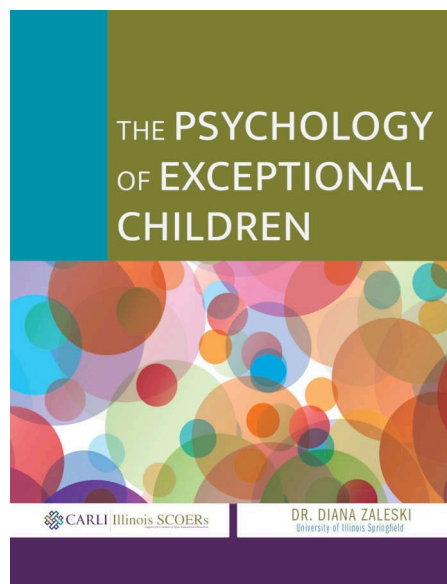


THE PSYCHOLOGY OF EXCEPTIONAL CHILDREN



Diana Zaleski
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The Psychology of Exceptional Children (Zaleski)

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Preface

Preface

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1: INTRODUCTION AND FOUNDATIONS OF SPECIAL EDUCATION

This book is about exceptional students and will discuss the role of teachers and clinicians who work together to support exceptional students in various clinical settings, including public schools in the United States.

Exceptional students are children and adolescents whose educational needs are not met by traditional educational programs and include students who are at risk for delayed development and those with specific disabilities. Exceptional students also include those who are capable of performing at higher levels than others of the same age. These students are referred to as gifted and talented and may also experience the need for additional support. Gifted and talented students may also have specific disabilities. These students are referred to as twice exceptional.

The [Individuals with Disabilities Education Act](#) (IDEA) defines a child with a disability as having an intellectual disability, a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a serious emotional disturbance, an orthopedic impairment, autism, traumatic brain injury, any other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities, and who needs special education and related services. We will discuss each of these disability categories in future chapters.

In addition, throughout this book we will discuss the different federal and state laws governing the education of exceptional students. It is important for educators and clinicians who work with exceptional students to understand how federal and state laws are made and how these laws influence their work.

1.1: How Federal Laws Are Made

1.2: Special Education and Related Services

1.3: The Individuals with Disabilities Education Act

1.4: The Pre-Referral Process

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1.6: Multi-Tiered System of Support

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1.1: How Federal Laws Are Made

Congress is the legislative branch of the federal government in the United States and makes laws for the nation. Congress has two legislative bodies or chambers: the United States Senate and the United States House of Representatives. Anyone elected to either body can propose a new law. A bill is a proposal for a new law. Either chamber then follows these steps:

1. Once a bill is introduced, it is assigned to a committee whose members research, discuss, and make changes to the bill.
2. The bill is then put before that chamber to be voted on.
3. If the bill passes one body of Congress, it goes to the other body to undergo a similar process of research, discussion, changes, and voting.
4. Once both bodies vote to accept a bill, they must work out any differences between the two versions. Both chambers then vote on the same bill and, if it passes, they present it to the president.
5. The president then considers the bill. The president can approve the bill and sign it into law or veto the bill.
6. If the president chooses to veto a bill, in most cases Congress can vote to override that veto and the bill becomes a law. However, if the president pocket vetoes a bill after Congress has adjourned, the veto cannot be overridden.

The [United States Code](#) contains our federal laws. New federal laws appear in each edition of the [United States Statutes at Large](#). There is a new edition for each session of Congress.

In addition, laws that appropriate (i.e., assign to a particular recipient, purpose, or use) funding include provisions that require Congress to decide, after a set period, whether the legislation should be reauthorized. To do this, a new bill must be introduced that reauthorizes the provisions of the law, makes any necessary changes to the original law, and sets a new timeline for future reauthorizations.

For example, in 1965 President Lyndon B. Johnson signed into law the [Elementary and Secondary Education Act](#) (ESEA), the federal law governing public education in the United States. ESEA has been reauthorized six times. In 2015, President Barack Obama signed the most recent reauthorization of the law, the [Every Student Succeeds Act](#) (ESSA). The purpose of ESSA is to ensure public schools provide a quality education to all students, including exceptional students.

IDEA is the federal law that ensures all students with disabilities receive an appropriate education through special education and related services in the United States. We will talk more about these and other laws that impact the education of exceptional students later in this chapter.

In addition, individual states also pass laws that impact the education of exceptional students. Illinois, like Congress, has two bodies, the Senate and the House of Representatives, which together are called the Illinois General Assembly. A bill becomes a law in Illinois when it passes both houses of the Illinois General Assembly with a majority vote in each house and is signed by the governor.

The [Illinois Compiled Statutes](#) contain our state laws. State laws must meet the requirements of federal laws and may add to the federal requirements (e.g., providing additional services). In addition, state education agencies, such as the [Illinois State Board of Education](#), are tasked with writing administrative rules. [Administrative rules](#) interpret the law and guide the actions of those affected (e.g., state agency staff, educators and clinicians, school boards).

1.2: Special Education and Related Services

Special education is instruction specifically designed to meet the individual needs of exceptional students. IDEA defines special education as instruction and related services specifically designed, at no cost to parents, to meet the unique needs of a child with a disability, including instruction conducted in the classroom, the home, hospitals, institutions, and other settings and includes instruction in physical education.

In addition to the general education classroom, special education may occur partially within the general education classroom, in a separate classroom for students with disabilities, or in a separate school that includes just students with disabilities. In addition, some students require residential facilities as well as home- or hospital-based instruction. However, special education should be provided in the least restrictive environment, which, whenever possible, is the general education classroom; and the student should participate in the general education curriculum with appropriate adaptations and modifications.

Special education may be implemented by different professionals, including special education teachers specifically trained to support students with disabilities or a general education teacher who teaches in a classroom that includes children with and without disabilities. Special education teachers, specialists, and clinicians collaborate with the general education teacher to plan and assist in instruction.

Related services enable a student with a disability to receive a free and appropriate public education. Related services are based on individual student needs and may include the following services.

Early Identification and Assessment

Early childhood screening and assessment is often provided by local health services to determine if a child is experiencing developmental or cognitive delays. Appropriate interventions can then be implemented to mediate the effects of an existing disability or reduce the risks associated with other conditions such as malnourishment or low birth weight.

Social Work Services

Social workers act as advocates for students with disabilities and their families. Social workers help students and their families access the community resources they need (e.g., housing, supplemental nutrition assistance, medical care) to ensure their health and safety.

Speech-Language Services

Speech and language pathologists work with students who have communication disorders. These clinicians perform assessments and evaluations, monitor student progress, and provide appropriate interventions.

Audiology Services

Audiologists are clinicians who assess the degree and type of hearing loss a student may be experiencing. Audiologists also fit, adjust, and maintain assistive listening devices such as hearing aids. In some cases, audiologists may provide counseling to students who have experienced hearing loss as well as make recommendations for adaptations and assistive technology that can aid students.

Interpreting Services

Interpreters work with students who use sign language to communicate. Interpreters accompany students to provide sign language interpretation to other educators, specialists, or clinicians who may not use sign language.

Psychological Services

School psychologists support student behavior, development, learning, and mental health. They perform psychological assessments and observe students in classroom settings to determine if a student is eligible for special education.

Physical Therapy

Physical therapists work with students with physical disabilities or health impairments to help restore function and improve mobility.

Occupational Therapy

Occupational therapists work with students with disabilities to improve and maintain skills needed for everyday activities (e.g., gross and fine motor skills). Occupational therapists also provide information for students who may have sensory needs such as sensitivity to light or sounds.

School Counseling Services

School counselors provide academic and career counseling. In addition, school counselors provide short-term individual and small group counseling. They support students with disabilities by helping them recognize their strengths and develop self-advocacy skills.

Rehabilitation Counseling Services

Rehabilitation counselors help students with disabilities transition from school to employment and independent living. Rehabilitation counselors can also assist schools in accommodating the individual needs of students.

Orientation and Mobility Services

Orientation and mobility specialists teach students with vision loss how to navigate within environments and from one environment to another. They assist students in traveling independently and can work with students on the use of canes, guide dogs, wheelchairs, and public transportation.

School-Based Health Services

Some students with health impairments or multiple disabilities require services such as tube feeding and catheterization. School nurses may provide these services or may train school staff to carry out such services when special medical knowledge and training is not required.

Parent Training and Counseling Services

Parent training and counseling services provide families with information about the special needs of their student, providing information about resources available to them to support their student's progress.

Therapeutic Recreational Services

Therapeutic recreation focuses on leisure skills and includes assessing individuals' leisure functioning, developing and implementing recreation programs in schools and community agencies, and working with others to implement leisure education.

In Illinois, the law also provides for transportation as a related service. Transportation services ensure student access to an appropriate education. For example, a student with a physical disability may require a wheelchair lift. Other students may require

transportation to a special education program located outside of their home school or district. In addition, while not included in the IDEA definition of non-academic services, students may also receive art and music therapy.

Necessary related services are determined by the team responsible for developing a student's individualized education program (IEP), an overall plan for the student's education that IDEA requires and that this chapter discusses later.

1.3: The Individuals with Disabilities Education Act

In 1975, President Gerald Ford signed the Education for All Handicapped Children Act (EHA), which guaranteed a free and appropriate public education for children with disabilities in the United States. In 1990, the law was reauthorized and renamed the Individuals with Disabilities Education Act (IDEA). Before EHA, many children with disabilities were denied a public education in the United States. Since the signing of EHA, significant progress has been made toward meeting the goal of providing a free and appropriate public education for children with disabilities. In 2021, approximately 7.2 million or 15% of all public-school students received special education and related services (NCES, 2022). IDEA includes the following foundational requirements.

Free Appropriate Public Education

Students with disabilities must be given a free appropriate public education (FAPE). FAPE includes education services designed to meet the individual education needs of students with disabilities as adequately as the needs of nondisabled students at no cost to the family.

Child Find

States are required to develop procedures for identifying and tracking the number of students who are at risk for delayed development and those with disabilities.

Nondiscriminatory Evaluation

A nondiscriminatory evaluation is an evaluation that does not discriminate on the basis of language, culture, and student background and must be provided for each student identified for special education.

Individualized Education Program

An IEP is a plan developed to meet the special education needs of students with disabilities.

Least Restrictive Environment

The least restrictive environment is the setting most like that of students without disabilities that also meets each student's educational needs.

Due Process

Due process guarantees the right to an impartial hearing if appropriate procedures outlined in the law are not followed and parents or schools believe that special education programs do not meet the student's educational needs.

Parent Participation

Parent participation and shared decision making must be included in all aspects of the identification and education of students with disabilities.

The Disability Rights Movement

In the 1960s, the civil rights movement began to take shape, and disability rights advocates saw an opportunity to join forces with other minority groups to demand equal access and equal opportunity for people with disabilities. At the forefront of this fight were parent advocates demanding that their children have the opportunity to attend public schools and have the same opportunities to learn as children who were not disabled.

In the 1970s, these activists lobbied Congress and marched on Washington to include civil rights language for people with disabilities into the Rehabilitation Act. In 1973, the Rehabilitation Act was passed, and for the first time in history, the civil rights of people with disabilities were protected by law.

The Rehabilitation Act (Section 504) provided equal opportunity for employment within the federal government and in federally funded programs, prohibiting discrimination on the basis of either physical or mental disability. Section 504 of the Rehabilitation Act also mandated equal access to public services (e.g., public housing and public transportation) for people with disabilities and the allocation of money for vocational training.

In 1975, the Education for All Handicapped Children Act (EHA) was passed to guarantee equal access to public education for children with disabilities. This act of legislation specified that every child had a right to an education.

In the 1980s, disability rights activists lobbied for a consolidation of various pieces of legislation under one civil rights law that would protect the rights of people with disabilities. The Civil Rights Act of 1964 prohibited discrimination on the basis of race, religion, national origin, or gender, but people with disabilities were not included in this law.

In 1990, the Americans with Disabilities Act (ADA) was passed, ensuring the equal treatment and equal access of people with disabilities to employment opportunities and public accommodations. The ADA prohibits discrimination on the basis of disability in employment, services rendered by state and local governments, places of public accommodation, transportation, and telecommunications services. Unfortunately, people with disabilities still face barriers in our society, but the disability rights movement continues to work toward their empowerment and self-determination (Smiley et al., 2022).

Activity 1.3.1: Virtual Tour of the Patient No More Exhibit

Directions: Take a virtual tour of the [Patient No More exhibit at the Paul K. Longmore Institute on Disability](#) website. This exhibit explores the 1977 "Section 504 Sit-In," when people with disabilities occupied a government building to demand civil rights. This protest paved the way for the ADA and profoundly changed the lives of Americans with and without disabilities. Why do you think it is important to know the history and requirements of federal and state laws concerning people with disabilities?

National Center for Education Statistics. (2022). Students with disabilities. *Condition of education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

1.4: The Pre-Referral Process

Students are identified for special education and related services through a system of referrals beginning with the pre-referral process. Many schools have established school-based student assistance teams (SATs) to facilitate the assessment and identification of exceptional students. The SAT is a team of educators, specialists, and clinicians who monitor the progress of students that may require special education and related services. This team helps teachers by suggesting appropriate research-based instructional or behavioral interventions as well as reasonable accommodations or modifications to see if the student can succeed in the general education classroom. This process allows the team to identify whether the student requires additional instruction or special education and related services. The pre-referral process is part of a larger schoolwide system called response to intervention (Smiley et al., 2022).

Response to Intervention

Response to intervention (RTI) is a proactive instructional model or framework for preventing academic issues in the early elementary grades and a remediation framework for improving outcomes in academics and behavior in upper elementary and secondary grades. The components of RTI include the following.

- **Screening** refers to academic and behavioral assessments that are administered to all students two to three times throughout the school year.
- **Progress monitoring** refers to more frequent assessments given to students to determine which strategies or interventions are most effective.
- **Tier 1** includes research-based whole class instruction. Tier 1 strategies meet the needs of most students, but if a student is not making adequate progress, they will receive Tier 2 interventions.
- **Tier 2**, or secondary interventions, are for students who are not making adequate progress under Tier 1. These students are provided with additional academic instruction or behavioral interventions.
- **Tier 3**, or intensive individualized interventions, are for students who did not make adequate progress under Tier 2. These students are provided with additional academic instruction or behavioral interventions that occur more frequently and for longer periods. At this point, if students continue to fail to make adequate progress, their parents are contacted to consent to the special education referral process (Smiley et al., 2022)

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

1.5: The Referral Process

If the tiered interventions do not result in improvement, a formal referral is made for evaluation to determine eligibility for special education and related services. At this point, parents must be notified and give their consent for the evaluation. IDEA specifies that a child must be evaluated within 60 days of receiving parental consent or within any period established by the state. Students must meet eligibility criteria to receive special education and related services related to one or more of the disabilities categories identified in IDEA.

In addition, IDEA includes a special rule for eligibility determination that states a child cannot be considered to have a disability if the determining factor is lack of appropriate instruction in reading, including the essential components of reading instruction; a lack of instruction in math; or limited English proficiency. In other words, these factors must be ruled out as a primary determinant of the child's difficulties in school.

Next, a multidisciplinary team (MDT) conducts evaluation procedures to determine if the child meets eligibility criteria. Most students are administered educational and psychological tests. Traditionally, the MDT uses norm-referenced tests (i.e., tests designed to compare and rank test takers in relation to one another) are used to help make eligibility decisions. It may also use other procedures such as interviews, developmental histories, checklists, and behavior rating scales.

Two areas frequently evaluated using norm-referenced tests are intelligence and academic achievement. Intelligence tests are used to determine a student's intelligence quotient (IQ), which can be used to help make decisions regarding the most appropriate disability category for a student if the category includes IQ as a criterion. Achievement test scores are often used as one eligibility criterion, typically to document the student's academic performance in reading and math. The specific methods of identifying exceptional students are discussed in chapters focusing on specific disabilities (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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1.6: Multi-Tiered System of Support

Another proactive instructional model or framework for preventing both academic and non-academic issues is called a Multi-Tiered System of Support (MTSS). RTI is a model for identifying and addressing academic issues. MTSS has a broader scope, addressing academic and non-academic issues such as social and emotional problems, including behavior. RTI may be included in the MTSS framework.

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1.7: Early Childhood Intervention Services

Early intervention services incorporate education, health care, and social services and are provided to infants and toddlers (under age 3) who have a disability or are exhibiting developmental delays, as well as their families. Children who are considered at risk for developmental delays also receive early intervention services. A child may be considered at risk if they are experiencing homelessness, have a primary caregiver who abuses drugs or alcohol, have a primary caregiver who is diagnosed with a chronic illness or psychological disorder, or are a victim of abuse or neglect.

Children who receive early intervention services have an individualized family service plan (IFSP) supervised by a state appointed case manager. Unlike the IEP, the IFSP also includes services for the child's family (e.g., counseling). IFSPs must also be developed by a multidisciplinary team and should include the following:

- A description of the child's gross motor skills, fine motor skills, speech and language, cognitive and intellectual development, and social and emotional development.
- An assessment of the family and their needs as they relate to supporting the child's development.
- A description of the goals or outcomes expected for the child and the family.
- A description of the early intervention services required.
- Procedures for measuring progress, including timelines, objectives, and evaluation procedures.
- A description of the environments in which the early intervention services will be provided.
- A transition plan from to a preschool program after age 3.

Special education and related services are also provided to children in preschool (ages 3 to 5). In preschool, an IEP will replace the IFSP (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

1.8: The Individualized Education Program

The multidisciplinary team (MDT) is required to develop an IEP for each student receiving special education and related services. The purpose of an IEP is to provide an appropriate education that meets the specialized needs of each student. The MDT includes a representative of the local education agency, the classroom teacher, the special education teacher, parents or guardians, a person who can interpret the instructional implications of evaluation or assessment results, and, when appropriate, the student.

Depending on the student's needs, the MDT also includes professionals from related services (e.g., social workers, speech and language pathologists, psychologists, and occupational therapists) and may include other professionals or specialists, such as doctors. Each IEP must include the following information:

- The student's present levels of academic achievement and functional performance, including how the disability affects the student's involvement in the general education curriculum.
- Measurable annual goals, including short-term benchmarks or objectives.
- Special education and related services to be provided to the student, as well as any modifications or other supports. This may include additional school personnel such as paraprofessionals.
- An explanation of the extent, if any, to which the student will participate with nondisabled students in the general education classroom and in other school settings or activities.
- Individual modifications for the administration of statewide or districtwide assessments or an explanation of why those assessments are inappropriate for the student and what alternative methods will be used to assess the student.
- A projected date for the beginning of services and their anticipated frequency, location, and duration.
- In Illinois, by age 14 1/2, the IEP must contain transition services designed to help the student prepare for postsecondary education, vocational education, employment, continuing and adult education, and independent living (Smiley et al., 2022).

Activity 1.8.1: Exploring IEP Forms

Directions: Most states provide teachers with IEP template forms. Explore the forms on the [Illinois State Board of Education](#) website. Why do you think this documentation is important?

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1.9: Transition from School to Post-School Activities

The IDEA requires transition planning and transition services for students 16 to 22 years of age. In Illinois, transition planning must begin at age 14 ½. Transition services facilitate the transition from school to post-school activities including postsecondary education, vocational education, employment, continuing and adult education, and independent living. An important component of transition services are individualized transition plans (ITPs,) which are incorporated into IEPs. ITPs include the designation of appropriate and measurable postsecondary goals based on age-appropriate transition assessments related to training, education, employment, and independent living skills. ITPs are also based on the student's preferences and interests as well as their needs. ITPs include a coordinated effort between state agencies, service providers, and vocational and rehabilitation services (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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1.10: Chapter Questions and References

1. Who are exceptional students?
2. What are special education and related services?
3. What federal laws govern special education?
4. What are the pre-referral process and the referral process?
5. What information does an individualized education plan include?

Chapter References

National Center for Education Statistics. (2022). Students with disabilities. *Condition of education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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2: WORKING COLLABORATIVELY

- 2.1: What is Collaboration?
- 2.2: Collaboration Among Teachers
- 2.3: Collaboration with Paraprofessionals
- 2.4: Collaboration with Clinicians
- 2.5: Collaboration with Teams
- 2.6: Collaborations with Families
- 2.7: Increasing Student Involvement
- 2.9: Collaboration with Communities
- 2.10: Chapter Questions and References

2.1: What is Collaboration?

Collaboration is a necessity when working with exceptional students. Exceptional students may receive instruction in a general education classroom with the support of a special educator and paraprofessional while also receiving related services from different clinicians throughout the school day. All these professionals work together to support the student's needs by providing different types of knowledge and expertise. In special education, collaboration also includes different models that educators, clinicians, and paraprofessionals might use to structure their interactions (Smiley et al., 2022).

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2.2: Collaboration Among Teachers

Teachers use different co-teaching models. When co-teaching, general and special education teachers or other specialized teachers (e.g., reading specialists) work together to plan and facilitate lessons for a class that includes students with disabilities. Co-teaching allows each teacher to utilize their expertise to meet individual student needs and promote student learning. The following are different co-teaching models. Each model has strengths and weaknesses; it is up to the collaborating teachers to determine what model will work best for their specific circumstances.

One Teach, One Observe

In the one teach, one observe model, one teacher teaches while the other observes during instruction. For example, while the general education teacher is instructing the class, the special education teacher is observing a student with a disability to ensure they are grasping the concepts taught in the lesson.

One Teach, One Assist

In one teach, one assist, one teacher assumes greater responsibility for planning and facilitating instruction. The assisting teacher observes and provides support to students as needed. The one teach, one assist model extends the one teach, one observe model and works well when co-planning time is limited.

Station Teaching

In station teaching, teachers divide a lesson into parts, and each teacher instructs a small group of students at a station. The groups then rotate between stations. This model is often used at the elementary level. For example, when teaching a math lesson, one teacher might instruct a group on using manipulatives to solve a problem while the other teacher instructs a group on solving the same problem using mathematical computation.

Parallel Teaching

In parallel teaching, each teacher presents the same lesson to a small group of students. The primary benefit of this model is the smaller teacher-to-student ratio. This model is best for reviewing material that has already been taught.

Supplemental or Alternative Teaching

In supplemental teaching, one teacher works with students at their expected grade level, while the other works with students requiring remediation (i.e., re-teaching) or enrichment. For example, one teacher may work with a group of students who have fallen behind because of repeated absences.

Teaming

In teaming, teachers take equal responsibility for planning and instruction. This model is the most collaborative of all the co-teaching models. Teachers regularly change roles, each taking the lead and assisting when needed (Friend et al., 2010; Smiley et al., 2022).

Friend, M., Cook, L., Hurley-Chamberlain, D., & Shamberger, C. (2010). Co-teaching: An illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, 20(1), 9-27.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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2.3: Collaboration with Paraprofessionals

Teachers and clinicians regularly collaborate with paraprofessionals, who are sometimes referred to as paraeducators, aides, or education support professionals. Paraprofessionals provide specific classroom or student support and are supervised by teachers. For example, a paraprofessional assigned to a classroom might tutor students or assist the teacher with classroom management and instructional material organization. When a paraprofessional is hired to support an individual student, they will accompany that student to their classes and school-related activities to provide assistance and instructional support. It's important for teachers, clinicians, and paraprofessionals to build positive, trusting relationships to best support students. Administrators should provide a time for teachers and paraprofessionals to plan and train together (Smiley et al., 2022).

Activity 2.3.1: Teacher and Paraprofessional Collaboration

Directions: Read *Working With Paraeducators: Tools and Strategies for Planning, Performance Feedback, and Evaluation*. How can teachers incorporate paraprofessionals into instructional planning and delivery effectively?

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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2.4: Collaboration with Clinicians

Teachers and clinicians collaborate when students receive related services. The Individuals with Disabilities Education Act (IDEA) ensures that related services are delivered in a student's least restrictive environment. For example, if speech services can be delivered effectively in the general education classroom, that should be where services are delivered. If a student's needs require an environment free from distractions and individualized instruction, services should be delivered in a separate setting. Many clinicians and related service personnel serve students in various schools in a district. For example, a speech-language pathologist may be assigned to work with students in multiple elementary schools in a district. Working in multiple schools can sometimes hinder collaboration because time and resources are limited. Depending on the situation, collaboration with clinicians may occur primarily during individualized education program (IEP) meetings or through scheduled consultations throughout the school year (Downing, 2004; Smiley et al., 2022).

Downing, J.A. (2004). Related services for students with disabilities: Introduction to the special issue. *Intervention in School and Clinic*, 39(4), 195–208.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

2.5: Collaboration with Teams

In addition to collaborating with individuals, teachers and clinicians collaborate on teams, specifically on multidisciplinary teams (MDTs) that require the meaningful involvement of students and families. Effective teams clearly define each member's role and responsibilities, set clear goals defined by students' needs, and value each team member's expertise (Friend & Cook, 2013). For example, a middle school student with a learning disability is enrolled in general education courses during the school day. Therefore, her teachers need to collaborate to ensure they are all familiar with the accommodations she needs and how to implement them. This team of teachers would meet regularly to review how this student is progressing academically.

Another example might be an elementary school student with an intellectual disability and a communication disorder who spends a significant portion of the school day with his special education teacher and paraprofessional. The special education teacher and paraprofessional collaborate with the general education teacher and other specialized teachers (e.g., physical education teacher) to ensure the student is included as often as possible with his peers. In addition, a speech-language pathologist works with the student twice weekly and communicates with the special education teacher and paraprofessional about appropriate interventions. The special education teacher and paraprofessional also collaborate daily to meet the student's needs. Each quarter, the team meets to review the student's progress (Smiley et al., 2022).

Friend, M., & Cook, L. (2013). *Interactions: Collaboration skills for school professionals* (7th ed). Pearson.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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2.6: Collaborations with Families

The IDEA ensures students and their families are involved in the education process. For example, states must provide Parent Training and Information Centers and Community Parent Resource Centers. These centers help students with disabilities and their families understand their rights and connect them with appropriate services. Formal collaboration with families usually occurs during the IEP process. However, sometimes families are not as involved as educators and clinicians would like, but it's important to remember that there are many possible reasons for limited involvement. For example, some parents may have jobs that limit their ability to participate in IEP meetings during the school day. Others may have limited options for transportation or may not have reliable internet access to participate in remote IEP meetings. Whatever the reason, the school needs to engage in ongoing communication with families and accommodate their needs to encourage participation in their child's education (Smiley et al., 2022). Importantly, some families may be hesitant to talk with or ask questions of teachers or clinicians. Communicating with families outside of the mandated meetings is critical. Informal daily or weekly communication can help build a relationship between the family, teachers, and clinicians.

Activity 2.6.1: Explore Parent Training and Information Centers

Directions: Illinois is home to two Parent Training and Information Centers: the [Family Resource Center on Disabilities](#), which serves the Chicago Metro area, and [Family Matters Parent Training and Information](#), which serves the 94 counties in Illinois outside the Chicago area. Explore the resources and services that these centers provide. How might parents and families of children with disabilities benefit from access to these centers?

Culturally and Linguistically Diverse Families

Cultural and linguistic differences between families, teachers, and clinicians may impact the success of collaboration. Educators and clinicians need to use effective communication techniques and work to develop positive and trusting relationships with families (Friend & Cook, 2013). This includes initiating communication, using a communication format and language that accommodates the family's needs, and using translators and interpreters. In addition, educators and clinicians should demonstrate a willingness to learn about the cultures of families whose backgrounds are different from their own (Smiley et al., 2022).

Recognizing implicit bias is critical when working with culturally diverse families and students. *Implicit bias* is a form of bias that occurs automatically and unintentionally and affects judgments, decisions, and behaviors. When a teacher or clinician interacts with a student or family member from a different background or culture, their implicit biases may impact their conclusions. It is important for teachers and clinicians to assume personal responsibility to better understand and address their own biases.

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2.7: Increasing Student Involvement

It is important for students to participate actively in their IEP meetings beginning in elementary school and to be actively involved in their transition planning in high school. Student participation in IEP meetings can be improved by ensuring families know their child is invited to participate. Students may feel more empowered to participate when the IEP process is explained to them and when they are invited to take an active role in developing and implementing their IEP. Framing the conversations to build on a student's strengths and providing a safe environment for students to practice advocating for themselves by asking questions helps make students partners in their own education.

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2.9: Collaboration with Communities

Future teachers and clinicians will work with community organizations when students transition from early intervention to preschool to school-age programs and when they transition from high school to postsecondary education, employment, and independent living. Identifying the best practices associated with community collaboration is essential. Community personnel may include early childhood educators, health service professionals, higher education professionals, and other community agency employees such as social workers, employers, and vocational rehabilitation workers. Collaboration with community organizations should facilitate a seamless transition between services and programs (Smiley et al., 2022).

Collaboration in Early Childhood

Collaborative teams in early childhood programs may involve medical and social service professionals (e.g., nurses and social workers), clinicians (e.g., psychologists and speech-language pathologists), early childhood educators and other specialized teachers, and family members. All team members must work together to ensure the student's needs are met.

As discussed earlier, effective teams clearly define each member's role and responsibilities, set clear goals determined by the needs of students, and value each team member's expertise (Friend & Cook, 2013). In addition, teams should be flexible regarding planning and service delivery. For example, services may be delivered in a child's home, in a preschool or early childhood center, in a medical office, or at another location, such as a community center. Therefore, interagency collaboration and flexibility are necessary to ensure the student's needs are met. Early childhood intervention services may reduce or even prevent the need for special education and related services (Smiley et al., 2022).

Transition to Postsecondary Education, Employment, and Independent Living

The transition from high school to adult living is an important process that involves collaboration with community organizations. The IDEA requires that transition planning begin no later than age 16. In Illinois, transition planning must begin when the student turns 14 1/2. Collaboration between school and community organizations supports a smooth transition from high school to postsecondary education, employment, and independent living. Community organizations may help students find employment or housing or participate in community life (e.g., recreational and leisure programming). Colleges and universities may also provide vocational training, certificates, and degree programs for interested students. Interagency agreements are often used to guide these programs (Smiley et al., 2022).

Transition Services

Transition services are a coordinated set of activities within a results-oriented process that promote transition from school to adult living and include the following:

- Instruction (i.e., postsecondary, vocational, and adult education)
- Related services
- Community experiences
- Employment
- Independent living

Transition plans should be based on a student's interests and preferences. Students may need help identifying postsecondary or vocational interests, applying for jobs, finding appropriate housing, acquiring daily living skills (e.g., budgeting, using public transportation), or learning how to participate in community recreational and leisure opportunities (Friend & Cook, 2013). Classroom learning and related services should support the transitional needs of each student (Smiley et al., 2022).

Planning and Programming

Planning and programming for the transition process involve the IEP team. During transition planning, this team may be

expanded to include vocational rehabilitation counselors, vocational evaluators, school counselors, and community organizations that provide employment services, housing, and recreational and leisure opportunities for adults with disabilities. Interagency agreements may also facilitate collaboration with other community organizations (Smiley et al., 2022). In addition, community organizations often develop collaborative relationships with local businesses to provide programming for students with disabilities.

Interagency Agreements

An interagency agreement is a written agreement to which agencies commit that outlines their shared responsibilities for student learning and school, community, and family participation in achieving positive outcomes for students with disabilities. Interagency agreements can be at local or state levels and are required under the IDEA. Schools may invite personnel from other agencies to attend IEP meetings when transition planning and programming will be discussed. Plans are developed as needed to ensure collaboration among agencies and clearly define roles and responsibilities.

Interagency agreements enable agencies to collaborate and function more effectively. For example, an interagency agreement might specify that a school district will provide students with vocational assessments that identify their interests, aptitudes, and current skills. In turn, a vocational rehabilitation agency may assist students in obtaining and maintaining employment in an identified area. Some states also provide what are referred to as wraparound services, where a state agency coordinates and oversees transition services (Smiley et al., 2022).

Activity 2.9.1: Exploring Transition Services in Illinois

Directions: Equip for Equality is an advocacy group that works to protect the civil and human rights of people with disabilities. They have developed a comprehensive Transition Planning FAQ. Why are advocacy groups like this important for people with disabilities?

Friend, M., & Cook, L. (2013). *Interactions: Collaboration skills for school professionals* (7th ed). Pearson.

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2.10: Chapter Questions and References

1. What are the six models of co-teaching?
2. What are the characteristics of effective teams?
3. Why is collaboration with community organizations important?
4. What are transition services?

Chapter References

Downing, J.A. (2004). Related services for students with disabilities: Introduction to the special issue. *Intervention in School and Clinic*, 39(4), 195–208.

Friend, M., & Cook, L. (2013). *Interactions: Collaboration skills for school professionals* (7th ed). Pearson.

Friend, M., Cook, L., Hurley-Chamberlain, D., & Shamberger, C. (2010). Co-teaching: An illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, 20(1), 9–27.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

3: STUDENTS WITH LEARNING DISABILITIES

- 3.1: Definitions of Learning Disabilities
- 3.2: The Illinois Definition of Specific Learning Disability
- 3.3: Types of Learning Disabilities
- 3.4: The History of Learning Disabilities
- 3.5: Prevalence of Learning Disabilities
- 3.6: Causes of Learning Disabilities
- 3.7: Identifying Students with Learning Disabilities
- 3.8: Chapter Questions and References

3.1: Definitions of Learning Disabilities

The federal definition included in the Individuals with Disabilities Education Act (IDEA) is the most common definition of specific learning disability used in educational settings. However, there are other organizational definitions for specific learning disabilities, as well as state definitions. The IDEA defines learning disabilities as the following.

Specific learning disability means a 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 the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage (Individuals With Disabilities Education Act [IDEA], Part B, Subpart A § 300.8(c)(10)(2004)).

The NJCLD Definition

In addition to the IDEA definition of learning disabilities, teachers and clinicians should be aware of the definition proposed by the [National Joint Committee on Learning Disabilities](#) (2022):

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the lifespan. Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Although learning disabilities may occur concomitantly with other disabilities (for example, sensory impairment, intellectual disabilities, emotional disturbance), or with extrinsic influences (such as cultural or linguistic differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences.

Note that this definition attributes learning disabilities to central nervous system dysfunction. The central nervous system comprises the brain and the spinal cord and helps regulate and coordinate the body's activities. The central nervous system can be damaged by trauma, infections, degeneration, structural defects, tumors, blood flow disruption, and autoimmune disorders that may result in language impairment (Johns Hopkins Medicine, 2022).

The APA Definition

The definition included in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) of the [American Psychiatric Association](#) broadly defines learning disabilities and is based on the individual's family and medical history, as well as observations, interviews, and educational and psychological assessments.

- A. Difficulties learning and using academic skills, as indicated by the presence of at least one of the following symptoms that have persisted for at least 6 months, despite the provision of interventions that target those difficulties:
 - 1. Inaccurate or slow and effortful word reading (e.g., reading single words aloud incorrectly or slowly and hesitantly, frequently guesses words, has difficulty sounding out words).
 - 2. Difficulty understanding the meaning of what is read (e.g., may read text accurately but not understand the sequence, relationship, inferences, or deeper meanings of what is read).
 - 3. Difficulties with spelling (e.g., may add, omit, or substitute vowels or consonants).
 - 4. Difficulties with written expression (e.g., makes multiple grammatical or punctuation errors within sentences; employs poor paragraph organization; written expression of ideas lacks clarity).
 - 5. Difficulties mastering number sense, number facts, or calculations (e.g., has poor understanding of numbers, their magnitude, and relationships; counts on fingers to add single-digit numbers instead of recalling the math facts as peers do; gets lost in the midst of arithmetic computation and may switch procedures).
 - 6. Difficulties with mathematical reasoning (e.g., has severe difficulty applying mathematical concepts, facts, or procedures to solve quantitative problems).
- B. The affected academic skills are substantially and quantifiably below those expected for the individual's chronological age,

and cause significant interference with academic or occupational performance, or with activities of daily living, as confirmed by individually administered standardized achievement measures and comprehensive clinical assessment. For individuals age 17 years and older, a documented history of impairing learning difficulties may be substituted for the standardized assessment.

- C. The learning difficulties begin during school-age years but may not become fully manifest until the demands for those affected academic skills exceed the individual's limited capacities (e.g., as in timed tests, reading or writing lengthy complex reports for a tight deadline, excessively heavy academic loads).
- D. The learning difficulties are not better accounted for by intellectual disabilities, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language of academic instruction, or inadequate educational instruction (DSM-5-TR, 2022, p. 76–77).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(10)(2004).

Johns Hopkins Medicine. (2022, September 1). *Overview of nervous system disorders*. <https://www.hopkinsmedicine.org/health/conditions-and-diseases/overview-of-nervous-system-disorders>

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed. text revision). <https://doi.org/10.1176/appi.books.9780890425596>

3.2: The Illinois Definition of Specific Learning Disability

"Specific learning disability means a 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 the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage" (Illinois State Board of Education, 2022).

Activity 3.2.1: Compare and Contrast

Directions: Compare and contrast the IDEA, NJCLD, APA, and Illinois definitions of specific learning disability. Consider the differences and similarities between inclusion and exclusion criteria. Which definition resonates with you? Why?

Illinois State Board of Education. (2022, September 1). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx#:~:text=Specific%20learning%20disability%20means%20a,do%20mathematical%20calculations%2C%20including>

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3.3: Types of Learning Disabilities

Learning disabilities represent a group of disorders that cause students to exhibit unexpected difficulty or low performance in one or more academic areas and ineffective or inefficient information processing. Frequently used terms that categorize patterns of learning disabilities include dyslexia, dyscalculia, and dysgraphia.

Dyslexia is a specific learning disability that affects reading and related language-based processing skills. Dyslexia is the most common learning disability. Common characteristics include

- Difficulty with phonemic awareness (the ability to notice, think about, and work with individual sounds in words).
- Phonological processing (detecting and discriminating differences in phonemes or speech sounds).
- Difficulties with word decoding, fluency, rate of reading, rhyming, spelling, vocabulary, comprehension, and written expression.

Dyscalculia is a specific learning disability that affects a person's ability to understand numbers and learn math facts. Common characteristics include

- Difficulty with counting, learning number facts, and doing math calculations.
- Difficulty with measurement, telling time, counting money, and estimating number quantities.
- Trouble with mental math and problem-solving strategies.

Dysgraphia is a specific learning disability affecting a person's handwriting and fine motor skills. Features of learning disabilities in writing are often seen in students diagnosed with dyslexia and dyscalculia and vary from person to person and at different ages and stages of development. Common characteristics include

- Tight, awkward pencil grip and body position.
- Tiring quickly while writing and avoiding writing or drawing tasks.
- Trouble forming letter shapes as well as inconsistent spacing between letters or words.
- Difficulty writing or drawing on a line or within margins.
- Trouble organizing thoughts on paper.
- Trouble keeping track of thoughts already written down.
- Difficulty with syntax structure and grammar.
- A large gap between written ideas and understanding demonstrated through speech (Cortiella & Horowitz, 2014).

Associated Deficits and Disorders

The following deficits and disorders are not designated as specific categories of learning disabilities but are commonly associated with learning disabilities. For example, some students with learning disabilities may also experience deficits in information processing. Information processing deficits may impact a student's ability to engage socially and academically.

Auditory processing deficit or **auditory processing disorder** are the terms used to describe a deficit in the ability to understand and use auditory information. Common characteristics include

- Auditory discrimination (the ability to notice, compare, and distinguish the distinct and separate sounds in words).
- Auditory figure-ground discrimination (the ability to pick out important sounds from a noisy background).
- Auditory memory (short-term and long-term abilities to recall information presented orally).
- Auditory sequencing (the ability to understand and recall the order of sounds and words).
- Spelling, reading, and written expression.

Visual processing deficit or **visual processing disorder** are the terms used to describe deficits in the ability to understand and use visual information. Common characteristics include

- Visual discrimination (the ability to notice and compare the features of different items and to distinguish one item from another).
- Visual figure-ground discrimination (the ability to distinguish a shape or printed character from its background).
- Visual sequencing (the ability to see and distinguish the order of symbols, words, or images).

- Visual motor processing (using visual feedback to coordinate body movement).
- Visual memory (the ability to engage in short-term and long-term recall of visual information).
- Visual closure (the ability to know what an object is when only parts of it are visible).
- Spatial relationships (the ability to understand how objects are positioned in space).

Non-verbal learning disabilities is the term used to describe the characteristics of students who have unique learning and behavioral deficits that may have similarities with dyslexia, dyscalculia, and dysgraphia but that differ in significant ways. For example, these students often excel in areas such as verbal expression, vocabulary, reading, comprehension, auditory memory, and attention to detail. However, they may struggle with math computation and problem solving, visual and spatial tasks, motor coordination, and reading body language and social cues.

Executive functioning deficits is the term used to describe deficits in the ability to plan, organize, strategize, remember details, and manage time and space efficiently. These are common characteristics in individuals with attention deficit/hyperactivity disorder (ADHD) and are often seen in those with learning disabilities.

Attention deficit/hyperactivity disorder (ADHD) is a brain-based disorder that results in significant inattention, hyperactivity, distractibility, or a combination of these characteristics. As many as one-third of those with learning disabilities are estimated to have ADHD as well. However, unlike learning disabilities, characteristics of ADHD are attributed to neurochemical imbalances that can be treated effectively with a combination of behavioral therapy and medication (Cortiella & Horowitz, 2014). We will learn more about ADHD in [Chapter 11](#).

The IDEA and Illinois definitions of specific learning disability also include a disorder called *developmental dysphasia*. Developmental dysphasia is a language disorder with genetic risk factors. Common characteristics of the disorder include difficulty speaking and understanding spoken words (Genetic and Rare Diseases Information Center, 2022).

Cortiella, C., & Horowitz, S.H. (2014). *The state of learning disabilities: Facts, trends and emerging issues*. National Center for Learning Disabilities.

Genetic and Rare Diseases Information Center. (2022, September 1). *Developmental dysphasia familial*. <https://rarediseases.info.nih.gov/diseases/1823/developmental-dysphasia-familial>

3.4: The History of Learning Disabilities

There has been considerable debate about how to define or categorize learning disabilities. Often, as demonstrated by the definitions at the beginning of this chapter, a learning disability is defined by what it is not. For example, the Illinois definition states that “specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage” (Illinois State Board of Education, 2022).

Wiederholt (1974) identifies four periods in the history of learning disabilities. The *foundational phase* (1800–1930) emphasized basic scientific research related to the brain. During this period, the relationship of injury to specific brain areas and the corresponding loss of specific functions, such as language or perceptual skills, was investigated. Researchers such as Kurt Goldstein, who studied patients who suffered head injuries during World War I, found that many patients displayed characteristics that would later be associated with learning disabilities. These characteristics include perseveration, in which an individual starts an activity but has difficulty stopping or changing it; hyperactivity; and figure–ground problems, in which an individual cannot perceptually shift from foreground to background as when viewing Rubin’s Vase (see Figure 3.4.1). This research period emphasized the perceptual problems associated with learning disabilities (Smiley et al., 2022).

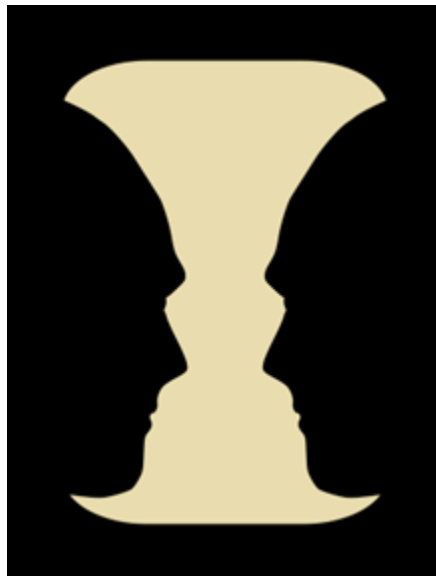


Figure 3.4.1: Rubin's Vase (“Rubin’s Vase” by Anonymoustracoon123 is licensed under CC BY-SA 4.0.)

The *transition phase* (1930–1960) began the application of brain research to the study of children. For example, Heinz Werner and Alfred Strauss noticed similarities between the characteristics of children with learning problems and those of adults who had suffered a brain injury. This observation led to terms such as minimal brain injury and minimal brain dysfunction, which were early labels used for learning disabilities.

The *integration phase* (1930–1974) included the origination of the term learning disability and the recognition of learning disabilities within education. In 1963, Samuel Kirk, a professor at the University of Illinois Urbana–Champaign, delivered a speech to the [Learning Disabilities Association of America](#) (LDA) that popularized the term learning disability. Perceptual skills were emphasized during this phase through the work of researchers such as William Cruickshank, Newell Kephart, and Marianne Frostig. While the views about the perceptual nature of learning disabilities developed during this period were later disproven, this period generated significant research and interest in learning disabilities.

Activity 3.4.1: Dr. Samuel Kirk

Directions: Visit the Dr. Samuel Kirk website at the [Illinois Distributed Museum](#) to learn more about his work with children with learning disabilities at the University of Illinois Urbana–Champaign. What other unique contributions did Dr. Kirk make to the field of special education?

The *current phase* (1975 to present) emphasizes interventions focusing on academic, behavioral, cognitive, and language development. Most research today examines interventions that help students with learning disabilities achieve academically in the general education classroom (Smiley et al., 2022).

Illinois State Board of Education. (2022, September 1). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx#:~:text=Specific%20learning%20disability%20means%20a,do%20mathematical%20calculations%2C%20including>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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3.5: Prevalence of Learning Disabilities

Among students receiving special education services, 33% are identified as having a specific learning disability, the most common category of disability (National Center for Education Statistics, 2022). However, the number of students identified as having a specific learning disability has decreased over time. This may be due to better mechanisms for identifying students with learning disabilities and other categories of disabilities (e.g., RTI/MTSS), as well as a focus on early childhood interventions (Cortiella & Horowitz, 2014; Lerner & Johns, 2015).

In 2022, 42% of students who received special education services for specific learning disabilities were female, and 31% were male (NCES, 2022). This contrasts with the historical trend of males as the predominant gender identified with learning disabilities (Cortiella & Horowitz, 2014). Changes in this trend may be due to reduced bias regarding special education referrals for male students.

National Center for Education Statistics. (2022). Students with disabilities. *Condition of education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

Cortiella, C., & Horowitz, S.H. (2014). *The state of learning disabilities: Facts, trends and emerging issues*. National Center for Learning Disabilities.

Lerner, J., & Johns, B. (2015). *Learning disabilities and related disabilities* (13th ed.). Cengage Learning.

3.6: Causes of Learning Disabilities

Among students receiving special education services, 33% are identified as having a specific learning disability, the most common category of disability (National Center for Education Statistics, 2022). However, the number of students identified as having a specific learning disability has decreased over time. This may be due to better mechanisms for identifying students with learning disabilities and other categories of disabilities (e.g., RTI/MTSS), as well as a focus on early childhood interventions (Cortiella & Horowitz, 2014; Lerner & Johns, 2015).

In 2022, 42% of students who received special education services for specific learning disabilities were female, and 31% were male (NCES, 2022). This contrasts with the historical trend of males as the predominant gender identified with learning disabilities (Cortiella & Horowitz, 2014). Changes in this trend may be due to reduced bias regarding special education referrals for male students.

Causes of Learning Disabilities

Researchers do not know all the possible causes of learning disabilities, but they have identified risk factors for developing a learning disability. These risk factors are grouped into neurological, genetic, and environmental risk factors and may not apply to all categories of learning disabilities (Smiley et al., 2022).

Neurological Risk Factors

Neurological risk factors for developing a learning disability could include deficits related to brain injury, brain development, or brain structure. For example, there is evidence that individuals with dyslexia have a smaller planum temporale, a section of the temporal lobe of the brain, than individuals without dyslexia (Miller et al., 2003). In addition, researchers have found evidence that indicates distinct patterns of white matter pathways, which are disrupted in math and reading disabilities (Ashkenazi et al., 2013). Research on functional and structural differences in the brains of those with and without learning disabilities indicates support for the existence of neurological risk factors for developing a learning disability (Peterson & Pennington, 2015; Smiley et al., 2022).

Genetic Risk Factors

There is also evidence of genetics as a risk factor for developing a learning disability. Much of this evidence is based on twin studies (Galaburda, 2005). For example, reading disabilities are reported more frequently between identical twins than between fraternal twins (Wadsworth et al., 2000). There is also research that indicates the prevalence of dyscalculia is ten times higher in families of individuals with the disability than would be expected from the general population (Shalev et al., 2001), and genetics is also a risk factor for the development of word recognition problems (Harlaar et al., 2005; Smiley et al., 2022).

Environmental Risk Factors

Environmental factors may also cause learning disabilities. Environmental factors are grouped by those that occur prenatally, perinatally, and postnatally. Prenatal risk factors that cause harm to a fetus include maternal drug use, alcohol consumption, and smoking during pregnancy. For example, mothers who smoke during pregnancy are more likely to have premature babies who are subsequently at risk for developing a learning disability (Dooley, 2009).

Perinatal factors that cause learning disabilities occur at birth or very shortly thereafter. Complications during birth, such as the umbilical cord becoming twisted, could lead to anoxia, the loss of oxygen, a risk factor for developing a learning disability. Brain injuries that occur at birth may also lead to the development of learning disabilities (Zhang, 2007).

Postnatal factors that cause learning disabilities occur after the child is born. For example, medical conditions such as meningitis may contribute to learning disabilities. The ingestion of certain substances, such as lead-based paint, which is known to cause brain injury, may result in the development of a learning disability.

Activity 3.6.1: Preventing Lead Poisoning

Directions: In the United States, lead-based paint is banned, but lead is still found in some water pipes. Learn more about preventing lead poisoning in children by exploring the Centers for Disease Control and Prevention website on [Childhood Lead Poisoning Prevention](#). Consider what populations are at high risk of lead poisoning and how prevention programs work to reduce this risk.

Although cultural and economic factors are excluded as causes from the IDEA definition of learning disabilities, environmental factors such as poor nutrition and adverse childhood experiences are associated with learning disability development (Arends, 2007; Cortiella & Horowitz, 2015; Lacour & Tissington, 2011; Smiley et al., 2022).

Activity 3.6.2: Adverse Childhood Experiences

Directions: Learn more about preventing adverse childhood experiences by exploring the Centers for Disease Control and Prevention website on [adverse childhood experiences](#). Consider the risk factors and protective factors associated with adverse childhood experiences and what teachers and clinicians can do to help students at risk of learning difficulties.

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Arends, R. (2007). *Learning to teach* (7th ed.). McGraw Hill.

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3.7: Identifying Students with Learning Disabilities

Students are identified for special education and related services through a system of referrals beginning with the pre-referral process previously discussed in [Chapter 1](#). The pre-referral process is part of a larger schoolwide system called response to intervention (RTI). RTI is a proactive instructional model or framework for preventing academic issues in the early elementary grades and a remediation framework for improving outcomes in academics and behavior in upper elementary and secondary grades. The components of RTI include the following.

- **Universal screening** refers to academic and behavioral assessments administered to all students two to three times throughout the school year.
- **Progress monitoring** refers to more frequent assessments given to students to determine which strategies or interventions are most effective.
- **Tier 1** includes research-based whole-class instruction. Tier 1 strategies meet the needs of most students, but if a student is not making adequate progress, they will receive Tier 2 interventions.
- **Tier 2**, or secondary, interventions are for students who are not making adequate progress under Tier 1. These students receive additional academic instruction or behavioral interventions.
- **Tier 3**, or intensive individualized, interventions are for students who did not make adequate progress under Tier 2. These students receive additional academic instruction or behavioral interventions that occur more frequently and for longer periods. At this point, if students continue to fail to make adequate progress, their parents will be contacted to consent to the special education referral process.

If the interventions fail, a formal referral is made for evaluation to determine eligibility for special education and related services. The IDEA includes regulations that guide the identification of students with specific disabilities, including learning disabilities. The RTI process helps educators and clinicians identify students with learning disabilities before they experience significant academic setbacks. However, it is important that students receive a comprehensive evaluation conducted by a multidisciplinary team, utilizing multiple measures and assessments, as part of the referral process to rule out other possible reasons for lack of academic progress.

Activity 3.7.1: IDEA Regulations: Identification of Specific Learning Disabilities

Directions: Read the [IDEA Regulations for the Identification of Specific Learning Disabilities](#). Identify who needs to be involved in the identification process and what data needs to be collected.

Illinois' Identification Process

"In accordance with 23 Illinois Administrative Code 226.130, Illinois districts are required to use a process that determines how a child responds to scientific, research-based interventions as part of the evaluation procedures, as described in 34 CFR 300.304, to determine special education eligibility under the category of specific learning disability (SLD). While this requirement is specific to SLD, districts also have the option of using such a process as part of the evaluation procedures for other disability categories. The documents below address Illinois' procedures and criteria for special education eligibility and entitlement decisions in an RTI framework" (Illinois State Board of Education, 2022).

[Illinois Special Education Eligibility and Entitlement Procedures and Criteria within a Response to Intervention \(RTI\) Framework: A Guidance Document](#)

[Frequently Asked Questions about Special Education Eligibility and Entitlement within a Response to Intervention \(RTI\) Framework](#)

The multidisciplinary team might include teachers, audiologists, occupational therapists, physical therapists, school psychologists, and speech-language pathologists. In addition, a comprehensive evaluation must be based on multiple reliable and valid data sources, including information related to the student and the learning environment (Smiley et al., 2022).

For example, a student may take intelligence tests (e.g., Wechsler Intelligence Scale), achievement tests (e.g., Woodcock-Johnson

Tests of Achievement, Wechsler Individual Achievement Test, and Kaufman Test of Educational Achievement), visual-motor integration tests (e.g., Beery-Buktenica Developmental Test of Visual-Motor Integration), or language tests (e.g., Clinical Evaluation of Language Fundamentals). An observation of the student in their learning environment must also be conducted. The multidisciplinary team may also consider districtwide or statewide standardized achievement test scores, observational data, portfolios of the student's classwork, and transcripts from interviews with the students' caregivers before making a determination.

Illinois State Board of Education. (2022, September 1). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx#:~:text=Specific%20learning%20disability%20means%20a,do%20mathematical%20calculations%2C%20including>

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3.8: Chapter Questions and References

1. What is the IDEA definition of a specific learning disability (SLD)?
2. What is the NJCLD definition of SLD?
3. What are the differences between dyslexia, dyscalculia, and dysgraphia?
4. What percentage of students receiving special education services are identified as having an SLD?
5. What are the risk factors for developing a learning disability?

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4: STUDENTS WITH INTELLECTUAL DISABILITIES

- 4.1: Definitions of Intellectual Disabilities
- 4.2: The History of Intellectual Disabilities
- 4.3: Prevalence and Causes of Intellectual Disabilities
- 4.4: Prevention of Intellectual Disabilities
- 4.5: Characteristics of Students with Intellectual Disabilities
- 4.6: Identifying Students with Intellectual Disabilities
- 4.7: Chapter Questions and References

4.1: Definitions of Intellectual Disabilities

There are three primary definitions of intellectual disabilities. These include definitions from the Individuals with Disabilities Education Act (IDEA), the American Association on Intellectual and Developmental Disabilities (AAIDD), and the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) of the American Psychiatric Association. The IDEA defines intellectual disabilities as the following.

Intellectual disability means significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance (IDEA, Part B, Subpart A § 300.8(c)(6)(2004)).

Subaverage general intellectual functioning is defined as a score on a standardized intelligence test below 68 (significantly below an average score of 100). In addition, the developmental period refers to the time between birth and 18 years of age (Smiley et al., 2022).

The AAIDD Definition

The AAIDD is an advocacy group that promotes the rights of people with intellectual and developmental disabilities. The AAIDD publishes a manual titled *Intellectual Disability: Definition, Diagnosis, Classification, and Systems of Supports*. This manual defines intellectual disability as the following.

Intellectual disability is a disability characterized by significant limitations in intellectual functioning and adaptive behavior as expressed in conceptual, social, and practical skills. This disability originates during the developmental period, defined operationally as before the individual attains age 22 (Schalock et al., 2021).

The IDEA and AAIDD definitions refer to adaptive behavior. Adaptive behaviors are “learned behaviors that reflect an individual's social and practical competence to meet the demands of everyday living” (AAIDD, 2022). AAIDD refers to adaptive behavior as a collection of conceptual, social, and practical skills. Conceptual skills include memory, language, reading, writing, math reasoning, acquisition of practical knowledge, problem solving, and judgment in novel situations. Social skills include empathy, interpersonal communication skills, friendship abilities, social judgment, and awareness of others' thoughts, feelings, and experiences. Practical skills involve learning and self-management across life settings, including personal care, job responsibilities, money management, recreation, self-management of behavior, and school and work task orientation (DSM-5-TR, 2022, p. 42).

Although the IDEA and AAIDD definitions provide criteria to support the identification of students with an intellectual disability, it is important to recognize that adaptive behaviors are malleable. With appropriate interventions, students with intellectual disabilities can improve their adaptive behaviors.

The APA Definition

The definition included in the DSM refers to intellectual disability as “a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains” (DSM-5-TR, 2022, p. 37). The following three criteria must be met for a child to be diagnosed with an intellectual disability.

- A. Deficits in intellectual functions, such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experience, confirmed by both clinical assessment and individualized, standardized intelligence testing.
- B. Deficits in adaptive functioning that result in failure to meet developmental and sociocultural standards for personal independence and social responsibility. Without ongoing support, the adaptive deficits limit functioning in one or more daily life activities, such as communication, social participation, and independent living, across multiple environments, such as home, school, work, and community.
- C. Onset of intellectual and adaptive deficits during the developmental period (DSM-5-TR, 2022, p. 37).

The diagnosis of intellectual disability must also be based on “both clinical assessment and standardized testing of intellectual functions, standardized neuropsychological tests, and standardized tests of adaptive functioning” (DSM-5-TR, 2022, p. 38). In addition, the DSM specifies four severity levels of intellectual disability: mild, moderate, severe, and profound, which are

diagnosed on the basis of adaptive functioning. Schalock et al. (2021) indicate that a classification is considered an optional post-diagnosis organizing scheme that helps educators and clinicians provide appropriate interventions for students.

The Illinois Definition of Intellectual Disability

“Intellectual Disability means significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child’s educational performance” (Illinois State Board of Education, 2022).

Activity 4.1.1: Compare and Contrast

Directions: Compare and contrast the IDEA, AAIDD, APA, and Illinois definitions of intellectual disabilities. Consider the differences and similarities between diagnostic criteria.

The AAIDD has also published guidance on how to classify the severity of an intellectual disability, as well as the Supports Intensity Scale (SIS), which allows professionals to measure the support needs of students with intellectual disabilities across categories of adaptive behavior. The SIS changes the focus from the individual’s deficits to the support they need to succeed in different settings.

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(6)(2004).

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4.2: The History of Intellectual Disabilities

Before the passage of Rosa's Law (Office of the Federal Register, 2010), this disability category was referred to as "mental retardation." Rosa's Law replaced this term with "intellectual disabilities" in the Rehabilitation Act, the Higher Education Act, the Elementary and Secondary Education Act, and the IDEA. However, before advocacy organizations were established, beginning in 1951 with [The National Association for Retarded Children](#) (now called The ARC) in 1951, people with intellectual disabilities were often institutionalized, segregated from society, and even sterilized (Richards et al., 2015). The ARC led the human rights movement to deinstitutionalize people with intellectual disabilities and advocated for "normalization" or providing a life for people with disabilities in community settings. In 1975, the Education for All Handicapped Children Act 94-142 was passed, which required all public schools to provide equal access to an education for all students with disabilities. Today, the Rehabilitation Act and Americans with Disabilities Act secure the rights of individuals with intellectual disabilities to equal opportunity and equal protection under the law.

Office of the Federal Register, National Archives and Records Administration. (2010, October 4). Public Law 111-256 – Rosa's Law. [Government]. U.S. Government Printing Office. <https://www.govinfo.gov/app/details/PLAW-111publ256>

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4.3: Prevalence and Causes of Intellectual Disabilities

Among students receiving special education services, 6% percent are identified as having an intellectual disability (National Center for Education Statistics, 2022). Genetic and environmental factors may cause intellectual disabilities, but what causes an intellectual disability is not always known. In addition, causes may be prenatal, perinatal, or postnatal.

Genetic Causes

Educators and clinicians should have a basic knowledge of chromosomal disorders to provide appropriate interventions and treatment for students whose intellectual disability is caused by a chromosomal disorder. The two most common genetic causes of intellectual disabilities are Down syndrome and fragile X syndrome.

Down syndrome occurs in approximately one in every 700 babies (Mai et al., 2019). There are different types of Down syndrome. The most common type of Down syndrome, which accounts for approximately 95% of cases, is called trisomy 21, in which a person has an extra chromosome called chromosome 21. Mosaicism, or mosaic Down syndrome, which accounts for approximately 2% of cases, is diagnosed when there is a mixture of two types of cells, some containing the usual 46 chromosomes and some containing an extra chromosome (i.e., chromosome 21). Finally, translocation, which accounts for approximately 3% of cases, is diagnosed when an additional full or partial copy of chromosome 21 attaches to another chromosome, usually chromosome 14 (National Down Syndrome Society, 2022). The extra chromosome leads to the physical features and developmental challenges that can concur among people with Down syndrome. Students with Down syndrome usually have an IQ in the mildly-to-moderately low range and are slower to speak than other children. Students with Down syndrome may also experience hearing loss, ear infections, eye diseases, and heart defects. Down syndrome is not genetically inherited. However, women who are 35 years or older are more likely to have a pregnancy affected by Down syndrome (CDCa, 2022).

Fragile X syndrome is caused by the mutation of a single gene, fragile X messenger ribonucleoprotein 1 (FMR1), and is genetically inherited. People who have fragile X syndrome do not make this protein. A female carrier has a 50% chance of passing the mutation to each of her children, whereas a male carrier will pass it to all of his daughters but none of his sons. Fragile X syndrome occurs in both sexes. However, females often have milder symptoms than males. The exact number of people with fragile X syndrome is unknown, but studies indicate that approximately 1 in 7,000 males and 1 in 11,000 females have fragile X syndrome. The severity of intellectual disability varies between individuals, but males are usually diagnosed with more severe forms of intellectual disability than females. Autism spectrum disorder also occurs more frequently in students with fragile X syndrome. Students with fragile X syndrome may also experience ear infections, strabismus (i.e., crossed eyes), seizures, sensory processing challenges, speech and language delays, and motor delays (CDCb, 2022; National Fragile X Foundation, 2022).

Less common genetic disorders may also result in intellectual disability. These include Smith–Magenis syndrome, Angelman syndrome, Smith–Lemli–Opitz syndrome, Cornelia de Lange syndrome, Rett syndrome, Cri-du-Chat syndrome, and Sotos syndrome.

- **Smith–Magenis syndrome** is caused by a deletion of genetic material from chromosome 17. The prevalence of Smith–Magenis syndrome is approximately one in 25,000 people. Students with Smith–Magenis syndrome have mild-to-moderate intellectual disabilities.
- **Angelman syndrome** is caused by the loss of a gene located on chromosome 15. Angelman syndrome affects one in every 15,000 people. Students with Angelman syndrome have profound intellectual disabilities.
- **Smith–Lemli–Opitz syndrome** is caused by a defective gene on chromosome 7 that is responsible for the production of cholesterol, which is essential to cells in the body. Smith–Lemli–Opitz syndrome affects an estimated one in 20,000 to 60,000 people. Symptoms vary widely, but severe cases may involve profound intellectual disability.
- **Cornelia de Lange syndrome** is caused by a mutation in one of a few different genes located on the X chromosome or on chromosomes 5 or 10. Cornelia de Lange syndrome occurs in about one in every 10,000 to 30,000 people. Students with Cornelia de Lange syndrome typically have mild to profound intellectual disabilities, with most falling in the mild-to-moderate range.
- **Rett syndrome** is caused by mutations to a gene on the X chromosome. It affects approximately one in every 10,000 to 23,000 female births. Rett syndrome in boys is extremely rare. Students with Rett syndrome typically have severe to profound intellectual disabilities.
- **Cri-du-Chat syndrome** is caused by missing genes on chromosome 5. It affects approximately one in every 20,000 to one in 50,000 people. Students with Cri-du-Chat syndrome have severe intellectual disabilities.

- **Sotos syndrome** is caused by a defect on chromosome 5 and is reported to occur in one in 10,000 or 14,000 people. Students with Sotos syndrome may or may not have an intellectual disability (Kennedy Krieger Institute, 2022).

Environmental Causes

Environmental causes of intellectual disability may occur prenatally, perinatally, or postnatally and can result in medical problems that affect a child's development. An example of a prenatal cause is the use of alcohol by the pregnant mother, which puts babies at risk for developing fetal alcohol spectrum disorders (FASD). FASDs include fetal alcohol syndrome, alcohol-related neurodevelopmental disorders, alcohol-related birth defects, and neurobehavioral disorder associated with prenatal alcohol exposure. In addition, maternal use of drugs or tobacco can also cause birth defects and potential intellectual disabilities (CDCc, 2022).

Examples of perinatal causes of intellectual disabilities include difficulties with the birthing process such as anoxia (i.e., temporary oxygen deprivation) or other birth-related injuries. Childhood diseases such as measles that cause damage to the brain are examples of postnatal causes of intellectual disabilities. In addition, childhood head injuries and exposure to environmental toxins such as lead and mercury may cause intellectual disabilities (ARC, 2022).

Risk Factors

Several factors may contribute to the risk of developing an intellectual disability. A primary risk factor is living in poverty. Children who live in poverty are at higher risk for experiencing malnutrition, exposure to environmental toxins, and inadequate health care. In addition, experiencing child abuse and neglect is also a risk factor that may contribute to the development of an intellectual disability (Smiley et al., 2022).

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Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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4.4: Prevention of Intellectual Disabilities

Efforts have been made to reduce the prevalence of intellectual disabilities. The AAIDD has identified three levels of intervention. Primary prevention uses strategies such as vaccinations to prevent childhood diseases that cause intellectual disabilities. Another example of primary prevention is providing counseling and addiction treatment services for mothers who use drugs, alcohol, or tobacco.

Secondary prevention uses strategies that prevent the development of symptoms of disability in individuals with an existing disease or condition. For example, testing newborns for phenylketonuria (PKU), an inherited disorder that can damage the brain and nervous system, and providing appropriate medical treatment can help prevent damage to the brain and nervous system.

Tertiary prevention includes strategies to reduce the outcome of a disability on a child's everyday functioning. For example, this might include providing early intervention services to a child diagnosed with an FASD (Smiley et al., 2022).

Activity 4.4.1: The Abecedarian Project

Directions: The Abecedarian Project was one of the first research projects to demonstrate the positive impact that early intervention services can have on a child's development. Explore [The Abecedarian Project](#) website. Who participated in The Abecedarian Project? What early interventions did they test? What were their findings?

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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4.5: Characteristics of Students with Intellectual Disabilities

Students with intellectual disabilities experience academic challenges resulting from their deficits in intellectual functioning and adaptive behavior. Students may experience academic challenges related to attention, memory, generalization, and language.

Attention characteristics

Generally, students with intellectual disabilities find attending to tasks challenging. However, attending skills may be improved through early intervention and instruction that use real-life tasks and materials (e.g., coins) that are relevant to the student. Real-life tasks improve all students' motivation to attend but are especially helpful for students with intellectual disabilities.

Academic characteristics

Students with intellectual disabilities tend to have below grade-level reading, writing, and math skills. However, academic skills can be improved, and students with mild intellectual disabilities benefit from academically inclusive settings.

Memory characteristics

Students with intellectual disabilities often perform poorly on working memory tasks compared with their peers without intellectual disabilities (Henry & MacLean, 2002). Working memory holds information for short periods and is used for reasoning and decision-making.

Generalization characteristics

Students with intellectual disabilities experience challenges when attempting to repeat a learned behavior or skill in a new situation. For example, a student may learn how to use a calculator to solve simple mathematics equations effectively in the classroom but may struggle to apply this skill in other settings, such as creating a budget and shopping for groceries. This means that students will need instruction on how to apply skills in different situations and settings.

Language characteristics

Students with intellectual disabilities may experience a delay in their language development. For example, students with intellectual disabilities may experience delays in learning vocabulary or engaging in conversation. Working memory deficits may contribute to experiencing a delay in language development such that students may not remember the order of events or may omit information they do not remember. Speech disorders are also common among students with intellectual disabilities, including deficits in articulation and fluency.

Adaptive behavior characteristics

Students with intellectual disabilities may experience challenges in developing adaptive behaviors. Adaptive behaviors include conceptual, social, and practical skills (DSM-5-TR, 2022, p. 42). Students may experience deficits in acquiring new skills or struggle with performing a learned skill in a new environment (e.g., expressing empathy with a new friend). Educators and clinicians should focus on students' strengths and abilities rather than just their limitations. Students with intellectual disabilities can live and work in their communities with appropriate support (Smiley et al., 2022).

Henry, L.A., & MacLean, M. (2002). Working memory performance in children with and without intellectual disabilities. *American Journal on Mental Retardation*, 107(6), 421–432.

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed. Text Revision). <https://doi.org/10.1176/appi.books.9780890425596>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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4.6: Identifying Students with Intellectual Disabilities

As identified earlier in this chapter, children may be diagnosed with an intellectual disability resulting from genetic or other environmental causes before they reach school age. However, once students enter school, response to intervention is used to identify students for special education and related services. Educators and clinicians may use intelligence tests, adaptive behavior skills assessments, or other academic skills assessments to identify students.

Example intelligence tests include the Stanford-Binet Intelligence Scale and the Wechsler Intelligence Scale for Children. An example of adaptive behavior skills assessment is the Vineland Adaptive Behavior Scales. In addition, the AAIDD advocates for the use of the Supports Intensity Scale, which allows professionals to measure the support needs of students with intellectual disabilities across categories of adaptive behavior. Academic skills assessments may include standardized and curriculum-based assessments and examples of students' coursework.

The AAIDD also suggests that needed support should be assessed using self-reports from the students and their parents or guardians. Direct observation of a student's behavior may also help determine their level of functioning compared with that of their peers and in different environments (e.g., home, school, community). Finally, determining the needs of the student means considering the goals of the student and their parents or guardians (Smiley et al., 2022). Person-centered planning (PCP) has become an important process enabling the person with a disability, and people significant to them, to be fully involved in developing plans for the future (National Parent Center on Transition and Employment, 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

National Parent Center on Transition and Employment. (2022, October 19). *Person-centered planning*. <https://www.pacer.org/transition/learning-center/independent-community-living/person-centered.asp>

4.7: Chapter Questions and References

1. What is the IDEA definition of intellectual disability?
2. What is the prevalence of intellectual disabilities?
3. What are the most common genetic disorders associated with intellectual disabilities?
4. What are some ways in which intellectual disabilities can be prevented?
5. What are the intellectual and academic characteristics of students with intellectual disabilities?

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National Parent Center on Transition and Employment. (2022, October 19). *Person-centered planning*. <https://www.pacer.org/transition/learning-center/independent-community-living/person-centered.asp>

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5: STUDENTS WITH EMOTIONAL AND BEHAVIORAL DISORDERS

- 5.1: Definitions of Emotional and Behavioral Disorders
- 5.2: A Brief History of Emotional and Behavioral Disorders
- 5.3: Prevalence of Emotional and Behavioral Disorders
- 5.4: Causes of Emotional and Behavioral Disorders
- 5.5: Characteristics of Students with Emotional and Behavioral Disorders
- 5.6: Identifying Students with Emotional and Behavioral Disorders
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5.1: Definitions of Emotional and Behavioral Disorders

Emotional and behavioral disorders is an umbrella term that includes psychological disorders impacting students' behavior, emotions, and moods. The terminology used to describe this disability category is subject to debate. The term emotional disturbance is used in the Individuals with Disabilities Education Act (IDEA). Illinois uses the term emotional disability, and other states use various terms. However, many professionals advocate using the term emotional or behavioral disorders (Smiley et al., 2022).

The IDEA Definition

The IDEA of 2004 defines emotional disturbances thus:

1. Emotional disturbance means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's 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.
 - e. A tendency to develop physical symptoms or fears associated with personal or school problems.

Emotional disturbance includes schizophrenia. The term does not apply to children who are socially maladjusted unless it is determined that they have an emotional disturbance (IDEA, Part B, Subpart A § 300.8(c)(4)(2004))

The IDEA definition is often referred to as vague (Theodore et al., 2004) and lacking any mention of specific negative behaviors (e.g., aggression) (Smiley et al., 2022).

The Council for Children with Behavioral Disorders Definition

The Council for Children with Behavioral Disorders (CCBD) is a Special Interest Division of the [Council for Exceptional Children \(CEC\)](#). The CCBD is an advocacy group for children with emotional and behavioral disorders and uses the following characteristics to define students with emotional disturbance:

- Hyperactivity (short attention span, impulsiveness)
- Aggression or self-injurious behavior (acting out, fighting)
- Withdrawal (not interacting socially with others, excessive fear or anxiety)
- Immaturity (inappropriate crying, temper tantrums, poor coping skills)
- Learning difficulties (academically performing below grade level) (CCBD, 2022)

The CCBD also points to general categories of psychological disorders, including schizophrenia spectrum disorder, bipolar disorder, depressive disorders, anxiety disorders, obsessive-compulsive disorders, eating disorders, and disruptive, impulse-control, and conduct disorders as causes of this disability category.

The APA Definition

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) of the American Psychiatric Association defines each of the psychological disorders associated with the term emotional and behavioral disorders. This includes schizophrenia spectrum and other psychotic disorders, bipolar and related disorders, depressive disorders, anxiety disorders, obsessive-compulsive disorders, feeding and eating disorders, and disruptive, impulse-control, and conduct disorders. There are too many specific psychological disorders to define and describe their diagnostic criteria for the purposes of this chapter. However, general definitions are included below.

Schizophrenia Spectrum and Other Psychotic Disorders

Schizophrenia spectrum and other psychotic disorders include schizophrenia, other psychotic disorders, and schizotypal (personality disorder). They are defined by abnormalities in one or more of the following five domains: delusions, hallucinations, disorganized thinking (speech), grossly disorganized or abnormal motor behavior (including catatonia (i.e., inability to move normally), and negative symptoms (e.g., diminished emotional expression and decreased motivation) (DSM-5-TR, 2022, p. 101).

Bipolar and Related Disorders

Bipolar and related disorders include bipolar I disorder, bipolar II disorder, cyclothymic disorder, substance/medication-induced bipolar and related disorders, bipolar and related disorder due to another medical condition, other specific bipolar and related disorder, and unspecified bipolar and related disorder. Depending on the specific disorder, students may experience episodes of mania or hypomania (i.e., periods of overactive and excited behavior), major depressive episodes, and instability of moods (DSM-5-TR, 2022, p. 139).

Depressive Disorders

Depressive disorders include disruptive mood dysregulation disorder, major depressive disorder (including major depressive episodes), persistent depressive disorder, premenstrual dysphoric disorder, substance/medication-induced depressive disorder, depressive disorder due to another medical condition, other specified depressive disorder, and unspecified depressive disorder. The common feature of all these disorders is the presence of sad, empty, or irritable mood, accompanied by related changes that significantly affect the individual's capacity to function (e.g., somatic and cognitive changes in major depressive disorder and persistent depressive disorder). What differs among them are issues of duration, timing, or presumed etiology (i.e., cause) (DSM-5-TR, 2022, p. 177).

Anxiety Disorders

Anxiety disorders include disorders that share features of excessive fear and anxiety and related behavioral disturbances. Anxiety disorders differ from one another in the types of objects or situations that induce fear, anxiety, or avoidance behavior. Anxiety disorders differ from developmentally normative fear or anxiety by being excessive or persisting beyond developmentally appropriate periods. In addition, many anxiety disorders develop in childhood and tend to persist if not treated (DSM-5-TR, 2022, p. 215).

Obsessive–Compulsive Disorders

Obsessive–compulsive disorders include obsessive–compulsive disorder (OCD), body dysmorphic disorder, hoarding disorder, trichotillomania (hair-pulling disorder), excoriation (skin-picking) disorder, substance/medication-induced obsessive–compulsive and related disorder, obsessive–compulsive and related disorder due to another medical condition, other specified obsessive–compulsive and related disorder (e.g., nail biting, lip biting, check chewing, obsessional jealousy, olfactory reference disorder), and unspecified obsessive and related disorder.

OCD is characterized by the presence of obsession, compulsion, or both. Obsessions are recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted, whereas compulsions are repetitive behaviors or mental acts that an individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly. Some other obsessive–compulsive and related disorders are characterized primarily by recurrent body-focused repetitive behaviors (e.g., hair pulling) and repeated attempts to decrease or stop the behaviors (DSM-5-TR, 2022, p. 263).

Feeding and Eating Disorders

Feeding and eating disorders are characterized by a persistent disturbance of eating or eating-related behavior that results in the altered consumption or absorption of food and that significantly impairs physical health or psychosocial functioning. Disorders include pica, rumination disorder, avoidant/restrictive food intake disorder, anorexia nervosa, bulimia nervosa, and binge-eating disorder (DSM-5-TR, 2022, p. 371).

Disruptive, Impulse-Control, and Conduct Disorders

Disruptive, impulse-control, and conduct disorders include conditions involving problems in the self-control of emotions and behaviors. While other psychological disorders may also involve problems in emotional or behavioral regulation, these disorders are unique in that they are manifested in behaviors that violate the rights of others (e.g., aggression, destruction of property) or that bring the individual into significant conflict with societal norms or authority figures. Disorders include oppositional defiant disorder, intermittent explosive disorder, conduct disorder, antisocial personality disorder, pyromania, kleptomania, and other specific and unspecified disruptive, impulse-control, and conduct disorders (DSM-5-TR, 2022, p. 521).

This is the primary classification system used for students with emotional or behavioral disorders. Although clinicians such as clinical psychologists, school psychologists, psychiatrists, and social workers have training in this medical classification system, students are often referred to clinical psychologists or psychiatrists to receive an official medical diagnosis. Educators are not trained to diagnose or treat psychological disorders.

The Illinois Definition of Emotional Disability

“Emotional Disability (includes schizophrenia but does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance) means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s 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” (Illinois State Board of Education, 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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5.2: A Brief History of Emotional and Behavioral Disorders

Before the twentieth century, people with serious emotional and behavioral disorders were often institutionalized and segregated from society. With the twentieth century came the development of professional organizations such as the CEC and the American Orthopsychiatric Association, which advocated for the rights of people with emotional and behavioral disorders. In addition, mental health interventions for children with emotional and behavioral disorders became increasingly available through programs such as Project Re-Ed (Hobbs, 1966). However, it was not until the 1997 reauthorization of the IDEA that emotional disturbance was included as a disability classification. Before this time, students with emotional and behavioral disorders were not eligible for special education or related services.

Hobbs, N. (1966). Helping the disturbed child: Psychological and ecological strategies. *American Psychologist*, 21(12), 1105–1115.

5.3: Prevalence of Emotional and Behavioral Disorders

Among students receiving special education services, 5% are identified as having an intellectual disability (National Center for Education Statistics, 2022). In addition, national data on children's mental health indicate that the number of children who experience anxiety and depressive disorders has increased over time (Bitsko et al., 2013) and that these disorders often co-occur with disruptive, impulse-control, and conduct disorders (Ghandour et al., 2018). The number of children identified for special education and related services in this disability category is considered significantly lower than the actual number of children estimated to need these services. Experts believe that the negative stigma associated with the term emotional disturbance may be one reason for fewer referrals, especially for younger children. In addition, not all students diagnosed with these psychological disorders perform poorly or are disruptive to the educational environment (Smiley et al., 2022).

Gender and race may also influence referrals for special education and related services. Research suggests that males are more likely to have externalizing disorders, which are characterized by poor impulse control that may contribute to rule-breaking, aggression, impulsivity, and inattention. Females are more likely to have internalizing disorders, which are characterized by anxiety, depressive, and somatic symptoms (e.g., physical pain) (Romano et al., 2001; Sachs-Ericsson & Ciarlo, 2000). Externalizing disorders may be more noticeable in a classroom setting, resulting in more referrals for these students. In addition, Black students are twice as likely to be identified as having an emotional or behavioral disorder than all other racial groups combined (National Center for Education Statistics, 2022).

Bitsko, R.H., Claussen, A.H., Lichstein, J., et al. (2022). Mental health surveillance among children — United States, 2013–2019. *Morbidity and Mortality Weekly Report*, 71(2), 1–42. <http://dx.doi.org/10.15585/mmwr.su7102a1>

Ghandour, R.M., Sherman, L.J., Vladutiu, C.J., Ali, M.M., Lynch, S.E., Bitsko, R.H., & Blumberg, S.J. (2018). Prevalence and treatment of depression, anxiety, and conduct problems in U.S. children. *The Journal of Pediatrics*, 206, 256–267.

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Romano, E.L., Tremblay, R., Vitaro, F., Zoccolillo, M., & Pagani, L. (2001). Prevalence of psychiatric diagnoses and the role of perceived impairment: Findings from an adolescent community sample. *Journal of Child Psychology and Psychiatry*, 42(4), 451–461.

Sachs-Ericsson, N., & Ciarlo, J.A. (2000). Gender, social roles, and mental health: An epidemiological perspective. *Sex Roles*, 42(9/10), 605–628.

National Center for Education Statistics. (2022). Students with disabilities. *Condition of education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

5.4: Causes of Emotional and Behavioral Disorders

Research indicates that both environmental and genetic factors play a role in the development of emotional and behavioral disorders. Environmental factors include adverse childhood experiences. Adverse childhood experiences are potentially traumatic events that occur in childhood, including abuse, neglect, and household dysfunction (e.g., violence in the home). These traumatic childhood experiences have been linked to the development of anxiety and depression (Elmore & Crouch, 2020). In addition, negative school experiences such as bullying and the systematic oppression of specific racial or ethnic groups may also lead to the development of emotional or behavioral disorders (CDC, 2015).

Certain emotional and behavioral disorders are linked to genetics. For example, children of a parent with a depressive, bipolar, or schizoaffective disorder are at a higher risk for developing anxiety, depressive, or schizoaffective disorders than the general public (DSM-5-TR, 2022). However, these genetic and environmental factors only increase a student's risk of developing an emotional or behavioral disorder. Experiencing one or more of these factors does not mean a student will develop an emotional or behavioral disorder. In addition, environmental and genetic factors are often interrelated, making it difficult for clinicians to identify a single cause (Kauffman & Landrum, 2018).

Elmore, A.L., & Crouch, E. (2020). The association of adverse childhood experiences with anxiety and depression for children and youth, 8 to 17 years of age. *Academic Pediatrics*, 20(5), 600–608.

Centers for Disease Control and Prevention. (2015). *Fact sheet: Understanding bullying*. Retrieved October 2, 2022, from <https://www.cdc.gov/violenceprevention/pdf/bullying-factsheet508.pdf>

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed. Text Revision). <https://doi.org/10.1176/appi.books.9780890425596>

Kauffman, J.M., & Landrum, T.J. (2018). *Characteristics of emotional and behavioral disorders of children and youth* (11th ed.). Pearson.

5.5: Characteristics of Students with Emotional and Behavioral Disorders

Students with emotional and behavioral disorders exhibit a wide range of characteristics. This has important implications for educators and clinicians, who must be aware of characteristics that typically go unnoticed, such as social withdrawal. Most of these characteristics fall into the following categories.

Externalizing Characteristics

Externalizing characteristics of emotional and behavioral disorders are those that can be observed and that directly affect others. For example, individuals may exhibit irritable mood, aggression, defiance, destruction of property, deceitfulness, and vindictiveness.

Internalizing Characteristics

Internalizing characteristics of emotional and behavioral disorders are often not directly observable or do not directly affect others. For example, anxiety and social withdrawal are not always visible to external observers. In addition, students with obsessive-compulsive disorders may experience recurrent unwanted thoughts and repetitive behaviors (e.g., hair pulling).

Intellectual Characteristics

The IDEA definition of emotional disturbance includes “an inability to learn that cannot be explained by intellectual, sensory, or health factors.” This statement implies that students with emotional and behavioral disorders should demonstrate average levels of intelligence. However, research indicates that these students typically score in the low-to-average range of intelligence. In addition, students with severe disorders tend to have lower levels of intelligence (Kauffman and Landru, 2018; Smiley et al., 2022).

Kauffman, J.M., & Landrum, T.J. (2018). *Characteristics of emotional and behavioral disorders of children and youth* (11th ed.). Pearson.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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5.6: Identifying Students with Emotional and Behavioral Disorders

In school, the response to intervention (RTI) system is used to identify students for special education and related services. Students are provided with interventions to support their educational success before the student's eligibility for special education services has been determined. Educators and clinicians use multiple measures to determine whether a student has an emotional or behavioral disorder. Data collection may include observations, behavior rating scales, and behavior assessment systems (Smiley et al., 2022). Outside of school, clinical psychologists and psychiatrists will use the diagnostic criteria included in the DSM to determine whether a student has an emotional or behavioral disorder.

Observation

Observation may be used to document the type, frequency, and duration of problem behaviors. Observational data provides valuable information that helps educators and clinicians make eligibility decisions. Observations are also used when conducting a functional behavior assessment (FBA). An FBA is used to determine the function of a behavior. FBAs help teachers and clinicians understand the reasons (i.e., the functions) for a student's behavior. The teacher or clinician documents what happened immediately before the behavior (i.e., antecedents) and what happened immediately after the behavior (i.e., consequences) to develop a hypothesis about the function of the behavior. Teachers and clinicians can then use this information to design an appropriate intervention for the student. This information also contributes to the evidence required to make an eligibility decision as part of the RTI process (Smiley et al., 2022).

Behavior Rating Scales

Behavior rating scales are used to document the nature and severity of certain observable behaviors. Behavior rating scales include a list of behaviors such as “has temper tantrums” and “argues a lot” that are grouped together to measure different emotional and behavior problems, such as aggressive behavior. Each item is rated using a scale. For example, the behavior never, occasionally, or frequently occurs. The Devereux Behavior Rating Scale (DBRS-SF) is an example of a behavior rating scale. The DBRS-SF has two forms, one for ages 5 to 12 and one for ages 13 to 18. It may be used by educators, school psychologists, guidance counselors, or other clinicians and includes 40 items grouped according to four factors: interpersonal problems, inappropriate behaviors/feelings, depression, and physical symptoms/fears. These are the same areas included in the IDEA definition (Smiley et al., 2022).

Behavior Assessment Systems

Behavior rating scales may also be used as part of a behavior assessment system. For example, behavior assessment systems might include an educator rating scale, a parent/guardian rating scale, a peer rating scale, a self-report scale, an observational component, and an interview component. The advantage of behavior assessment systems is that they provide ratings of the student from multiple people who are familiar with the student's behavior in different settings. Frequently used behavior assessment systems include the Achenbach System of Empirically Based Assessment (ASEBA) and the Behavior Assessment System for Children–Third Edition (BASC-3). The ASEBA measures areas such as anxiety and depression, thought problems, and aggression. The BASC-3 includes areas such as depression, interpersonal relations, and attention problems (Smiley et al., 2022).

In addition to the RTI system, the school may engage additional services from mental health professionals (e.g., psychiatrists) in their community to provide additional evidence that may be used to determine a student's eligibility for special education and related services. School social workers may also connect students and their families to additional community resources to support the health of the family as a whole (e.g., family counseling).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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5.7: Chapter Questions and References

1. What is the IDEA definition of emotional disturbance?
2. What is the prevalence of emotional and behavioral disorders?
3. What are some environmental factors associated with emotional and behavioral disorders?
4. What are some examples of externalizing and internalizing characteristics of emotional and behavioral disorders?
5. How are students with emotional and behavioral disorders typically identified?

Chapter References

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Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(4)(2004).

Kauffman, J.M., & Landrum, T.J. (2018). *Characteristics of emotional and behavioral disorders of children and youth* (11th ed.). Pearson.

National Center for Education Statistics. (2022). Students with disabilities. *Condition of education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

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Sachs-Ericsson, N., & Ciarlo, J.A. (2000). Gender, social roles, and mental health: An epidemiological perspective. *Sex Roles*, 42(9/10), 605–628.

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6: STUDENTS WITH COMMUNICATION DISORDERS

Communication is the expression of thoughts, including ideas, feelings, and opinions, between two or more people using language and speech. Language is a rule-governed system of symbols that people use to communicate. Speech is the physical ability to articulate language. Language may also be expressed using sign languages such as American Sign Language. Speech consists of five integrated systems:

- Respiration (i.e., the breathing that supports speech);
- Voicing (i.e., the sound powered by the vocal folds and chords);
- Resonance (i.e., the means by which sound is changed as it travels through the cavities of the neck and head); and
- Articulation (i.e., the formulation of speech sounds by the lips, tongue, and other structures).

Fluent speech also requires the use of concepts such as stress, pitch, timing, and loudness to impart meaning. For example, in American English, there is usually a rise in pitch at the end of a question (Smiley et al., 2022).

Language also has five components: phonology, morphology, syntax, semantics, and pragmatics. These concepts are defined below in the [American Speech-Language-Hearing Association](#) (ASHA) definition of language disorders. However, a few additional definitions in relation to these concepts are also important. For example, phonology is the sound system of a language and the rules that govern sound combinations (ASHA, 1993). The smallest unit of speech that distinguishes one word from another is the phoneme. An example of a phoneme is a consonant such as “p” or “b” that distinguishes “tap” from “tab” (Smiley et al., 2022). Each of these words is the same except for the final phoneme.

Morphology is the system that governs the structure of words and the construction of word forms (ASHA, 1993). A morpheme is the smallest meaningful unit in the grammar of a language. Morphemes may be free or bound. Free morphemes have meaning on their own and may not be broken into smaller units and still maintain their meaning (e.g., dog). A bound morpheme has meaning only when attached to another morpheme. For example, “s” alone has no meaning, but when it is attached to “dog,” as in “dogs,” it means more than one (Smiley et al., 2022).

In addition, language also includes nonlinguistic cues such as gestures, body posture, proximity, eye contact, and facial expressions. Communication requires using both linguistic and nonlinguistic components of language. In school, a student must also learn about the rules governing the use of language in different settings (e.g., in the classroom versus on the playground). For example, cheering and clapping is an appropriate way to communicate praise when a teammate makes a goal, but cheering and clapping is not appropriate when a peer answers a math question correctly. Culture also plays a role in communication and may influence both linguistic and nonlinguistic components of language. For example, in certain cultures making eye contact with a teacher is a sign of disrespect. Educators and clinicians need to be aware of these cultural differences to assess the student appropriately and help the student master the communication rules used in school (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

6.1: Definitions of Communication Disorders

6.2: The History of Communication Disorders

6.3: Prevalence and Causes of Communication Disorders

6.4: Characteristics of Students with Communication Disorders

6.5: Identifying Students with Communication Disorders

6.6: Chapter Questions and References

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6.1: Definitions of Communication Disorders

The Individuals with Disabilities Education Act (IDEA) defines a speech or language impairment as the following:

Speech or language impairment means a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child's educational performance (Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(11)(2004)).

This definition is used to determine whether a student with a communication disorder is eligible for special education and related services. However, many professionals also use the following definitions from the ASHA. ASHA provides the following more detailed definition of communication disorder.

A communication disorder is an impairment in the ability to receive, send, process, and comprehend concepts or 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 (ASHA, 1993).

ASHA also provides detailed definitions of the different types of communication disorders, including speech disorders, language disorders, and central auditory processing disorders.

A speech disorder is an impairment of the articulation of speech sounds, fluency and/or voice.

- An articulation disorder is the atypical production of speech sounds characterized by substitutions, omissions, additions or distortions that may interfere with intelligibility.
- 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.
- 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.

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.

- Form of Language
 - Phonology is the sound system of a language and the rules that govern the sound combinations.
 - Morphology is the system that governs the structure of words and the construction of word forms.
 - Syntax is the system governing the order and combination of words to form sentences, and the relationships among the elements within a sentence.
- Content of Language
 - Semantics is the system that governs the meanings of words and sentences.
- Function of Language
 - Pragmatics is the system that combines the above language components in functional and socially appropriate communication.

Central auditory processing disorders (CAPD) are deficits in the information processing of audible signals not attributed to impaired peripheral hearing sensitivity or intellectual impairment. This information processing involves perceptual, cognitive, and linguistic functions that, with appropriate interaction, result in effective receptive communication of auditorily presented stimuli. Specifically, CAPD refers to limitations in the ongoing transmission, analysis, organization, transformation, elaboration, storage, retrieval, and use of information contained in audible signals. CAPD may involve the listener's active and passive (e.g., conscious and unconscious, mediated and unmediated, controlled and automatic) ability to do the following:

- attend, discriminate, and identify acoustic signals;
- transform and continuously transmit information through both the peripheral and central nervous systems;
- filter, sort, and combine information at appropriate perceptual and conceptual levels;
- store and retrieve information efficiently; restore, organize, and use retrieved information;

- segment and decode acoustic stimuli using phonological, semantic, syntactic, and pragmatic knowledge; and
- attach meaning to a stream of acoustic signals through use of linguistic and nonlinguistic contexts (ASHA, 1993).

Finally, ASHA differentiates a communication disorder from communication variations including communication difference/dialect and augmentative/alternative communication.

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.

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 (ASHA, 1993).

APA Definition

In addition, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) of the American Psychiatric Association includes disorders of communication which include language disorder, speech sound disorder, childhood-onset fluency disorder (stuttering), social (pragmatic) communication disorders, and unspecified communication disorders. The diagnostic criteria for each are included below.

Language Disorder

- A. Persistent difficulties in the acquisition and use of language across modalities (i.e., spoken, written, sign language, or other) due to deficits in comprehension or production that include the following:
 - a. Reduced vocabulary (word knowledge and use).
 - b. Limited sentence structure (ability to put words and word endings together to form sentences based on the rules of grammar and morphology).
 - c. Impairments in discourse (ability to use vocabulary and connect sentences to explain or describe a topic or series of events or have a conversation).
- B. Language abilities are substantially and quantifiably below those expected for age, resulting in functional limitations in effective communication, social participation, academic achievement, or occupational performance, individually or in any combination.
- C. Onset of symptoms is in the early developmental period.
- D. The difficulties are not attributable to hearing or other sensory impairment, motor dysfunction, or another medical or neurological condition and are not better explained by intellectual developmental disorder (intellectual disability) or global developmental delay (DSM-5-TR, 2022, p. 47).

Speech Sound Disorder

- A. Persistent difficulty with speech sound production that interferes with speech intelligibility or prevents verbal communication or messages.
- B. The disturbance causes limitation in effective communication that interferes with social participation, academic achievement, or occupational performance, individually or in any combination.
- C. Onset of symptoms in the early developmental period.
- D. The difficulties are not attributable to congenital or acquired conditions, such as cerebral palsy, cleft palate, deafness or hearing loss, traumatic brain injury, or other medical or neurological conditions (DSM-5-TR, 2022, p. 50).

Childhood-Onset Fluency Disorder (Stuttering)

- A. Disturbances in the normal fluency and time patterning of speech that are inappropriate for the individual's age and language skills, persist over time, and are characterized by frequent and marked occurrences of one (or more) of the following:
 - a. Sound and syllable repetitions.
 - b. Sound prolongations of consonants as well as vowels.
 - c. Broken words (e.g., pauses within a word).

- d. Audible or silent blocking (filled or unfilled pauses in speech).
- e. Circumlocutions (word substitutions to avoid problematic words).
- f. Words produced with an excess of physical tension.
- g. Monosyllabic whole-word repetitions (e.g., “I-I-I-I see him”).
- B. The disturbance causes anxiety about speaking or limitations in effective communication, social participation, or academic or occupational performance, individually or in any combination.
- C. The onset of symptoms is in the early developmental period.
- D. The disturbance is not attributable to a speech-motor or sensory deficit, disfluency associated with neurological insult (e.g., stroke, tumor, trauma), or another medical condition and is not better explained by another mental disorder (DSM-5-TR, 2022, p. 51-52).

Social (Pragmatic) Communication Disorder

- A. Persistent difficulties in the social use of verbal and nonverbal communication as manifest by all of the following:
 - a. Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.
 - b. Impairment of the ability to change communication to match context or the needs of the listener, such as speaking differently in a classroom than on a playground, talking differently to a child than to an adult, and avoiding the use of overly formal language.
 - c. Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signals to regulate interaction.
 - d. Difficulties understanding what is not explicitly stated (e.g., making inferences) and nonliteral and ambiguous meanings of language (e.g., idioms, humor, metaphors, multiple meanings that depend on the context for interpretation).
- B. The deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance, individually or in combination.
- C. The onset of the symptoms is in the early developmental period (but deficits may not become fully manifest until social communication demands exceed limited capacities).
- D. The symptoms are not attributable to another medical or neurological condition or to low abilities in the domains of word structure and grammar, and are not better explained by autism spectrum disorder, intellectual developmental disorder (intellectual disability), global developmental delay, or another mental disorder (DSM-5-TR, 2022, p. 54).

The Illinois Definition of Speech or Language Impairment

Speech or Language Impairment means a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child’s educational performance (ISBE, 2022).

Activity 6.1.1: Compare and Contrast

Directions: Compare and contrast the IDEA, ASHA, APA, and Illinois definitions of communication disorders. Consider the differences and similarities between diagnostic criteria.

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(11)(2004).

American Speech-Language-Hearing Association. (1993). *Definitions of communication disorders and variations [Relevant Paper]*. <https://www.asha.org/policy/rp1993-00208/>

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6.2: The History of Communication Disorders

In 1925, the American Academy of Speech Correction, ASHA's original predecessor, was founded at an informal meeting of the National Association of Teachers of Speech. This organization was originally composed of teachers working in the areas of rhetoric, debate, and theater, and its members were becoming increasingly interested in the scientific study of speech correction. The American Academy of Speech Correction went through several name changes before settling on the American Speech-Language-Hearing Association (ASHA).

Beginning in 1910, "speech correctionists" were hired to work in Chicago Public Schools. That same year, two speech centers opened in Detroit Public Schools. Many large school districts followed suit, and by the 1950s, "speech correctionists" were common in elementary schools (Hulit et al., 2015). In the 1970s, knowledge of language development increased, and "speech therapists" learned to identify and treat communication disorders. Today, speech-language pathologists (SLP) work closely with special education and general education teachers to provide services to students with communication disorders and are also part of the referral and IEP process when appropriate (Smiley et al., 2022).

Example 6.2.1: The Early Years of Language, Speech, and Hearing Services

Directions: Learn more about the history of communication disorders by reading *The Early Years of Language, Speech, and Hearing Services in U.S. Schools* by Judith Felson Duchan. How do these services help students improve their quality of life?

Hulit, L.M., Fahey, K.R., & Howard, M.R. (2015). *Born to talk: An introduction to speech and language development* (6th ed.). Pearson.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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6.3: Prevalence and Causes of Communication Disorders

Among students receiving special education services, 19% are identified as having a speech or language impairment (National Center for Education Statistics, 2022). Communication disorders may be caused by congenital conditions (e.g., Down syndrome) or acquired after birth (e.g., traumatic brain injury). In addition, communication disorders are also classified as organic or functional. Organic communication disorders result from an abnormal structure or neuromuscular malfunction in the speech organs (e.g., cleft palate). Functional communication disorders have no organic cause but are presumed to result from environmental risk factors. Determining the cause of a functional communication disorder is difficult. However, environmental risk factors include lack of adequate prenatal care, living in poverty, lack of stimulation during childhood, and hearing loss. Recent research indicates that genetics may also be a risk factor for developing a communication disorder (Flax et al., 2003; Smiley et al., 2022).

National Center for Education Statistics. (2022). Students with disabilities. *Condition of education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

Flax, J., Realpe-Bonilla, T., Herschm, L.S., Brzustowic, L.M., Bartlett, C., & Tallal, P. (2003). Specific language impairment: Co-occurrence in families. *Journal of Speech, Language, and Hearing Research*, 46(3), 530–543.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

6.4: Characteristics of Students with Communication Disorders

The characteristics of students with communication disorders vary depending on the components of language or speech that are affected. A speech disorder is an impairment of the articulation of speech sounds, fluency, voice, or all three.

Articulation Disorder

An articulation disorder is the atypical production of speech sounds characterized by substitutions, omissions, additions, or distortions that may interfere with intelligibility. For example, students may substitute one speech sound for another or distort a speech sound (e.g., a whistling “s”). Students may also add an additional sound or omit a sound. Students with an articulation disorder usually have difficulty with only one or two specific sounds.

Fluency Disorder

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. For example, a student may interject unnecessary words or phrases, use incomplete phrases, use broken words (i.e., include pauses within words), prolong sounds, or repeat sounds of syllables, words, or phrases. The most common fluency disorder is stuttering, which involves the repetition of sounds or syllables or prolonged sounds as primary speech characteristics. Fluency disorders affect students most commonly between the ages of 2 and 10. In addition, boys are more commonly affected than girls. However, many children experience periods of dysfluency lasting about 6 months, usually between ages 2 and 6.

Voice Disorder

A voice disorder is characterized by abnormal production or absence of vocal quality, pitch, loudness, resonance, and/or duration that is inappropriate for an individual's age and/or sex. For example, students with voice disorders may have a hoarse voice, speak in a high pitch, speak with no changes in pitch, or speak excessively loudly or softly (ASHA, 1993; Smiley et al., 2022).

Characteristics of language disorders are determined by whether they are primary (i.e., the disorder does not arise from an underlying medical condition) or secondary (i.e., the disorder can be attributed to another disability). Characteristics of secondary language disorders are associated with the identified primary disability (Smiley et al., 2022). Language disorders include difficulties with the form of language (i.e., phonology, morphology, or syntax), the content of language (i.e., semantics), or the function of language (i.e., pragmatics).

Form of Language

Students with language disorders that involve the form of language may experience difficulty with phonology or the sound system of a language and the rules that govern the sound combinations. For example, students may substitute one consonant sound for another or omit certain consonant sounds entirely. Students may also struggle with morphology or the system that governs the structure of words and the construction of word forms. For example, students may omit a specific morpheme such as the “s” that makes nouns plural.

Finally, some students may not experience language difficulties until they reach school age and encounter more complex syntax or the system governing the order and combination of words to form sentences, and the relationships among the elements within a sentence. For example, students may have difficulty understanding when to use commas.

Content of Language

Students with language disorders that involve the content of language experience difficulty with semantics or the system that governs the meanings of words and sentences. For example, students may have difficulty understanding metaphors.

Function of Language

Students with language disorders that involve the function of language experience difficulty with pragmatics or the system that combines form of language and content of language into functional and socially appropriate communication. For example, students may have difficulty participating in a conversation.

In addition, educators and clinicians must be aware of regional, social, and cultural or ethnic variations in the use of language. Any difference in language use that can be attributed to these variations is not considered a language disorder. Language disorders may also impact a student's ability to read and write. For example, a student who is experiencing phonological difficulties may have problems understanding the sound-symbol associations necessary to encode and decode written words. Students with secondary language disorders caused by other disabilities, such as intellectual disabilities, may progress through a normal sequence of linguistic development but at a slower rate than their nondisabled peers. Identifying the characteristics of each student with a communication disorder can facilitate developing appropriate interventions (Smiley et al., 2022).

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Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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6.5: Identifying Students with Communication Disorders

School-age children should be screened for communication disorders in the early grades; however, universal screenings may not identify all existing problems. Therefore, classroom teachers and other professionals who work with students play a significant role in the identification and referral of students with possible communication disorders. Importantly, some areas of difficulty, such as articulation, have a developmental trajectory. ASHA has developed a chart that identifies the [Age of Customary Consonant Production](#) to identify age-appropriate articulation errors. Similarly, ASHA has developed a chart of [Grammatical Morphemes in Order of Acquisition](#) that identifies when children should produce correct grammatical morphemes.

Educators and clinicians may use a variety of procedures in different settings to identify students for special education and related services. Speech-language pathologists (SLP), audiologists, and occupational and physical therapists may be involved in this process (Smiley et al., 2022). ASHA's *Preferred Practice Patterns for the Professions of Speech-Language Pathology* (2004) indicates that a comprehensive speech-language pathology assessment should include the following components:

- Case history, including medical status, education, socioeconomic, cultural, and linguistic backgrounds and information from teachers and other related service providers.
- Student and family interviews.
- Review of auditory, visual, motor, and cognitive status.
- Standardized and/or non-standardized measures of specific aspects of speech, spoken and non-spoken language, cognitive-communication, and swallowing function, including observations and analysis of work samples.
 - Selection of standardized measures for speech, language, cognitive-communication, and/or swallowing assessment with consideration for documented ecological validity and cultural sensitivity.
- Identification of potential for effective intervention strategies and compensations.
- Follow-up services to monitor communication and swallowing status and ensure appropriate intervention and support for individuals with identified speech, language, cognitive-communication, and/or swallowing disorders (ASHA, 2022).

In addition, the SLP consults other members of the multidisciplinary team, such as parents and psychologists, to determine how the disorder may impact other areas of a student's life. The SLP may also conduct observations in different classroom settings, during different activities, and with different conversational partners to assess the impact the communication disorder has on the child's ability to learn and identify the appropriate interventions. Assessment procedures are dependent on a student's age and the aspect of language being assessed.

Assessment procedures should also take into account linguistically diverse student populations and use appropriate alternative assessment procedures that reduce the bias inherent in some norm-referenced standardized tests. For English learners, information about their native language and English language proficiency is needed to determine whether they should be assessed in their native language. Finally, SLPs should also assess conversational and academic language skills in both languages. Students who are learning a second language generally acquire conversational language skills in 1–3 years but may need 5–7 years to acquire academic language skills (Smiley et al., 2022).

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6.6: Chapter Questions and References

1. What are the systems that are required for speech?
2. What are the components of language?
3. What is the IDEA definition of speech or language impairment?
4. What are the differences between speech and language disorders?
5. What is the prevalence of communication disorders?

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7: STUDENTS WHO ARE DEAF OR HARD OF HEARING

- 7.1: Definitions of Deaf and Hard of Hearing
- 7.2: The History of Deafness and Hard of Hearing
- 7.3: Prevalence and Causes of Deafness and Hard of Hearing
- 7.4: Characteristics of Students Who Are Deaf or Hard of Hearing
- 7.5: Identifying Students Who Are Deaf or Hard of Hearing
- 7.6: Chapter Questions and References

7.1: Definitions of Deaf and Hard of Hearing

Definitions of deaf and hard of hearing are based on the type and degree of hearing loss. Hearing depends on a series of steps that change sound waves in the air into electrical signals. Our auditory nerve then carries these signals to the brain.

First, sound waves enter the outer ear and travel through the ear canal, which leads to the eardrum. Next, the eardrum vibrates from the incoming sound waves and sends these vibrations to the bones in the middle ear. The bones in the inner ear amplify the sound vibrations and send them to the cochlea, a snail-shaped structure filled with fluid, in the inner ear. Hair cells on the cochlea then turn the sound waves into electrical signals carried through the auditory nerve to the brain (National Institute on Deafness and Other Communication Disorders, 2022).

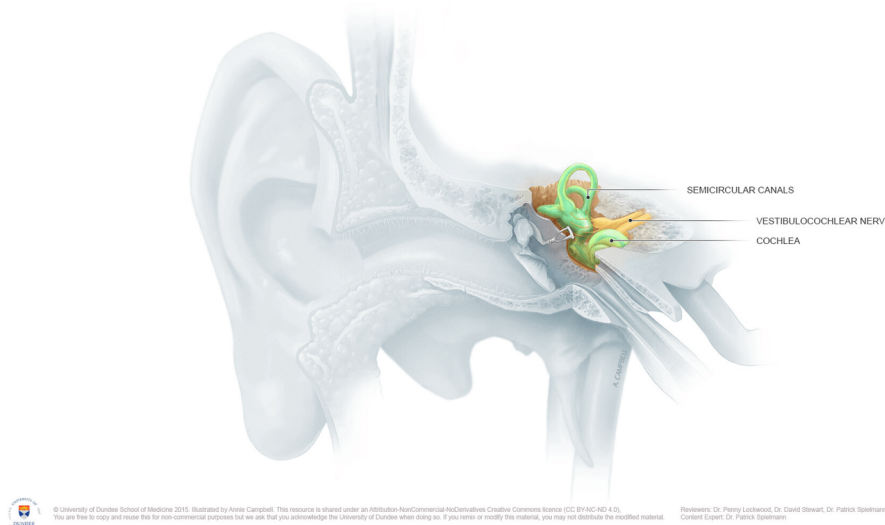


Figure 7.1.1: "Highlighted Anatomy of Inner Ear by Annie Campbell" by dundeetilt is licensed under CC BY-NC-ND 2.0.

Sound is described in terms of loudness and frequency. Loudness refers to the intensity of a sound and is measured in decibels (dB). The larger the dB number, the louder the sound. Zero dB represents the lowest level of sound that a typically hearing person can perceive.

The frequency of sound waves is measured in cycles per second, or hertz (Hz). The ear can detect frequencies from 20 Hz to 20,000 Hz, but most speech occurs in the 200–6,000 Hz range, most occurring between 300 and 3,000 Hz. However, hearing loss can occur at various frequencies, affecting how well an individual hears different sounds. Hearing loss is described in relation to the age of onset. Audiologists may administer a speech reception threshold test to determine an individual's specific ability to hear and understand speech (Scheetz, 2012; Smiley et al., 2022).

Types of Hearing Loss

The type of hearing loss is often associated with a physiological or neurological problem with the transmission of sound. There are three types of hearing loss, which are described below.

- A **conductive hearing loss** happens when sounds cannot get to the inner ear. This type of hearing loss may be caused by infection, fluid, earwax, or benign tumors or other problems that block access to the inner ear.
- A **sensorineural hearing loss** happens when there is damage to the inner ear. Problems with the nerve pathways from the inner ear to the brain can also cause sensorineural hearing loss. This type of hearing loss may be caused by illness, aging, injury, or genetic predisposition to hearing loss.
- A **mixed hearing loss** is a problem with the outer or middle ear and the inner ear. For example, there may be damage to the outer or middle ear and damage to the inner ear or nerve pathways to the brain. Anything that causes a conductive hearing loss or a sensorineural hearing loss can lead to mixed hearing loss (ASHA, 2022b).

In addition, hearing loss can be unilateral (i.e., affecting only one ear) or bilateral (i.e., affecting both ears), and can be stable or progress over time (Smiley et al., 2022).

Degree of Hearing Loss

Degree of hearing loss is described on a scale from slight to profound and is based on decibels. For example, students who can hear sounds only at 30 dB have a mild hearing loss. Students who can hear only sounds closer to 50 dB have a moderate hearing loss. Table 7.1.1 lists hearing loss classifications.

Table 7.1.1: Hearing Loss Classifications

Degree of Hearing Loss	Hearing Loss Range (dB HL)
Normal	-10 to 15
Slight	16 to 25
Mild	26 to 40
Moderate	41 to 55
Moderately Severe	71 to 90
Profound	91+

Educators and clinicians should keep in mind that the type or degree of hearing loss does not necessarily describe a student's ability to engage in classroom learning. For example, the student might utilize their residual hearing or use amplification devices to hear the teacher and the other students in the class. A functional hearing assessment is necessary to determine how a student's learning and communication abilities may be affected (ASHA, 2022a; Smiley et al., 2022).

Age of Onset

Hearing loss may also be described based on age of onset. Students with congenital hearing loss had hearing loss at birth. Students with adventitious hearing loss experienced hearing loss after birth. Prelingual hearing loss occurs before the development of speech and language, and postlingual hearing loss occurs after the development of speech and language. Speech and oral language development may be influenced by age of onset as well as the type and degree of hearing loss. Therefore, hearing loss must be identified early to avoid developmental issues (Smiley et al., 2022). The [Joint Committee on Infant Hearing \(2007\)](#) suggests that "all infants should have access to hearing screening using a physiologic measure at no later than 1 month of age."

The IDEA Definition

The Individuals with Disabilities Education Act (IDEA) uses the term hearing impairment. Some people in the Deaf community consider this term offensive because it focuses on what a student cannot do. This term should not be used to refer to a student who is deaf or hard of hearing. The IDEA defines deafness and hearing impairment as the following.

Deafness means a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, that adversely affects a child's educational performance (IDEA, Part B, Subpart A § 300.8(c)(3)(2004)).

Hearing impairment means an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness in this section (IDEA, Part B, Subpart A § 300.8(c)(5)(2004)).

The ASHA Definition

The American Speech-Language-Hearing Association (ASHA) definitions of communication disorders include the following definition of a hearing disorder.

A hearing disorder is the result of impaired auditory sensitivity of the physiological auditory system. A hearing disorder may limit the development, comprehension, production, and/or maintenance of speech and/or language. Hearing disorders are classified according to difficulties in detection, recognition, discrimination, comprehension, and perception of auditory information. Individuals with hearing impairment may be described as deaf or hard of hearing.

- **Deaf** is defined as a hearing disorder that limits an individual's aural/oral communication performance to the extent that the primary sensory input for communication may be other than the auditory channel.
- **Hard of hearing** is defined as a hearing disorder, whether fluctuating or permanent, which adversely affects an individual's ability to communicate. The hard of hearing individual relies on the auditory channel as the primary sensory input for communication (ASHA, 1993).

The Illinois Definition of Deafness and Hearing Impairments

Deafness means a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, that adversely affects a child's educational performance.

Hearing Impairments means an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness (ISBE, 2022).

Activity 7.1.1: Compare and Contrast

Directions: Compare and contrast the IDEA, ASHA, and Illinois definitions of communication disorders. Consider the differences and similarities between diagnostic criteria.

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7.2: The History of Deafness and Hard of Hearing

In 1817, the American School for the Deaf was founded as the first permanent school for the deaf in the United States. In 1865, Gallaudet University was founded; it provides a collegiate-level education to individuals who are deaf or hard of hearing. In 1880, the [National Association of the Deaf](#) (NAD) was founded. NAD advocates for the civil rights of individuals who are deaf or hard of hearing. Before IDEA, most students who were deaf or hard of hearing were educated in residential or special day schools. Today, many students who are deaf or hard of hearing are educated in public schools with their hearing peers. However, some members of the Deaf community prefer to attend state-funded residential and special day schools such as the [Illinois School for the Deaf](#).

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7.3: Prevalence and Causes of Deafness and Hard of Hearing

Among students receiving special education services, 1% are identified as having a hearing impairment (National Center for Education Statistics, 2022). However, not all students who have experienced hearing loss qualify for special education and related services. In addition, as identified earlier in this chapter, causes of hearing loss include conductive, sensorineural, and mixed hearing loss.

However, the cause of hearing loss is not always identifiable. Genetic or environmental factors can also cause hearing loss. For example, approximately 30% of all cases of sensorineural hearing loss are genetic (Smith & Robin, 2002). Usher syndrome is a rare genetic disease that affects both hearing and vision. Other genetic disorders that cause hearing loss include Pendred syndrome and Waardenburg syndrome. Environmental causes of sensorineural hearing loss are aging, medications that cause hearing loss, exposure to noise, and infections. Maternal viruses or infections such as cytomegalovirus, toxoplasmosis, and syphilis can also cause sensorineural hearing loss in children (Smiley et al., 2022).

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7.4: Characteristics of Students Who Are Deaf or Hard of Hearing

Characteristics of students who are deaf or hard of hearing vary based on the type, degree, and age of onset of the hearing loss. Although there are no significant differences related to the intelligence of students who are deaf or hard of hearing and their hearing peers, academic achievement is often impacted, with students who are deaf or hard of hearing scoring significantly below same-age peers in reading and math (Hrastinski & Wilbur, 2016; Qi & Mitchell, 2011). There may also be significant cultural differences as well as differences related to students' use of speech and language.

Cultural Characteristics

American Deaf culture centers on the use of American Sign Language (ASL) and the identification and unity of other people who are Deaf. ASL is a visual/gestural language with no vocal component and is a complete, grammatically complex language. Dr. Barbara Kannapel, a sociologist who is Deaf, developed a definition of American Deaf culture that includes a set of values, behaviors, and traditions that include the following:

- Promoting an environment that supports vision as the primary sense used for communication at school, in the home, and in the community, as vision offers individuals who are deaf access to information about the world and the independence to drive, travel, work, and participate in every aspect of society.
- Valuing children who are deaf as the future of deaf people and Deaf culture. Deaf culture therefore encourages the use of ASL, in addition to any other communication modalities the child may have.
- Support for bilingual ASL/English education of children who are deaf, so they are competent in both languages.
- Inclusion of specific rules of behavior in communication in addition to the conventional rules of turn taking. For example, consistent eye contact and visual attention during a conversation are expected. In addition, a person using sign language has the floor during a conversation until they provide a visual indicator (pause, facial expression, etc.) that they are finished.
- Perpetuation of Deaf culture through a variety of traditions, including films, folklore, literature, athletics, poetry, celebrations, clubs, organizations, theaters, and school reunions. Deaf culture also includes some of its own “music” and poetry as well as dance.
- Inclusion of unique strategies for gaining a person's attention, such as gently tapping a person on the shoulder if they are not within the line of sight, waving if the person is within the line of sight, or flicking a light switch a few times to gain the attention of a group of people in a room (Laurent Clerc National Deaf Education Center, 2022).

Educators and clinicians need to acknowledge that ASL is a legitimate language and provide opportunities for students who are deaf or hard of hearing to learn ASL. Some students who are hard of hearing may struggle with their identity and feel they are not quite members of the hearing or Deaf community. This can be avoided by educating students who are hard of hearing as bilingual-bicultural students, focusing on both ASL and English language skills, and actively promoting both Deaf and hearing cultures (Smiley et al., 2022).

Speech and Language Characteristics

Speech and language characteristics vary widely among students who are deaf or hard of hearing. These characteristics are affected by variables such as the age of onset of the hearing loss, type and degree of hearing loss, and language experiences. For example, a student whose parents are also deaf may have very different speech and language characteristics than another student whose family uses spoken language as their primary mode of communication.

Depending on the degree of hearing loss and the use of assistive listening devices (e.g., hearing aids) or cochlear implants, students who are deaf or hard of hearing may experience delayed speech development. However, early intervention and direction instruction allows many students who are deaf or hard of hearing to develop age-appropriate speech (Blamey, 2003). In addition, it is important for children who are deaf or hard of hearing to be exposed to a fully accessible language (e.g., ASL) to avoid language delays and develop the school readiness skills needed when learning to read and write (Smiley et al., 2022).

Hrastinski, I., & Wilbur, R.B. (2016). Academic achievement of deaf and hard-of-hearing students in an ASL/English bilingual

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7.5: Identifying Students Who Are Deaf or Hard of Hearing

Babies are usually subjected to a newborn hearing screening. Children are also screened for hearing problems at regular intervals during their [well-child visits](#). If a pediatrician identifies a hearing problem, the child will often be referred to an audiologist for additional testing, diagnosis, and treatment. ASHA has identified the role of an audiologist in its [Scope of Practice in Audiology](#) document. If hearing loss is determined to be congenital, the child's family may choose to undergo genetic testing to determine a possible cause (Smith & Robin, 2002; Smiley et al., 2022).

Symptomatic behavior of a student who may be experiencing hearing loss includes the following.

- Complaints about the ears
- Frequent infections of the ear, nose, or throat
- Speech articulation problems
- Embarrassment about participating in school activities that require speaking and listening
- Frequent requests to have a verbal message repeated or said more loudly
- Problems attending to the conversation of others

Other possible symptoms that may be observed include turning up the volume on auditory devices, social withdrawal, inattentiveness, and not following directions (Smiley et al., 2022).

Scheetz (2012) identifies four types of testing used to evaluate students who may be experiencing hearing loss. Pure-tone tests are usually conducted once a hearing loss is suspected. Pure-tone tests help to determine the degree and type of hearing loss present. There are two types of pure-tone tests. In a pure-tone air test, or pure-tone audiogram, sounds of different pitches and loudness are transmitted, usually through earphones, directly into the ear. This test is often used to determine whether there may be a conductive, sensorineural, or mixed hearing loss. Speech reception threshold and speech discrimination threshold tests help to determine at what dB a student can hear speech and, once loud enough, how well the student can understand the speech. Audiologists may also determine if an amplification device is appropriate and how amplification might influence a student's ability to communicate in different environments (Smiley et al., 2022).

Assessment of the Effect on Educational Performance

Identifying students under IDEA requires evidence that hearing loss adversely affects educational performance. In addition to audiologic testing, the multidisciplinary team (MDT) may conduct intelligence tests and other tests of academic abilities. However, there are several problems with these types of assessments. Many of these assessments have not been validated for use with students who are experiencing hearing loss. In addition, few assessments have normative comparison groups for students who are deaf or hard of hearing. The administration and interpretation of these types of assessments require a professional who is well versed in the norms of this particular student population (Smiley et al., 2022).

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7.6: Chapter Questions and References

1. What are the different types of hearing loss?
2. What are the IDEA definitions of deafness and hearing impairments?
3. What percentage of students receiving special education services are identified as having a hearing impairment?
4. What are the main types of causes of hearing loss?
5. What is the Deaf culture, and what role does it play in the lives of many individuals who are deaf and hard of hearing?

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8: STUDENTS WHO ARE BLIND OR HAVE LOW VISION

- 8.1: Definitions of Blindness and Low Vision
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8.1: Definitions of Blindness and Low Vision

The Individuals with Disabilities Education Act (IDEA) uses the term *visual impairment* and defines it as the following.

Visual impairment including blindness means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness (IDEA, Part B, Subpart A § 300.8(c)(13)(2004)).

Educators and clinicians should note that while the IDEA definition uses the term "partial sight," the more commonly used term is "low vision."

In addition to the IDEA definition, state laws often include definitions for blindness. These laws are associated with visual acuity. Typically, a standard distance of 20 feet is used as a base measure of visual acuity. For example, an individual with 20/20 vision must be able to identify letters or objects at a distance of 20 feet. Visual acuity of 20/200 means that an individual can identify letters or objects at a distance of 20 feet that a typically sighted individual could see at 200 feet. In addition, these definitions take into account the use of corrective lenses and the eye with the best vision using corrective lenses.

Legal definitions are used for determining eligibility for government services (e.g., vocational rehabilitation for adults) rather than eligibility for special education and related services. In Illinois, the Bureau for the Blind Act defines blindness as

any person whose central visual acuity does not exceed 20/200 in the better eye with corrective lenses or a visually impaired person whose vision with best correction is 20/60 in the better eye, or with a field restriction of 105 degrees if monocular vision; 140 degrees if binocular vision (Bureau for the Blind Act, 20 ILCS 2410/2(e)).

The Illinois State Board of Education has an additional definition of visual impairment that is used to determine eligibility for special education and related services.

The Illinois Definition of Visual Disability

"Visual Impairment means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness" (Illinois State Board of Education, 2022).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(13)(2004).

Bureau for the Blind Act, 20 ILCS 2410/2(e).

Illinois State Board of Education. (2022, October 25). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx>

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8.2: The History of Blindness and Low Vision

In the United States, the education of students who were blind or had low vision began in the early 19th century. The [Perkins School for the Blind](#), founded in 1829, was the first school for the blind in the United States. In 1837, Ohio established the [Ohio State School for the Blind](#), the first state-supported residential school for the blind. In 1849, Illinois founded the [Illinois School for the Visually Impaired](#). However, it was not until 1879 that the American Printing House for the Blind (APH) received federal funding to supply braille books and apparatus for blind students nationwide. In 1936, APH obtained permission to publish books for children in the Talking Book format (i.e., audiobooks). The [National Federation of the Blind](#) and the [American Foundation for the Blind](#) have advocated for the civil rights of people who are blind or have low vision. In 1995, *The National Agenda for the Education of Children and Youths with Visual Impairments, Including Those with Multiple Disabilities*, which identifies specific educational goals for students who are blind or have low vision, was published. This document was revised in 2004 and has had a profound impact on the education of children who are blind or have low vision.

Activity 8.2.1: The National Agenda

Directions: Read [The National Agenda for the Education of Children and Youths with Visual Impairments, Including Those with Multiple Disabilities](#). How do the goals outlined in this document support the education of students who are blind or have low vision?

8.3: Prevalence of Blindness and Low Vision

Among students receiving special education services, less than 1% are identified as having a visual impairment (National Center for Education Statistics, 2020). It is important for educators and clinicians to know that some students who experience vision loss do not require special education and related services because their vision loss does not impact their educational performance.

National Center for Education Statistics. (2020). *Digest of education statistics*. https://nces.ed.gov/programs/digest/d19/tables/dt19_204.30.asp

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8.4: Causes of Blindness and Low Vision

Blindness and low vision have many different causes affecting different parts and functions of the eye, including optical defects, ocular motility disturbance, and external and internal problems of the eye (Smiley et al., 2022). Vision relies on an interaction between the eye and the brain. First, light passes through the cornea, which is the clear front layer of the eye. The cornea is shaped like a dome and bends light to help the eye focus. Some of this light enters the eye through an opening called the pupil. The iris, the colored part of the eye, controls how much light the pupil lets in. Next, light passes through the lens, a clear inner part of the eye. The lens works with the cornea to focus light correctly on the retina. When light hits the retina, a light-sensitive layer of tissue at the back of the eye, special cells called photoreceptors turn the light into electrical signals. These electrical signals travel from the retina through the optic nerve to the brain. The brain then turns the signals into images (National Eye Institute, 2022a).

Optical Defects

There are three major optical defects: myopia, hyperopia, and astigmatism. These are refraction errors. Refractive errors are a type of vision problem that makes it hard to see clearly. Refraction errors happen when the shape of the eye keeps light from focusing correctly on the retina.

- Myopia (i.e., nearsightedness) makes faraway objects look blurry.
- Hyperopia (i.e., farsightedness) makes nearby objects look blurry.
- Astigmatism can make faraway and nearby objects look blurry or distorted.

Symptoms of refraction errors include double vision, hazy vision, or a glare or halo around bright lights. Students may also experience headaches or eye strain or have trouble focusing when reading or looking at electronic devices (National Eye Institute, 2022b). Astigmatism is usually present at birth. However, myopia and hyperopia can develop throughout the lifespan (Smiley et al., 2022).

Ocular Motility Disturbance

Ocular motility disturbance refers to any abnormal eye alignment or difficulty controlling eye movements. These conditions involve the brain and the muscles that control eye movement and include strabismus, nystagmus, and amblyopia. Strabismus is a condition where the eyes are not facing in the same direction. It is a relatively common condition in children and may be present at birth. Symptoms of strabismus may include eyes that do not point in the same direction, double vision, and poor depth perception.

Amblyopia is a condition in which the brain fails to process the information from one eye. This may occur because one eye is misaligned (strabismus) and incorporating that information would cause double vision. It may also occur if one eye has much better vision than the other, and the brain selects the clearer image. Nystagmus is characterized by fast, uncontrollable eye movements. This may be present at birth (Houston Methodist, 2022).

Types of External Eye Problems

External eye problems may affect the orbit, eyelids, and cornea. Orbital problems may include protruding, recessed, or abnormally small eyeballs. Abnormalities of the eyelids include drooping of the upper eyelids, outward or inward rolling of the eyelids, eyelids that do not close completely, and inflammation of the lids or glands around the eye (Smiley et al., 2022). Students may also experience corneal problems such as growths, thinning of the cornea, and inflammation of the cornea, which can lead to problems with vision, pain, and tearing of the cornea (National Eye Institute, 2022c).

Types of Internal Eye Problems

There are also several conditions that may affect the internal components of the eye, such as retinopathy of prematurity (ROP). ROP is an eye disease that may occur in babies who are premature or who weigh less than 3 pounds at birth. ROP happens when

abnormal blood vessels grow in the retina. Some babies with ROP have mild cases and get better without treatment. But some babies need treatment to protect their vision and prevent blindness (National Eye Institute, 2022d).

In addition, retinitis pigmentosa (RP), a group of rare eye diseases that affect the retina, causes cells in the retina to break down slowly over time, causing vision loss. RP is genetic, with symptoms beginning in childhood, resulting in significant vision loss (National Eye Institute, 2022e). Cortical visual impairment (CVI) is a disorder caused by damage to the parts of the brain that process vision. A child with CVI has vision problems caused by their brain that cannot be explained by a problem with their eyes. Normally, the eyes send electrical signals to the brain, and the brain turns those signals into images. Children with CVI have trouble processing and understanding these signals. CVI is caused by an injury to the brain. These injuries usually happen before, during, or shortly after birth (National Eye Institute, 2022f). Finally, traumatic brain injury may also cause vision problems in children (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

National Eye Institute. (2022a). *How the eyes work*. <https://www.nei.nih.gov/learn-about-eye-health/healthy-vision/how-eyes-work>

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National Eye Institute. (2022f). *Cerebral visual impairment*. <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/cerebral-visual-impairment-cvi>

8.5: Characteristics of Students who are Blind or Have Low Vision

The characteristics of students who are blind or have low vision vary based on age of onset and severity of vision loss. For example, children born with congenital blindness may experience developmental delays without appropriate intervention. Vision influences development for young children by providing reasons for movement and exploration of one's environment (e.g., seeing a novel object and crawling toward it) and interaction with others. For young children who are blind or have low vision, it is important for adults to encourage their interaction with their environment, including interactions with other children.

In addition, children who are blind or have low vision may have problems associating words with concepts and generating various word meanings. For example, if a child has never seen a particular animal (e.g., bird), it may be difficult for them to describe the animal or its specific features (e.g., feathers) and what they do. Therefore, hands-on learning activities (e.g., touching a feather) are helpful when learning about new concepts or word meanings.

Finally, some students who are blind or have low vision may have trouble with proprioception or their awareness of their body in space, which is directly related to motor development. This is an important skill for students to learn because proprioception is needed for orientation (i.e., the process of using sensory input to know one's position in their environment) and mobility (i.e., moving about an environment safely and efficiently). Students who are blind or have low vision can successfully learn orientation and mobility skills when training is provided beginning in early childhood. Technology such as global positioning systems may also assist individuals with blindness or low vision to better navigate their environment (Smiley et al., 2022).

When working with students who are blind or have low vision, educators and clinicians need to arrange their classrooms or offices to optimize the use of a student's residual vision and other senses for learning. Special educators must be licensed specifically to teach students with low vision and blindness.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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8.6: Identifying Students Who Are Blind or Have Low Vision

Different professionals are involved in identifying vision loss and treating vision problems, including ophthalmologists, optometrists, and opticians. Ophthalmologists are medical doctors who identify and treat eye problems, prescribe medication, and perform surgery. Optometrists examine eyes for defects and problems in refraction and prescribe corrective lenses. Opticians make or sell optical devices and instruments. A low-vision specialist is an ophthalmologist or optometrist who specializes in assessing and treating individuals with 20/70 vision or worse.

When appropriate screenings and medical care are provided, most children with blindness or low vision are identified before four months of age. In addition, periodic vision screenings are usually required for school-age children. However, once a student is identified as having blindness or low vision, a comprehensive assessment that includes the components of functional vision, learning media assessment, and orientation and mobility skills is required (Smiley et al., 2022).

Functional Vision Assessment

Functional vision is the use of any residual vision to obtain information from the environment. For example, a student who is blind or has low vision may use residual vision to read printed materials with magnification and to navigate their environment safely. Assessing how well students can use their residual vision in functional ways is critical for providing special education and related services to these students. Functional vision assessment examines visual and behavioral skills (Smiley et al., 2022). The Perkins School for the Blind has developed a [Functional Vision Assessment Template](#) for educators and clinicians. Functional vision assessments are conducted by educators or clinicians who are specially trained to perform them and interpret the results.

Learning Media Assessment

A learning media assessment is used to help educators and clinicians select appropriate learning media and assistive technology (Smiley et al., 2022). For example, some students are able to use printed materials with magnification or enlarged print, whereas other students may use [braille](#) (i.e., a system of raised dots that can be read with the fingers). In addition, some students may also use screen readers (i.e., software programs that allow users to read the text that is displayed on a computer screen with a speech). The [National Reading Media Assessment](#) is a helpful tool for conducting learning media assessments.

Orientation and Mobility Skills Assessment

Assessments of orientation and mobility skills address concepts such as spatial orientation and special physical education needs and can determine how familiar the student is with their classroom, school, home, and community environments. An orientation and mobility specialist may also assess a student's use of special devices (e.g., a cane) (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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8.7: Chapter Questions and References

1. What is the IDEA definition of visual impairments?
2. What is the prevalence of students receiving special education services who are blind or have low vision?
3. What are the optical defects that cause vision loss?
4. What are the ocular motility conditions that cause vision loss?
5. What are the components of a comprehensive assessment?

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National Eye Institute. (2022d). *Retinopathy of prematurity*. <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/retinopathy-prematurity>

National Eye Institute. (2022e). *Retinitis pigmentosa*. <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/retinitis-pigmentosa>

National Eye Institute. (2022f). *Cerebral visual impairment*. <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/cerebral-visual-impairment-cvi>

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9: STUDENTS WITH PHYSICAL OR HEALTH DISABILITIES

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- 9.2: The History of Physical and Health Disabilities
- 9.3: University of Illinois Alumni Spotlight
- 9.4: Causes and Characteristics of Physical and Health Disabilities
- 9.5: Prevalence of Physical and Health Disabilities
- 9.6: Identifying Students with Physical or Health Disabilities
- 9.7: Chapter Questions and References

9.1: Definitions of Physical and Health Disabilities

Students with physical or health disabilities include those with orthopedic impairments, other health impairments, and traumatic brain injury under the Individuals with Disabilities Education Act (IDEA). The IDEA defines orthopedic impairment (OI) as the following.

Orthopedic impairment means a severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by a congenital anomaly, impairments caused by disease (e.g., poliomyelitis, bone tuberculosis), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures) (IDEA, Part B, Subpart A § 300.8(c)(8)(2004)).

Under IDEA, for a student to receive special education and related services, the OI must adversely affect their educational performance.

The IDEA defines other health impairment (OHI) as the following.

Other health impairment means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that—

- Is due to chronic or acute health problems such as asthma, attention-deficit disorder or attention-deficit/hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and

Adversely affects a child's educational performance (IDEA, Part B, Subpart A § 300.8(c)(9)(2004)).

- The final category included in this chapter is traumatic brain injury. The IDEA defines traumatic brain injury (TBI) as the following.

Traumatic brain injury means an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. Traumatic brain injury applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. Traumatic brain injury does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma (IDEA, Part B, Subpart A § 300.8(c)(12)(2004)).

The Illinois Definitions of Physical and Health Disabilities

“Orthopedic Impairment means a severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by disease (e.g., Poliomyelitis, bone tuberculosis, etc.), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures).

Other Health Impairment means having limited strength, vitality or alertness, including a heightened sensitivity to environmental stimuli, that results in limited alertness with respect to the educational environment that

- is due to chronic or acute health problems such as asthma, attention-deficit disorder or attention-deficit/hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, or sickle cell anemia; and
- adversely affects a child's educational performance.

Traumatic Brain Injury means an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory;

attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; psychosocial functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative or to brain injuries induced by birth trauma” (Illinois State Board of Education, 2022).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(8)(2004).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(9)(2004).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(12)(2004).

Illinois State Board of Education. (2022, October 25). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx>

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9.2: The History of Physical and Health Disabilities

Each physical and health disability category has a unique history. However, it was not until the 19th century that physicians began to understand the underlying causes of disorders such as cerebral palsy and epilepsy and the impact of viruses such as polio that resulted in physical and health disabilities. Before IDEA, many children with physical and health disabilities were denied access to a public education or segregated from their peers. Most school buildings could not accommodate wheelchairs or students with limited mobility. However, in 1975, the passage of the Education for All Handicapped Children Act guaranteed a free and appropriate public education for children with disabilities in the United States. This law included the concept of educating students in the least restrictive environment that also meets each student's educational needs. This law laid the groundwork for the programs we see in public schools today. Moreover, these disability categories continue to evolve as we learn more about different diseases and as new viruses emerge (e.g., human immunodeficiency virus, Zika, and coronavirus) that may result in the development of physical and health disabilities in children.

Activity 9.2.1: Disability Services at the University of Illinois

Directions: Read about the history of [Disability Services at the University of Illinois](#). The University of Illinois was the first post-secondary institution to provide a support service program enabling students with disabilities to attend. What new opportunities did this program provide to students with physical and health disabilities?

9.3: University of Illinois Alumni Spotlight

“If you think the UI’s admissions standards are tough now, imagine having to endure what future famed Springfield attorney Saul Morse did in the late 1960s.



Figure 9.3.1: Saul Morse, Attorney, Class of 1972

‘I am disabled and have always used a wheelchair. School in Philadelphia was for me an experience in quasi segregation as I was required to attend a school limited to students with disabilities,’ he says.

‘An uncle had read about the program for people with disabilities, the first and at the time one of the only ones in the country, in the American Medical Association Journal. He passed it on to my parents, and soon we were headed to Champaign for a preliminary interview.

‘Others from all over the country were applying for one of the approximately 25 slots allotted to those with disabilities.

‘I was provisionally admitted, the provisional part being that I had never bathed or dressed myself since no one thought I would ever be independent and thus did not need to know how. At Illinois, the program at the time required that you be totally independent and never need or accept assistance. I was given one week before new student week to prove I should stay.

‘Seeing ramps at street corners was a new experience since they did not exist anywhere else I had been, including major cities where I or my family lived. At the corner of Fourth and Gregory, I crossed the street with no help, no curb, along with everyone else, regardless of their abilities.

‘It was a lasting taste of freedom I have never forgotten.

‘My education, both as an undergraduate and as a law student, has served me much better than I had a right to expect, and the friendships have lasted a lifetime. The entire campus carries great meaning and memories, but I come back to that corner whenever I am in town for a fond remembrance of possibilities previously not thought to exist’” (The *News-Gazette*, 2022).

The *News-Gazette*. (2022, November 1). *Saul Morse. University of Illinois: 150 years and beyond*. <https://uofi150.news-gazette.com/people/saul-morse>

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9.4: Causes and Characteristics of Physical and Health Disabilities

Physical and health disabilities have many different causes and characteristics. Students with OIs often experience motor movement deficits that stem from damage to the central nervous system or loss of a limb. Students with OHIs may have contracted a virus or have another disease or disorder that impacts the operation of different organs. Students with TBIs may have different characteristics depending on the injury type, location, and severity (Smiley et al., 2022).

Orthopedic Impairments

Educators and clinicians working with students who have OIs are most likely to encounter cerebral palsy, spina bifida, and muscular dystrophy.

Cerebral Palsy

Cerebral palsy is a group of disorders that affect a person's ability to move and maintain balance and posture. Cerebral palsy is the most common orthopedic impairment in children and is caused by abnormal brain development or damage to the developing brain that affects a person's ability to control their muscles. The damage, which typically occurs before, during, or shortly after birth, does not progress over time.

The symptoms of cerebral palsy vary. A person with severe cerebral palsy might need to use special equipment to walk or might not be able to walk and need to use a wheelchair. Some people with cerebral palsy may also need an augmentative communication device to communicate with others. A person with mild cerebral palsy might not need any special equipment to walk. However, all people with cerebral palsy have problems with movement and posture. Many also have related conditions such as intellectual disability; seizures; problems with vision, hearing, or speech; changes in the spine (e.g., scoliosis); or joint problems (e.g., contractures).

Physicians classify cerebral palsy according to the main type of movement disorder and the location of the brain damage. This includes stiff muscles (i.e., spasticity), uncontrollable movements (i.e., dyskinesia), and poor balance and coordination (i.e., ataxia). There are four main types of cerebral palsy: spastic, dyskinetic, ataxic, and mixed cerebral palsy (CDC, 2022a).

Spina Bifida

Spina bifida, which affects the spine and is usually apparent at birth, is a type of neural tube defect. Spina bifida may occur anywhere along the spine if the neural tube does not close completely. When the neural tube does not close, the backbone that protects the spinal cord does not form and close as it should. This often results in damage to the spinal cord and nerves.

Spina bifida might cause physical and intellectual disabilities that range from mild to severe. The severity depends on the opening's size and location in the spine and whether it affects part of the spinal cord and nerves. The three most common types of spina bifida are spina bifida occulta, meningocele, and myelomeningocele.

Spina bifida occulta occurs when an opening exists in one or more of the spinal column vertebrae but there is no damage to the spinal cord itself. Meningocele occurs when the membranes surrounding the spinal cord, called meninges, protrude through a hole in the vertebrae, causing the development of a meningocele sac. As with spina bifida occulta, the meningocele does not damage the spinal cord.

The most severe and commonly diagnosed type of spina bifida is myelomeningocele, in which the spinal cord itself protrudes through the back so that the nerves themselves are exposed. Depending on where this sac is located, various degrees of neurological problems may result. The higher the sac forms, the more serious the neurological problem. Spina bifida may be diagnosed during pregnancy or after the baby is born. However, spina bifida occulta might not be diagnosed until late childhood or adulthood or may never be diagnosed (CDC, 2022b).

Muscular Dystrophy

Muscular dystrophies are a group of muscle diseases caused by mutations in a person's genes that result in muscle weakness and decreased mobility. There are different kinds of muscular dystrophy, each affecting specific muscle groups. Muscular dystrophy may be inherited, or a person may be the first in their family to have muscular dystrophy. There may be several different genetic types within each kind of muscular dystrophy, and people with the same kind of muscular dystrophy may experience different symptoms (CDC, 2022c).

Duchenne muscular dystrophy is the most prevalent kind of muscular dystrophy. Duchenne muscular dystrophy is usually inherited from the mother, who has a defective gene that regulates dystrophin, which is responsible for maintaining muscle fiber (Smiley et al., 2022). Duchenne muscular dystrophy usually affects the upper legs and upper arms first and may cause problems with the heart, lungs, throat, stomach, intestines, and spine (CDC, 2022c).

Other Health Impairments

Various health conditions may require special education or related services, including epilepsy, asthma, cystic fibrosis, and diabetes. Students with attention-deficit/hyperactivity disorder, discussed in Chapter 11, are also often provided services under this category.

Epilepsy

Epilepsy is a central nervous system disorder in which brain activity becomes abnormal, causing seizures or periods of unusual behavior, sensations, or loss of awareness. There are two types of seizures: focal seizures and generalized seizures.

Focal seizures result from abnormal activity in just one area of the brain. Generalized seizures involve all areas of the brain. There are two types of focal seizures: focal seizures without loss of consciousness and focal seizures with impaired awareness.

- **Focal seizures without loss of consciousness.** These seizures do not cause a loss of consciousness, but they may alter emotions or change how things look, smell, feel, taste, or sound. This type of seizure may also result in involuntary jerking of one body part (e.g., arm or leg) and spontaneous sensory symptoms such as tingling, dizziness, and flashing lights.
- **Focal seizures with impaired awareness.** These seizures involve a change or loss of consciousness or awareness. During a focal seizure with impaired awareness, a person may stare into space and not respond normally to their environment or perform repetitive movements such as hand rubbing, chewing, swallowing, or walking in circles.

There are six types of generalized seizures: absence seizures, tonic seizures, atonic seizures, clonic seizures, myoclonic seizures, and tonic-clonic seizures.

- **Absence seizures.** Absence seizures typically occur in children. They are characterized by staring into space with or without subtle body movements such as eye blinking and last between 5 and 10 seconds. These seizures may occur in clusters, happening as often as 100 times per day, and cause a brief loss of awareness.
- **Tonic seizures.** Tonic seizures cause stiff muscles and may affect consciousness. These seizures usually affect muscles in a person's back, arms, and legs and may cause them to fall to the ground.
- **Atonic seizures.** Atonic seizures cause a loss of muscle control. Because this most often affects the legs, it often causes a person to suddenly collapse or fall down.
- **Clonic seizures.** Clonic seizures are associated with repeated or rhythmic jerking muscle movements. These seizures usually affect the neck, face, and arms.
- **Myoclonic seizures.** Myoclonic seizures usually appear as sudden, brief jerks or twitches and usually affect the upper body, arms, and legs.
- **Tonic-clonic seizures.** Tonic-clonic seizures are the most serious type of epileptic seizure. They can cause an abrupt loss of consciousness, body stiffening, twitching, and shaking (Mayo Clinic, 2022a).

When dealing with a student who is having a tonic-clonic seizure, remove all nearby furniture and objects, lay the individual down, and turn their head to the side to help prevent breathing problems. It is also a good idea to put a soft folded object (e.g., a towel or jacket) under the student's head to prevent injuries. Do not put anything inside the student's mouth (Smiley et al., 2022).

For many children, epilepsy is controlled with medication and does not impact their educational performance (CDC, 2022d). However, epilepsy may be associated with different risk factors such as intellectual disabilities, concussions, abnormal areas in

the brain, and bleeding in the brain (Smiley et al., 2022).

Asthma

Asthma is a condition in which a person's airways narrow and swell and may produce extra mucus. This can make breathing difficult and trigger coughing, wheezing, and shortness of breath. For some students, asthma is a minor health concern that is easily controlled with medication. For others, it may be a major health concern that interferes with daily activities and may lead to a life-threatening asthma attack. Children may experience one of two types of asthma: exercise-induced asthma or allergy-induced asthma triggered by airborne substances such as pollen, mold spores, cockroach waste, or pet dander (Mayo Clinic, 2022b).

Asthma, food allergies, and high risk of anaphylaxis (i.e., severe allergic reaction) frequently co-occur, and asthma increases the risk of fatal anaphylaxis. Therefore, students who have severe asthma may carry adrenaline or epinephrine kits that can be self-administered. Educators and clinicians working with students with severe asthma should also be familiar with administering these kits (Smiley et al., 2022).

Cystic Fibrosis

Cystic fibrosis is an inherited disorder that causes severe damage to different organs in the body. Cystic fibrosis affects the cells that produce mucus, sweat, and digestive juices. These secreted fluids are normally thin and slippery, but in people with cystic fibrosis, a defective gene causes the secretions to become sticky and thick. Instead of acting as lubricants, the secretions block tubes, ducts, and passageways, especially in the lungs and pancreas. Cystic fibrosis is a progressive disease that requires medication and physical therapy to thin and dislodge mucus from airways in the lungs (Mayo Clinic, 2022c; Smiley et al., 2022).

Diabetes

Diabetes refers to a group of diseases that affect how the body uses blood sugar (i.e., glucose). Glucose is an important energy source for the cells that make up muscles and other tissues within the body. It's also the brain's main source of fuel. The main cause of diabetes varies by type and leads to excess sugar in the blood, which may cause serious health complications such as nerve damage.

Chronic diabetes conditions include Type 1 diabetes and Type 2 diabetes. Type 1 diabetes is often diagnosed in children. Type 2 diabetes may develop at any age. Children may have a genetic predisposition to develop diabetes, and certain environmental risk factors, such as diet, may contribute to the disease's development. The symptoms of diabetes include increased hunger, thirst, urination, and blurred vision. Both types of diabetes may be controlled with medication, diet, and exercise (Mayo Clinic, 2022d).

Traumatic Brain Injury

TBI usually results from a violent blow to the head or body. An object that goes through brain tissue may also cause TBI. Mild TBI may affect the brain's cells temporarily. However, moderate to severe TBI may result in bruising, torn tissues, bleeding, and other physical damage to the brain. These injuries may result in long-term complications or death.

TBIs have different physical and psychological effects. For example, some signs or symptoms may appear immediately after the traumatic event, whereas others may appear days or weeks later. The signs and symptoms of mild TBI may include the following:

- Headache
- Nausea or vomiting
- Fatigue or drowsiness
- Problems with speech
- Dizziness or loss of balance
- Sensory problems, such as blurred vision, ringing in the ears, a bad taste in the mouth, or changes in the ability to smell
- Sensitivity to light or sound
- Cognitive, behavioral, or mental symptoms
- Loss of consciousness for a few seconds to a few minutes
- No loss of consciousness, but a state of being dazed, confused, or disoriented
- Memory or concentration problems

- Mood changes or mood swings
- Feeling depressed or anxious
- Difficulty sleeping
- Sleeping more than usual

Moderate to severe TBI may include any of the signs and symptoms of mild injury, as well as the following symptoms that may appear within the first hours to days after the head injury.

- Loss of consciousness from several minutes to hours
- Persistent headache or headache that worsens
- Repeated vomiting or nausea
- Convulsions or seizures
- Dilation of one or both pupils of the eyes
- Clear fluids draining from the nose or ears
- Inability to awaken from sleep
- Weakness or numbness in fingers and toes
- Loss of coordination
- Cognitive or mental symptoms
- Profound confusion
- Agitation, combativeness, or other unusual behavior
- Slurred speech
- Coma and other disorders of consciousness

Infants and young children with TBI might be unable to communicate headaches, sensory problems, or confusion. Educators and clinicians may observe the following behaviors in a child with TBI.

- Change in eating or nursing habits
- Unusual or easy irritability
- Persistent crying and inability to be consoled
- Change in ability to pay attention
- Change in sleep habits
- Seizures
- Sad or depressed mood
- Drowsiness
- Loss of interest in favorite toys or activities (Mayo Clinic, 2022e)

Students with TBI may also experience cognitive symptoms such as changes in attention, information processing, and memory that may affect educational performance. Students with TBI may also experience behavioral symptoms such as irritability, aggression, lack of self-control, and hyperactivity (Smiley et al., 2022).

9.5: Prevalence or Physical and Health Disabilities

Among students receiving special education services, 15% are identified as having an OHI (National Center for Education Statistics, 2022). Less than 1% are identified as having an OI or a TBI (National Center for Education Statistics, 2020). The prevalence of TBI may also be underreported, as it is often diagnosed as attention-deficit/hyperactivity disorder or a specific learning disability. In addition, many students who have physical or health disabilities may never receive special education or related services because their disability does not adversely affect their educational performance (Smiley et al., 2022).

National Center for Education Statistics. (2022). Students with disabilities. *Condition of Education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

National Center for Education Statistics. (2020). *Digest of education statistics*. https://nces.ed.gov/programs/digest/d19/tables/dt19_204.30.asp

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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9.6: Identifying Students with Physical or Health Disabilities

Most students with OIs or OHIs are identified by physicians before or after birth. For example, amniocentesis (i.e., removal of a small amount of amniotic fluid), chorionic villus sampling (i.e., removal of tissue samples from the placental), and ultrasound (i.e., bouncing of sound waves off the fetus to produce a “picture”) are all prenatal procedures that can detect various physical or health disabilities before a child is born. In addition, physicians may use a variety of other medical tests to diagnose OIs and OHIs (e.g., blood tests, electromyography, computerized tomography, and magnetic resonance imaging) after a child is born. TBI is identified through medical procedures such as brain imaging and by observing the student’s physical symptoms (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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9.7: Chapter Questions and References

1. Which categories under IDEA comprise the area of physical and health disabilities?
2. What is the prevalence of students receiving special education services in each IDEA category comprising the area of physical and health disabilities?
3. What are the types and characteristics of the various types of cerebral palsy?
4. What are the names and characteristics of the different types of seizures?
5. What prenatal procedures can be used to identify many physical and health disabilities?

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Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(9)(2004).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(12)(2004).

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Mayo Clinic. (2022b). *Asthma*. <https://www.mayoclinic.org/diseases-conditions/asthma/symptoms-causes/syc-20369653>

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10: STUDENTS WITH AUTISM SPECTRUM DISORDER

Autism spectrum disorder (ASD) is a developmental disability that causes social, communication, and behavioral challenges. Before the most recent publication of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), there were various related diagnoses, including Asperger syndrome (or disorder) and pervasive developmental disorder–not otherwise specified (PDD–NOS). These diagnoses were removed in the current edition and were replaced with ASD. We will discuss the history of ASD later in this chapter.

10.1: Definitions of ASD

10.2: The History of ASD

10.3: Prevalence of ASD

10.4: Causes of ASD

10.5: Characteristics of Autism Spectrum Disorder

10.6: University of Illinois Alumni Spotlight

10.7: Identifying Students with Autism Spectrum Disorders

10.8: Chapter Questions and References

10.1: Definitions of ASD

The Individuals with Disabilities Education Act (IDEA) of 2004 provides the following definition of autism but does not currently define ASD.

Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally 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 movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.

- Autism does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance.
- A child who manifests the characteristics of autism after age three could be identified as having autism if the criteria of this section are satisfied (Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(1)(2004)).

The American Psychiatric Association (APA) Definition

The APA DSM defines ASD as the following.

- A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by all of the following, currently or by history (examples are illustrative, not exhaustive; see text):
 1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
 2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
 3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absences of interest in peers.
- B. Restrictive, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive, see text):
 1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypes, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
 2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take [the] same route or eat [the] same food every day).
 3. Highly restricted, fixed interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
 4. Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).
- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies later in life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- E. These disturbances are not better explained by intellectual developmental disorder (intellectual disability) or global developmental delay. Intellectual developmental disorder and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual developmental disorder, social communication should be below that expected for general developmental level.

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder—not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder (DSM-5-TR, 2022, p. 56–57).

Within the note in this definition, the authors of the DSM have included a new disorder called social (pragmatic) communication disorder. This disorder includes children with only language and social impairments. In addition, students diagnosed with ASD may also be classified using severity specifiers that describe the level of support the student may require.

The Illinois Definition of ASD

“Autism Spectrum Disorder (ASD) is a developmental disability that affects an individual’s ability to communicate (e.g., the ability to use language to express one’s needs) and the ability to engage in social interaction (e.g., the ability to engage in joint attention). This disability significantly affects verbal/nonverbal communication and social interaction, generally evident before age three, that adversely affects a child’s educational performance. Often other characteristics associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child’s educational performance is adversely affected primarily because the child has an emotional disturbance. The child’s performance, strengths, skills, deficits, and challenges associated with ASD will vary greatly from child to child.

Characteristics of Autism Spectrum Disorder (ASD)

- Intense reactions to sounds, smells, tastes, textures, lights, and/or colors
- Resistance to minor changes in routine or surroundings
- Delayed language development
- Loss of previously acquired speech or social skills
- Persistent repetition of words or phrases (echolalia)
- Difficulty understanding other people’s feelings
- Avoidance of eye contact
- Persistent preference for solitude” (Illinois State Board of Education, 2022)

Activity 10.1.1: Compare and Contrast

Directions: Compare and contrast the IDEA, APA, and Illinois definitions of autism and ASD. Consider the differences and similarities between the criteria included in each definition.

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(1)(2004)

American Academy of Pediatrics. (2021, April 20). *Autism spectrum disorder*. <https://www.aap.org/en/patient-care/autism/>

Illinois State Board of Education. (2022, September 27). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx>

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10.2: The History of ASD

In 1980, the APA officially acknowledged autism as a disorder. In 1990, the IDEA included autism as a disability category. However, multiple editions of the APA DSM since 1980 have significantly changed the diagnosis of autism and related disorders over time. In 1980, the DSM-III established the diagnosis of autism. However, based on a growing body of research, this diagnosis was eventually expanded to include related disorders such as Asperger's syndrome, PDD-NOS, childhood disintegrative disorder, and Rhett syndrome.

In the 1990s, researchers attempted to find specific sets of genes that contributed to each of these disorders. Instead, they found hundreds of genes that contributed to autism symptoms. Therefore, the DSM-IV changed the diagnosis of autism and related disorders to an all-inclusive diagnosis of autism with symptoms that ranged from mild to severe. Finally, the DSM-V introduced the term autism spectrum disorder (ASD) and removed all related disorders. This was a controversial change, and many individuals diagnosed with related disorders such as Asperger's syndrome were afraid of losing their identities and the medical and behavioral health benefits their diagnoses provided (Zeldovich, 2018; Smiley et al., 2022).

Activity 10.2.1: The Problematic History of Hans Asperger

Directions: The Austrian pediatrician Hans Asperger has long been recognized as a pioneer in the study of autism. However, it is now indisputable that Asperger collaborated in the murder of children with disabilities in Nazi-era Vienna. Read [Hans Asperger, National Socialism, and "race hygiene" in Nazi-era Vienna](#) by Herwig Czech.

Zeldovich, L. (2018, May 9). *The evolution of "autism" as a diagnosis, explained*. Spectrum. <https://www.spectrumnews.org/news/evolution-autism-diagnosis-explained/>

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10.3: Prevalence of ASD

Among students receiving special education services, 12% are identified as having autism (National Center for Education Statistics [NCES], 2022). The Centers for Disease Control and Prevention (CDC) reports that males are four times more likely to be diagnosed with ASD than females (CDC, 2022). However, not all students with ASD require special education and related service; therefore, the prevalence may be higher than reported by the NCES.

National Center for Education Statistics. (2022). Students with disabilities. *Condition of Education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>.

Centers for Disease Control and Prevention. (2022, March 2). *Data and statistics on autism spectrum disorder*. <https://www.cdc.gov/ncbddd/autism/data.html>

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10.4: Causes of ASD

The cause of ASD is unknown. However, evidence supports that there may be both genetic and environmental causes. It is generally accepted that ASD is a result of abnormalities in brain structure or brain function and that genetic and environmental factors may cause these abnormalities.

For example, there is evidence that the brains of children with ASD are larger than those of their peers without ASD, but as they age, the difference in size is reduced. This is referred to as the “growth dysregulation hypothesis” and may be caused by genetic defects in brain growth factors. In addition, twin studies have indicated that an identical twin of an individual with ASD is also likely to have ASD, and parents who have a child with ASD are also more likely to have another child with ASD. Researchers believe that ASD is a complex disorder that most likely results from multiple gene abnormalities (Autism Speaks, 2022; Smiley et al., 2022).

In addition, there is evidence that environmental factors may influence the development of the disorder in genetically susceptible children during vulnerable periods of development. Environmental factors that have been identified as possible causes include problems during pregnancy and delivery (e.g., oxygen deprivation at birth), viral infections (e.g., rubella, measles, mumps, polyomaviruses, cytomegalovirus, and influenza), and metabolic imbalances (e.g., purine and pyrimidine disorders). However, extensive research has proven that vaccines do not cause autism (Smiley et al., 2022).

Autistic Self-Advocacy Network (2022). *About autism*. <https://autisticadvocacy.org/about-asan/about-autism/>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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10.5: Characteristics of Autism Spectrum Disorder

Students with ASD exhibit a wide range of characteristics. However, students with ASD often exhibit problems with social communication and interaction and exhibit restricted or repetitive behaviors. Examples of problems with social communication and interaction include the following.

- Inability to make or keep eye contact
- Decreased facial recognition
- Limited ability to share interests or achievements
- Difficulty initiating social interactions or maintaining friendships

Deviations in language development may also contribute to problems with social communication. For example, some students with ASD may have limited speech or may not speak. In addition, some students may display characteristics such as echolalia, the repetition of words and phrases said to them. Echolalia may be immediate or delayed, where the child repeats a previously heard word or phrase hours, days, or weeks later. Other less prevalent language characteristics are palilalia, when a student repeats their own words; echopraxia, the repetition of others' gestures and movements; and the use of neologisms (i.e., made-up words). Students with ASD may also use inappropriate pronouns or sentences that are less complex than those used by their peers without ASD (Smiley et al., 2022).

Examples of restricted or repetitive behaviors include the need for a routine, engaging in repetitive motor movements (e.g., rocking back and forth, hand flapping, hand wringing), repetitive play (e.g., repeatedly spinning the wheels on a truck), an unusual attachment to particular objects or toys, and obsession with particular topic areas (e.g., baseball statistics) or interests (e.g., dinosaurs). Deficits in executive functioning—the skills that enable individuals to plan, focus attention, and remember—may also contribute to these types of behaviors.

Students with ASD may also display characteristics related to sensory and motor functions, such as an abnormal response to sensory stimuli, including response to sound, smell, taste, tactile input, or visual stimuli; reduced sensitivity to pain, heat, or cold; and abnormal eating and sleeping behaviors. For example, a student with ASD may be overresponsive or underresponsive to loud noises or hypersensitive to smells in the environment.

Students with ASD may also experience developmental delays as well as co-occurring disorders such as learning disabilities, intellectual disabilities, and emotional or behavioral disorders (e.g., depressive disorders, anxiety disorders, and schizophrenia spectrum disorders). Some students may also experience health disorders such as seizure disorders, gastrointestinal disorders, and attention deficit hyperactivity disorder (Autistic Self-Advocacy Network, 2022; Smiley et al., 2022).

Finally, it is important to note that students with ASD may also have significant strengths. For example, it is generally accepted that students with ASD have strong visual processing skills (Smiley et al., 2022). Educators and clinicians must remember that students with ASD may exhibit a wide range of characteristics that require individualized instruction and intervention.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

Autistic Self-Advocacy Network (2022). *About autism*. <https://autisticadvocacy.org/about-asan/about-autism/>

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10.6: University of Illinois Alumni Spotlight

“Mary Temple Grandin graduated with a Ph.D. from the College of Agricultural, Consumer, and Environmental Sciences at the University of Illinois Urbana-Champaign in 1989. Dr. Grandin is a well-known professor of animal sciences, but she is best known for being one of the first individuals with ASD to speak out about her experience. She has authored several books and articles about her personal experiences as well as research regarding livestock. In 2010, Dr. Grandin was named one of *Time* Magazine’s most influential people in the world. She has received numerous awards and honorary degrees, and in February 2017, she was named to the National Women’s Hall of Fame” (University of Illinois Urbana-Champaign, 2022).



Figure 10.6.1: Mary Temple Grandin, Class of 1989

University of Illinois Urbana-Champaign. (2022). *Mary Temple Grandin*. Retrieved December 6, 2022, from <https://gec150.web.illinois.edu/1980s/mary-temple-grandin/#illinois%20#wggpillino>

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10.7: Identifying Students with Autism Spectrum Disorders

Diagnosing ASD can be difficult because there are no medical tests (e.g., blood tests) that are used to diagnose the disorder. A medical professional examines a child's developmental history and behavior to make a diagnosis. By age two, a diagnosis by an experienced medical professional is considered reliable. However, many children do not receive a diagnosis until they are much older, which delays their ability to access appropriate special education and related services.

Medical professionals should monitor a child's development at [well-child visits](#) and screen children for ASD at 18 and 24 months (American Association of Pediatrics, 2021). Screening instruments are designed to help identify young children who warrant further attention. One example is the Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R/F, Robins et al., 2009). With its use, medical professionals classify a child's risk of having autism as low, medium, or high based on caregivers' answers to 20 questions (Smiley et al., 2022).

At these visits, medical professionals should also be asking caregivers about typical developmental milestones, or skills that most children reach by a certain age. The CDC has developed a collection of resources on their [Learn the Signs. Act Early.](#) web page, which outlines typical developmental milestones and includes an app that helps caregivers monitor their child's development.

For a medical professional or psychologist to make a diagnosis, specific criteria must be met (see the APA definition). Additional medical screening may also be required to exclude other developmental disabilities or conditions such as communication disorders, hearing impairment, or intellectual disability. In addition, specific tests have been designed to identify ASD, including the Autism Diagnostic Observation Schedule, Second Edition (Lord et al., 2012), and the Autism Diagnostic Interview-Revised (Rutter et al., 2003). However, the tests that are used depend on the child's age. While many students with ASD are identified before they begin school, educators and clinicians play a significant role in identifying ASD and supporting students with ASD, which may include but is not limited to special education, speech and language instruction, occupational therapy, and physical therapy (Smiley et al., 2022).

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10.8: Chapter Questions and References

1. What is the IDEA definition of autism?
2. What is the prevalence of AS?
3. What role do genetics play in ASD?
4. What are the common characteristics of ASD?
5. When are children usually screened for ASD?

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Centers for Disease Control and Prevention. (2022, March 2). *Data and statistics on autism spectrum disorder*. <https://www.cdc.gov/ncbddd/autism/data.html>

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11: STUDENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Attention-deficit/hyperactivity disorder (ADHD) is not considered a separate disability category under the Individuals with Disabilities Education Act (IDEA). However, it is classified under Other Health Impairment (OHI) when special education and related services are required.

Other health impairment means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that—

- Is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and
- Adversely affects a child's educational performance (Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(9)(2004)).

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(9)(2004)

[11.1: Definitions of Attention-Deficit/Hyperactivity Disorder](#)

[11.2: The History of Attention-Deficit/Hyperactivity Disorder](#)

[11.3: Prevalence of Attention-Deficit/Hyperactivity Disorder](#)

[11.4: Causes of Attention-Deficit/Hyperactivity Disorder](#)

[11.5: Characteristics of Attention-Deficit/Hyperactivity Disorder](#)

[11.6: Identifying Students with Attention-Deficit/Hyperactivity Disorder](#)

[11.7: Chapter Questions and References](#)

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11.1: Definitions of Attention-Deficit/Hyperactivity Disorder

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) of the American Psychiatric Association defines attention-deficit/hyperactivity disorder as the following.

- A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):
1. **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities: (**Note:** The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.)
 - a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
 - b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).
 - c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
 - d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).
 - e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
 - f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).
 - g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
 - h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
 - i. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).
 2. **Hyperactivity and impulsivity:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities: (**Note:** The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.)
 - a. Often fidgets with or taps hands or feet or squirms in seat.
 - b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).
 - c. Often runs about or climbs in situations where it is inappropriate. (**Note:** In adolescents or adults, may be limited to feeling restless).
 - d. Often unable to play or engage in leisure activities quietly.
 - e. Is often “on the go,” acting as if “driven by a motor” (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).
 - f. Often talks excessively.
 - g. Often blurts out an answer before a question has been completed (e.g., completes other people’s sentences; cannot wait for turn in conversation).
 - h. Often has difficulty waiting his or her turn (e.g., waiting in line).
 - i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people’s things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).
- B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.
- C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).
- D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.
- E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal) (DSM-5-TR, 2022, p. 68–69).

The DSM also defines ADHD as mild, moderate, or severe based on the following criteria.

Mild: Few, if any, symptoms in excess of those required to make the diagnosis are present, and symptoms result in no more than minor impairments in social or occupational functioning.

Moderate: Symptoms or functional impairment between “mild” and “severe” are present.

Severe: Many symptoms in excess of those required to make the diagnosis, or several symptoms that are particularly severe, are present, or the symptoms result in marked impairment in social or occupational functioning (DSM-5-TR, 2022, p. 70).

The Illinois Definitions of Physical and Health Disabilities

“Other Health Impairment means having limited strength, vitality or alertness, including a heightened sensitivity to environmental stimuli, that results in limited alertness with respect to the educational environment that

- is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, or sickle cell anemia; and
- adversely affects a child’s educational performance” (Illinois State Board of Education, 2022).

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed. Text Revision). <https://doi.org/10.1176/appi.books.9780890425596>

Illinois State Board of Education. (2022, September 27). *Special education disability areas*. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx>

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11.2: The History of Attention-Deficit/Hyperactivity Disorder

ADHD has gained attention in recent years, but the condition was first described in 1902 by George F. Still, a British physician. He presented a series of papers to the Royal College of Physicians describing children with a variety of characteristics, including attention problems and hyperactivity. In the 20th century, professionals began recognizing what would eventually become ADHD as a specific disorder and that students with this disorder had unique educational needs.

In the 1960s, the second edition of the DSM defined the term *hyperkinetic reaction disorder of childhood*. In the 1970s, professionals shifted their research interest from hyperactivity to attention problems, which resulted in the introduction of the term *attention deficit disorders with or without hyperactivity* in the third edition of the DSM. In 1987, the DSM removed the *hyperactivity* option and replaced it with *undifferentiated attention deficit disorder*. In 1994, the current term, *attention-deficit/hyperactivity disorder*, was introduced (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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11.3: Prevalence of Attention-Deficit/Hyperactivity Disorder

Among children aged 3 to 17 years, approximately 9% are identified as having ADHD. Improved education and awareness have increased the disorder's prevalence significantly in recent years (CDC, 2022). Although ADHD is not included as a separate disability category under IDEA, it is included under OHI.

Centers for Disease Control and Prevention. (2002, November 5). *Attention deficit hyperactivity disorder*. <https://www.cdc.gov/nchs/fastats/adhd.htm>

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11.4: Causes of Attention-Deficit/Hyperactivity Disorder

ADHD is generally accepted as a neurological disorder. Research has shown that the prefrontal lobe, the basal ganglia, and the cerebellum are impacted in individuals with ADHD (Krain & Castellanos, 2006). The prefrontal lobe plays a central role in cognitive control functions, influencing attention and impulse inhibition. The basal ganglia and cerebellum are associated with motor behavior and may play a role in controlling hyperactivity. There is also evidence that ADHD may be genetic. It is estimated that between 40 to 60% of children of a parent with ADHD will also have ADHD (National Institute of Mental Health, 2022; Smiley et al., 2022).

Krain, A., & Castellanos, F.X. (2006). Brain development and ADHD. *Clinical Psychology Review*, 26, 433-444.

National Institute of Mental Health. (2022, September). *Attention-deficit/hyperactivity disorder*. <https://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

11.5: Characteristics of Attention-Deficit/Hyperactivity Disorder

The DSM includes specific characteristics that are used to diagnose an individual with ADHD. The characteristics associated with ADHD vary by age. Young children typically demonstrate excessive gross motor behavior associated with hyperactivity, such as the inability to stay seated in the classroom. They may also seem fidgety or restless and may be unable to complete tasks. In addition, some students may appear to be engaged but are not attending to the task. These students, more often girls, are underdiagnosed in the early elementary grades (Quinn & Madhoo, 2014). During adolescents, signs of hyperactivity become less common, but students may still experience restlessness or impatience (DSM-5-TR, 2022). Research has shown that as children age, the hyperactivity-impulsivity characteristics tend to decrease, but the inattentive characteristics remain. This results in academic challenges as students are required to engage in more challenging and independent work as they age. In addition, some students with ADHD may experience relationship difficulties. For example, students with ADHD may experience difficulty regulating their emotions or identifying emotions in others, which inhibits relationship building (Smiley et al., 2022).

Coexistence With Other Exceptionalities

The coexistence, or comorbidity, of ADHD with other exceptionalities is well documented. These include psychological disorders such as oppositional defiant disorder, conduct disorder, [disruptive mood dysregulation disorder](#), and anxiety and depressive disorders. In addition, approximately 20 to 30% of students with ADHD also have a specific learning disability (LDA, 2022).

Quinn, P. O. & Madhoo, M. (2014). *A review of attention-deficit/hyperactivity disorder in women and girls: Uncovering this hidden diagnosis*. <https://www.psychiatrist.com/pcc/neurodevelopmental/adhd/review-attention-deficit-hyperactivity-disorder-women/>

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed. Text Revision). <https://doi.org/10.1176/appi.books.9780890425596>

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Learning Disabilities Association of America. (2022). *Affects focus, attention and behavior and can make learning challenging*. <https://ldaamerica.org/disabilities/adhd/>

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11.6: Identifying Students with Attention-Deficit/Hyperactivity Disorder

The identification of individuals with ADHD is a comprehensive process that involves multiple measures such as interviews, academic testing, and observation. If a student is exhibiting ADHD symptoms, the first step is a medical evaluation to rule out other medical problems that might be causing the inattention, hyperactivity, or impulsivity (Smiley et al., 2022).

If students are exhibiting symptoms of ADHD before they enter school, they will most likely be diagnosed by their primary healthcare provider (e.g., pediatrician) or a mental health professional (e.g., psychologist or psychiatrist). Once a child enters school, a teacher may identify them for the school's pre-referral process. If the pre-referral interventions are not successful, a formal referral is made for evaluation to determine eligibility for special education and related services. The pre-referral and referral process may include the students' teachers, the special education teacher, and the school psychologist, as well as the student's pediatrician or primary care physician.

Often, parents and teachers are interviewed by a clinician, such as a school psychologist. Parent and teacher interviews provide information about the student's current behavior across multiple settings. When appropriate, the student may also be interviewed about their perspective regarding their behavior, which gives the clinician an opportunity to observe the student. The school psychologist may also use ADHD-specific rating scales such as the Attention-Deficit/Hyperactivity Disorder Test (Gilliam, 2015) and the Conners Rating Scale-Revised (Conners, 2008). Finally, both educators and school psychologists may directly observe a student's behavior in different settings to document the frequency of problematic behaviors and the duration of behaviors. For example, a classroom teacher may document how long a student is able to focus on a task (Smiley et al., 2022).

It is important to note that medication is the primary intervention for students with ADHD. However, students should also receive behavioral interventions that promote the use of self-regulation strategies in and outside of school.

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Conners, C. (2008). *Conners rating scale-Revised* (3rd ed.). Multi-Health Systems.

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11.7: Chapter Questions and References

1. What is the APA definition of ADHD?
2. What are the three types of ADHD?
3. What is the prevalence of ADHD?
4. What areas of the brain are thought to be involved in ADHD?
5. Who is involved in the identification of a student with ADHD?

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Krain, A., & Castellanos, F.X. (2006). Brain development and ADHD. *Clinical Psychology Review*, 26, 433-444.

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Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

12: STUDENTS WITH SEVERE DISABILITIES

12.1: The Illinois Definition of Severe Disabilities

12.2: The History of Severe Disabilities

12.3: Prevalence of Severe Disabilities

12.4: Causes and Characteristics of Severe Disabilities

12.5: Identifying Students with Severe Disabilities

12.6: Chapter Questions and References

12.1: The Illinois Definition of Severe Disabilities

Severe disabilities include two disability categories, multiple disabilities and deaf-blind, as well as other combinations of disability categories. The Individuals with Disabilities Education Act (IDEA) defines multiple disabilities as “concomitant impairments (such as intellectual disability-blindness or intellectual disability-orthopedic impairment), the combination of which causes such severe educational needs that cannot be accommodated in special education programs solely for one of the impairments. Multiple disabilities does not include deaf-blindness” (IDEA, Part B, Subpart A § 300.8(c)(7)(2004)). This definition states that the presence of multiple disabilities requires additional special education or related services. Deaf-blindness is a separate category.

The IDEA defines *deaf-blindness* as “concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness” (IDEA, Part B, Subpart A § 300.8(c)(2)(2004)). For a student to qualify for services in this category, their visual and hearing challenges need not meet the threshold for legal deafness or blindness. However, the combination of the two disabilities increases the student’s educational needs.

The Illinois Definition of Severe Disabilities

The Illinois State Board of Education does not have a specific definition for severe disabilities. It does, however, include the following definitions for multiple disabilities and deaf-blindness.

- “Multiple Disabilities means concomitant impairments (such as intellectual disability-blindness or intellectual disability-orthopedic impairment), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. Multiple disabilities does not include deaf-blindness.
- Deaf-Blindness means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness” (ISBE, 2022).

Note that the federal definition and the Illinois definition are exactly the same.

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(2)(2004)

Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(7)(2004)

Illinois State Board of Education. (2022, September 27). Special education disability areas. <https://www.isbe.net/Pages/Special-Education-Disability-Areas.aspx>

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12.2: The History of Severe Disabilities

The history of the treatment of people with severe disabilities is similar to that of the treatment of people with intellectual disabilities (see [Chapter 4](#)). Before the establishment of advocacy organizations (e.g., The ARC), many people with severe disabilities were institutionalized. In 1975, the Education for All Handicapped Children Act 94-142 was passed, which required all public schools to provide equal access to an education for all students with disabilities. Today, the Rehabilitation Act and Americans with Disabilities Act secure the rights of individuals with severe disabilities to equal opportunity and equal protection under the law.

One driving factor that specifically spurred action for children with severe disabilities was a rubella outbreak in the 1960s. This outbreak resulted in a large number of children with severe disabilities, which rallied parental support around the movement to deinstitutionalize individuals with severe disabilities and to pass the Education for All Handicapped Children Act 94-142 (Smiley et al., 2022). However, many people with severe disabilities continue to fight for equal access to an inclusive education. Advocacy organizations such as [The Association for Persons with Severe Handicaps](#) (now called TASH) continue to play an important role in ensuring the rights of people with severe disabilities.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

12.3: Prevalence of Severe Disabilities

Among students receiving special education services, 2% are identified as having multiple disabilities, and less than 1% are identified as deaf-blind (National Center for Education Statistics [NCES], 2022). In 2021, The National Center on Deaf-Blindness reported that 10,336 children receiving special education services were categorized as deaf-blind in the United States (National Center on Deaf-Blindness, 2022).

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12.4: Causes and Characteristics of Severe Disabilities

The causes and characteristics of severe disabilities vary by student. This section of the chapter will provide an overview of common causes and characteristics but does not provide a comprehensive list. Severe disabilities may be caused by both genetic and environmental factors, including chromosomal disorders (e.g., Hurler syndrome, Tay-Sachs disease); prenatal (e.g., the use of drugs or alcohol by the pregnant mother), perinatal (e.g., anoxia and other birth-related injuries), or postnatal trauma (e.g., childhood diseases and infections); and childhood head injuries and exposure to environmental toxins. In addition, the lack of early intervention or appropriate health-related services may contribute to a mild disability becoming more severe as a child develops.

Intellectual disability is often one of the disabilities experienced by students with severe disabilities. However, that may not always be the case. For example, a student may experience severe physical and health disabilities and demonstrate above-average intellectual abilities. In addition, students with severe disabilities may experience developmental delays impacting motor function, speech and language, cognition, and social and emotional development (Smiley et al., 2022). Students with severe disabilities may require a wider range of related services, including nursing and other health-related services in school. However, it is important to ensure that these students experience an inclusive education and that educators and clinicians work to actively facilitate the development of relationships between students with and without disabilities

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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12.5: Identifying Students with Severe Disabilities

Severe disabilities, especially those disabilities that are congenital (i.e., present at birth), are usually identified by medical professionals before a child begins school. Assessments to identify young children with severe disabilities include neonatal screening, medical evaluations, and developmental assessments. In addition, a social worker may be employed to evaluate the needs of a family with a child who has severe disabilities (e.g., health care, child care, food assistance). However, some genetic conditions (e.g., Tay-Sachs disease) are not evident at birth and may develop over time. In addition, a physical or sensory disability could lead to a secondary disability, such as a communication disorder, if a child does not receive appropriate early intervention services. Therefore, multiple and severe disabilities may emerge as a child develops.

Once a child enters school, the child and family will be engaged in the special education referral process, which may include multiple assessments based on the student's needs. The focus for students with severe disabilities is often on their ability to function in various environments (e.g., school, home, community) and what interventions they need to function as independently as possible (e.g., augmentative or alternative communication systems, orientation and mobility assistance, and school-based health services) (Smiley et al., 2022). See Chapters 7 and 8 for a discussion on the identification of students who are blind or have low vision and for students who are deaf or hard of hearing.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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12.6: Chapter Questions and References

1. What two federal categories can be considered severe disabilities?
2. What is the prevalence of severe disabilities?
3. What are the causes of severe disabilities?
4. When are most students with severe disabilities identified?
5. What are some ways severe disabilities are identified in young children?

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Individuals With Disabilities Education Act, Part B, Subpart A § 300.8(c)(7)(2004)

National Center on Deaf-Blindness. (2022). *2021 National deaf-blind child count*. <https://www.nationaldb.org/products/national-child-count/report-2021>

National Center for Education Statistics. (2022). Students with disabilities. *Condition of Education*. U.S. Department of Education, Institute of Education Sciences. Retrieved August 30, 2022, from <https://nces.ed.gov/programs/coe/indicator/cgg>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

13: AT-RISK STUDENTS

In [Chapter 1](#), we learned that early intervention services are provided to infants and toddlers under the age of 3 who have a disability or are exhibiting developmental delays. These children are considered at-risk infants and toddlers. In this chapter, we will discuss the federal and state definitions of *at-risk* and how at-risk students are identified.

13.1: Definitions of At-Risk

13.2: The History of Head Start and At-Risk Programming

13.3: Prevalence of At-Risk Students

13.4: At-Risk Factors

13.5: Identifying At-Risk Students

13.6: Chapter Questions and References

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13.1: Definitions of At-Risk

The Individuals with Disabilities Education Act (IDEA) defines an at-risk infant or toddler as

an individual under three years of age who would be at risk of experiencing a substantial developmental delay if early intervention services were not provided to the individual. At the state's discretion, at-risk infant or toddler may include an infant or toddler who is at risk of experiencing developmental delays because of biological or environmental factors that can be identified (including low birth weight, respiratory distress as a newborn, lack of oxygen, brain hemorrhage, infection, nutritional deprivation, a history of abuse or neglect, and being directly affected by illegal substance abuse or withdrawal symptoms resulting from prenatal drug exposure). (IDEA, Part B, Subpart A § 3005.5(2004)).

As stated in the IDEA definition, states have the authority to identify eligibility criteria. In Illinois, the Illinois General Assembly has defined at-risk infants or toddlers as the following:

- a. "Eligible infants and toddlers" means infants and toddlers under 36 months of age with any of the following conditions:
 1. Developmental delays.
 2. A physical or mental condition which typically results in developmental delay.
 3. Being at risk of having substantial developmental delays based on informed clinical opinion.

Either (A) having entered the program under any of the circumstances listed in paragraphs (1) through (3) of this subsection but no longer meeting the current eligibility criteria under those paragraphs, and continuing to have any measurable delay, or (B) not having attained a level of development in each area, including (i) cognitive, (ii) physical (including vision and hearing), (iii) language, speech, and communication, (iv) social or emotional, or (v) adaptive, that is at least at the mean of the child's age equivalent peers; and, in addition to either item (A) or item (B), (C) having been determined by the multidisciplinary individualized family service plan team to require the continuation of early intervention services in order to support continuing developmental progress, pursuant to the child's needs and provided in an appropriate developmental manner. The type, frequency, and intensity of services shall differ from the initial individualized family services plan because of the child's developmental progress, and may consist of only service coordination, evaluation, and assessments.

"Eligible infants and toddlers" includes any child under the age of 3 who is the subject of a substantiated case of child abuse or neglect as defined in the federal Child Abuse Prevention and Treatment Act.

- b. "Developmental delay" means a delay in one or more of the following areas of childhood development as measured by appropriate diagnostic instruments and standard procedures: cognitive; physical, including vision and hearing; language, speech, and communication; social or emotional; or adaptive. The term means a delay of 30% or more below the mean in function in one or more of those areas.
- c. "Physical or mental condition which typically results in developmental delay" means
 1. a diagnosed medical disorder or exposure to a toxic substance bearing a relatively well known expectancy for developmental outcomes within varying ranges of developmental disabilities; or
 2. a history of prenatal, perinatal, neonatal or early developmental events suggestive of biological insults to the developing central nervous system and which either singly or collectively increase the probability of developing a disability or delay based on a medical history.
- d. "Informed clinical opinion" means both clinical observations and parental participation to determine eligibility by a consensus of a multidisciplinary team of 2 or more members based on their professional experience and expertise. (Early Intervention Services System Act, 2022)

In addition, once a child enters school, they may be considered at risk of academic failure because of additional environmental risk factors such as living in poverty or suffering adverse childhood experiences such as abuse or neglect. The Illinois State Board of Education has a broader definition of at-risk that applies to all school-age students.

The Illinois State Board of Education Definition for At Risk

The Illinois State Board of Education states that “risk factors are those variables found in individuals, families, communities, schools, and peers that put youth at greater risk of participating in delinquent and risky behaviors or developing mental, emotional, physical or behavioral disorders. For example, a youth exposed to physical and emotional abuse is more likely to develop mental, emotional, physical or behavioral problems than a youth who has not experienced trauma” (ISBE, 2022).

Activity 13.1.1: Compare and Contrast

Directions: Compare and contrast the IDEA, Illinois General Assembly, and Illinois State Board of Education definitions for at-risk.

States provide different early intervention services that are funded by both federal and state money. For example, Head Start is one federally funded program that provides comprehensive early childhood education, health, nutrition, and other social services to at-risk children and their families.

Illinois' Early Intervention Services

In addition to Head Start programs, Illinois also provides at-risk infants and toddlers and their families access to the following programs:

- [Preschool for All](#) and [The Prevention Initiative](#), which provide funds for preschool, home visits, and center-based infant and toddler care for at-risk children.
- Title I Preschool, which provides funding for preschools associated with K-12 schools and other local education agencies with a concentration of low-income children.
- [The Child Care Assistance Program](#), which provides childcare subsidies to low-income working families and those engaged in education or training activities to pay for childcare.
- [The Illinois Early Intervention Program](#), which provides resources and supports to infants and toddlers with diagnosed disabilities or developmental issues.

Individuals With Disabilities Education Act, Part B, Subpart A § 300.5(2004)

Early Intervention Services System Act, 325 ILCS 20. (2022) <https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1463&ChapterID=32>

Illinois State Board of Education. (2022, December 15). *Risk factors*. <https://www.isbe.net/Pages/Risk-Factors.aspx>

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13.2: The History of Head Start and At-Risk Programming

In the 1960s, Lyndon B. Johnson's administration, influenced by research on the effects of poverty on children, assembled a group of experts to develop a program that supported the needs of young children living in poverty who were at risk of school failure. This program was called Head Start, and it promoted the school readiness of young children from low-income families through agencies in their local community. Currently, Head Start grants are administered by the United States Department of Health and Human Services, Administration for Children and Families (U.S. Department of Health and Human Services Office of Head Start, 2022a).

Since Head Start's inception, researchers have continued to examine factors that contribute to a child's being identified as at-risk for developmental delay and school failure. In 1994, the Carnegie Foundation published a report, "Starting Points: Meeting the Needs of Our Youngest Children," that highlighted the importance of the first 3 years of life for subsequent healthy development and cited factors that were contributing to a "quiet crisis" that included rising rates of child abuse and neglect (Carnegie Corporation of New York, 1994).

In 2000, the National Research Council and the Institute of Medicine of the National Academies published a report, "From Neurons to Neighborhoods: The Science of Early Childhood Development," that concluded there are "striking disparities in what children know and can do [which] are evident well before they enter kindergarten. These differences are strongly associated with social and economic circumstances, and they are predictive of subsequent academic performance" (National Research Council and Institute of Medicine Committee on Integrating the Science of Early Childhood Development, 2000). These two reports spurred policymakers to support Head Start and other early childhood programs focused on early intervention services for at-risk children.

Activity 13.2.1: Head Start in Illinois

Directions: Learn more about Head Start programs in Illinois by visiting the [Illinois Head Start Association](#). Search for a local Head Start program near you. What services does Head Start provide to children and their families?

U.S. Department of Health and Human Services Office of Head Start. (2022a). *Head Start history*. <https://www.acf.hhs.gov/ohs/about/history-head-start>

Carnegie Corporation of New York. (1994). *Starting points: Meeting the needs of our youngest children*. <https://www.carnegie.org/publications/starting-points-meeting-the-needs-of-our-youngest-children/>

National Research Council and Institute of Medicine Committee on Integrating the Science of Early Childhood Development. (2000). *From neurons to neighborhoods: The science of early childhood*. <https://pubmed.ncbi.nlm.nih.gov/25077268/>

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13.3: Prevalence of At-Risk Students

In 2020, approximately 3% of all children from birth through age 3 received early intervention services under IDEA Part C, the Program for Infants and Toddlers with Disabilities (IDEA Section 618 Data Products, 2022). In addition, in 2020, Head Start served 839,116 children and families in the United States. Illinois-specific Head Start programs served 29,117 children and families (U.S. Department of Health and Human Services Office of Head Start, 2022b). However, children of all ages may be at risk for school failure, and educators and clinicians play an important role in identifying these students.

IDEA Section 618 Data Products. (2022, December 15). *Static tables part C: Child count and settings table 1*. <https://data.ed.gov/dataset/idea-section-618-data-products-static-tables-part-c-child-count-and-settings-table-1/resources>

U.S. Department of Health and Human Services Office of Head Start. (2022b). *Head Start program facts: Fiscal year 2021*. <https://eclkc.ohs.acf.hhs.gov/about-us/article/head-start-program-facts-fiscal-year-2021>

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13.4: At-Risk Factors

There are a number of factors that indicate a student might be at risk for academic failure (i.e., risk factors). Risk factors are not causes of academic failure but may contribute to the likelihood of academic failure. The more risk factors a student has, the more likely that the child might experience academic failure. Risk factors include premature birth; low birth weight; prenatal, perinatal, and postnatal trauma and other health issues (e.g., failure to thrive); diagnosed disability; poverty; and homelessness (Smiley et al., 2022). Adverse childhood experiences are also considered risk factors. Adverse childhood experiences are potentially traumatic events that occur before a child turns 18. These include physical, emotional, and sexual abuse, physical and emotional neglect, and living in a household with a parent or caregiver experiencing substance abuse, mental illness, divorce, domestic violence, or incarceration. Children may also experience potentially traumatic events in their community, including bullying, violence, and discrimination (Centers for Disease Control and Prevention, 2022).

Teenage pregnancy is another factor that puts adolescents at risk for academic failure. In addition, children of adolescent mothers face higher risks of low birth weight, preterm birth, and neonatal conditions, which put them at risk for developmental delay (World Health Organization, 2022). English learners may face academic challenges that put them at risk for academic failure (Smiley et al., 2022). Therefore, it is important for educators and clinicians to acknowledge these risk factors and create environments that are sensitive to the challenges these students are facing. Protective factors that guard against the negative effects of these risk factors include access to a safe and nurturing educational environment and the development of meaningful and positive connections with school staff. Students benefit a great deal from knowing someone cares about their well-being and academic success.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

Centers for Disease Control and Prevention. (2022, April 6). Fast facts: Preventing adverse childhood experiences. <https://www.cdc.gov/violenceprevention/aces/fastfact.html>

World Health Organization. (2022, December 15). *Adolescent pregnancy*. <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy#:~:text=Adolescent%20mothers%20>

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13.5: Identifying At-Risk Students

Under IDEA, states must identify and provide services for at-risk infants and toddlers. Medical professionals are the first to refer families for early intervention services immediately after birth. Medical professionals also conduct appropriate screenings and assessments to determine whether a child has a developmental delay at well-child visits. Parents and caregivers may also seek out early intervention services through programs such as Child Find, a program that develops public awareness about federal- and state-funded early childhood services.

In addition, mandated reporters (e.g., childcare workers, teachers, clinicians, and other school personnel) must report any incidents of suspected child abuse or neglect to the appropriate state agency, which may result in referral to early intervention services as well as other social services the family may need.

Reporting Child Abuse and Neglect in Illinois

The Illinois Department of Children and Family Services has the primary responsibility of protecting children through the investigation of suspected abuse or neglect. As a mandated reporter, you must report suspected child abuse or neglect.

As discussed in [Chapter 1](#), schools also conduct academic and behavioral assessments using the Response to Intervention (RTI) framework. RTI is a proactive instructional framework for preventing academic issues in the early elementary grades and a remediation framework for improving outcomes in academics and behavior in upper elementary and secondary grades to prevent academic failure. Finally, educators and clinicians may refer students to their school's social worker for access to mental health care and other social services (Smiley et al., 2022).

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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13.6: Chapter Questions and References

1. How does IDEA define an at-risk infant or toddler?
2. Who else might be considered at risk? Why?
3. What services does the Head Start program provide?
4. How are at-risk children identified?
5. What is the role of mandated reporters?

Chapter References

Carnegie Corporation of New York. (1994). *Starting points: Meeting the needs of our youngest children*. <https://www.carnegie.org/publications/starting-points-meeting-the-needs-of-our-youngest-children/>

Centers for Disease Control and Prevention. (2022, April 6). Fast facts: Preventing adverse childhood experiences. <https://www.cdc.gov/violenceprevention/aces/fastfact.html>

Early Intervention Services System Act, 325 ILCS 20. (2022) <https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1463&ChapterID=32>

U.S. Department of Health and Human Services Office of Head Start. (2022a). *Head Start history*. <https://www.acf.hhs.gov/ohs/about/history-head-start>

U.S. Department of Health and Human Services Office of Head Start. (2022b). *Head Start program facts: Fiscal year 2021*. <https://eclkc.ohs.acf.hhs.gov/about-us/article/head-start-program-facts-fiscal-year-2021>

IDEA Section 618 Data Products. (2022, December 15). *Static tables part C: Child count and settings table 1*. <https://data.ed.gov/dataset/idea-section-618-data-products-static-tables-part-c-child-count-and-settings-table-1/resources>

Illinois State Board of Education. (2022, December 15). *Risk factors*. <https://www.isbe.net/Pages/Risk-Factors.aspx>

Individuals With Disabilities Education Act, Part B, Subpart A § 300.5(2004)

National Research Council and Institute of Medicine Committee on Integrating the Science of Early Childhood Development. (2000). *From neurons to neighborhoods: The science of early childhood*. <https://pubmed.ncbi.nlm.nih.gov/25077268/>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

World Health Organization. (2022, December 15). *Adolescent pregnancy*. <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy#:~:text=Adolescent%20mothers%20>

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14: GIFTED AND TALENTED STUDENTS

There are no mandates for gifted education at the federal level, nor is there an official definition of gifted and talented students. Therefore, it is up to states and school districts to identify gifted and talented students, develop gifted and talented programs, and meet the unique needs of these students.

14.1: Definition of Gifted and Talented Students

14.2: The History of Gifted and Talented Students

14.3: Prevalence of Gifted and Talented Students

14.4: Causes of Gifted and Talented Students

14.5: Characteristics of Gifted and Talented Students

14.6: Identifying Gifted and Talented Students

14.7: Chapter Questions and References

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14.1: Definition of Gifted and Talented Students

In 1972, a federal report, “Education of the Gifted and Talented,” provided the following definition of gifted and talented students, also referred to as the Marland Definition in reference to the then commissioner of education Sidney P. Marland, Jr.

Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1. General intellectual ability
2. Specific academic aptitude
3. Creative or productive thinking
4. Leadership ability
5. Visual and performing arts
6. Psychomotor ability (Marland, 1972)

This definition serves as the foundation for many of the definitions of gifted and talented students that are used today. Modified versions of this definition were proposed by the United States Department of Education in 1978 as part of the Gifted and Talented Act (Public Law 95-516) and in 1981 by the Education Consolidation and Improvement Act. These subsequent definitions were similar but eliminated psychomotor ability (i.e., superior athleticism) as one of the possible criteria (Smiley et al., 2022).

In 1993, a report, “National Excellence: A Case for Developing America’s Talent,” identified concerns about the underidentification of culturally and linguistically diverse students as gifted and talented. The report introduced the following definition.

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. (Ross, 1993, p. 11)

In 1998, Joseph Renzulli, an educational psychologist at the University of Connecticut, developed what he called the three ring concept of giftedness. The three rings include above-average ability, creativity, and task commitment. Students who possess a combination of these three traits exhibit gifted behavior (Renzulli, 1998). Renzulli’s model indicates that gifts and talents may emerge in students of varying abilities who may excel in one or more areas and are motivated to learn.

Example 14.1.1: Renzulli’s Models

Directions: Explore “The Three Ring Conception of Giftedness” as well as the related “The Enrichment Triad Model” and “The Schoolwide Enrichment Model” on [Renzulli’s Research-Based Learning System](#) web page. How might these models benefit students who are gifted and talented? How can these models be used to develop the strengths and talents of all students?

To date, the Every Student Succeeds Act identifies gifted and talented as “students, children, and youth who illustrate high achievement capabilities in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities that are not typically available to fully develop their capabilities” (USDOE, 2015, p. 398). In addition, a survey conducted by the National Association for Gifted Children (NAGC, 2015) indicated that most states use a version of the Marland definition. However, the results demonstrate a lack of consensus regarding an operational definition of gifted and talented students (Smiley et al., 2022).

The Illinois Definition of Gifted and Talented Students

The Illinois State Board of Education does not have a definition of gifted and talented students. However, the state does have laws and rules related to accelerated placement and educational programs for gifted and talented students. While educators providing gifted education within Illinois are not required by the state to hold a special endorsement, Illinois educators may add a gifted education teacher endorsement or a gifted education specialist endorsement to their license. Learn more about the state's role in gifted and talented education at the [Illinois State Board of Education Advanced Learners](#) web page.

Marland, S.P. (1972). *Education of the gifted and talented — Volume 1: Report to the Congress of the United States by the U. S. Commissioner of Education*. <https://eric.ed.gov/?id=ED056243>

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

Ross, O.R. (1993). *National excellence: A case for developing America's talent*. U.S. Department of Education Office of Educational Research and Improvement. <https://files.eric.ed.gov/fulltext/ED359743.pdf>

Renzulli, J.S. (1998). The three ring conception of giftedness. In Baum, S. M., Reis, S. M., & Maxfield, L. R. (Eds.). *Nurturing the gifts and talents of primary grade students*. Creative Learning Press.

United States Department of Education (2015). *The Every Student Succeeds Act*. <https://www.congress.gov/bill/114th-congress/senate-bill/1177/text>

National Association for Gifted Children. (2015). *2014–2015: State of the states in gifted education: Policy and practice data*. <https://www.nagc.org/resources-publications/gifted-state/2014-2015-state-states-gifted-education>

14.2: The History of Gifted and Talented Students

In the United States, gifted education did not begin in earnest until the twentieth century with the passage of the Jacob K. Javits Gifted and Talented Students Education Act (1987). This act directed the Department of Education to make grants and contracts available for programs or projects designed to meet the educational needs of gifted and talented children. It also established the National Center for Research and Development in the Education of Gifted and Talented Children and Youth. In 1998, the [National Association for Gifted Children](#) published [Gifted Programming Standards](#), which provides guidance for school districts interested in developing gifted and talented programs. In 2004, the Institute for Research and Policy on Acceleration (now called [The Acceleration Institute](#)) published a report, "A Nation Deceived," that highlighted the disparities between the benefits of acceleration for gifted and talented students and the lack of accelerated programs across the United States (Acceleration Institute, 2015).

Acceleration Institute. (2015). *A nation deceived*. https://www.accelerationinstitute.org/nation_deceived/

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14.3: Prevalence of Gifted and Talented Students

It is difficult to estimate the number of gifted and talented students in the United States. In 2014, the National Center for Education Statistics reported that approximately 7% of public school students were identified as being serviced in gifted and talented education programs (NCES, 2018). The lack of a commonly implemented definition of “gifted and talented” impacts the integrity of related data collection.

Data routinely indicate that several groups of students are underrepresented in gifted and talented programs, including females, students with disabilities, and culturally, linguistically, and racially diverse students (Smiley et al., 2022). It is critical that states and school districts consider issues of equitable access, particularly as it pertains to the identification of students.

National Center on Educational Statistics. (2018). *Percentage of public school students enrolled in gifted and talented programs, by sex, race/ethnicity, and state*. https://nces.ed.gov/programs/digest/d17/tables/dt17_204.90.asp

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

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14.4: Causes of Gifted and Talented Students

The development of gifts and talents cannot be attributed to a single factor such as genetics or environment. Intelligence is thought to be a result of both genetics and environment. Twin studies suggest that the environment plays an active role in how genes are expressed. Clark (2013) states, “It is misleading to think of either genes or the environment as being more important—genes can express themselves only in an environment, and an environment has no effect except by evoking genotypes already present” (p. 26). Educators and clinicians should consider how to develop educational environments that support the development of all students’ gifts and talents.

Clark, B. (2013). *Growing up gifted* (8th ed.). Pearson Education.

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14.5: Characteristics of Gifted and Talented Students

The characteristics of gifted and talented students vary by student. This section of the chapter will provide an overview of common characteristics associated with above-average intelligence. However, it is important for educators and clinicians to remember that students may demonstrate above-average levels of creativity and aptitude in any area of academic study.

Historically, above-average intelligence has been the primary indicator of gifted and talented students despite efforts to broaden the definition (e.g., the three ring conception of giftedness). Often, it is the only criterion used to determine eligibility for gifted and talented programs (Smiley et al., 2022). The intelligence quotient cutoff point commonly used for eligibility into gifted programs is 130; this score indicates that a student scored higher than approximately 96% of their peers. In the 1980s, Howard Gardner, a developmental psychologist at Harvard University, introduced his theory of multiple intelligences. This theory proposed that there are eight different types of intelligence, including linguistic, logical/mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist (Gardner, 1983). This theory gained popularity and led to a related theory that students have different learning styles (e.g., visual, auditory, tactile/kinesthetic). However, researchers have found “virtually no evidence” supporting the idea that “instruction is best provided in a format that matches the preference of the learner” (Pashler et al., 2008, p. 105; Ragoosky et al., 2014). Therefore, educators should focus on research-based instructional methods rather than student preference.

Activity 14.5.1: Learning Styles Debunked

Directions: Further explore the concept of learning styles and why matching instruction to students’ preferred learning styles does not improve learning on [Vanderbilt University’s Center for Teaching Learning Styles](#) web page. Why do you think the concept of learning styles continues to be so popular in educational communities? What can be done to educate teachers about research-based instructional methods?

Other intellectual characteristics associated with gifted and talented students include rapid comprehension (i.e., an advanced ability to learn and process information), the ability to think abstractly and problem-solve, and intellectual curiosity (Smiley et al., 2022). However, gifted and talented students may also be perfectionists and may believe that they should excel in everything that they do. This can lead to frustration when they are presented with a task they find challenging. Therefore, it is important to promote the development of a growth mindset or the belief that one’s intelligence can be developed (Dweck, 2006) and continue presenting students with challenging yet achievable goals.

Activity 14.5.2: Developing A Growth Mindset

Directions: Explore the educational resources on the [Mindset Kit](#) web page to learn more about how to develop a growth mindset in yourself and your future students or clients.

Smiley, L. R., Richards, S.B., & Taylor, R. (2022). *Exceptional students: Preparing teachers for the 21st century* (4th ed.). McGraw Hill.

Gardner, H. (1983). *Frames of mind: A theory of multiple intelligences*. Basic Books.

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest*, 9(3), 105–119. <https://doi.org/10.1111/j.1539-6053.2009.01038.x>

Rogowsky, B. A., Calhoun, B. M., & Tallal, P. (2015). Matching learning style to instructional method: Effects on comprehension. *Journal of Educational Psychology*, 107(1), 64–78. <https://doi.org/10.1037/>;See also [one comment on Pubpeer](#)

Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.

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14.6: Identifying Gifted and Talented Students

The process of identifying gifted and talented students varies between states and school districts. However, intelligence tests and academic achievement tests are commonly used (e.g., Wechsler Intelligence Scale for Children-V). Additional assessments may also be used that specifically measure a student's potential for learning, otherwise known as aptitude (e.g., Cognitive Abilities Test [CogAT]), or their creativity (e.g., Torrance Test of Creative Thinking). Some school districts also employ educator rating scales such as the Scale for Rating Behavioral Characteristics of Superior Students (Renzulli et al., 2010). However, each of these methods has limitations, and additional steps should be taken to identify students who are members of underrepresented groups.

For example, females face negative stereotypes and other barriers to achievement that result in attributing their achievements to hard work or luck rather than ability. In addition, negative stereotypes related to math and science achievement may also bias educators and clinicians, thus limiting their referrals of females for gifted assessment. In addition, twice-exceptional students (i.e., students with disabilities who are also gifted and talented) are often identified only by their disability, and their gifts and talents are overlooked. Finally, gifted and talented students from culturally, linguistically, and racially diverse backgrounds are significantly underrepresented in gifted and talented programs. Alternative approaches should be used to identify students from these underrepresented groups, including nonverbal tests (e.g., Naglieri Nonverbal Ability Test) that avoid language barriers, portfolio assessments, and other performance-based tasks that allow students to demonstrate their unique abilities (Smiley et al., 2022).

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1. In the Marland definition, what six areas were included in which students could demonstrate high performance?
2. How does Renzulli's definition of giftedness differ from other definitions? What are the similarities?
3. Why is it important to develop a growth mindset in all students?
4. Which groups of students are underrepresented in gifted and talented programs?
5. Why is it important to use alternative methods for identifying gifted and talented students?

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GLOSSARY

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