that require adaptations of the general education curriculum. Each chapter is prepared by a specialist on the topic being discussed.

Sacks, S., & Silberman, R. (Eds.). (1996). *Educating children with visual impairments with other disabilities*. Baltimore: Brookes. This is an important book because over half of the current population of children with visual impairments also have other disabilities that complicate their educational program. This book, which includes chapters on learning disabilities, orthopedic disabilities, neurological disabilities, and emotional and behavioral problems, discusses how additional disabilities complicate the education of children with visual impairments and what can be done.

Silberman, R., Bruce, S., & Nelson, C. (2004). *Children with sensory impairments*. Baltimore: Brookes. A thorough review of the challenge presented by children with visual impairments. Topics range from definitions to causation to the special techniques and technologies that can present a level playing field for these children in the public schools.

Spungin, S. (Ed.). *When you have a visually impaired child in your classroom: A guide for teachers*. New York: American Foundation for the Blind. A book filled with important ideas and techniques for teachers who have children with visual impairments in their classrooms. Covers the environmental changes that should be made, the curriculum adjustments to be introduced, and the technical tools that have to be included to meet the special needs of these students. Written by important veterans in this field.

Journals

Journal of Special Education Technology
peabody.vanderbilt.edu/peabody

Journal of Visual Impairment and Blindness
www.afb.org/jvib.asp

RE: view
www.heldref.org

Professional Organizations

American Foundation for the Blind
www.afb.org/afb

Association for Education and Rehabilitation of the Blind and Visually Impaired
www.aerbvi.org

Division on Visual Impairment
c/o Council for Exceptional Children
www.cec.sped.org

National Association for Parents of the Visually Impaired, Inc.
www.napvi.org

National Association for Visually Handicapped
www.navh.org

Visit our website for updated website information, additional Video Cases, information about CEC standards, study tools, and much more.

CHAPTER

12

Children with Physical Disabilities, Health Impairments, and Multiple Disabilities

FOCUS QUESTIONS

- What are some of the historical events that contributed to disability awareness and legislation?
- How have advances in medical interventions changed outcomes for individuals with disabilities and health impairments?
- How can technology enhance the lives and increase the autonomy of individuals with physical disabilities?
- How are physical disabilities, health impairments, and multiple disabilities defined?
- What are the prevalences of physical disabilities and health impairments in children?
- What challenges are associated with the assessment of children with physical disabilities?
- What services and supports can be provided for these students at each intervention tier?
- What special issues face the families of children with physical disabilities, health impairments, and multiple disabilities?
- What challenges and supports are part of the individual's transition into adulthood?

Philosophers and theologians have debated for millennia about what makes us who we are—what makes us human. We have bodies, minds, and hearts, and many religions believe that we have souls, or spirits. None of these things alone is "us," but they combine to make us both amazingly unique and simultaneously just like everyone else. Often we are distracted by external things. We are judgmental about appearances, and we are fearful, dismissive, or just uncomfortable when the appearance of another is different from our own. We may experience this uneasiness with others of different races or cultures, and we may experience it with others who have physical disabilities. These outer differences, however, are like the waves on the ocean: they can sometimes look blue, sometimes green; they distract us with their constant motion; but they are not the ocean itself. The ocean consists of deep currents that flow with a steady power that can be felt but not easily seen. Just like the waves, the surface differences we see in the appearances of others may mask the deeper humanity that we all share. In this final chapter, we reflect on how the deep currents of humanity can allow us to connect with others in spite of our surface differences.

We explore the impact that physical disabilities, chronic health problems, and multiple disabilities can have on a child's life and look at how we can address the educational needs of these children and their families. The physical, health, and psychosocial needs will be uniquely individual for each child. Meeting these needs, however, requires that a comprehensive infrastructure be in place to support the child and family. Throughout this text we have looked at the social forces (Chapter 1) and the policies and institutions (Chapter 2) that affect the lives of children with disabilities. We have focused on issues related to early intervention (Chapter 3), on the communication needs (Chapter 7) of children, and on specific areas of disabilities (Chapters 4, 5, 6, 8, 10, and 11) or of gifts and talents (Chapter 9). In this final chapter you will need to draw on all that you have learned thus far as you think about how the unique and complex needs of children with physical disabilities, health impairments, and multiple disabilities can be met.

History of Special Education for Children with Physical Disabilities, Health Impairments, and Multiple Disabilities

The first major legislative response to individuals with physical disabilities was passed in 1917 to help meet the vocational needs of World War I veterans with disabilities (Best, Heller, & Bigge, 2005). President Franklin Delano Roosevelt is credited with advancing the cause of individuals with disabilities through his New Deal; the 1935 Social Security Act provided funds for vocational rehabilitation, retirement support, and insurance benefits (Best et al., 2005). World War II veterans with disabilities added another powerful voice for physical access to jobs for individuals with disabilities. The civil rights movement served as a model for the disabilities rights movement, and the 1968 Architectural Barriers Act laid the

groundwork for later accessibility legislation. In Chapter 1 we discussed the evolution of society's relationship with individuals with disabilities, and in Chapter 2 we reviewed the policies and laws that have helped shape the ways we integrate and support individuals with disabilities. The laws, however, are a means and not an end. They provide a platform that guides practice and allows us to advocate for needed supports and services. Laws in and of themselves do not, however, prevent prejudice, ignorance, or malice. People with physical disabilities may still face intentional and unintentional discrimination from other people and from the "system." Fear, ignorance, lack of experience, and inflexibility are the most common causes of discrimination, but with mandatory accessibility and expectations for inclusion, we are moving toward full participation for individuals with disabilities within all aspects of life.

Two key areas in which we have made substantial progress in supporting full participation for individuals with physical disabilities are in medicine and technology. Advances in medicine have led to lifesaving interventions for children with physical disabilities and health impairments. As medical interventions have improved, the life expectancy for preterm infants has increased, and the overall life expectancy for children with severe disabilities has been extended. Improved medical interventions are also increasing the survival rate for soldiers who have been wounded in battle and who, like the returning veterans from previous wars, have disabilities. Medical supports also can enhance the quality of life and prevent secondary complications. Newly developed prostheses can help individuals who have lost limbs regain functioning, new blood sugar monitors can maintain a continuous check to help regulate diabetes, improvements in surgical procedures for infants allow doctors to repair heart defects, and new treatments for cancer have led to 75 percent survival rates for children (Porter, 2008).

The second area in which we have seen dramatic advances that affect the lives of individuals with disabilities is technology. Through technology we can now greatly increase mobility, communication, and independent functioning for individuals with disabilities. Later in this chapter, we look at the role of assistive technologies in supporting autonomous living for individuals with disabilities.

Today individuals with physical disabilities can achieve both greater autonomy and increased inclusion.

Characteristics of Children with Physical Disabilities, Health Impairments, or Multiple Disabilities

The unique needs of children who have physical disabilities, health impairments, or multiple disabilities require that each child must be considered individually. The Profiles box describes two fifth-grade children, Pam and Henry. Both children have special needs, but each is unique in her and his developmental profile. Pam and Henry both have *cerebral palsy*, but, as you will see, Henry also has more severe and multiple disabilities.

PROFILES OF TWO STUDENTS

Characteristics of Students with Physical Disabilities and Multiple Disabilities

Pam: Pam is a happy young girl who is slightly built and small for her age. She has spastic cerebral palsy (CP). Her CP is hemiplegic; it affects her ability to control the right side of her body. She uses a wheelchair with special supports to help her sit and move. Although Pam's motor control on her right side is severely affected by the CP, her cognitive and academic abilities are not affected; in fact, Pam is intellectually gifted, and her academic achievements are above grade level. She is an especially good speller and is always chosen first for class spelling bees. She has won the districtwide spelling bee twice.

Pam seems to make friends easily, and other students enjoy helping her get around. She is usually at the center of things in the lunchroom but sometimes feels left out when it comes to recess and physical education. Pam spends most of her day in the general education fifth-grade class, but because of her unique needs she also receives supplemental services. Twice a week she receives services for students with gifts and talents, and twice a week she receives services for students with disabilities. In her gifted education services, she participates in seminar discussions of advanced books and works on an

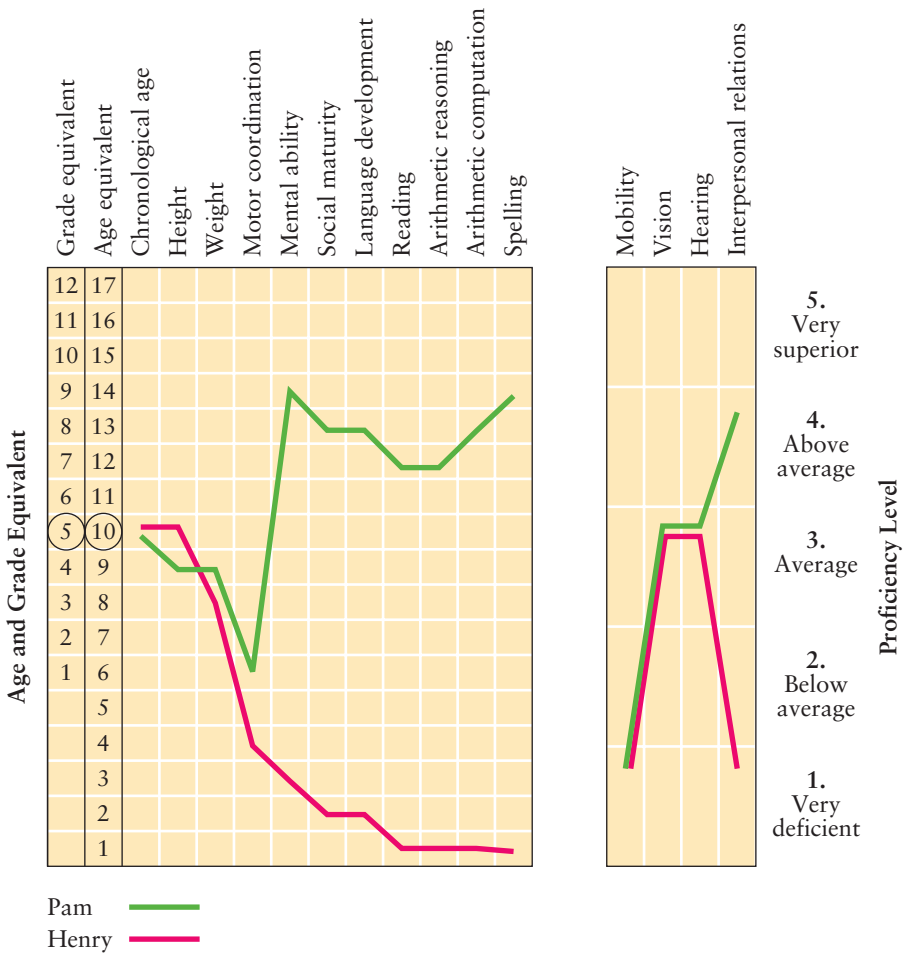


FIGURE 12.1
Profiles of Two Children with Physical Disabilities

independent project studying robotics. She is very interested in how robotics can be used to help people accomplish things that they cannot physically do. In her special education services she works on mobility, has occupational and physical therapies, and gets specific support for such things as self-advocacy and the use of assistive technology. Even with her special services, which take her out of the general education class for as much as four hours a week, Pam is doing well academically, but her teachers must be attentive to her fatigue level and responsive to her physical and emotional needs.

Henry: Henry, like Pam, has spastic cerebral palsy, but he has quadriplegia, meaning that all four limbs and his torso are affected, making his motor control very limited. Henry also has speech difficulties and severe intellectual delays. Because his needs are intense and complex, Henry attends a special self-contained class all day. His related services are integrated into his day, and he receives occupational therapy, speech-language therapy, and physical therapy weekly. The goals for Henry are more functional than academic, and his teachers are working to help him with basic communication skills. Henry uses a touch Dynavox (for digital speech) that is configured for each portion of his day to help him make choices and express his wants. The Dynavox shows pictures and icons and produces digitalized speech when the picture is touched. Because he has the most control over his neck muscles, Henry uses a head stick to point to the picture of his choice. When he arrives at school he chooses whether he wants to start his day with a story or with music; Henry must point to a picture of either a book or a CD player. His teachers have added a second level of choice that requires him to select the specific music or story he would like to hear. At lunch Henry can choose from pictures that show his menu options, and throughout the day he can select some of his learning activities. Because of his cognitive level, Henry is still learning to communicate simple, direct needs and wants. Making choices is key to developing Henry's ability to communicate and to supporting his development of self-determination. At home his parents use a similar system to reinforce and extend his communication.

Henry's teachers work to help him initiate activities and ask for things that he wants. Recently they have begun using a self-activating system that allows Henry to start his morning activities on his own by selecting and turning on the recordings. His teachers prompt him to start but wait for him to actually select the program. Some days this works smoothly, but on other days Henry stubbornly waits for his teachers to help him. Building autonomy in daily routines can be a slow process, and it is sometimes very hard for Henry's parents and teachers to allow him to do things for himself that they could do more quickly and easily. The reward for their patience, however, is seeing the pleasure in Henry's eyes when he does something for himself.

Definitions of Physical Disabilities, Health Impairments, and Multiple Disabilities

As we look at definitions of the disability areas addressed in this chapter, we first turn to IDEA 2004, but because the law includes only some of the areas we are addressing, we augment these definitions. IDEA 2004 specifically includes children with **orthopedic impairments**, **traumatic brain injury (TBI)**, **deafblindness**, **multiple disabilities**, and **other health impairments** within its definitions (Council for Exceptional Children, 2006). Table 12.1 gives the legal definitions for each of these areas.

TABLE 12.1
Federal Definitions for Areas That Include Physical Disabilities, Multiple Disabilities, and Other Health Impairments

Disability Area	Definition from IDEA 2004
Orthopedic impairments	A severe orthopedic impairment that adversely affects a child's educational performance (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures)
Traumatic brain injury	An acquired injury caused by an external physical force, resulting in total or partial functional disability and/or psychosocial impairment that requires special educational services
Deafblindness	Concomitant hearing and visual impairments, the combination of which causes severe communication, developmental, and other educational needs that require special service
Multiple disabilities	Concomitant impairments (such as mental retardation–blindness or mental retardation–orthopedic impairment) that result in severe educational needs that require special services
Other health impairments	Limited strength, vitality, or alertness, including heightened alertness to environmental stimuli, that are due to chronic or acute health problems such as asthma, attention deficit disorders, diabetes, epilepsy, heart conditions, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome and that require special educational services

Source: Material was drawn from the Council for Exceptional Children (2006). *Council for exceptional children policy and advocacy services: Understanding IDEA 2004 regulations*. Arlington, VA: Council for Exceptional Children.

Physical Disabilities and Health Impairments

Understanding the physical disabilities and health impairments that can affect a child can be difficult because of the wide variety of problems that can exist. Here we address some of the physical disabilities and health impairments that are most likely to affect children. Resources provided at the end of this chapter offer a more comprehensive study of this topic. Table 12.2 gives a detailed list of some of the areas of physical disability and health impairment.

TABLE 12.2
List of Physical Disabilities and Health Impairments

Physical Disabilities	*Neuromotor impairments* • Cerebral palsy (CP) • Neural tube defects • Seizure disorders • Traumatic brain injury (TBI) *Degenerative diseases* • Muscular dystrophy • Spinal muscular atrophy *Orthopedic and musculoskeletal disorders* • Juvenile arthritis • Spinal curvatures • Limb deficiencies • Hip conditions • Other musculoskeletal conditions
Health Impairments	*Major health impairments* • Juvenile diabetes • Asthma • Cardiac conditions • Blood disorders • Cancer • Cystic fibrosis • Other conditions *Congenital diseases* • HIV/AIDS • TORCH infections (congenital diseases that include toxoplasmosis, rubella, cytomegaloviris infections, and herpes simplex infections) *Acquired diseases* • Hepatitis B • Meningitis • Encephalitis • Other conditions

Source: From K. W. Heller, P. A. Alberto, P. E. Forney, & M. N. Schwartzman (Eds.). *Understanding physical, sensory, and health impairments: Characteristics and educational implications*. Copyright © 1996. Reprinted by permission of the authors.

Cerebral Palsy

Cerebral palsy (CP) refers to a disorder of movement and posture caused by damage to the motor control centers of the brain (Liptak, 2002; Pellegrino, 2002). *Cerebral* refers to the brain and *palsy* to disorders of movement (March of Dimes, 2008). The damage that results in cerebral palsy can occur before birth, during the birth process, or after birth from an accident or injury (for example, a blow to the head, lack of oxygen). The condition affects muscle tone (the degree of tension in the muscles), interferes with voluntary movement and full control of the muscles, and delays gross and fine motor development.

United Cerebral Palsy Association
www.ucp.org

There are four major classifications of CP: spastic, dyskinetic, ataxic, and mixed. Children can have one or a combination of types of cerebral palsy. The form and degree of physical involvement varies from child to child, as do the affected areas of the body (Best et al., 2005). Figure 12.2 shows the brain areas involved and the regions of the body that will be affected for each type of CP.

In **spastic cerebral palsy**, muscle tone is abnormally high (**hypertonia**) and increases during activity. Muscles and joints are tight or stiff, and movements are limited in the affected areas of the body. Some children are *hemiplegic*; just one

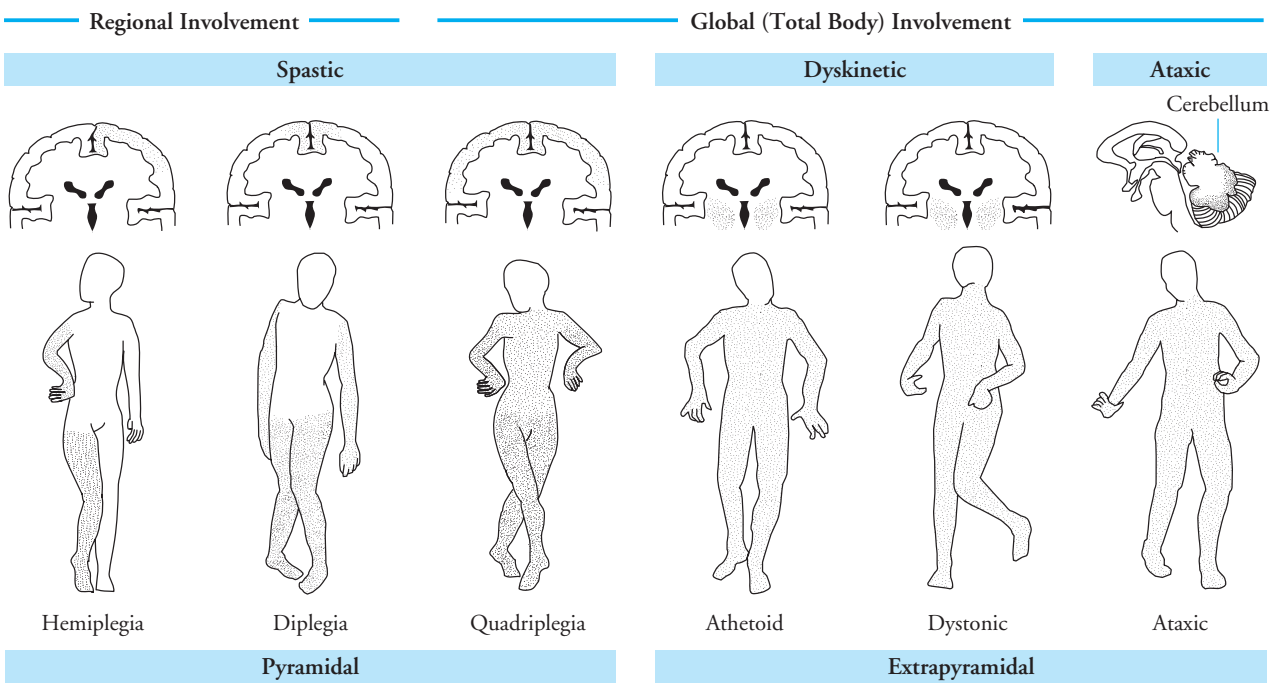


FIGURE 12.2
Regions of the Brain and Body Affected by Various Forms of Cerebral Palsy
Source: J. P. Dorman & L. Pellegrino, *Caring for children with cerebral palsy: A team approach* (p. 12) (Baltimore: Paul H. Brookes, 1998).

side of the body (either left arm and left leg or right arm and right leg) is affected. Others are *diplegic*; the whole body is involved, but the legs are more severely involved than the arms. Still others are *quadriplegic*; involvement is equally distributed throughout the body.

An individual's cognitive abilities can never be based on their physical disabilities.

In **dyskinetic cerebral palsy**, tonal abnormalities involve the whole body. The individual's muscle tone is changing constantly, often rigid while he or she is awake and decreased when asleep (Best et al., 2005).

Ataxic cerebral palsy is a condition in which voluntary movement involving balance is abnormal. Individuals with ataxic CP have difficulty controlling their hands and arms, and their gait is unsteady.

A child with **mixed cerebral palsy** will have a combination of spastic, dyskinetic, and ataxic CP. This combination and its impact will be different for each child, but all will likely have severe problems with balance and coordination that affect ambulation.

Additional problems that can be associated with cerebral palsy include learning disabilities, intellectual and developmental disabilities, seizures, speech impairments, eating problems, sensory impairments, and joint and bone malformations such as spinal curvatures and contractures (permanently fixed, tight muscles and joints). Although CP can bring with it concomitant problems with vision, hearing, speech, and cognition, it is essential to remember that many individuals with CP have normal intelligence and that some, like Pam, are gifted and talented (Best et al., 2005). An individual's cognitive abilities can *never* be assumed by looking at the severity of the physically disabling condition; and as we discuss later in the chapter, cognitive abilities can be hard to assess in the presence of physical disabilities (Best et al., 2005).

Neural Tube Defects

A **neural tube defect (NTD)** occurs when the neural tube (this surrounds the spine) does not close properly and the developing brain or spine is left exposed to the amniotic fluid (March of Dimes, 2008). An estimated one in every one thousand children born in the United States will have NTDs (Duke Center for Human Genetics, 2008). The most common type of NTD we see in children is **spina bifida.**

Spina bifida can vary in severity and long-term impact. Surgery can often close the spinal opening, and some children with spina bifida must undergo multiple surgeries, but the damage to the nerves will cause lasting difficulties.

Spina Bifida
www.spinalcord.org

Researchers believe that 50–75 percent of NTDs can be prevented if women take folic acid (a type of vitamin B) prior to and early on in their pregnancies (Duke Center for Human Genetics, 2008). The U.S. Public Health Service recommends that all women of childbearing age take 0.4 milligrams of folic acid a day as a preventive measure, because spina bifida occurs in the first twenty-six to twenty-eight days of pregnancy, usually before a woman is aware that she is pregnant (March of Dimes, 2008). Medical interventions have advanced to include prenatal surgery, which can now be done to reduce the effects of some NTDs.

Seizure Disorders

A seizure is caused by abnormal electrical discharge within the brain that disrupts the brain's normal functioning. Seizures can be general, in which the individual

With appropriate support, children with cerebral palsy can participate fully in life.

(© Phyllis Picardi/Stock Boston)

often loses consciousness, or partial, in which awareness of the environment is maintained (Porter, 2008). The intensity of the seizure varies from mild to severe and may include muscle contractions, purposeless movement, vocalizations, urinary and fecal incontinence, and frothing at the mouth. Most seizures will end spontaneously within a few minutes, but they will leave the individual disoriented and sleepy, with a headache and sore muscles. Absence seizures (formally called *petit mal*) may last only 10–30 seconds, during which time the child's eyelids may flutter and the child appears to be "spaced out." If not treated, these seizures can occur several times a day and cause the child to miss much of what is happening in the classroom.

A **seizure disorder** is considered to be symptomatic of an underlying problem and requires a full medical evaluation. Seizures occur in up to 1.4 percent of full-term infants and in 20 percent of preterm infants (Porter, 2008). With school-age children, the major cause of seizures is likely to be **juvenile myoclonic epilepsy**. There are an estimated 2 million children and adolescents with seizure disorders in the United States (Porter, 2008). Most seizure disorders respond well to medical treatment (either medication or surgery). All teachers should be aware of how to respond to the immediate needs of a child during a seizure. The *Merck Manual for Neurological Disorders* (Porter, 2008) recommends the following:

During a seizure, injury should be prevented by loosening clothing around the neck and placing a pillow under the head. Attempting to protect the tongue is futile and likely to damage the patient's teeth or the rescuer's fingers. The patient should be rolled onto his or her side to prevent aspiration (www.merck.com, 2008)

The teacher's role after a seizure is critical in helping the child know that he is physically and emotionally safe.

Once the child awakes from the seizure, teachers must provide immediate comfort and security to ensure that the child has time to rest and recover both physically and emotionally. The child may feel embarrassed and will need reassurance that things are back to normal. For children with known seizure disorders, teachers should plan ahead with the parents to have clean clothes available at school and contact information for immediate notification if the child has had a seizure. Parents and the child should also help decide what information should be shared ahead of time with classmates who may witness a seizure. Students who have witnessed the seizure must also be comforted and must be given appropriate information regarding the seizure. It is not unusual for children to worry that they might "catch" the disorder and to react by either drawing away from or by teasing the child. Negative reactions can usually be prevented if the teacher has prepared the students and takes time to help them process their feelings, but teachers must in all cases intervene when children are behaving in a hurtful manner to each other.

Traumatic Brain Injury

Severe head injury is the most common acquired disorder in the category of **traumatic brain injury (TBI)** (Michaud, Semel-Concepcíon, Duhaime, & Lazar, 2002). With more than two million brain injuries occurring annually, it is also the most common cause of accidental death and disabilities (Merck, 2008). Injuries may be either closed (i.e., covered by flesh) or open, and the trauma caused to the brain can be mild or severe. Severe injuries may result in learning disabilities, attention-deficit disorders, spina bifida, cerebral palsy, or other physical disabilities, but traumatic brain injury is considered a separate category of disability. TBI can result in cognitive, social, and language deficits as well (Pershelli, 2007). In the evaluation of students with TBIs, a multidisciplinary team approach is necessary to ensure that the most appropriate education placement and intervention are provided (Keyser-Marcus et al., 2002). Individual cases of TBI may vary in terms of the severity of injury, manifestations of disability, and potential for recovery (Carter & Spencer, 2007; Keyser-Marcus et al., 2002).

Muscular Dystrophies

Muscular dystrophies are inherited, progressive disorders of the muscles that affect movement and function (Porter, 2008). The most common form, Duchenne muscular dystrophy, occurs primarily but not exclusively in boys (Leet, Dormans, & Tosi, 2002). The disease appears at about 2 to 5 years, and by age 12 the child may not be able to walk. The disease gradually weakens the respiratory system, eventually leading to death (Batshaw, 2002; Bigge, Best, & Heller, 2001; Porter, 2008). Approximately one-third of children with Duchenne muscular dystrophy will have mild, nonprogressive intellectual impairments that will affect their verbal abilities (Porter, 2008). There are currently no specific treatments or cures. Planning for the educational needs of a student with muscular dystrophy must be done by a multidisciplinary team and must

Muscular Dystrophy Association
www.mdausa.org

be seen as a dynamic process, allowing the team to respond to the changing needs of the student as the disease progresses.

Juvenile Arthritis

Arthritis
arthritis.org

Juvenile rheumatoid arthritis begins at or before age 16 and causes swelling, stiffness, effusion, pain, and tenderness in the joints (Leet, Dorman, & Tosi, 2002; Porter, 2008). Initial diagnosis is often accompanied by persistent fever of unknown origin and rash. Complete remission is possible for 50–75 percent of children, and others can be treated with disease-modifying drugs. Prolonged inflammation, however, can lead to joint deformities, which eventually can affect mobility. Students may require frequent medication or miss school if surgery is needed. A multidisciplinary team is required to evaluate, identify, and recommend appropriate therapies, medications, exercises, and educational adaptations (Bigge et al., 2001).

Spinal Curvatures

The spinal column consists of a stack of thirty-three vertebrae, with a disk between each, held in place by long ligaments enclosing the spinal cord (Ford, 2008). Problems with the spine function or curvature can lead to spinal disorders. **Scoliosis** is a form of **spinal curvature** in which the spine forms a "c" or an "s" when it is viewed from behind. Scoliosis may begin in infancy, early childhood, or adolescence, and although there are many potential causes of scoliosis, in many cases the origin cannot be determined (Ford, 2008). Treatments include wearing a brace and, in more severe cases, surgery to halt the progression of the curvature. The outcome is dependent on the cause, location, and severity of the curve. Educational supports and related services should include physical therapy and emotional support if needed to help with self-image and personal adjustment.

Juvenile Diabetes

Diabetes is a disorder in which the blood sugar of the individual is abnormally high because the body does not produce enough insulin (Type 1 diabetes) or because the body is insensitive to the insulin that is produced (Type 2 diabetes) (Porter, 2008). Type 1 diabetes can develop at any time (including in infancy) but usually begins between ages 6 and 13. Type 2 diabetes used to be considered a disease of adolescents or adults, but it is becoming more common in children who are overweight or obese, and 10–50 percent of the newly diagnosed childhood cases of diabetes are Type 2 (Porter, 2008). Symptoms of Type 1 diabetes may develop rapidly over the course of a few weeks and include excessive need to urinate; increased thirst; dehydration leading to weakness, lethargy, and rapid pulse; and possibly blurred vision (Porter, 2008). Dietary changes, exercise, and weight loss can prevent or delay the onset of Type 2 diabetes, but nothing can prevent Type 1 diabetes. The treatment of diabetes involves regulating the blood sugar with additional insulin and nutritional management. Controlling blood sugar levels in children can be difficult because of problems following a consistent diet, normal growth, hormonal changes during puberty, and problems in recognizing warning signs of high or low sugar levels.

Supportive counseling may be needed for the child and the family to help them cope with the lifestyle changes needed to regulate the child's blood sugar (Porter, 2008). Teachers must be made aware of the warning signs of blood sugar fluctuations: low blood sugar, or too much insulin, may produce weakness, confusion, and even coma. Too little insulin, or high levels of blood sugar, can lead to diabetic ketoacidosis, in which the blood is too acidic; this leads to nausea, vomiting, fatigue, and abdominal pain. Because of these difficulties, monitoring the blood sugar levels regularly is essential. Teachers must increase their awareness of children with diabetes so that they can help to monitor the child's needs and adjust educational supports when necessary.

Increasing numbers of children are being diagnosed with Type 2 diabetes, which can be prevented with diet and nutritional programs.

Asthma

Asthma is a condition affecting an individual's breathing. It usually has three features: lungs are swollen, breathing is difficult, and the airways react negatively to a variety of environmental conditions (such as dust, smoke, cold air, and exercise). Asthma may also cause acute constriction of the bronchial tubes (Batshaw & Perret, 1992). Asthma is the leading cause of hospitalization for children and the number one cause of elementary school absenteeism (Porter, 2008). In children, the condition varies from mild to severe.

All teachers need to know how to deal with the frequent absences of children with severe asthma and must understand the symptoms that indicate that a child is having an attack. Teachers who have a child with asthma in their classes should have a doctor's suggested plan of medication, a list of symptoms that indicate daily or emergency medical attention, and guidelines for the child's safe levels of exercise and participation in classroom activities. Teachers must also monitor the classroom environment and remove any triggers that may cause the child to experience an asthma attack (e.g., classroom pets, dust, pollens). Children with asthma need accurate diagnosis and treatment plans from appropriate medical personnel. Medication may be necessary throughout an individual's life, and those who are seriously affected are likely to require emergency treatment from time to time.

Cardiac Conditions

Each year in the United States an estimated forty thousand infants (1 in 125) are born with **heart defects** that range from so slight that problems might not appear for years to so severe that they are immediately life threatening (March of Dimes, 2008). Medical advances have led to dramatic increases in survival rates for children with serious heart defects (March of Dimes, 2008). Whereas some infants with heart defects do not show any symptoms at all, others can be recognized by the following indicators: heart murmurs; rapid heartbeat and breathing difficulties (especially during exercise or eating); swelling of the legs, abdomen, or areas around the eyes; and in some cases a change in skin coloring to a pale grayish or bluish cast (March of Dimes, 2008). A full medical review should be completed if the infant or child shows any of these indications of heart complications.

Cancer

Cancer is rare in children, occurring in only one in five thousand children in the United States each year (Porter, 2008). The most common forms of cancer in

children are leukemia, lymphoma, and brain tumors. In contrast to cancers in adults, cancers in children are much more curable. About 75 percent of children with cancer will survive at least five years, and many researchers now consider childhood cancer to be a chronic illness. However, in spite of optimal treatments, approximately two thousand children with cancer will die each year (Porter, 2008). Medical treatments for children with cancer include a combination of chemotherapy, radiation, surgery, and medications. Because children are still growing, the side effects of these treatments may differ from those in adults; for example, an arm that receives radiation therapy may not reach its full growth (Porter, 2008). Long-term impacts of the treatments may also include such things as infertility, poor overall growth, damage to the heart, and secondary cancers (Porter, 2008). Treatments for children with cancer must be overseen by specialists with expertise in childhood cancers.

The impact of cancer on the family and child can be overwhelming. In addition to anguish and worry for the child's well-being, the family is often faced with an intense medical regimen that requires full-time management, leaving little time for siblings, work, or "normal" activities. Meeting the needs of the child and family can be more stressful if the treatment center is located far from the family's home. The family and child will need as much support as possible to cope with these difficulties. Children who are attending school will need academic support, emotional support, and health support to help them cope successfully (Key, Brown, Marsh, Spratt, & Recknor, 2001; Mukherjee, Lightfoot, & Sloper, 2000; Shiu, 2001). Teachers must work with the family and medical team to learn as much as they can about how the cancer and the cancer treatments will affect the child. They must plan ahead for the supports that the child will need to be successful. Parents and the child should also work with the teachers to decide what and how information will be shared with other students to help them understand the situation (Prevatt, Heffer, & Lowe, 2000). A caring teacher can provide an emotional safety net for the child and allow a sense of normalcy and security to prevail (Shiu, 2001). Teachers of the child's siblings should also be prepared to be supportive and should be alert to signs of stress.

Cystic Fibrosis

Cystic fibrosis is an inherited disease that affects a child's breathing and digestion. An estimated thirty thousand children and adults in the United States have cystic fibrosis; advances in medical treatments have increased the survival rate for adults into their 30s and 40s (March of Dimes, 2008). Cystic fibrosis affects the movement of salt in and out of the cells that line the lungs and pancreas, and this causes secretions of mucus and other thick fluids that clog the lungs and the ducts connecting the pancreas with the small intestines (March of Dimes, 2008). Lung infections, difficulties gaining weight, and problems with nutritional intake are common complications for individuals with cystic fibrosis, and medical supervision is important throughout the person's life. Medical treatments include providing breathing assistance (for example, respiratory therapy and vibrating vests that help loosen and clear mucus) and drugs that thin mucus, clear airways, prevent and treat infections, and reduce inflammations (March of Dimes, 2008). Most children with cystic fibrosis can attend school. Doctors may recommend exercise to help strengthen the child's heart and lungs and to help loosen mucus. Teachers should work with the

Cystic fibrosis
www.cff.org

multidisciplinary team to ensure that the child's needs are anticipated and met within the school setting.

HIV/AIDS

Acquired immune deficiency syndrome (AIDS) is a breakdown of the body's immune system caused by the **human immunodeficiency virus (HIV)**. When HIV enters the bloodstream, the body reacts with antibodies to fight the infection; it is the presence of these antibodies in the blood that leads to the diagnosis of "HIV positive." A person can carry HIV and can infect others for ten or more years without developing AIDS. People with AIDS are more susceptible to certain diseases and cancers because their immune systems are compromised. Ninety percent of AIDS cases in children are the result of the virus being transmitted from the infected mother during pregnancy, the birth process, or breastfeeding (Rutstein, Conlon, & Batshaw, 1997). Because many women do not know that they are infected with HIV, the Centers for Disease Control and Prevention (CDC) recommend HIV screening for all pregnant women. HIV is now being treated before birth with some success, and the number of babies born with HIV in the United States has dropped from a high of about 1,650 in 1991 to an estimated 144 in 2004 (March of Dimes, 2008). HIV-infected infants should be treated with antiretroviral agents approved by the Food and Drug Administration (FDA) (Spiegel & Bonwit, 2002). A child may also become infected through a transfusion of contaminated blood. Adolescents who are exposed through sexual contact or contaminated needles through drug use are at risk of contracting the disease.

With early diagnosis and medical treatment, 75 percent of infants born with HIV in the United States are living at age 5, with a mean survival rate of 9.4 years (Franks, Miller, Wolff, & Landry, 2004). This means that increasing numbers of HIV-infected children are attending preschool and elementary school (Grier & Hodges, 1998). AIDS is a serious concern in our society, and communities are still formulating policies on how to work with infants and children who have the infection (including how those children are to be educated). The likelihood of a child with HIV infecting others during normal classroom activities is low, but all teachers should still learn and use **universal precautions** (Edens, Murdick, & Gartin, 2003; Franks et al., 2004). Universal precautions at a minimum include the following (Edens et al., 2003):

Universal precautions, including the use of gloves, hand washing, and disinfectants for cleaning, must be used in all classrooms.

1. Use of gloves when dealing with any body fluids (for example, blood, urine, fecal material, vomit) produced by a child. This protects the teacher from contamination and also reduces the risk of spreading an infection to the child if the teacher is in direct contact with an open wound. Teachers should practice "gloving," which is the safe way to don and remove gloves.
2. Proper hand washing when accidents occur that involve bodily fluids. Any areas of contact with the biohazard (the contaminated bodily fluids) should be washed immediately, because some pathogens can enter the body even through skin that is chapped but not broken. If no direct contact occurs with the biohazard, hand washing should occur after taking care of the child or cleaning the site of contamination. Hand washing should be completed even when gloves have been worn. All surface areas should be scrubbed with soap for between 10 and 30 seconds and rinsed in warm water. Drying hands with paper towels or air driers is recommended.

3. Cleanup procedures for biohazards should follow a protocol using appropriate disinfectants and placing all clean-up materials in a biohazard waste disposal container. Gloves should be worn during cleanup, and hands must be thoroughly washed after cleanup.

Because there is no way of knowing for sure which children may be HIV-positive, *universal precautions should be used with all children in all classrooms*.

CDC National Prevention Information Network (HIV and AIDS) www.cdcnpin.org

Professionals must respond to each child individually to best care for his or her health needs and to maximize his or her competencies. Infants need careful diagnosis, and individualized family service plans (IFSPs) must be developed to ensure adequate medical and educational services (Crocker & Porter, 2000).

Acquired Diseases

Children who become seriously ill may require regular medication or other medical treatment. Some serious or chronic illnesses will require a prolonged hospital stay for the child. If this is the case, everything should be done to continue the child's educational support in the hospital (Shiu, 2001). Many large children's hospitals have educational programs. Ideally the educational support received in the hospital should be coordinated with the child's school so that reentry can be facilitated for the child when he or she is able to attend school again. Teachers working with these children should be knowledgeable about medical procedures needed at school, limitations on activities, and emergency procedures that may be necessary if problems arise (Best et al., 2005).

Teachers must be alert to signs of fatigue or pain and to the vitality needs of their students (Mukherjee, et al., 2000; Shiu, 2001). Parents and teachers must also watch for indications of depression and should plan ahead for emotional and social support (Key et al., 2001). It is important for all members of the child's environment (medical personnel, therapists, parents, teachers) to prepare a detailed plan once the child is ready to enter or reenter the school environment following an illness or chronic condition (Prevatt, Heffer, & Lowe, 2000). This plan should provide a detailed description of all aspects of the child's day, including what exercise is recommended, periods of rest and quiet times, and ways of encouraging a positive self-concept (Mukherjee et al., 2000; Prevatt, Heffer, & Lowe, 2000). Because wellness-illness is a continuum and health needs can fluctuate, these plans must be individualized and reviewed when circumstances change.

After a prolonged absence, the school should have a detailed plan for the child's reentry.

In addition to the plans for individual children, a comprehensive district plan should also be developed that includes policies at the school and district levels that address provision of services, emergency care, steps for supporting the child in school, and guidelines for related service personnel (Hill & Davis, 1999).

Severe and Multiple Disabilities

In addition to the definitions of physical disabilities and health impairments presented earlier, TASH (formerly known as The Association for Persons with Severe Handicaps) has defined what it means to have a severe disability. The TASH definition, by and large, addresses children who have multiple disabilities, but it also includes those whose primary area of disability creates extreme limitations. The TASH definition addresses individuals:

Children form friendships as they work and learn together.
(© Alan Carey/The Image Works)

> who require extensive ongoing support in more than one life activity in order to participate in integrated community settings and to enjoy a quality of life that is available to citizens with fewer or no disabilities. Support may be required for life activities such as mobility, communication, self-care, and learning as necessary for independent living, employment, and self-sufficiency. (Bureau for the Education of the Handicapped, April 1985; revised and adopted by TASH, December 1985, and revised November 1986; see Meyer, Peck, & Brown, 1991, p. 19)

Any definition of individuals with multiple or severe disabilities must be broad, because it includes a very heterogeneous population: for example, persons with psychiatric disorders, deafblindness, and combinations of health, motor, or cognitive impairments (Best et al., 2005).

Deafblindness

The Helen Keller National Center defines *deafblind* more specifically as someone:

> (1) with central vision acuity of 20/200 or worse in the better eye with corrective lenses and/or a visual field of 20 degrees or less in the better eye . . . or with a progressive visual loss . . . ;

Helen Keller National Center
www.helenkeller.org/national

(2) who has either a chronic hearing impairment so severe that most speech cannot be understood . . . ; and

(3) for whom the combination of impairments . . . causes extreme difficulty in daily life activities. (Everson, 1995)

The U.S. Department of Education estimated that there were 17,878 individuals with deafblindness in 2002 (U.S. Department of Education, 2005). These individuals were categorized as having low vision in the better eye, being legally blind with light perception only, being totally blind, or having critical visual impairments (Hembree, 2000). Hearing impairments among persons with deafblindness range from mild loss to severe and profound loss. Thus, in instructing those identified as deafblind, it is essential for the teacher to fully understand the amount of vision or hearing the learner may possess in order to build an instructional program that utilizes all his or her sensory capacity.

It takes a great deal of time, patience, empathy, and repetition to establish the first word (usually a sign) with the child who is deafblind. The goal is to connect a movement made by the child to a sign. The learning process begins with the names of parents (*mama, papa*) or a toy or activity the child likes (*swing,* for example).

If the child is blind, the sign is taught by placing both hands on the child and encouraging the child to respond. Bear in mind that children who can see and hear do not speak until they have heard thousands of words. Children with deafblindness need similar multiple experiences with the activity and the corresponding sign (Miles & Riggio, 1999).

More than half of the population with deafblindness have **Usher syndrome**, which is an inherited condition. Individuals with Usher syndrome have progressive sensorimotor deafness, retinitis pigmentosa (vision loss), and central nervous system problems (Batshaw, 2002). A person with Usher syndrome has a hearing impairment and a vision disability that worsens over time. In its extreme form, referred to as Usher's II, the individual is deaf from birth and has severe balance problems. In the second type, children are born with moderate to severe hearing impairments and can perform well in the general education classroom. In the third type, the person has normal hearing that worsens over time, followed by blindness beginning in adolescence. There is no cure for Usher syndrome, but children with this condition can profit from early identification and appropriate technological and educational assistance (National Institute on Deafness and Other Communication Disorders [NIDCD], 1999).

Early Intervention with Children Who Have Severe and Multiple Disabilities

Children with multiple and severe disabilities need early intervention so that the parents can provide appropriate and consistent care. Parents and therapists need to help children with severe disabilities recognize that they are persons in an environment and that they can influence the environment. The adults need to teach the children to turn outward from their internal world to the external world of the environment and other people for stimulation. If they do not, children with multiple and severe disabilities tend to respond to internal

rather than external stimuli and to use their genetic capacity for curiosity to explore by manipulating their internal world through body movements. As Murphy (1983) wrote, once children fail to turn outward to the environment, it is almost impossible to get them to respond to the world around them. In addition, the child who responds to his or her internal world is likely to develop self-stimulating behaviors, some of which, such as head banging and eye poking, can be physically, psychologically, and socially damaging to the child and hard to eliminate. As with many areas of disabilities, early intervention can both mediate the impact of the disability and prevent secondary problems from emerging.

All of the definitions presented earlier help us understand the broad categories that are addressed by physical disabilities, health impairments, and multiple or severe disabilities, but we must remember that the specific needs of children within each category will be unique.

Prevalence of Physical Disabilities, Health Impairments, and Multiple Disabilities in Children

The U.S. Department of Education (2005) reports that in the fall of 2002 the number of individuals ages 6 through 21 receiving special education services was 5,959,282. Table 12.3 shows the distributions within this category for orthopedic impairments, deafblindness, traumatic brain injuries, multiple disabilities, and other health impairments.

TABLE 12.3
Disability Distribution for Children Ages 6–21 Who Receive Special Education and Related Services, Fall 2002*

Area of Disability	Percentage	Numbers of Children*
Orthopedic impairments	1.2%	71,511
Deafblind	0.03%	179
Traumatic brain injury	0.4%	23,837
Multiple disabilities	2.2%	131,104
Other health impairments	6.6%	393,313

*Numbers are based on the total population of children, 5,959,282, ages 6–21 reported as receiving special education and related services in the fall of 2002.

Source: U.S. Department of Education (2005). *Twenty-sixth annual report to Congress: Implementation of the Individuals with Disabilities Act.* Washington, DC: Office of Special Education Programs.

Counting on Me

I've always believed life to be a continual learning process. January 23, 1998, my greatest lesson began with the birth of my daughter, Isabel Soledad. Isabel was born in Germany two weeks postterm via emergency caesarean, weighing only five pounds. She had to be revived. No one knew and no one was prepared, least of all me. It was later determined that Isabel has a chromosomal disorder, a unique genetic rearrangement, never before documented (a partial trisomy 22 and a partial trisomy 7)—and so it began.

Motherhood can be an overwhelming experience itself, but when a grave disappointment for the dreams you so carefully envisioned is suddenly replaced with a lifelong responsibility to a difficult unknown, it's like being hit over the head with a hammer. Once your head stops spinning and the realization sets in, you focus on what you can control and move on. There is no time for mourning.

The first year was the most frightening. In my case, there was no information, no research, no data, nor studies. Even still, I sought second and third opinions. I conducted my own research online and in libraries and medical universities around the world. I have refused to accept anything less than the best I can provide for my daughter; and because of this, I have excused many professionals from my child's care over the years whenever I have felt that her best interests were not on their forefront.

Thankfully, Isabel does not suffer from any gross physical abnormalities; however, her condition is responsible for a wide range of developmental delays. She has received physical, occupational, and speech therapies from a very early age. Although I was warned that my child would never walk, most frequently I am continually given the frustrating prognosis of "wait and see." I view this as a mixed blessing. There are

Isabel and Crystal have learned to count on each other.
(Courtesy Crystal J. De la Cruz)

no other children like Isabel to compare missed milestones with, and, therefore, no predetermined shortcomings.

By the time Isabel was 18 months old, her amazing little spirit had emerged in full. Many of my fears had subsided and much of my faith was restored; however, a new challenge arose to the occasion when I returned to the U.S. as a single parent

Encountering the System

Becoming established into the system was relatively easy through Wake County's Early Intervention Services, which, in turn, led me to Community Partnerships, Inc., and Smart Start. These exceptional organizations helped provide funding for child care, special equipment, as well as additional therapies which insurance would not cover. Eventually we also received a CAP-C slot, which provides respite care and Medicaid. Once my daughter turned 3, however, the bulk of support and assistance (which had been such a godsend) ended abruptly. In its place a different system arose, with lots of paperwork, policies, red tape, and many, many closed doors.

Frustration and disappointment landed me on the doorstep of The Arc of Wake County, where I met one of the most remarkable and passionate human beings I have ever known, Ms. Lynn Schwartz, family resource coordinator and guardianship specialist. For years now, she has been at my side through hours of individual education program (IEP) meetings with the school board, as our advocate and our dear friend. Sometimes, that makes all the difference.

Through the unending trials and transitions, I quickly learned to lean on those I could count on and cut the losses from those I could not. I called upon friends when I needed support and reassurance. I called upon family when I needed a break. I called upon caseworkers when I ran out of ideas, and in the midst of desperation, I have even enlisted the aid of politicians and local news media. I have built my own vast invaluable support network.

No doubt, over the years, my heroes have had many faces—countless doctors, nurses, caseworkers, therapists, advocates, teachers, counselors, mothers, friends, and family. I could not have survived with less; however, my greatest debt of gratitude I owe to my daughter; she is my strength, my angel, and the most extraordinary teacher I have ever known.

Currently, Isabel is 5 years old, but developmentally she functions mentally and physically at a 2-year-old level (and yes, we are now in the terrible 2's!). She does not walk independently nor does she speak; we communicate primarily through ASL (American Sign Language), as this is far more efficient than mind reading. She has made incredible progress and every day is a celebration.

Changing Horizons

Isabel is beginning public school this fall (a terrifying experience for me). When we went to meet her new teacher, Isabel quickly extinguished my fears of my precious little one being trampled by some mean old fifth grader when she proudly tore off down the halls with her walker, running over toes and taking no prisoners! She has no idea that she is any different than anyone else. . . . I think this is going to be a good year!

Because of Isabel, I am more patient, more persistent, and more understanding than I ever imagined possible. I am more educated and knowledgeable in matters of health, humanity, and humility. I have learned more about government systems, care, and resources (or lack of) than I ever cared to. I have learned how to ask for help when I cannot do it alone, and I have learned how to ask again. I have found that there are small groups of wonderful people out there who do care and want to help. I've learned about Medicaid and IEPs (having once been accused of being a lobbyist!). I have mastered the art of effective letter writing for my causes. I know how to smile proudly at the weak-minded apologies of those who see my life as misfortune. Because of Isabel, I am a passionate advocate, a loving mother, and a better human being because I have learned the hard way how to laugh, how to cry, and how to keep going—all because there is a strong, beautiful, and determined little person who believes in me and who calls me "mama." For Isabel, I have learned to count on me.

Source: Crystal de la Cruz, Counting on me, *All Together Now! 9*(3), 2003. Reprinted by permission of Partnerships for Inclusion.

Pivotal Issues

- How does the life of the family change when a child is born with disabilities? What are the good things that can emerge?
- What does the family face as the child grows up? What kinds of support do they need to help them?
- Why are parent-advocates so critical?

Assessment of Children with Physical Disabilities, Health Impairments, and Multiple Disabilities

Please visit this book's website to hear the story of Pamela K. De loach, a teacher who has cerebral palsy.

The initial assessment of children with physical disabilities and health impairments is primarily the responsibility of pediatricians; neurologists, who specialize in conditions and diseases of the brain, spinal cord, and nervous system; orthopedists and orthopedic surgeons, who are concerned with muscle function and conditions of the joints and bones; and doctors who specialize in childhood diseases. Other specialists involved in identification include physical, speech-language, and occupational therapists.

The identification process involves a comprehensive medical evaluation, which includes a medical and developmental history (illnesses, medical history of family members, problems during pregnancy and labor, and developmental progress), a physical examination, and laboratory tests or other special procedures needed for accurate diagnosis. When the child enters preschool or kindergarten, a comprehensive educational assessment must be completed.

Educational Assessments for Children with Physical or Multiple Disabilities

It can be challenging to get accurate educational assessments of children who have physical disabilities.

You may want to refer back to Chapter 2 to remind yourself of the legal requirements of assessments, remembering that IDEA requires that assessments be timely, comprehensive, and multidisciplinary (CEC, 2006). The greater the impact of the disability, the more challenging it can be to assess the child's abilities. Federal regulations about assessing or evaluating the skills of individuals with multiple and severe disabilities are, however, quite clear: The evaluation must be appropriate to the needs of the individual and the family, and it must take into account the child's culture and primary language. There is currently a movement for the development of "universally designed assessments" (Salvia, Ysseldyke, & Bolt, 2007). Universal design, you may recall from Chapter 2, is a concept that emerged in our attempt to create architectural designs that give everyone access (for example, curb cuts that work for wheelchairs also help with baby carriages). As more test designers work toward incorporating universal design features in their assessments, it will likely become easier to assess children with disabilities. Until then, however, educational assessment of children who have physical disabilities remains a complex and challenging task. These challenges involve both the administration of the assessment and the interpretation of the assessment results.

Administration of Educational Assessments

Depending on the specific impact of the disability, the assessment will need to be modified to allow the child to participate. These modifications are made to accommodate the student's disability and to ensure that we get an accurate picture of his or her abilities and needs. Accommodations can include changes in the testing materials or procedures that allow students to participate so that their

abilities rather than their disabilities are assessed (Salvia et al., 2007). Salvia et al. (2007) have identified the following four areas in which assessment accommodations can be made for students with disabilities:

1. Presentation (repeated directions; readers, translators, interpreters; large print; braille)
2. Response (marking the answer in a book; using computers; using push buttons, pointers, or other assistive technologies; dictating answers)
3. Setting (access for a wheelchair or accommodations for other physical needs; special lighting; separate rooms or study carrels)
4. Timing/schedule (allowing extended time and frequent breaks to avoid fatigue)

The specific accommodations needed for each student should be listed in the student's individualized education program (IEP) and should be available for all assessments that the student takes. In addition to administering assessments so that children with disabilities can take them, we also must be careful how we interpret the results of these assessments.

Interpreting Assessment Results

Interpreting the results of assessments of children who have physical and/or multiple and severe disabilities presents very specific challenges. The primary difficulty is with **norm-referenced tests**. These are tests that are "standardized" on groups of children in order to allow us to compare an individual child's score with the typical score for other children in his or her age group. With this comparison we are primarily interested in where the specific child is in relation to what can typically be expected for a child within a given age range. State assessments that look at a student's progress are generally norm-referenced, as are standardized achievement and IQ tests. The difficulty with the use of norm-referenced tests for children with disabilities is that the group of children we are using as the comparison base (the norm group) rarely includes other children who have disabilities, and so drawing conclusions about the child with disabilities in comparison with this group can lead to faulty assumptions.

Imagine for a moment that you were to be assessed on your ability to navigate the Amazon River *and* that your performance would be rated against the performance of individuals who lived on the river and traveled it daily. You would likely, and justifiably, feel that you were at a distinct disadvantage in this comparison because of the norm group, people with lots of Amazon River experience. Similarly, the experiences of individuals with disabilities may differ dramatically from those of the norm group.

If, for example, we wish to assess the cognitive abilities of a child with cerebral palsy, we will likely use an intelligence test that has been normed with children who do not have the motor difficulties that are part of the experience of the child with CP. If the test requires the physical manipulation of materials, a timed physical response, or even an abstract response based on a working knowledge of physical properties (for example, pictures that show typical objects and ask the child to estimate which one weighs more), the child with CP will be at a distinct disadvantage when compared with the norm group. Because of this disadvantage, the test results for this child will not necessarily be valid and will likely underpredict the child's cognitive abilities.

(*continued on page 437*)

Educational Responses to Students with Physical Disabilities, Health Impairments, and Multiple Disabilities

Students with physical disabilities, health impairments, and multiple or severe disabilities will need supports and services at all three tiers of RTI.

Many students with physical disabilities and most students with health impairments will receive the majority of their services in the general education classroom (the benefits of inclusion are discussed later). These students will, however, also need specific supports at Tier II to address academic, functional and life skills, assistive technology, and counseling needs. Tier III supports are also critical to address individualized supports and services. The development of an IEP is critical to guiding the instructional modification and to ensuring that the transition needs of the student have been addressed.

Pam, the student we met at the beginning of the chapter, spent most of her day in the general classroom receiving solid instructional support, but she also received services that required collaboration among her teachers (Tier II). For Pam, these Tier II supports focused on self-advocacy and general career planning and were taught by the guidance counselor. Pam also received intervention support at the Tier III level, with special education and physical and occupational therapy, and she will soon begin transition planning. What we can see from Pam's example is that RTI is not a linear set of services by which a student begins in Tier I, moves to Tier II, and finally is served in Tier III. All three levels of services are often needed by the same child for different aspects of their support. The conception of the three tiers is to help teachers and service providers determine the level of the child's needs and to organize their responses to meet these needs. Again, remember that the greater the need of the child, the more intensive the service must be to meet the need.

With RTI, children often receive services in Tiers I, II, and III to help meet their needs.

Henry, the second child discussed in the chapter, has multiple and complex needs, and he requires more intense services to meet these needs. Henry spends most of his day in the special education class, where intensive supports can be provided to him on an individualized basis. His related services and therapies are integrated into his day. Henry, and most children with physical disabilities, will require support at the third tier with motor skills and mobility.

Motor Skills and Mobility

Motor skills and mobility constitute a critical area of skill development for children with physical disabilities. These skills are necessary to maintain upright postures (sitting, standing), to perform functional movements (reaching, grasping), and to move around in the environment. The programming priorities for motor skill development should include developing functional movements and postures that are needed to perform classroom and school activities. Appropriate positioning techniques include developing the following:

- Sufficient head and trunk control to maintain an upright sitting posture in order to perform needed activities throughout the school day (attending and listening, writing, using a computer or communication device, eating)
- Arm movements and fine motor skills for performance of needed activities throughout the school day (holding a pencil and paper to write, holding a book and turning pages, using keyboards or switches to access a computer or communication device)
- Standing and balance for assisted ambulation (using braces and crutches)
- Skills needed to maneuver a wheelchair in the classroom and throughout the school environment (using arms to propel, learning to use an electric wheelchair with a joystick or other control, turning corners and entering doorways, negotiating ramps and curbs, and crossing streets)

Physical and occupational therapists assume the primary responsibility for setting goals in motor development and mobility. They must work closely with teachers, other professionals, and parents, however, for the child to meet these goals. Teachers should become familiar with the basic working components of mobility equipment (wheelchairs, braces, crutches, walkers) and report needed repairs or adjustments to the child's

Physical and occupational therapists hold primary responsibility for setting a child's goals in motor development and mobility.

therapist. Therapists should provide teachers and others with information related to the child's physical condition, limitations, and abilities.

Classroom teachers and others may be required to learn special techniques to help children perform motor tasks during the school day. Positioning, handling, lifting, and transfer techniques are physical management procedures that teachers and others use to help the student maintain good body alignment in a variety of positions (postures) and perform functional movements and skills in the context of daily activities.

A child with spastic cerebral palsy who constantly leans sideways in the wheelchair will have tremendous difficulty reaching the keyboard on the computer and striking the correct keys or using the mouse. With help from a physical therapist or occupational therapist, the teacher can learn to position the student in the wheelchair, use a slant board to move the keyboard closer to the child, and relax the child's arms and bring them forward to rest on the keyboard.

American Physical Therapy Association
www.apta.org

Increasingly, children with cerebral palsy are involved in motor skill activities under the guidance of a physical therapist. These activities include swimming, dance, martial arts, horseback riding, and other real-life experiences. The activities prevent atrophy of damaged muscles. Recent data indicate that 67 percent of adults with cerebral palsy live independently, a significant increase over previous years.

The vast majority of children with disabilities will spend part or most of their days in the general education classroom. The inclusion of children with disabilities in general educational settings is encouraged, and the use of an RTI approach can help to ensure that the collaboration needed for successful inclusion can be accomplished.

Inclusion in General Education for Students with Physical, Health-Related, and Multiple Disabilities

A substantial body of literature has established the benefits of inclusion of students with physical, multiple,

Physical therapists are key members of the multidisciplinary team for children with cerebral palsy.
(© Peter Arnold)

and health-related disabilities in public schools and community settings:

- Children with disabilities have shown greater academic gains (Wehmeyer & Schwartz, 1998; Zang, Katsiyannis, & Kortering, 2007).
- Positive changes have been reported in the attitudes of nondisabled individuals toward their peers with severe disabilities at various age levels (Grenot-Scheyer, 1994; Ryndak & Alper, 2003; Voeltz, 1980).
- Inclusion has led to improvements in the social and communication skills of children with severe disabilities (Jackson, Ryndak, & Billingsley, 2000; Jenkins, Speltz, & Odom, 1985; Newton, Horner, Ard, LeBaron, & Sapperton, 1994).
- Inclusion has improved interaction between students with severe disabilities and their nondisabled agemates (Downing & Eichinger, 2003; Roberts, Burchinal, & Bailey, 1994).
- Inclusion facilitates adjustment to community settings as adults (Hasazi, Gordon, & Roe, 1985; Helmstetter, Peck, & Giangreco, 1994).

HM VIDEO CASE

Including Students with Physical Disabilities: Best Practices

Watch this Video Case at the student website. This video shows a student with disabilities in a general classroom. What supports and services are provided to help her be successful? How do these fit with the RTI tiers?

One of the foundational findings about including persons with multiple and severe disabilities in general education classrooms is that inclusion increased the students' social and interpersonal skills. Students displayed increased responsiveness to others, increased reciprocal interactions, and increased displays of affection toward others (Grenot-Scheyer, 1994). In addition, the inclusion of students with physical disabilities in general education classrooms was found to have a positive impact on their peers who do not have disabilities. Nondisabled peers showed increased tolerance for others, increased tolerance for diversity, and growth in their own personal development

Meaningful inclusion must allow for participation in the social and academic activities in the classroom.

(© Ellen Senisi)

(Helmstetter, Peck, & Giangreco, 1994). Inclusion must go beyond the social benefits to be of most value. The student must learn both functional and academic skills. For children with physical disabilities, an expanded core curriculum must include functional skills for daily living (Best et al., 2005).

Functional Skills for Individuals with Physical and Multiple Disabilities

Whatever the age of the students or the severity of their disabilities, we must provide them with an **expanded core curriculum** that is functional and as age appropriate as possible.

Functional skills can be used immediately by the student, are necessary in everyday settings, and increase to some extent the student's independence. Folding a sheet of paper in half is not a functional skill; folding clothes is (Campbell, 2000; Kaiser, 2000). Teaching functional skills that students will use in daily living is an important part of the curriculum because this helps to build autonomy for the student.

The skills taught to students with disabilities must be both functional and age appropriate.

For individuals with intellectual delays, we need to teach age-appropriate skills that match the student's chronological age, not his or her mental age. A 16-year-old boy who has severe disabilities is taught how to engage in activities similar to those that his nondisabled agemates participate in. Skills appropriate for a 16-year-old, for example, may include eating in a restaurant, using a neighborhood health club, or operating a television set or personal stereo. If the skills are not age appropriate, they are not as likely to be functional. Moreover, age-appropriate skills give students with severe disabilities a measure of social acceptance. Table 12.4 shows age-appropriate life skills for students across the grade levels.

Systematic activity-based instruction teaches skills in the context that they will be used. Basic academic skills will often be embedded in the skill training. For example, Colin, a young man with cerebral palsy,

TABLE 12.4
Life Skills Across the Grades

Student	Domestic	Community	Leisure	Vocational
Tim (elementary age)	• Picking up toys • Washing dishes • Making bed • Dressing • Grooming • Practicing eating skills • Practicing toileting skills • Sorting clothes • Vacuuming	• Eating meals in a restaurant • Using restroom in a local restaurant • Putting trash into container • Choosing correct change to ride city bus • Giving the clerk money for an item he wants to purchase • Recognizing and reading pedestrian safety signs • Participating in local scout troop • Going to a neighbor's house for lunch	• Climbing on swing set • Playing board games • Playing tag with neighbors • Tumbling activities • Running • Playing kickball • Playing croquet • Riding bicycles • Playing with age-appropriate toys	• Picking up plate, silverware, and glass after a meal • Returning toys to appropriate storage spaces • Cleaning the room at the end of the day • Working on a task for a designated period (15–30 minutes) • Wiping tables after meals • Following two- to four-step instructions • Answering the telephone • Emptying trash • Taking messages to people

(*continued*)

TABLE 12.4
Life Skills Across the Grades (*continued*)

Student	Domestic	Community	Leisure	Vocational
Mary (junior high age)	• Washing clothes • Preparing simple meals (e.g., soup, salad, sandwich) • Keeping bedroom clean • Making snacks • Mowing lawn • Raking leaves • Making grocery lists • Purchasing items from a list • Vacuuming and dusting living room	• Crossing streets safely • Purchasing an item from a department store • Purchasing a meal at a restaurant • Using local transportation system to get to and from recreational facilities • Participating in local scout troop • Going to a neighbor's house for lunch on Saturday	• Playing volleyball • Taking aerobics classes • Playing checkers with a friend • Playing miniature golf • Cycling • Attending high school or local basketball games • Playing softball • Swimming • Attending craft class at city recreation center	• Waxing floors • Cleaning windows • Filling lawn mower with gas • Hanging and bagging clothes • Busing tables • Working for 1–2 hours • Operating machinery (e.g., dishwasher, buffer) • Cleaning sinks, bathtubs, and fixtures • Following a job sequence
Sandy (high school age)	• Cleaning all rooms in place of residence • Developing a weekly budget • Cooking meals • Operating thermostat to regulate heat and air conditioning • Doing yard maintenance • Maintaining personal needs • Caring for and maintaining clothing	• Utilizing bus system to move about the community • Depositing checks into bank account • Using community department stores • Using community restaurants • Using community grocery stores • Using community health facilities (e.g., physician, pharmacist)	• Jogging • Archery • Boating • Watching college basketball games • Playing video games • Playing card games (e.g., Uno) • Attending athletic club swimming class • Gardening • Going on a vacation trip	• Performing required janitorial duties at J.C. Penney • Performing housekeeping duties at Days Inn • Performing groundskeeping duties at college campus • Performing food service at K Street cafeteria • Performing laundry duties at Moon's Laundromat • Performing photocopying at Virginia National Bank headquarters • Performing food-stocking duties at Farm Fresh • Performing clerical duties at electrical company • Performing job duties at company standards

Source: From S. Best, K. Heller, & J. Bigge, *Teaching individuals with physical or multiple disabilities* (5th ed.). (Upper Saddle River, NJ: Merrill-Prentice, 2005). Reprinted with permission of Pearson Education, Inc., Upper Saddle River, New Jersey.

is being taught how to buy food in the cafeteria. He learns how to maneuver his wheelchair into the line, survey the food, make a selection and take it to the cashier, pay for it, and count his change. Reading the name of the food and its price, knowing whether he has enough money to pay for it, and determining whether the change is correct all involve basic academic skills (Hunt, Soto, Maier, & Doering, 2003).

A second young man, Seth, who is 19½ years old, is enrolled in an education-based program for youths in transition to adult life at a state center for the deaf. His educational and developmental challenges are influenced by deafness, visual impairment, and cognitive delays. These challenges manifest themselves in avenues of communication, social-emotional development, mobility and orientation, and overall academic learning. Seth may be characterized as an individual who enjoys being among people but who tends to avoid sustained interaction with individuals. He displays behaviors that suggest pervasive developmental disorder. Seth is very ritualistic and mandates a schedule that he can depend on.

Seth is very clear as to his preferences and presents a variety of strengths and abilities. These include going to the movies, walking in the mall, taking photographs, eating at specific restaurants, staying at hotels, visiting his relatives, and collecting light fixtures. He does not enjoy any changes in his routine or any new and unexpected experiences.

The education team has been guided by Seth's parents to develop a program that includes a community-based part-time job at a movie theater in his hometown. Therefore, his school program consists of a combination of direct instruction in activities of daily living; instruction within the local community in appropriate skills in shopping, public transportation, banking, and so forth; and supported part-time work at the movie theater in his community. His academic abilities are embedded across these activities to ensure generalization of meaningful skills.

Teacher's Skills Needed for Inclusive Classrooms

Teachers who have students with physical disabilities, health impairments, and multiple disabilities will need some special skills. Table 12.5 presents some of these skills for teaching children with health problems.

Teachers who work within an RTI framework should have the support they need to recognize and respond to the needs of children with disabilities.

TABLE 12.5
Potential Classroom Modifications and Teacher Skill Requirements for Students with Health Problems

Chronic Condition	Potential Modifications	Skills Required
Asthma	Avoidance of allergens; participation in physical activity; administration of medication as needed	CPR; recognition of signs and symptoms of respiratory distress and of medication side effects
Congenital heart disease	Participation in physical activity; administration of medication as needed; diet or fluids	CPR; recognition of signs and symptoms of heart failure and medication side effects
Diabetes	Diet; bathroom frequency; availability of snacks and source of sugar; balance of exercise and food	Recognition of signs and symptoms of hypoglycemia (rapid onset) and of hyperglycemia (slow onset)
Leukemia	Participation in physical activity; exposure to communicable diseases	Recognition of signs and symptoms of infection and of bleeding
Seizure disorder	Participation in physical activity; environment; administration of medication as needed	Seizure management; recognition of signs and symptoms of distress during and after seizure and of medication side effects

(*continued*)

TABLE 12.5
Potential Classroom Modifications and Teacher Skill Requirements for Students with Health Problems (*continued*)

Chronic Condition	Potential Modifications	Skills Required
Spina bifida	Participation in physical activity; environment to accommodate mobility and movement; fluids; pressure relief	Recognition of signs and symptoms of shunt blockage, of urinary infections, and of skin breakdowns; use of equipment and mobility devices
Sickle cell anemia	Participation in physical activity; fluids	Recognition of signs and symptoms of impending crisis
Juvenile rheumatoid arthritis	Participation in physical activity; environment (stairs); administration of medication as needed; frequency of movement; classroom activities (writing, carrying books)	Recognition of signs and symptoms of increased inflammation and of broken bones
Hemophilia	Physical activity	Recognition of signs and symptoms of bleeds; management of bleeding (cuts and scrapes)
Cystic fibrosis	Physical activity; administration of medication as needed; diet	Recognition of signs and symptoms of respiratory distress and of medication side effects

Source: Adapted from J. L. Bigge and L. Best, *Teaching individuals with physical and multiple disabilities* (Upper Saddle River, NJ: Merrill, 2000).

Coordination of these services through the child's IFSP or IEP helps to ensure that the child will not get lost in the myriad of service providers. The multidisciplinary team provides the individual expertise needed to meet the child's needs. For children with physical and health-related needs, the medical members of the team (such as the child's physician or nurse) are critical. In addition to the medical expertise, the team must include someone with expertise in the use of technology to support the child. Inclusion will not work for the child or the teacher without the provision of a supportive infrastructure that provides time for the team members to collaborate in meaningful ways.

Technology

The child's technology needs may include instructional technology (see Chapter 4), assistive technology, and technology related to augmentative communication.

Assistive Technology

The U.S. Office of Special Education defines an **assistive technology device** as follows: "Assistive technology device means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified or customized, that is used to increase, maintain, or improve the functional capability of children with a disability [Authority 20 U.S.C.-1401-(1)]" (CEC, 2006).

Assistive technology service means "any service that directly assists a child with a disability in the selection, acquisition, and use of an assistive technology device [Authority 20 U.S.C.-1401-(2)]" (CEC, 2006).

The first step in providing assistive technology is determining what kinds of supports are needed. Table 12.6 is a checklist that can be used to help assess the child's needs for assistive technology.

TABLE 12.6
Wisconsin Assistive Technology Initiative Assistive Technology Checklist

Writing

Mechanics of Writing

- Regular pencil/pen
- Pencil/pen with adaptive grip
- Adapted paper (e.g., raised line, highlighted lines)
- Slantboard
- Use of prewritten words/phrases
- Templates
- Portable word processor or laptop to type instead of write
- Computer with word processing software
- Portable scanner with word processing software
- Voice recognition software to word process
- Other:

Computer Access

- Keyboard w/Easy Access or Access DOS
- Word prediction, abbreviation/expansion to reduce keystrokes
- Keyguard
- Arm support (e.g., Ergo Rest)
- Track ball/track pad/joystick w/on-screen keyboard
- Alternate keyboard (e.g., IntelliKeys, Discover Board, TASH)
- Mouth stick/Head Master/Tracker w/on-screen keyboard
- Switch with Morse code
- Switch with scanning
- Voice recognition software
- Other:

Composing Written Material

- Word cards/word book/word wall
- Pocket dictionary/thesaurus
- Writing templates
- Electronic/talking electronic dictionary/thesaurus/spell checker (e.g., Franklin Speaking Homework Wiz)
- Word processing w/spell checker/grammar checker
- Talking word processing
- Abbreviation/expansion
- Word processing w/writing supports
- Multimedia software
- Voice recognition software
- Other:

Communication

- Communication board/book with pictures/objects/letters/words
- Eye gaze board/frame

Reading, Studying, and Math

Reading

- Standard text
- Predictable books
- Changes in text size, spacing, color, background color
- Book adapted for page turning (e.g., page flutters, 3-ring binder)
- Use of pictures/symbols with text (e.g., Picture it, Writing with Symbols 2000)
- Talking electronic device/software to pronounce challenging words (e.g., Franklin Speaking Homework Wiz, American Heritage Dictionary)
- Single word scanners (e.g., Seiko Reading Pen)
- Scanner with OCR and talking word processor
- Electronic books
- Other:

Learning/Studying

- Print or picture schedule
- Low-tech aids to find materials (e.g., index tabs, color-coded folders)
- Highlight text (e.g., markers, highlight tape, ruler)
- Recorded material (books on tape, taped lectures with number-coded index)
- Voice output reminders for assignments, steps of task
- Electronic organizers
- Pagers/electronic reminders
- Single-word scanners
- Hand-held scanners
- Software for concept development or manipulation of objects (e.g., Blocks in Motion, Toy store)—may use alternate input device, such as a switch or touch window
- Software for organization of ideas and studying (e.g., Inspiration, ClarisWorks Outline, PowerPoint)
- Palm computers
- Other:

Math

- Abacus/Math Line
- Enlarged math worksheets
- Low-tech alternatives for answering
- Math "Smart Chart"
- Money calculator and coinulator
- Tactile/voice output measuring devices
- Talking watches/clocks
- Calculator/calculator with printout

(*continued*)

TABLE 12.6
Wisconsin Assistive Technology Initiative Assistive Technology Checklist (*continued*)

Writing	Reading, Studying, and Math
• Simple voice output device (BIGmack, Cheap Talk, Voice in a Box, MicroVoice, Talking Picture Frame) • Voice output device w/levels (6 Level Voice in a Box, Macaw, Digivox) • Voice output device w/icon sequencing (Alpha Talker II, Vanguard, Chatbox) • Voice output device w/dynamic display (Dynavox, Speaking Dynamically w/laptop computer/ Freestyle) • Device w/speech synthesis for typing (Cannon Communicator, Link, Write:Out Loud w/laptop) • Other	• Calculator with large keys and/or large display • Talking calculator • Calculator with special features (fraction translation) • On-screen/scanning calculator. • Alternative keyboard (IntelliKeys) • Software with cueing for math computation (may use adapted input methods) • Software for manipulation of objects • Voice recognition software • Other

Source: This assistive technology checklist is used with permission and was made possible by funding through IDEA Grant number 2008–9906-23. Copyright WATI and the WI DPI.

Once a full review of the child's needs has been completed, appropriate assistive technology devices can be selected or designed for the child. The accompanying box lists several kinds of assistive technologies that can be used to meet students' needs.

Types of Assistive Technology to Meet Student's Needs

For mobility

- Walker
- Grab bars and rails
- Wheelchair (manual or powered)
- Powered scooter

For activities of daily living

- Nonskid material
- University cuff and strap for holding items in hand
- Adaptive eating utensils, dressing equipment, devices for hygiene and cooking

For seating

- Nonslip surface on chair
- Holster, rolled towel, blocks for feet

Vision

- Eyeglasses
- Magnifiers
- Large-print books
- Screen magnifiers
- Braille material

Hearing

- Pen and paper
- Computer/portable word processor
- TTY/TDD
- Closed captioning
- Flash alert signals
- Phone amplifier

Recreation

- Toys adapted with Velcro
- Toys with single-switch operation
- Universal cuff to hold crayons
- Arm support
- Electronic aid to operate TV, DVD, etc.
- Computer games

Adapted from the Technology and Media Division (TAM) of the Council for Exceptional Children and the Wisconsin Assistive Technology Initiative.

Selecting the appropriate technology is just the first step, and once this has been done the child will need direct instruction with the technology and time to practice with it. He or she may need emotional support while learning how to manage this aspect of his or her life. The use of assistive technology is designed to help the individual gain autonomy, and this is especially true for technologies that help the individual communicate.

Assistive technologies can help individuals become more self-sufficient and autonomous.

Augmentative Communication

Students with physical disabilities who cannot acquire understandable speech or legible writing skills must be provided with **augmentative communication alternatives** (Okolo, 2006; Light, Beukelman, & Reichle, 2003). Some children with cerebral palsy, for example, have severe impairment of the oral muscles used in speech and limited fine motor abilities that hamper their writing skills. Muscular dystrophy or arthritis can leave children so weak that they tire easily when writing. Teachers and parents should work closely with speech therapists in selecting, designing, and implementing augmented and alternative communication devices for children with physical disabilities.

Speech: Boards and Electronic Devices

The most common augmented and alternative methods for speech are communication boards and electronic devices with synthesized speech output. Henry, you may recall, used a Dynavox to select his daily activities. Some key points pertaining to the use of speech technologies are:

- Most children use the board or electronic device by pointing with a finger or fist to a word or symbol.
- Children who are not able to point accurately use a hand-held pointer, a head-mounted wand, a mouthstick, or a laser pointer.
- Youngsters with limited use of their hands may use their eyes instead, visually focusing on the intended word or letter.

A single switch may be necessary for students who have limited or no use of their hands. The type of switch depends on the child's movement abilities. Numerous commercial switches are available, and many can be made at home. A switch is used with devices that light each possible selection on the board by rows, then by columns. When the correct row is lit and the child presses the switch a second time, the correct sentence, phrase, word, or letter is "spoken." Although this method is slower than accessing the device by pointing or use of a keyboard, it does accommodate students with severe physical impairment. Many electronic communication devices can be connected to a computer for word processing or computer-assisted instruction (Ashton, 2006).

Many electronic communication devices are used with computers to allow students to benefit from computer-assisted instruction.

Supplemental boards or overlays for electronic devices may be needed for academic content areas. For example, a mathematics board contains numbers, mathematics symbols, and words related to current classroom instruction. Other subject boards reflect the content and vocabulary of the specific academic subject (science, social studies, history). These boards should be revised or replaced as classroom content changes throughout the school year.

The provision of augmented communication devices for students with unintelligible speech is critical (Flippo, Inge, & Barcus, 1995). Without augmented communication support, many students might be denied placement in a less restrictive environment (resource room or general education classroom) because of their lack of spoken language.

HM VIDEO CASE

Assistive Technology in the Inclusive Classroom: Best Practices

Watch this Video Case at the student website. How does the assistive technology used in this video help Jamie participate fully in classroom activities? What types of assistive technology do you see in use?

Writing Aids and Systems

A variety of **writing aids** and augmented and **alternative systems** are available for written communication. Students with physical disabilities that cause muscle weakness, involuntary movements, and poor coordination of the fingers and hands may require a writing aid or an alternative system to complete written assignments in school and at home in a neat and timely manner. Some specific aids to help a child with writing include:

- Hand splints to aid in grasping a crayon or pencil
- Special pencil holders
- Slant board to support forearms
- Clipboard, heavy weight, or masking tape to secure paper while writing
- Wide-lined paper (Bigge & Best, 2000)

Computers as Writing Aids

Computers provide another alternative means of written communication. Word-processing software can be used to complete written assignments. Keyguards are available for most types of computer keyboards. For students who cannot use a standard keyboard because they lack fine motor skills, expanded keyboards with large keys are easier to use. A student with muscular dystrophy might use a miniature keyboard if he or she lacks the range of motion in the arms required to use a standard keyboard yet has good finger movement within a limited range. Alternative keyboards are placed directly on the student's lap, desk, or lap tray for easy access.

Manuel, a wheelchair-using student with advanced muscular dystrophy, has very little strength. However, he can control the computer mouse with two fingers. With the mouse, he can move the cursor on the screen and interact with the computer program, which gives him access to a world of knowledge and games. In this manner, students with severe physical impairment need not be able to use the keyboard. They can use the mouse, which requires far less effort. Some students find it easier to use the computer mouse instead of a keyboard.

Enhancing Self-Determination and Autonomy

Although there are some things that will need to be done for an individual with physical and health needs, the goal of all supports and services is to enhance the autonomy of the individual whenever possible. The first step toward autonomy is self-awareness and self-determination (Field & Hoffman, 2007). Henry's teachers and parents, you recall, are working hard to teach him how to choose what he wants and to eventually self-initiate his morning routine. This may seem like a small thing, but it leads to life skills and habits that will be essential as the child grows to adulthood.

Being able to take care of themselves is of critical importance for children with physical disabilities. Self-care skills include eating, toileting, dressing, bathing, and grooming. Students with severe physical involvement may require physical assistance in eating or may have to be fed. Some children need assistive devices or physical help to perform many of these tasks; for example, utensils with built-up or larger handles, special plates and cups, or nonskid mats to stabilize the child's plate.

Students who have health conditions that require medication on a routine basis (injections for diabetes) or a periodic basis (inhalants for asthma) should be taught as early as possible to administer the medication themselves. Teachers or school nurses must monitor the process closely, however, because they ultimately are responsible for seeing that the correct procedures are followed and that appropriate legal permission from parents, guardians, or physicians is secured before any medication is administered. Thought should be given to how to promote autonomy with each activity, and support strategies for autonomous functioning should be planned ahead of time.

Social and Emotional Adjustment

Children with physical disabilities sometimes feel powerless. Christie, for example, knows that she has leukemia and that she will probably live only a few more months. She is frequently absent from school. She misses her friends when she is away from school, but when she returns, she no longer feels a part of the

group. Besides being sick, she is lonely and is keeping to herself more and more. Josh faces an entirely different problem. He is recovering from a traumatic brain injury that has left him using a wheelchair. He is no longer able to do many things for himself, and he has discovered that temper tantrums are an effective way to get people to respond to his needs immediately. It seems that the more people try to help Josh, the more aggressive he becomes.

Although withdrawal and aggression are normal stages in the process, children such as Christie and Josh need support and help in accepting and adjusting to their disabling conditions. Christie's and Josh's behavior patterns are similar to those of children who face continuing academic or environmental problems. They have lost control over certain aspects of their lives.

Early research showed that people are more likely to accept their physical disabilities when the environment is supportive (Heinemann & Shontz, 1984), when they achieve some sense of control over their disabilities, and when they begin to demonstrate new competence. Teachers can enhance the social and emotional adjustment of children with physical disabilities by increasing the understanding of the disabling condition, emphasizing quality of life, and increasing a sense of control. Because of the challenges that individuals with disabilities face, direct instruction on self-advocacy is often needed. Showing students how to assert their rights helps to ensure that they can secure the needed supports and services. Assertiveness training should focus on the individual's ability to express his or her rights clearly, concisely, appropriately, and firmly. A full list of assertiveness skills and strategies can be found on the book's website college.hmco.com/PIC/kirk12e.

Although Josh and Christie cannot control the circumstances leading to their physical disabilities, they can control many other aspects of their lives. It is revealing to have children with physical disabilities list the aspects of their lives that they believe they cannot control. Josh knew he could no longer move independently, and he thought he was powerless. School personnel worked with Josh and his family to show him that his temper tantrums were in fact one way to control people and events. They also helped Josh understand how he could achieve the same results in a more constructive way. Josh learned that his family and classmates were happy to help him when necessary and were interested in socializing with him when he took a more positive approach. He found that people understood his frustration and could help him find ways to express that frustration without damaging his relationships with others. Although he still has a severe physical disability, Josh now believes that he can control many aspects of his life.

A major goal of education is to assist children with physical disabilities to achieve and maintain as much autonomy as possible.

The impact of this underprediction can be devastating, as expectations for the child are often lowered and learning experiences are "dumbed down" to match the lowered expectations. This is particularly problematic for children with CP because their difficulty with speech and the presence of spastic movements may give the layperson (and some professionals) the impression that they have intellectual delays; thus performance expectations for them may already have been lowered. In reality, we know that there is little relationship between the degree of physical impairment and the level of intellectual functioning in children with CP (Best et al., 2005). A child with severe CP may be intellectually gifted; another with mild physical involvement may be intellectually delayed. What we must remember with all assessments is that they will give us only a piece of the picture; and, with children who have disabilities, even this piece should be interpreted cautiously.

Educational assessments of achievement and intellectual levels usually underpredict the abilities of children who have physical disabilities.

Linking Assessment with Instruction

Good assessment is the foundation of good instruction. Knowing what a person can do and what he or she needs to learn provides the initial step for planning instruction. A basic tenet of special education has been to plan instruction at the level of a child's functioning and then take him or her to the next step. In other words, instructional needs are focused on the child's strengths or capabilities. To do this we must first identify what the child has mastered. Teachers rely on **criterion-referenced tests** to help them assess the child's mastery of specific curriculum or content (the criterion). These tests are often teacher-made, but they may also be commercially prepared. The key to criterion-referenced tests is that they provide direct information about the knowledge and skills the child has learned and show the teacher what needs to be taught next. When criterion-referenced tests are used in conjunction with **progress monitoring** teachers can document the growth that the student has made in academics and functional skills.

Progress monitoring (see Chapter 4) is being used to help teachers determine the rate of growth and the level of mastery the child has reached for curriculum benchmarks. Using progress monitoring, the teacher can track the child's performance and can plan instruction based on the specific needs of the child. Comprehensive assessment of a child's performance is an ongoing process and should provide information to the teacher, therapist, and family concerning what the child can do, what the child does not yet know, and what the child needs to learn for the future (Best et al., 2005).

Family and Lifespan Issues

Parents are the child's first teacher, first advocate, and first caregiver. They provide the support needed to help the multidisciplinary team understand their child and often spend hours securing appropriate supports to meet their child's needs. As the child grows, these needs will change, and parents need to be prepared for lifelong issues that they and their child may face. Table 12.7 offers an overview of some of these issues.

Parenting any child is challenging, but parenting children with disabilities and health impairments can be even more daunting. Parents are constantly walking the fine line between protecting their child and allowing the child to develop independence. Finding the balance between protection and fostering independence can be hard when the parent or the child is fearful or worried. This balance creates unique dilemmas for the child and the parent. A child with health impairments, for example, may feel conflict between daily health needs and happiness and may reject the special diet that has been prescribed for his or her health. When we recognize the conflict, we can offer more effective support and accommodation (Bradley, Ashbaugh, & Blaney, 1994). The balance between protection and independence often changes as the intensity or severity of the child's situation progresses.

TABLE 12.7
Possible Issues Encountered by Parents at Each Stage of Their Child's Life

Early Childhood, Ages 0–5	• Obtaining an accurate diagnosis • Informing siblings and relatives • Locating services • Seeking to find meaning in the exceptionality • Clarifying a personal ideology to guide decisions • Addressing issues of stigma • Identifying positive contributions of exceptionality • Setting great expectations
Elementary School, Ages 6–12	• Establishing routines to carry out family functions • Adjusting emotionally to educational implications • Clarifying issues of mainstreaming vs. special class placement • Participating in IEP conferences • Locating community resources • Arranging for extracurricular activities
Adolescence, Ages 12–21	• Adjusting emotionally to possible chronicity of exceptionality • Identifying issues of emerging sexuality • Addressing possible peer isolation and rejection • Planning for career/vocational development • Arranging for leisure time activities • Dealing with physical and emotional change of puberty • Planning for postsecondary education
Adulthood, Ages 21 On	• Planning for possible need for guardianship • Addressing the need for appropriate adult residence • Adjusting emotionally to any adult implications of dependency • Addressing the need for socialization opportunities outside the family • Initiating career choice or vocational program

Source: From A. P. Turnbull & H. R. Turnbull, *Families, professionals, and exceptionality: A special partnership* (2nd ed.). (Upper Saddle River, NJ: Pearson, 1990). Reprinted by permission of Pearson Education, Inc., Upper Saddle River, New Jersey.

Children with health impairments such as diabetes, cystic fibrosis, AIDS, and cancer may face shortened lives. These conditions follow different courses, however, which can present children with tremendous uncertainties. For some children with diabetes, even strict compliance with prescribed medication and diet does not guarantee good health or a normal lifespan, and violations often do not have immediate serious effects. Children with advanced cancers face death daily. The death of a child is tragic, and the loss is very difficult for the child's family, the teachers, the medical care support staff, and the child's classmates. When a child dies, parents and teachers must attend not only to their own grief but must also support the grieving process of the child's siblings, friends, and classmates. Children's concept of death matures slowly, and they need support to be able to deal with their grief following a death. Table 12.8 offers some guidelines for helping a child deal with grief after the loss of a sibling, a friend, or a classmate.

When children lose a sibling, friend, or classmate, they will need support in dealing with their grief.

Parents of children with physical disabilities, health impairments, and multiple disabilities face challenges that may at times seem overwhelming, but with the support of family, professionals, and friends, the joys of parenting can far outweigh the difficulties.

Family support is critical to the well-being of the child with disabilities.
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Transition

Table 12.9 lists ten things that can help prepare adolescents with disabilities for their transition to adulthood (Cobb, 2004).

For all individuals with disabilities, the transition from school to work and independent living presents a range of challenges, such as obtaining a driver to take them to and from work, remodeling an apartment so that all appliances can be reached from a wheelchair, or having a live-in aide with special knowledge of how to deal with various kinds of equipment. The focus of this transition should move beyond the individual's limitations to include a recognition of the individual's skills and strengths so that independence and self-fulfillment are enhanced. Growing up means becoming as autonomous as possible in all environments, self-regulation, self-evaluation, self-confidence, and ways to reach desired goals (Cobb, 2004).

TABLE 12.9
Top Ten Things to Think About in the Transition to Adulthood

1. Know your disability.	How does it affect you, your learning, and your activities, and how have you learned to manage it?
2. Know your needs.	What will be required of you in the new setting(s) and what will you need to be successful?
3. Weigh your options.	Gather information and seek advice from others, but most important, look at what you want out of life and set your goals accordingly.
4. Plan for "gatekeepers" (for example, college entrance exams, job-related exams).	Plan early for any known gatekeepers that you will need to negotiate in order to reach your goals.
5. Document your disability and your abilities.	Create a portfolio that documents your disability and your accomplishments.
6. Advocate for yourself.	Your ability to advocate for yourself is critical to your success. Know the laws and requirements and how to ask for what you need and deserve.
7. Use all services available to you.	Find and use *all* possible supports (such as vocational rehabilitation, student support services, special financial aid support, and community-based services).
8. Plan for independence in your living space.	Review your needs and plan ahead for appropriate supports, modifications, and accessibility to your new home, work, and/or learning environments.
9. Learn to manage your time.	Know what you must do, what you should do, and what you want to do, and plan twice as much time as you think you need!
10. Remember that making mistakes is *not* the end of the world.	Everyone struggles with change. Learning as you go is natural and will help you in the future.

Source: Adapted from J. Cobb (2004). *Top ten things to think about as you prepare for your transition into adulthood*. Washington, DC: GW HEATH Resource Center.

In Chapter 10 we focused on the transition into college or postsecondary educational settings. Many students with physical disabilities will indeed go on to colleges and universities. A review of the transition planning for selecting a college may be useful in thinking about what this transition may require for individuals with physical disabilities. In this chapter, we focus on the transition to independent living and work.

To be able to accomplish the transition, the individual needs to be taught to move from high school vocational skills development to the community setting in which the work is to take place. This requires a **transition coordinator**, who plans for and assists in the transition (Bellamy, Rhodes, Mank, & Albin, 1988; Falvey, Coot, Bishop, & Grenot-Scheyer, 1989; Kochhar-Bryant, 2007; O'Neill, Gothelf, Cohen, Lehman, & Woolf, 1991).

A transition coordinator assists in the transition from school to work.

An individual transition plan (ITP) is required for each student with disabilities. The ITP requires a great deal of information from the school, the individual, the parents, and the community. Questions to be answered by the ITP include the following:

- What will the student need to learn before leaving school?
- Where will the person live as an adult?
- What activities will replace school for recreation?
- How will this individual support himself or herself?
- What will he or she do in leisure time?
- How will this person travel using community transportation?
- How will he or she gain access to medical care?
- What will be the relationship with his or her family? (adapted from O'Neill et al., 1991)

Naturally, every person with multiple and severe disabilities is unique and will need individualized planning. The coordinator must have the skill to develop a plan for each person. The teacher or coordinator collects information on the individual to find the most suitable community site, to conduct a task analysis of what will be required at that work site, and then to initiate a prescriptive program to meet these demands. The coordinator will try to match the individual to activities on the basis of the person's preferences. Key to the successful transition are services provided by vocational rehabilitation services (see Table 12.10).

The National Information Center for Children and Youth with Disabilities
www.nichcy.org

The National Information Center for Children and Youth with Disabilities (NICHCY, 2000) has prepared a Transition Summary for parents, teachers, and individuals to assist individuals with disabilities in moving into work and independent living. The center indicates that research has demonstrated an enormous qualitative difference in the lives of people with disabilities because of recent legislation leading to changes to assist these individuals throughout the transition process. Postsecondary programs, on-the-job education, internships and apprenticeships, adult education, trade school, and technical schools, as well as college and career education, are all available with some support (NICHCY, 2000).

TABLE 12.10
Vocational Rehabilitation Services

Service	Description of Service
Evaluation	To determine a person's interests, capabilities, aptitudes, and limitations and the range of services needed to prepare the individual for employment
Counseling and guidance	To help the person aim for a job in keeping with his or her interests, capabilities, aptitudes, and limitations
Medical and hospital care	To attend, if needed, to mental or physical problems that are obstacles to job preparation
Job training	To provide training that fits the person's needs and that leads to a definite work goal; can include personal adjustment training, prevocational training, vocational training, on-the-job training, and training in a sheltered workshop
Maintenance payments	To cover increases in a person's basic living expenses because of participation in vocational rehabilitation
Transportation	To support and maximize the benefits of other services being received
Services to family members	To help the person achieve the maximum benefit from other services being provided
Interpreter services	To assist the person with visual impairments
Reader services	To assist the person with visual impairments, including note-taking services and orientation and mobility services
Aids and devices	To provide the person with needed aids and devices, such as telecommunication devices, sensory aids, artificial limbs, braces, and wheelchairs
Tools and equipment	To provide the person with tools and equipment needed to perform the job
Recruitment and training services	To provide new work opportunities in public service employment
Job placement	To help the person find a job, taking into consideration the person's abilities and training; includes placement into supported employment
Job follow-up	To help the person make whatever adjustments are needed to succeed at the job into which he or she has been placed
Occupational licenses or permits	To provide the person with the occupational licenses or permits that the law requires a person to have before entering an occupation
Other	To provide other services that an individual may need to become employable

Source: L. Kupper (Ed.). (1991). Options after high school for youth with disabilities, *NICHCY Transition Summary,* no. 7, p. 8. Available from the National Information Center for Children and Youth with Disabilities, P.O. Box 1492, Washington, DC 20013.

moral dilemma

Meeting the Needs of Every Child

A new family has just moved into your small rural school district. One of their children has cerebral palsy. The child, Hanna, has spastic CP of the quadriplegic type. She also has problems with speech. This is the first child with these kinds of complex needs that you have served in your district. You are the special education director and must make the decisions regarding Hanna's placement and services.

What steps will you take to get a comprehensive and accurate assessment of Hanna's abilities and needs? Who will you ask to be part of the multidisciplinary team? How will you prepare the school and the teachers who will be responsible for Hanna's education? And how will you provide the needed assistive technologies to support Hanna?

Go to the student website to share your thoughts on this dilemma, www.college.hmco.com/PIC/kirk12e.

Summary

- Children with physical disabilities, health impairments, and multiple disabilities are a heterogeneous group, and each child will have unique physical, health, educational, and psychosocial needs.
- Legislation supports and protects the rights of individuals with disabilities and requires accessibility to allow participation in social, educational, recreational, and vocational activities.
- Advances in medical technologies continue to extend the life expectancy and enhance the quality of life for individuals with physical disabilities and health impairments.
- Assistive technologies, including augmentative communication devices, help individuals gain independence.
- Universally designed assessment may someday help us get fair and accurate information regarding children's abilities and needs, but until then assessments are likely to underpredict children's capabilities.
- Children with physical disabilities will likely need an expanded core curriculum that includes functional and life skills, and they will likely need services at all three tiers of intervention (RTI).
- Families of children with physical disabilities, health impairments, and multiple disabilities face special challenges and may need intensive and ongoing support.
- Planning for transitions to adulthood must begin early and will require careful consideration of the student's strengths and needs.

Future Challenges

1. ***How will we ensure that supports are available for the increasing numbers of adults with complex needs?***

   As medical advances help to extend the lives of individuals with severe disabilities and complex health needs, more individuals are living longer with more debilitating conditions. Currently vocational rehabilitation services can work with only a fraction of the individuals who need support, and long-term care options for individuals with severe disabilities are often not available. How will we provide appropriate supports to ensure quality of life for these individuals?

2. ***As assistive technologies are developed, how can we make sure that all children who need them have access to them and that they are supported by experts who can fix them when they malfunction?***

   The benefits of assistive technology are so great that they can mean the difference between dependence and independence for individuals with physical disabilities, but assistive technologies can be expensive. How can we make sure that cost is not a barrier to access for children who need the new technologies? How can we also ensure that support services include a person who can fix the technology when it breaks?

3. ***How can we enhance meaningful collaboration that is transdisciplinary in nature?***

   The numbers of people needed on the multidisciplinary team to meet the needs of individuals with physical disabilities, health impairments, and multiple disabilities is substantial and requires individuals with expertise in health, education, social services, and technology. How can we enhance collaboration that moves from cross-disciplinary to transdisciplinary in nature, in which professionals engage in meaningful collaboration?

Key Terms

acquired immune deficiency syndrome (AIDS) p. 417
age appropriate p. 429
assistive technology device p. 432
asthma p. 415
ataxic cerebral palsy p. 411
augmentative communication alternatives p. 435
cancer p. 415
cerebral palsy p. 408
criterion-referenced tests p. 438
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spina bifida p. 411
spinal curvature p. 414
transition coordinator p. 441
traumatic brain injury (TBI) p. 413
Usher syndrome p. 421
writing aids and systems p. 436

Resources

References of Special Interest

Batshaw, M., & Perret, Y. (2002). *Children with handicaps: A medical primer* (5th ed.). Baltimore: Brookes. The fifth edition of this exemplary text explains how genetic abnormalities, problems during pregnancy and early infancy, and nutritional deficiencies can cause disabilities. It also describes how these problems affect the nervous and musculoskeletal systems and, in turn, child development. A few physically disabling conditions also are discussed.

Best, S., Heller, K., & Bigge, J. (2005). *Teaching individuals with physical or multiple disabilities* (5th ed.). Upper Saddle River, NJ: Merrill-Prentice Hall. A recent edition of a comprehensive work that discusses educational and treatment issues. Practical suggestions and the names of vendors specializing in assistive technology are provided.

Bradley, V., Ashbaugh, J., & Blaney, B. (1994). *Creating individual supports for people with disabilities*. Baltimore: Brookes. This guide helps individuals change community- and state-based agencies to organizations that become community supports for individuals with disabilities.

Browder, D. (Ed.). (2001). *Curriculum and assessment for students with moderate and severe disabilities*. New York: Guilford Press. A basic orientation to the range of issues confronting the teaching and assessment of disabled students. Includes family-centered planning, communication and leisure skills, academic skills, inclusion, and transition.

Dorman, J. P., & Pellegrino, L. (1998). *Caring for children with cerebral palsy*. Baltimore: Brookes. A comprehensive text emphasizing an interdisciplinary team approach to assessment, management, treatment, and total functioning of persons with cerebral palsy and their families.

Elias, S. (2005). *Special needs trusts*. Berkeley, CA: Nolo Press. Provides instructions and forms for establishing a trust fund to pay for the needs of individuals with disabilities. A CD-ROM is also available.

Hill, J. L., & Davis, A. C. (1999). *Meeting the needs of students with special physical and health needs*. Upper Saddle River, NJ: Prentice-Hall. Richly documented, with multiple checklists, diagrams, anatomical drawings of all major body systems, and helpful suggestions for teaching, this highly recommended volume contains a complete description in understandable language of a wide range of physical and health disorders.

Krajicek, M., Steinke, T., Hertzden, D., Anastasiow, N., & Skandel, S. (2003). *Handbook for the care of infants and toddlers with disabilities and chronic conditions*. Austin, TX: PRO-ED. This manual is designed to assist day-care and home-care workers in integrating children with physical disabilities and health problems into general education classes.

Lehr, D. H., & Brown, F. (2000). *Instruction of students with severe disabilities* (5th ed.). Baltimore: Brookes. Twenty leaders in the field discuss in twelve chapters issues of teaching, policy, integration, research, and suggestions for practice. This book presents current thinking on persons with multiple and severe disabilities.

Wehmeyer, M. L., Agran, M., & Hughes, C. (1998). *Teaching self-determination skills to students with disabilities*. Baltimore: Brookes. A broad compendium of ideas and techniques for teaching independence skills to students. The acquisition of these skills will contribute greatly to students' transition.

Journals

Journal of Applied Behavior Analysis
envmed.rochester.edu/wwwrap/behavior/jaba/jabahme.htm

Journal of the American Physical Therapy Association
www.ptjournal.org

Physical and Occupational Therapy in Pediatrics
www.bubl.ac.uk/journals/soc/paotip

Research and Practice for Persons with Severe Disabilities (formerly *Journal of the Association for Persons with Severe Handicaps* [JASH])
www.tash.org/publications

Professional Organizations

The Association for Persons with Severe Disabilities (TASH)
www.tash.org

Brain Injury Association, Inc. (formerly National Head Injury Foundation)
www.biausa.org

Division for Physical and Health Disabilities (DPHD)/ Council for Exceptional Children (CEC)
http://education.gsu.edu/PhysicalDis/DPHD/index.html

Epilepsy Foundation of America (EFA)
www.epilepsyfoundation.org

March of Dimes Birth Defects Foundation
www.modimes.org

National Clearinghouse on Children Who Are Deafblind
www.aade.org

National Rehabilitation Information Center
www.naric.com

National Information Center for Children and Youth with Disabilities (NICHCY)
www.nichcy.org

United Cerebral Palsy Association, Inc.
www.ucp.org

Visit our website for additional websites, Video Cases, resources, information about CEC standards, study tools, and much more.

GLOSSARY

academic aptitude A combination of general cognitive abilities that measure a student's potential for learning (such as an intelligence test or an IQ score) and achievement within specific content domains. Knowing a student's academic aptitude helps us predict the optimal level of curriculum that will allow him or her to be successful.

access technology Equipment, such as a computer mouse, that allows a student to use a computer program or that adapts the computer for a person with disabilities.

accommodation Changes in the shape of the lens of the eye in order to focus on objects closer than 20 feet.

acquired hearing loss A hearing loss that has occurred in either childhood or adulthood.

acquired immune deficiency syndrome (AIDS) A breakdown of the body's immune system, allowing the body to become vulnerable to a host of fatal infections that it normally is able to ward off.

age appropriate Skills that match the student's chronological age, as opposed to his or her mental age

alerting device/alarm system Devices and systems for the deaf and hard of hearing that use flashing lights or vibration to provide notification of events that hearing people detect through sound, such as a baby crying, fire alarm, or alarm clock.

alpha-fetoprotein test A blood test given to pregnant women to detect fetal disabilities.

American Sign Language (ASL) A manual language used by many people with hearing impairments that meets the universal linguistic standards of spoken English.

amniocentesis A procedure for analyzing the amniotic fluid (a watery liquid in which the embryo is suspended) to discover genetic defects in the unborn child.

anticipatory anxiety A fear and undermining of self-confidence caused by past experiences of failure and frustration that can sabotage success with new experiences.

Apgar test A screening test administered to an infant at one minute and five minutes after birth.

applied behavioral analysis (ABA) A learning approach that is based on individual analyses of a student's functioning and relies on the learning of behaviors to remediate learning problems.

articulation The movement of the mouth and tongue that shapes sound into speech.

articulation disorder Difficulty forming and stringing sounds together, usually characterized by substituting one sound for another (*wabbit* for *rabbit*), omitting a sound (*han* for *hand*), or distorting a sound (*ship* for *sip*).

Asperger's syndrome A form of autism that features the usual social and behavior problems, but where the cognitive abilities may be average or above.

assessment A process for identifying a child's strengths and weaknesses; it involves five steps: screening, diagnosis, classification, placement, and monitoring or discharge.

assistive technology Tools that enhance the functioning of persons with disabilities.

assistive technology device A tool that enhances the functioning of persons with disabilities, such as a switch, soundboard, or picture board.

asthma A respiratory condition that results in difficulty breathing or coughing.

ataxic cerebral palsy A condition in which voluntary movement involving balance is abnormal.

attention deficit hyperactivity disorder (ADHD) A disorder that causes children to have difficulty settling down to do a particular task, especially desk work.

audition Thought transformed into words and received by a listener through hearing.

auditory acuity The ability to take in sounds and get them to the brain successfully.

auditory brainstem response (otoacoustic emissions) A neurological hearing test for infants which is used to determine whether the ear is functioning appropriately and the brain is receiving the sound signal.

auditory nerve The bundle of nerve fibers that carries hearing information from the cochlea to the brain (also known as the *cochlear nerve*).

auditory perception One's ability to process information from different sources, including hearing speech against background noise, sound discriminations, and sound recognition.

auditory processing The brain's ability to recognize and interpret sounds.

augmentative communication alternatives Non-traditional methods of communication, including the use of assistive technology devices, for children with physical and other disabilities who cannot acquire understandable speech or legible writing skills.

augmented and alternative communication A variety of assistive technologies that help an individual communicate. These range from sophisticated voice

synthesizers to relatively simple story boards with pictures that indicate words and actions.

authentic assessment Measuring a child's ability by means of an in-class assignment.

bilingual-bicultural approach Cultural viewpoint that persons who are deaf are bicultural because they belong to both the Deaf culture, and the society in which they live. Many who are deaf are also bilingual because they use both a sign language system (usually ASL) and the spoken or written language of their culture, such as English.

blended practices Practices that bridge the gap between special and general education by creating one comprehensive approach for teaching young children with and without disabilities.

blindness A visual impairment so severe that the student must learn through other senses than the usual (tactual and auditory).

bone-conductor test A test used to assess hearing in children under age 3 by bypassing the ear and measuring the movement of sound through the bone and the hearing system to the brain.

braille A system using embossed characters in different combinations of six dots arranged in a cell that allows people with profound visual impairments to read by touch as well as to write by using special aids.

cancer A malignant abnormal growth or tumor. This is rare in children and the most common forms are leukemia, lymphoma, or a brain tumor.

case coordinator An educator who takes the lead on the child's multidisciplinary team. The coordinator is generally responsible for setting up the meetings, ensuring that all paperwork is completed, and sharing information about students' needs and progress with other team members.

central auditory processing disorder (CAPD) Disorder characterized by difficulties with sound localization, auditory discrimination, understanding speech sounds against a noisy background, auditory sequencing, memory, and pattern recognition, sounding out words, and reading comprehension.

central auditory processing loss Hearing difficulty which limits the individual's ability to process and use auditory information.

central processing Classification of a stimulus through the use of memory, reasoning, and evaluation; the second step in the information-processing model.

cerebral palsy A condition caused by damage to the motor control centers of the brain before birth, during the birth process, or after birth.

Child Find Public awareness activities, screening, and evaluation designed to locate, identify, and refer as early as possible all young children with disabilities and their families who are in need of Early Intervention Program (Part C) or Preschool Special Education (Part B/619) services of the Individuals with Disabilities Education Act (IDEA).

ciliary muscles Muscles that control changes in the shape of the lens so the eye can focus on objects at varying distances.

circle of friends A social contact technique that brings together disabled and nondisabled children to discuss their likes and dislikes under the leadership of a facilitator.

cochlear nerve Bundle of nerve fibers that carries hearing information from the cochlea to the brain (also known as the *auditory nerve*).

cochlea Part of the inner ear that contains part of the hearing organs.

cochlear implant A small electronic device that can be surgically implanted into the ear of a person who is profoundly deaf or severely hard-of-hearing to provide a sense of sound. It consists of a microphone, a speech processor, a transmitter and receiver/stimulator, and an electrode array.

coercive cycle Describes a situation where the child misbehaves, the adult responds punitively, and the child in anger is driven to misbehave some more creating a downward cycle in relationship.

cognitive strategy approach Relies on the cooperation of the child to encourage the development of effective conscious coping skills. May be referred to as self-monitoring, self instruction, or self control.

collaborative problem solving Working with a multidisciplinary team of individuals and parents to design services that address the student's needs.

collateral skills intervention Attempt to improve skills not central to the primary condition in children with autism, such as motor coordination, which may aid the child's social adjustment.

communication The exchange of thoughts, information, feelings, or ideas.

communication disorder Impairments in articulation, fluency, voice, or language.

conductive loss Hearing loss caused by something (wax, ear infections [otitis media], or any type of malformation of the ear canal) blocking the sound that passes through the outer or middle ear, which makes hearing faint sounds more difficult.

congenital Present at birth.

content sophistication Curriculum modification that challenges students who are gifted to use higher levels of thinking to understand ideas that average students of the same age find difficult or impossible to understand.

context of the child The combination of forces in the child's environment that impact his or her development. This context includes the child's family, neighborhood, school, community, and even state and country.

continuum of services A range of personnel to provide needed specialized services such as speech, physical, or occupational therapy.

convergence Change in the extrinsic muscles of the eye.

cooperative learning A set of instructional strategies that emphasize the use of groups for teaching students techniques of problem solving and working constructively with others.

cornea The transparent anterior portion of the tough outer coat of the eyeball.

creativity Mental process by which an individual creates new ideas and products or recombines existing ideas and products in a fashion that is novel to him or her.

criterion-referenced tests Tests designed to measure a child's development in terms of absolute levels of mastery, as opposed to the child's status relative to other children.

cultural reciprocity Understanding the differing values in families from different cultures and the desire to find a meeting place between cultures for the benefit of the child.

culture The attitudes, values, customs, and language that form an identifiable pattern or heritage.

curriculum compacting Content modification that allows students who are gifted to move ahead. It consists of three steps: finding out what the students know, arranging to teach the remaining concepts or skills, and providing a different set of experiences to enrich or advance the students.

cystic fibrosis A genetic disease that affects a child's breathing and digestion.

deafblindness The condition of little or no useful sight and little or no useful hearing, the combination of which causes severe communication, developmental, and other educational needs that require special services

decibel (dB) Unit used to measure the intensity of a sound.

developmental disabilities Mental retardation and related conditions (e.g., cerebral palsy) that create a substantial delay in the child's development and require intervention from many professional disciplines.

developmental profile A chart presenting the intraindividual differences in development for a particular student.

developmentally appropriate practice (DAP) Curriculum practices that match the level of development of the child and are presented in ways that children learn (e.g., play).

diabetes Disorder in which the blood sugar of the individual is abnormally high because the body does not produce enough insulin (Type 1 diabetes) or because the body is insensitive to the insulin that is produced (Type 2 diabetes).

diagnostic achievement tests Tests help educators understand how a student solves a problem by examining the strategies that he or she uses when learning. Diagnostic assessments help us determine why a child is struggling so that we can offer appropriate support or remediation.

dialect A variant in pronunciation and syntax of a spoken language.

differentiated instruction Refers to the changes in teacher strategies and curriculum made necessary by the characteristics of the exceptional child.

divergent thinking The ability to produce many different answers to a question.

Down syndrome A chromosomal abnormality that leads to mild or moderate mental retardation and, at times, a variety of hearing, skeletal, and heart problems.

dysgraphia Brain dysfunction or disease that causes an inability to write, or write legibly.

dyskinetic cerebral palsy A condition characterized by tonal abnormalities that involves the whole body and muscle tone that changes constantly.

dyslexia A severe reading disability involving difficulties in understanding the relationship between sounds and letters.

dysphonia A disorder in voice quality.

eardrum A thin layer of skin at the end of the external ear canal.

early intervention Systematic efforts designed to prevent deficits or to improve an existing disability in children between birth and age 5.

ecological model A view of exceptionality that examines the individual in complex interaction with environmental forces and believes that exceptionalities

should be remediated by modifying elements in the environment to allow more constructive interactions between the individual and the environment.

ecological variations Changes in the child's environment that modify activities, schedules, and structures to promote opportunities for socialization. For example, a structured play task might require a student with autism to give specific toys to other children and to show them how these toys work.

ecology of the child Those forces surrounding and impacting on the child from family, culture, peers, physical setting, etc.

encephalitis An inflammation of the brain, usually refers to brain inflammation caused by a virus. It's a rare disease that only occurs in approximately 0.5 per 100,000 individuals-most commonly in children, the elderly, and people with weakened immune systems (i.e., those with HIV/AIDS or cancer).

episodic memory One's ability to recall whole scenes or episodes from one's past, often brought on by smells.

evidence-based interventions Intervention strategies which research has demonstrated to be effective.

exceptional child A child who differs from the norm in mental characteristics, sensory abilities, communication abilities, social behavior, or physical characteristics to the extent that special education services are required for the child to develop to maximum capacity.

executive function The hypothesized decision-making element that controls reception, central processing, and expression.

executive processor According to the information processing model, the mechanism for decision-making in information processing and learning.

expanded core curriculum A plan of study which includes functional and life skills as well as academic skills.

expressive language The ability to produce a message to send; typically involves speaking and writing.

external auditory meatus The channel through which sounds are led from the outside ear to the middle ear. Also known as the *external auditory canal*.

fading Gradually cutting back on help as a child becomes competent at a task.

family centered early intervention An attempt to involve the family in the treatment programs in the early years of a child with disability. The family will play a role in the treatment process and in monitoring the progress of the child.

family-centered model A model of family dynamics that empowers families to take the lead in determining what is best for their child. This is done through support that focuses on the strengths of the child and family.

family empowerment The family plays a major decision role in the planning and execution of the program for their child with disabilities through the IEP process and subsequent planning and treatment.

family-focused approach Helping parents become more autonomous and less dependent on professionals.

fetal alcohol syndrome Defects in a child as a result of the mother's heavy use of alcohol during her pregnancy.

fluency The flow of speech.

Fragile X syndrome A restriction at the end of the X chromosome that may result in mental retardation or learning disabilities.

functional Skills that can be used immediately by the student, are necessary in everyday settings, and increase to some extent the student's independence (e.g., folding clothes).

functional behavioral assessment (FBA) Valuations of behavior that define a behavior, explain why this behavior occurs, describe where and when the behavior is present, and demonstrate how the behavior impacts the child and his or her surroundings. The premise behind FBA is that there is a rational purpose for every behavior and that it is necessary to understand why and how negative or destructive behaviors are triggered in order to reduce them.

genetic counseling A source of information for parents about the likelihood of their having a child with genetically based disabilities.

gifted underachievers Students whose actual performance is low or mediocre despite their outstanding potential. Gifted students underachieve for a variety of personal and circumstantial reasons, including deciding to disengage from school because they find it boring.

hearing aids Small electronic devices that provide sound amplification for individuals who are deaf and hard of hearing.

heart defect A congenital cardiac condition that can range from slight to severe and be characterized by heart murmurs; rapid heartbeat and breathing difficulties (especially during exercise or eating); swelling of the legs, abdomen, or areas around the eyes; or change in skin coloring to a pale grayish or bluish cast. It is also possible that no symptoms may be present.

heightened sensitivity Oversensitivity to sensory input, including lights, sounds, smells, and tastes.

high-stakes testing Any examination whose results can substantially change the future of a student, such as course failure or admittance to college.

home schooling Educating at home. The home-schooling movement involves over a million parents who have chosen to educate their children at home rather than send them to schools. This movement began as a response to parental concerns about appropriate religious instruction, but today many parents home school because they feel their child's needs cannot be met within the traditional school setting.

human immunodeficiency virus (HIV) A virus that breaks down the body's immune system, causing AIDS.

hypertext A link on a website or document that will lead you to other relevant references or material.

hypertonia Having abnormally high muscle tone.

inclusion The process of bringing children with exceptionalities into the regular classroom.

incus One of the three small bones in the middle ear; also known as the *anvil*.

individualized educational program (IEP) A program written for every student receiving special education; it describes the child's current performance and goals for the school year, the particular special education services to be delivered, and the procedures by which outcomes are to be evaluated.

individualized family service plan (IFSP) An intervention program for young children and their families that identifies their needs and sets forth a program to meet those needs.

information processing model (IPM) A model that describes learning as a series of components that involve sensory stimulation/input, processing/thinking, and output, or the sharing of what has been learned.

instructional technology A growing field of study which uses technology as a means to solve educational challenges, both in the classroom and in distance learning environments.

interindividual difference A substantial difference among people along key dimensions of development.

intervening hierarchy A model for organizing intervention strategies from least to most intensive; with three or more tiers in which Tier I is a high-quality general learning environment and the additional tiers provide more help for students whose needs require more intensive supports.

intraindividual difference A major variation in the abilities or development of a single child.

intrinsic motivation Motivation that is internal to the student; self-motivation.

iris The colored muscular partition in the eye that expands and contracts to regulate the amount of light admitted through the pupil.

juvenile myoclonic epilepsy A disease that causes seizures in school-age children.

juvenile rheumatoid arthritis A condition that begins at or before age 16 and causes swelling, stiffness, effusion, pain, and tenderness in the joints.

language A code whereby ideas about the world are represented through a conventional system of arbitrary signals for communication.

language content The meaning of words and sentences. Also called *semantics*.

language disorder The impairment or deviant development of comprehension or use (or both) of a spoken, written, or other symbol system.

language form The sounds, words, and grammar that underlie a language to create its individual form, or structure; includes phonology, morphology, and syntax.

language function The use of language within a given society and a specific context.

LEAP A specialized 12 month treatment program for children with autism which stresses a functional life skills curriculum.

learned helplessness The belief that nothing one does can prevent negative things from happening.

least restrictive environment The educational setting in which a child with special needs can learn that is as close as possible to the general education classroom.

long–term memory A way of storing information in the brain for future retrieval.

low vision Visual acuity of 20/70 to 20/200. Students with low vision can still benefit from visual learning through the use of various technologies to enhance their sight.

magnet school Public school that exists outside of zoned school boundaries and typically have something special to offer over a regular school, such as alternative modes of instruction.

malleus One of the three small bones in the middle ear known as the *hammer*.

media access Availability of information that can be accessed and utilized by individuals with disabilities, including captioned television.

medical model A view of exceptionality that implies a physical condition or disease within the patient.

mental retardation A combination of subnormal intelligence and deficits in adaptive behavior, manifested during the developmental period.

metacognition The ability to think about one's own thinking and monitor its effectiveness.

mirror neurons Cells in the nervous system which allow the individual to imitate others' speech and actions. Apparently, not fully functional in children with autism.

mixed cerebral palsy A condition with a combination of spastic, dyskinetic, and ataxic cerebral palsy that impacts each child differently, but affects balance and coordination for almost all children.

mixed hearing loss Hearing loss resulting from problems in the outer ear, as well as in the middle or inner ear.

morphology The rules that address how words are formed and their structure.

motor memory The ability to program one's body movements to learn patterns and retain them for future use.

motor skills and mobility Skills that are necessary to maintain upright postures (sitting, standing), to perform functional movements (reaching, grasping), and to move around in the environment

multidisciplinary team A group of professionals who work together to help plan and carry out intervention or treatment for children with disabilities to help them achieve their full potential.

multiple disabilities A combination of impairments, such as mental retardation-blindness or mental retardation-orthopedic impairment, that results in severe educational needs that require special services.

multiple intelligences A theory associated with Howard Gardner that proposes nine separate intelligences instead of one general intelligence.

muscular dystrophy A genetic, progressive deterioration of the muscles that affects movement and function.

natural environment Setting that is typical for children who do not have disabilities.

neural tube defect (NTD) A condition that occurs during fetal development when the neural tube surrounding the spine does not close properly and the developing brain or spine is left exposed to the amniotic fluid.

norm-referenced test Standardized assessment used to compare an individual child's score with the typical score for other children in his or her age group.

object permanence The understanding that objects that are not in the visual field still exist.

orientation and mobility (O&M) training Teaching a person with visual loss or with blindness how to move through space.

orthopedic impairment A severe injury or disorder of the skeletal system and surrounding muscles, joints, and ligaments that adversely affects a child's educational performance (such as cerebral palsy, amputations, and fractures or burns that cause a distortion of the scar tissue or joints.

other health impairments Limited strength, vitality, or alertness, including heightened alertness to environmental stimuli, that are due to chronic or acute health problems such as asthma, attention deficit disorders, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome and that require special educational services.

otitis media Middle-ear infection that can lead to hearing loss.

performance assessment A measure of the application of knowledge.

pervasive developmental disorders not otherwise specified (PDDNOS) These are autistic-like conditions that do not fulfill all of the diagnostic characteristics for autism, but show strong resemblance in terms of social and communication problems. Increasingly referred to as Autistic Spectrum Disorders reflecting the variations found in these conditions.

phenylketonuria (PKU) A single-gene defect that can produce severe retardation because of the body's inability to break down phenylalanine, which when accumulated at high levels in the brain results in severe damage; can be controlled by a diet restricting phenylalanine.

phonation The production of sound by the vibration of the vocal cords.

phonology The science of speech sounds and the rules that govern how these sounds combine to form words and to convey meaning.

pinna The outer part of the ear.

pivotal response model A play based intervention model made popular by Koegel & Koegel for children with autism. It focuses on pivotal behaviors which are central to a wide area of functioning and so transferable to many situations.

play audiometry Hearing tests for young children conducted in a pleasant environment using toys that move and make sounds to elicit responses, such

as eye blinks and changes in respiration or heartbeat (slower heartbeats indicate attention).

positive behavior support (PBS) An approach to intervention based on behavior science principles and meant to replace punitive measures for behavior control. It includes functional assessments, positive interventions, and evaluative measures to assess progress.

postlinguistic hearing loss The loss of hearing after spontaneous speech and language have developed.

pragmatics Language rules that address the social context in which the communication occurs.

prelinguistic hearing loss The loss of hearing before speech and language have developed; referred to as *deafness*.

problem-based learning (PBL) A problem that encourages the student to define the issue, organize the components, and then solve the problem.

prodigy A child who has shown extraordinary development in his or her early years of development so that they are capable of adult behavior while still very young, such as chess playing, musical composition, or poetry writing.

progress monitoring Using data (such as test results or performance on screening measures) on student's achievement, performance, and other needs to monitor progress, guide decision making, and plan for future needs.

proprioceptive An awareness of where one's body is in relation to the space around it.

pupil The central opening of the eye through which light enters.

pure-tone audiometry The most frequently used method for assessing hearing in which an audiometer presents pure tones of varying frequency and intensity to an individual wearing a headset.

receptive language The ability to take in a message and understand it (that is, listening with understanding to oral language or reading written language with comprehension).

reciprocal teaching A technique in which small groups of students and teachers take turns leading a discussion.

related services Support services that are required to assist the child in benefiting from special education.

relationship-focused intervention Intervention that help parents develop responsive interactions with their children that build on the social nurturing between the parents and the child. This approach was first developed to support parents of children who have autism.

replacement behavior Positive behavior for children with behavior disorders, such as asking for permission to talk, that are designed to replace unacceptable behavior. This practice is based on the principle that the child often has no acceptable behaviors in his repertoire and is in trouble as a consequence.

resonation The process that gives the voice its special characteristics.

resource room An instructional setting to which an exceptional child comes for specific periods of time, usually on a regularly scheduled basis.

respiration Breathing; the process that generates the energy that produces sound.

respite care The services of a trained individual to relieve the primary caregiver of a child with disabilities on a short-term basis.

Response to Intervention (RTI) A multilevel approach to helping children face difficulties in school. Proposes a range of interventions from general classroom to special education.

retina The light-sensitive innermost layer of tissue at the back of the eyeball.

retinopathy of prematurity A disease of the retina in which a mass of scar tissue forms in back of the lens of the eye. Both eyes are usually affected, and it occurs chiefly in infants born prematurely who receive excessive oxygen.

rubella German measles, which in the first three months of pregnancy can cause visual impairment, hearing impairment, mental retardation, and birth defects in the fetus.

scaffolding A strategy in which a teacher models the expected behavior and guides the learning of the student.

schoolwide behavior support An attempt to use behavior principles to create an emotionally healthy school environment. This would include rules for behavior and guidelines for punishment. The goal is to bring to the entire school population the positive behavior supports usually given to specific students.

scoliosis A form of spinal curvature that begins in infancy, early childhood, or adolescence in which the spine forms a "c" or an "s" shape when it is viewed from behind.

seizure disorder A condition characterized by multiple seizures (i.e., abnormal electrical discharge within the brain that disrupts the brain's normal functioning). This is considered to be symptomatic of an underlying problem that requires a full medical evaluation.

self-management Having children with disabilities make decisions and to be responsible for their lives.

Many intervention programs are designed to help students attain this responsibility gradually.

self–regulatory skill An individual's ability to continuously adapt thoughts, speech, and actions to accomplish goals and adapt to the environment.

semantic memory Stores concepts, words, symbols, and generalizations; most often used in school.

sensorineural loss Hearing loss caused by damage to the inner ear (cochlea) or to the auditory nerve, particularly in the delicate sensory hairs of the inner ear or in the nerves that supply them. These losses affect both the ability to hear faint sounds and the ability to hear clearly, making understanding speech sounds difficult.

sensory compensation The theory that if one sense avenue is deficient, other senses are automatically strengthened.

sensory integration The ability to use two or more senses simultaneously and smoothly.

sensory memory The ability to accommodate a large amount of information for a short period of time (2-3 seconds) and allows us to take in information and interpret what we are seeing, hearing, tasting, smelling, etc.

serious emotional disturbance (SED) An emotional disturbance that creates unhappiness for the individual and often leads to behaviors that are socially disruptive or self-destructive. To be considered serious, these problems must be persistent and must interfere with life functioning and/or learning.

short-term memory Temporarily storing information while simultaneously completing tasks; involves strategies for consciously storing information, such as rehearsal.

slope of improvement A visual graph depicting the change in a student's rate and level of growth on skills.

sonography The use of sound waves to take a picture of a fetus in its mother's uterus.

spastic cerebral palsy A form of cerebral palsy marked by tight muscles and stiff movements.

speech The systematic oral production of words of a given language.

speech disorder Disorder of articulation (how words are pronounced), voice (how words are vocalized), or fluency (the flow of speech).

speech-to-print system Computer program that reproduces the classroom dialogue on a computer screen, either through typing captions or voice-activated software.

Speech Viewer III A computer program designed to improve voicing, pitch, timing, and sustained production that provides a variety of visual displays that represent sound, such as a balloon getting larger in proportion to the loudness of the speaker's voice.

spina bifida The most common neural tube defect where part of the spinal cord protrudes from the spinal column.

standard achievement test Test that measures the student's level of achievement compared with the achievement of students of similar age or grade. Also called *norm-referenced test*.

standard protocol A prescribed manner of conducting interventions. It may include a specified lesson or series of steps.

stapes One of the three small bones in the middle ear known as the *stirrup*.

student acceleration Passing students through the educational system as quickly as possible.

stuttering A disorder of fluency.

support teacher A teacher who provides direct assistance to the student with disabilities and to their teacher within the regular classroom setting. This support may include assistance with behavior management, focused work with learning activities, therapeutic tutorials, and general assistance with classroom needs to allow the regular classroom teacher time to work with the student with disabilities.

supralinguistics The sophisticated analysis of meaning when the literal meaning of the word or phrase is *not* the intended meaning.

syntax The rules that guide how words are combined to form sentences and the relationships of components within the sentence.

synthetic speech The production of sound—of phonemes into words—by means of a computer.

tactile defensiveness Oversensitivity to touch that causes discomfort.

telecommunication The transmission of signals over distance for the purpose of communication, such as television and radio.

temporal bone A bone situated at the sides and base of the skull that supports the part of the face known as the temple.

teratogen A substance ingested by the mother that can damage the growth and development of the fetus.

theory of mind A condition where children are unable to put themselves in the place of others in order to understand what they are feeling or thinking. This inability leads to predictable social problems.

tiered assignment Assignment of greater or lesser difficulty to students to match their level of possible attainment. In this way, all students can be involved in the same problem but at levels that match their capabilities.

TORCHS A group of infections that affect the mother and that can also cause severe hearing losses in the fetus; toxoplasmosis (*TO*), rubella (*R*; German measles), cytomegalovirus (*C*; CMV), and herpes simplex virus (*HS*).

total communication method A method of teaching deaf students that combines finger spelling, signs, speech reading, speech, and auditory amplification. Also called *combined method* and *simultaneous method*.

transient adaptation problem A behavior problem that is temporary—for example, one that occurs due to a family problem that is later resolved.

transition coordinator The individual who plans for and assists the individual in the transition from school to work.

transition services Programs that help exceptional students move from school to the world of work and community.

traumatic brain injury (TBI) An injury of the brain caused by an external physical force, resulting in total or partial functional disability and/or psychosocial impairment that requires special educational services

twice exceptional Presence of both giftedness and a learning disability.

unexplained underachievement A learning disability that does not have a neurological base but which is characterized by performance below expected levels.

universal design for learning (UDL) A variety of strategies that give all students access to the curriculum. These strategies include the use of technology to reduce the impact of sensory and learning disabilities, the incorporation of flexible entry points to allow students to begin work at a level that is appropriate to their needs, and the use of multiple instructional approaches to respond to the different learning needs and styles of the students.

universal precautions Methods for reducing the spread of germs and infections (such as AIDS), including proper handwashing routines, use of gloves to clean up bodily fluids, and following biohazard cleanup protocols.

Usher syndrome A progressive degeneration of vision and hearing occurring some years after birth.

vestibular apparatus The vestibule and three semicircular canals of the inner ear. These structures work with the brain to sense, maintain, and regain balance and to perceive one's body orientation relative to the earth.

visual impairment Any form of visual loss. These visual difficulties can include very moderate (such as the need for glasses) or a complete loss of vision.

visual perception One's ability to process information from figure-ground input (seeing an object against the background), closure (completion of a figure: a/u) and spatial relationships.

voice The intonation and quality of the production of words, such as pitch, loudness, and resonance.

voice disorder A variation from accepted norms in voice quality, pitch, or loudness.

"wait to fail" approach to identification Traditional IQ-Achievement Discrepancy model for identifying students with learning disabilities.

wraparound approach An approach to interventions for children with disabilities and their families that offers full support from multiple perspectives across the community. The support is tailored to the family and their needs but may include things like counseling, educational assistance, medical services, and assistance from social services. The purpose is to provide a full-support network to help the child and family move toward success.

writing aids and systems Augmented and alternative systems that are available for written communication.

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Standard #6: Language Development	Special educators understand typical and atypical language development and the ways in which exceptional conditions can interact with an individual's experience with and use of language. Special educators use individualized strategies to enhance language development and teach communication skills to individuals with exceptional learning needs. Special educators are familiar with augmentative, alternative, and assistive technologies to support and enhance communication of individuals with exceptional needs. Special educators match their communication methods to an individual's language proficiency and cultural and linguistic differences.
Standard #7: Instructional Planning	Special educators develop long-range individualized instructional plans anchored in both general and special curricula. In addition, special educators systematically translate these individualized plans into carefully selected shorter-range goals and objectives, taking into consideration an individual's abilities and needs, the learning environment, and a myriad of cultural and linguistic factors. Individualized instructional plans emphasize explicit modeling and efficient guided practice to assure acquisition and fluency through maintenance and generalization. Special educators also develop a variety of individualized transition plans for their students.
Standard #8: Assessment	Assessment is integral to the decision making and teaching of special educators, and special educators use multiple types of assessment information for a variety of educational decisions. Special educators use the results of assessments to help identify exceptional learning needs and to develop and implement individualized instructional programs, as well as to adjust instruction in response to ongoing learning progress. Special educators understand the legal policies and ethical principles of measurement and assessment related to referral, eligibility, program planning, instruction, and placement for individuals with exceptional learning needs, including those from culturally and linguistically diverse backgrounds. Special educators regularly monitor the progress of individuals with exceptional learning needs in general and special curricula. Special educators use appropriate technologies to support their assessments.
Standard #9: Professional and Ethical Practice	Special educators are guided by the professional and ethical practice standards. Special educators practice in multiple roles and complex situations across wide age and developmental ranges. Their practice requires ongoing attention to legal matters, along with serious professional and ethical considerations. Special educators engage in professional activities and participate in learning communities that benefit individuals with exceptional learning needs, their families, colleagues, and their own professional growth.
Standard #10: Collaboration	Special educators routinely and effectively collaborate with families, other educators, related service providers, and personnel from community agencies in culturally responsive ways. This collaboration assures that the needs of individuals with exceptional learning needs are addressed throughout schooling. Moreover, special educators embrace their special role as advocate for individuals with exceptional learning needs. Special educators are a resource to their colleagues in understanding the laws and policies relevant to individuals with exceptional learning needs.

Source: Council for Exceptional Children (2003). *What Every Educator Must Know*, 5th Edition; CEC: Arlington, VA.