

Chapter 3

Reading Advantage

After you read the chapter, test your comprehension of new vocabulary. Write a sentence using each vocabulary word.

Child Development Principles and Theories

- Lesson 3.1:** Understanding Children's Development
- Lesson 3.2:** Historical Factors and Theories of Development



Case Study

Effects of Toxic Stress

Read the case study as a class and discuss the questions that follow. After you finish reading the chapter, discuss the case study again. Have your opinions changed based on what you learned? If so, how?

Tina Robinson, a single mother, arrived at the early childhood center carrying her nine-month-old daughter, Maya. Tina was visibly upset and crying. Immediately when she walked in the door, the teacher noted that Tina had a black eye, several bruises on her right arm, and her breath smelled of alcohol. Maya was also crying. Her mother was holding a bottle filled with an orange-colored liquid.

The teacher motioned for Tina to come into an office. There Tina confided that both she and her boyfriend had problems with alcohol. When her boyfriend had too much to drink, he became abusive. It particularly bothered him that Maya cried so much. It seemed to trigger his anger.

The teacher reached out to take Maya from her mother. Tina handed Maya and the bottle to the teacher, who commented about the orange juice. Tina responded by saying, "Oh, no, that is not orange juice. It is powdered drink mix. Orange juice costs too much."

Give It Some Thought

1. What are some aspects of Maya's home environment that are not conducive to healthy growth and development? If you were in this teacher's situation, how might you respond to Tina's comments about problems with alcohol and her boyfriend's abusive behavior?
2. How do you think Maya's environment will affect her development?
3. What do you think children need for healthy development?

Lesson 3.1

Understanding Children's Development

Essential Question



What do I need to understand about child development and brain development to be an effective care provider or teacher?

Learning Outcomes

After studying this lesson, you will be able to

- 3.1-1 analyze** the areas and principles of child development.
- 3.1-2 summarize** key factors about brain development, including nature and nurture, adverse childhood experiences (ACE), environment of relationships, self-regulation, and windows of opportunity.

Key Terms

development	maturation
milestones	adverse childhood experiences (ACEs)
infant	toxic stress
toddler	neurons
preschooler	axons
middle childhood	myelin
heredity	dendrites
environment	synapses
physical development	plasticity
gross-motor development	overstimulation
fine-motor development	cortisol
cognitive development	executive function
social-emotional development	windows of opportunity
cephalocaudal principle	
proximodistal principle	

Studying and understanding child growth and development are important parts of teaching young children. Knowledge of child development is a core consideration that informs decision-making. No two children are alike. Children differ in physical, cognitive, and social-emotional growth patterns. Even identical twins, who have the same genetic makeup, are not exactly alike. They may differ in the way they respond to play, affection, objects, and people in their environment.

Social and cultural contexts influence all human development and learning. Think of the children you know. Each is different from the others (Figure 3.1). Some always appear to be happy. Other children's personalities may not seem as pleasant. Some children are active. Still others are typically quiet.

To help all these children, you need to understand the sequence of their development and value their strengths. Knowledge of the areas of child development is basic to guiding and teaching young children. Linked to this is the understanding of healthy brain development.

Healthy brain development results from healthy human contact. Babies come into the world wired to form relationships. Early experiences with a warm, caring, responsive caregiver are critical. Positive stimuli are a major factor in brain development. These stimuli begin at birth. Therefore, it is vital for children to have responsive, loving caregivers. Young children need dependable, trusting relationships. They thrive in environments that are predictable and nurturing.



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Figure 3.1 Knowledge of child development can help you understand how to work with children who have very different personalities. *How do you think social experiences and culture impact personality?*

3.1-1 Child Development

Child development is a scientific approach to studying children. **Development** refers to change or growth that occurs in children. It starts with infancy and continues to adulthood. Knowledge of child development is the foundation for working with young children. By studying child development, you will form a profile of children's developmental continuum. You will learn developmental milestones. **Milestones** are widely held expectations of what most children are able to do at a certain age. For instance, you will learn that two-year-old children like to run. They enjoy the sensation of moving their bodies. This means you should provide space for them to move freely. Likewise, you will learn that infants explore with their senses, often mouthing objects. Knowing this, you will need to make sure that all toys for infants are sanitized and safe.

Different names describe young children at approximate ages. **Infants** range in age from birth through the first year. **Toddlers** are children ranging in age from one up to the third birthday. (Because of an awkward style of walking, the name *toddler* describes this age group.) The term **preschooler** describes children ages three through five years. **Middle childhood** is the term that describes children between the ages of six and twelve.

The study of these basic patterns of child development has occurred for generations. Researchers are constantly discovering new information on how children grow, develop, and learn about themselves and their world.

Studying the basics of child development is just the beginning for you. Keep in mind that growing as a professional is a constant journey and lifelong process. Throughout your career, you will need to update your knowledge of the latest

research and trends in this career field. You can do this by

- attending seminars, workshops, and conferences—in person and virtually;
- reading books and professional journals;
- taking part in on-line discussions;
- watching professional online videos;
- listening to podcasts;
- attending college classes; and
- having discussions with colleagues.

Workplace Connections

Teacher Interview

Interview an early childhood teacher. Ask the teacher how developmental and learning theories influence his or her teaching strategies. If the teacher mentions any theorists who are not discussed in this chapter, research them and their theories.

1. Does the teacher seem to focus equally on physical, cognitive, or social-emotional development?
2. Does the teacher adapt their teaching strategies to meet the needs of children who have developmental delays? If so, how?
3. Write a report on your findings to share with the class.

Areas of Development

Two major forces influence all areas of a child's development: *heredity* and *environment*.

Heredity refers to the characteristics a child inherits genetically from parents. *Genes* are a blueprint for a child's potential development. Heredity determines when a child's brain and senses will be mature enough to learn certain skills. Environmental factors also affect learning. **Environment** includes the interactions, experiences, and events that influence a child's development. Children need opportunities to use their senses and try new things (**Figure 3.2**). As a caregiver or teacher, you need to provide an enriched environment that allows children to develop to their full potential intellectually.

The study of child development includes three major domains that overlap and interact with each other. These domains include *physical*, *cognitive*, and *social-emotional development*. Dividing development into these domains makes it easier to study.

Physical development refers to physical body changes. It occurs in a relatively stable, predictable sequence. It is orderly, not random. Changes in bone thickness, vision, hearing, and muscle are all included. Changes in size and weight are also part of physical development (**Figure 3.3**).

Physical skills, such as crawling, walking, and writing result from physical development. These skills fall into two main categories:

- **Gross-motor development** involves improvement of skills using the large muscles in the legs and arms. Running, skipping, and bike riding are examples of gross-motor skills.
- **Fine-motor development** involves improvement of skills using the small muscles of the hands and fingers. Grasping, holding, cutting, and drawing are some activities that require fine-motor development.

Environmental factors also affect what children can do physically. These factors include proper nutrition and developmentally appropriate toys, activities, and interactions.

Cognitive development, sometimes called *intellectual development*, refers to processes people use to gain knowledge. Language, thought, reasoning, and imagination are all included. Identifying colors and knowing the difference between one and many are examples of cognitive tasks.

Language and thought are a result of cognitive development. These two skills are closely related. Both are necessary for planning, remembering, and problem-solving. As children mature and gain experience with their world, these skills develop.

Social-emotional development is the third area of development. These two areas are grouped together because they are so interrelated. Learning to relate to others is *social development*. *Emotional development* involves feelings and expression of feelings. Trust, fear, confidence, pride, friendship, and humor are all part of



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Figure 3.2 The activities that you provide infants and young toddlers help them develop cognitively. **What skills is this toddler learning from this activity?**



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Figure 3.3 Changes in height and weight are two of the most obvious signs of physical development.

social-emotional development. Other emotional traits include timidity, interest, and pleasure (**Figure 3.4**). Learning to express emotions in appropriate ways begins early. Caregivers

and teachers promote this learning when they positively model these skills. A person's self-concept and self-esteem are also part of this area. As children experience success, their skills and confidence flourish. This leads to a healthy self-concept and sense of worth.

The physical, cognitive, and social-emotional areas of development are all interrelated. Each area affects and influences every other area. For instance, writing words requires fine-motor and hand-eye coordination skills. It also requires cognitive development. Language, a part of cognitive development, is necessary to communicate with others. It is also necessary for growing socially and emotionally.

Just as research has made known the areas of development, it also shows that development follows key patterns, or principles. Think about how these principles might influence how you promote children's development.



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Figure 3.4 Learning to trust and show affection for others is a part of social-emotional development. **What emotions are these children expressing?**

Principles of Development

Although each child is unique, the basic patterns, or principles, of growth and development follow a universal, predictable, and orderly trend. Through careful observation and interaction with children, researchers and those who work with children recognize major principles governing growth and development.

- **Development tends to proceed from the head downward.** According to the **cephalocaudal principle**, the child first gains control of the head, then the arms, then the legs. Infants gain control of head and face movements within the first two months after birth. In the next few months, they can lift themselves up using their arms. By six to 12 months of age, infants start to gain leg control and may be able to crawl, stand, or walk.
- **Development also proceeds near to far.** Growth begins from the center of the body

and extends outward according to the **proximodistal principle**. Accordingly, the spinal cord develops before other parts of the body. The child's arms develop before the hands, and the hands and feet develop before the fingers and toes. Fingers and toes are the last to develop.

- **Development also depends on a combination of maturation and environment.** **Maturation** refers to the sequence of biological changes in children, the foundation of which is their genetics. These orderly changes give children new abilities. Much of the maturation depends on changes in the brain and the nervous system. These changes assist children to improve their thinking abilities and motor skills. A rich learning environment helps children develop to their potential.

Children must mature to a certain point before they can gain some skills. For instance,

the brain of a four-month-old has not matured enough to allow the child to use words. A four-month-old will babble and coo. By two years of age, however, with the help of others, the child will be able to say and understand many words. This is an example of how cognitive development occurs from simple tasks to tasks that are more complex. Likewise, physical skills develop from general to specific movements. For example, think about the way an infant waves its arms and legs. In a young infant, these movements are random. In several months, the infant will likely be able to grab a block with his or her whole hand. In a little more time, the same infant will grasp a block with the thumb and forefinger.

Understanding the areas and principles of development is important. Development occurs at varying rates from child to child. Individual variations occur. These may result from lack of experience or the cultural and linguistic context in which children live. As your knowledge of child development grows, so will your ability to plan a developmentally appropriate curriculum. Recognizing how the brain functions in development is equally as important. What should caregivers and teachers know about the brain, and how it influences development, behavior, learning, and health?

Early Childhood Insight

Principles of Development

The principles of development will help you understand that the order or sequence of development in children is generally the same. Although there are many developmental norms, each child develops at their own *rate*. Development also occurs within the cultural context in which a child lives. In any classroom, you may find children the same age who have progressed to different levels in each developmental area. Knowing child development principles will help you observe the strengths each child has gained. It will also help you plan developmentally and culturally appropriate activities that promote the development of new skills.

3.1-2 Brain Development

Which is more important for the developing brain—*nature* or *nurture*? This is one of the oldest debates in the study of human development. Human development depends on the interaction between nature and nurture, often called *biology* and *experience*. Years ago, people thought that only genes contributed to brain development. Today, scientists who are unraveling how the mind works, say both factors are critical to healthy brain development. It is important to study these two factors together. Genes that children inherit from their parents set up the basic brain structures, while experiences determine how the connections work. The brain develops under the mutual influence of genetics and the environment.

The most effective living structure is the brain. Its purpose is to store, use, and create information. The development of the brain begins before birth and continues into adulthood. The young brain's architecture is experience-dependent and is both receptive to positive influences and vulnerable to damage. A distinguishing characteristic of the prenatal period is the brain's sensitivity to a range of harmful conditions. A woman's habits and health during pregnancy will influence the developing embryo. For example, prenatal alcohol or drug exposure has dramatic negative effects on the brain.

Pregnancy is the critical time for promoting healthy brain development. The basic architecture of the brain forms during pregnancy when the structures are forming. The spinal cord, neurons, and brain cells are forming just days after conception. The first twenty weeks of pregnancy lay the groundwork for a lifetime of well-being. The mother's nutrition, including appropriate amounts of iron and folic acid, also affect the brain before birth. The number of brain cells produced depends on the mother's nutrition.

Adverse childhood experiences (ACEs) change the brain. After birth, **toxic stress** such as extremely low socioeconomic status, severe neglect, maternal depression, and exposure to

violence can undermine the developing brain architecture and immune system. The lasting effects of toxic stress are built into a child’s body, which can compromise their development, lifelong health, and opportunities. Toxic stress, if intense, frequent, or sustained, can interfere with the normal development of the immune system.

The purpose of the immune system is to protect the body. When children are in an environment that causes prolonged toxic stress, the result may be chronic inflammation. When this occurs, children live in a fright-or-flight mode. Over time, these inflammatory substances can damage organs and increase the risk of a host of health issues. This can lead to increased susceptibility to mental and physical illnesses. The long-term result may be asthma, obesity, hypertension, depression, diabetes, cancer, or cardiovascular diseases, and substance abuse. Long-term or chronic stress can cause lifelong behavioral and learning problems. Language deficits, attention disorders, cognitive impairments, and academic problems can occur.

There are differences in how children respond to stress. Some children seem to be more resilient than other children are. The reasons for such resiliency may be their genes, temperament, and early experiences. Sometimes, nurturing caregiver relationships buffer them from stress.

Figure 3.5 shows environmental influences affecting the developing brain. Some environmental influences are beneficial while others are harmful. The harmful influences affect the brain before and after birth. Prenatal

exposure to alcohol, for instance, has potential lifelong effects on child’s development.

For optimal brain development, children need excellent nutrition before and after birth. Timing effects are also evident with postnatal nutrition. The earlier malnutrition occurs, the greater the decrease in brain size. Studies show that adequate nutrition prenatally and during the first three years of life is critical to healthy growth and development.

Health Highlights



DHA and Brain Development

Overall, good nutrition is important to healthy development of infants. Some recent studies suggest that infants who are not fed breast milk—the ideal source of nutrients for infants—should receive DHA-fortified infant formula during feedings. DHA, or *docosahexaenoic acid*, is an omega-3 fatty acid that occurs naturally in breast milk and such other foods as fish and eggs. This fatty acid supports eyesight and brain development in infants and children. If parents have questions about DHA-fortified formula, care providers should encourage them to talk with their health-care provider.

Sophisticated technology allows scientists to look inside the brain and view its electrical activity. By taking and comparing pictures, scientists study rates of development. Brain chemistry studies show that young children’s

Environmental Influences Affecting the Developing Brain

Harmful or Toxic Influences

Airborne pollutants	Food insecurity	Prenatal infections
Alcohol	Housing instability	Radiation
Malnutrition	Parent depression	Lead
Drug exposure	Poor child care	Tobacco
Chronic stress	Poverty	Abuse and neglect
Chemicals	Parental divorce	Family violence
Diseases	Pesticides	

Needed for Normal Brain Development

- Oxygen
- Adequate nutrition
- Sensory stimulation
- Social interaction
- Physical and mental activity

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Figure 3.5 Environmental influences such as pollutants and pesticides affect the developing brain.

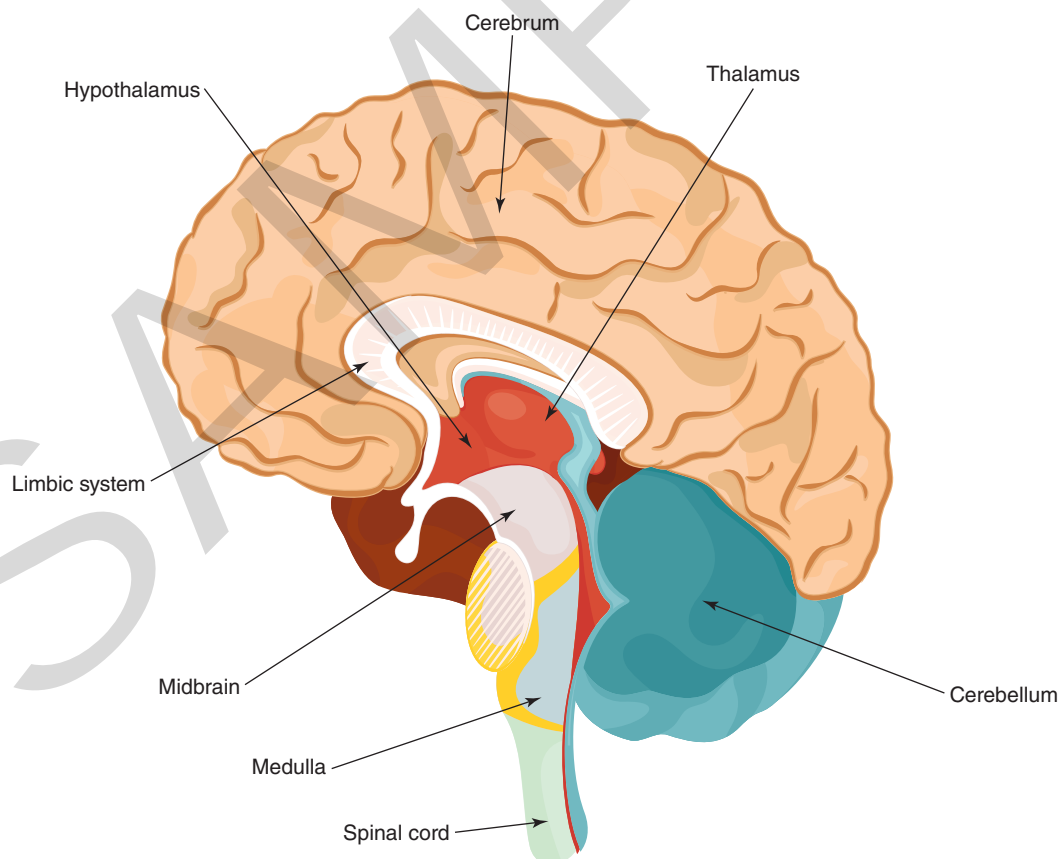
brains are highly active. The most rapid development occurs during the first three years of life. Therefore, hours in infancy may have more impact on the brain's development than months in middle age. **Figure 3.6** illustrates how different parts of the brain control body functions.

In contrast to every other major body organ, the brain is not fully developed at birth. It is immature and underdeveloped, weighing about one pound, and builds over time. The brain reaches adult size before other body organs. It contains about 100–200 billion specialized nerve cells called **neurons**, which are the building blocks of the brain. Although these cells are present at birth, they are poorly connected. The key to building the brain structure is experience. Through experience, neurons connect to each other, strengthening the most used connections.

After birth, no new neurons form. They sprout narrow branching extensions called axons

and dendrites. **Axons** are long, thin fibers of the neuron or nerve cell. They usually conduct impulses away from the cell body. **Myelin**, which is a layer of white, fatty material, covers and protects axons. Myelin increases the transmission speed of impulses from cell to cell. **Dendrites** are short, hair-like fibers around the cell body that receive signals. With development, neurons move to specific regions of the brain. The neurons establish contact with one another, and the connections, or **synapses**, develop rapidly with stimulation. “Brain wiring” occurs as new links and connections form.

At first, there is an overproduction of neural connections. Over time, brain circuits become more efficient and more refined as cells that are not used require pruning. *Pruning* is often referred to as the “use it or lose it” principle. Through lack of use, the brain prunes some



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Figure 3.6 This diagram illustrates how different functions are controlled by different regions of the brain. Connections between them are critical to healthy development. **What forms of stimulation can help form new connections in the child's brain?**

circuits while those that are repeatedly used become stronger.

These links result from the child's interaction with the world. They influence the ability of a child to learn, solve problems, get along with others, and control emotions. For example, the child's growing brain responds each time a caregiver provides sensory stimulation. This stimulation could be in the form of holding, cuddling, touching, rocking, talking, reading, or singing. When stimulation occurs, the child's growing brain responds by forming new connections. **Plasticity** is the ability of an infant's brain to change according to stimulation.

Quality programs can help reverse the damaging effects of stress. Early care has a long-lasting impact on how children develop. Science shows how an environment of supportive relationships shapes the architecture of a healthy brain. The number of brain connections children form and keep depends on the care they receive. Warm, nurturing, consistent, and responsive care will determine the brain's architecture. Children also need a stimulating environment to produce growth in brain cells. A wide variety of visual, auditory, and sensory experiences will help promote brain connections.

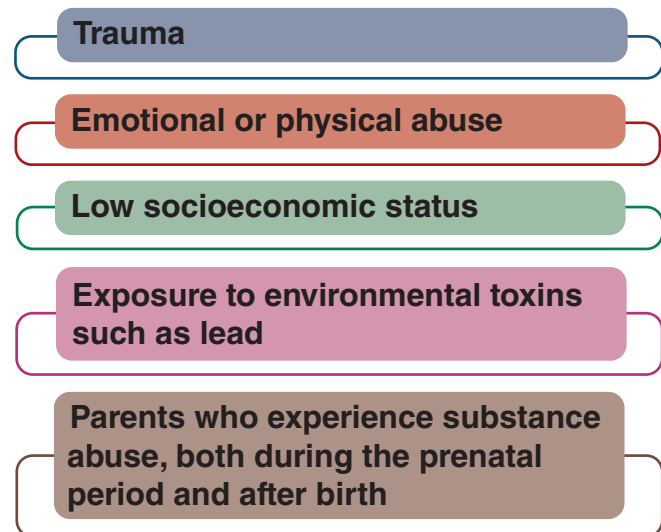
In contrast, adverse relationships that lack warm, responsive interactions can limit a child's potential. Some children are deprived of stimulation either intentionally or unintentionally. These children receive fewer touches, and caregivers speak to them less often. They may also receive little visual stimulation. This neglect can impair brain development and the child's potential that can last a lifetime.

The problem for the caregiver is providing just the right amount of stimulation for each child. For example, the amount of stress created by negative experiences also affects brain development. **Overstimulation**, a flood of sounds and sights, is one factor that can cause harmful stress to infants. **Cortisol** is a steroid hormone that the body produces when it is under stress. Even daily stressors such as loud noises, being hungry, lack of attention, or too

much visual stimulation can increase a child's cortisol. High levels of this hormone wash over the brain like an acid. Over a long length of time, cortisol can threaten brain development. It can lead to problems with memory and regulating emotion. A child constantly exposed to stress can develop connections that trigger anxiety, fear, and mistrust. These children may grow up to be unhappy, sad, or even angry. They may also have problems with self-control. **Figure 3.7** contains a list of factors that can interfere with healthy brain development.

The science is clear. Healthy brain development depends on healthy human connections. Understanding brain development means understanding the importance of warm, supportive, safe, predictable, and dependable relationships with adults. High quality, early childhood programs can promote health and prevent disease. The caregiver's relationship will influence the wiring of the brain. Warm, responsive care appears to have a biological function. It helps children weather stress and develop resiliency the adverse effects of later stress.

Risk Factors for Healthy Brain Development



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Figure 3.7 Exposure to stress-causing factors such as these can interfere with healthy brain development.

Environment of Relationships

Science reveals that a responsive environment of nurturing relationships shapes the architecture of a healthy brain. Caring and stable growth-producing relationships are the core of healthy brain development. The process begins prenatally and continues through adulthood. Beginning at birth, young children are helpless and are totally dependent on their caregivers inside and outside the family.

Through a serve-and-return interaction with caring and attentive people in their environment, children learn to think, feel, and act. Infants begin reaching out to others (*the serve*) by using facial expressions, babbling, and words. Much like a tennis game, the caregiver needs to *return* the serve by responding using gestures, sounds, and facial expressions. These give-and-take responses are biologically essential. If the caregiver repeatedly does not respond, the child's stress system can be activated and weaken the developing brain structure.

Relationships with caregivers help children define who they are and what they are capable of doing. Positive, responsive caregiving helps promote the development of cognitive skills, self-confidence, and persistence. Through these relationships, children are motivated to learn to self-regulate their behavior.

Self-Regulation

Self-regulation is the foundation of early childhood development. Often referred to as **executive function**, self-regulation is the ability to think before acting, which involves regulating self-behavior in socially and culturally appropriate ways. This critical task develops rapidly during the early years. Self-control involves developing the ability to monitor and control attention, emotions, and behaviors, which are crucial life skills for learning and development. Executive function involves the problem-solving skills needed to plan, start, and complete a task. Executive function also involves the ability to interact in positive ways with others. Children must learn to solve and control aggressive impulses without violence. Developing

cognitive flexibility, the ability to focus and ignore distraction, is an important task for the preschool years. Examples of self-regulation include

- focusing and controlling attention
- remembering directions
- controlling impulses
- self-monitoring and redirecting thoughts and behaviors
- delaying gratification
- thinking flexibility
- planning and organizing
- reasoning
- problem-solving
- employing memory strategies

Windows of Opportunity

The brain has a remarkable capacity to change, although timing is critical. The parts of the brain develop at different times and at different rates. Studies show that there are **windows of opportunity**, or a framework that identifies key neurological wiring opportunities. During these key times, children need appropriate stimulation for the brain synapses to link easily and efficiently. It is a time when appropriate learning experiences are most beneficial for the brain's rapidly developing organization.

After these key periods, chances for creating stable, long-lasting pathways in the brain diminish. Learning will continue to occur for the remainder of the person's life, although the skill mastery level may not be as high. **Figure 3.8** contains a list of brain functions and the approximate windows of opportunity for each.

Vision: Birth to Six Months

An infant's brain is not wired for sight at birth. The key period for developing vision is first six months of life. Covering newborns' eyes or keeping infants in a dark room during this time will affect their vision. Their sight may not develop normally. Once passed, this window of opportunity is impossible to recover. For this

Windows of Opportunity

Brain Function	Approximate Window of Opportunity
Vision	Birth to 6 months
Motor development	Prenatal to 8 years
Emotional control	Birth to 3 years
Vocabulary/speech	Birth to 3 years
Math/logic	1 to 4 years

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Figure 3.8 Windows of opportunity are key periods of time when appropriate learning experiences are most beneficial for rapidly developing brain organization. **At what ages do significant windows of opportunity develop for vision, speech and vocabulary, emotional control, motor development, and math and logic?**

reason, doctors examine a newborn's eyes after birth. If a cataract covering the lens of the eye is present at birth, removal of it is necessary.

Vision is one area that develops with little stimulation. Light and visual stimulation are a requirement during this period. Infants need interesting objects to look at, including toys and people. As you carry infants, point out and describe interesting objects, pictures, people, and places.

Vocabulary/Speech: Birth to Three Years

Infants must hear language to learn it. Children at this age have an incredible capacity for learning language. The speech children hear during their first three years of life will determine their adult vocabulary and ability to produce certain sounds. Infants who experience an environment rich in descriptive words are likely to develop an extensive vocabulary. Infants and toddlers who hear fewer words develop smaller vocabularies.

It is important for caregivers to speak in full sentences. Talk to children often. Tell them what you are doing, what they are doing, and what you will do next. Read them stories and play music. Engage them in social interactions that require language. Be sure to model good grammar.

The sensitive period for developing a second language is between birth and five years of age. After this time, learning becomes more difficult as the brain loses plasticity for these skills. Babies are equipped to speak any language at birth.

As early as six months of age, children filter out sounds that are necessary for their native language. To speak a second language without an accent, it is important to build these pathways at the same time they build their native language.

Emotional Control: Birth to Three Years

The critical period for emotional control occurs between birth and three years of age. Emotional development includes the abilities to identify feelings, manage strong emotions, and develop empathy. Severe stress or early abuse can damage a child's emotional development.

Infants and toddlers thrive in warm, nurturing, and stable relationships. In early childhood programs, infants and toddlers should have a consistent primary caregiver. Children need loving caregivers who can read their cues, respond promptly, and meet their needs in a nurturing manner. By using caring words, caregivers reassure children they are valued. Caregivers can also support emotional understanding by labeling children's feelings. Storybooks are effective in helping to promote this type of development.

Math/Logic Development: One to Four Years

The sensitive period for developing this skill does not begin at birth as it does for vision, vocabulary, native language, and emotional development. Rather, the critical timing for

promoting brain connections related to math is from one to four years of age. Young children need chances for working with materials that offer an appropriate level of challenge. Blocks and rhythm instruments are examples of toys that encourage sensory exploration related to math. Caregivers can introduce experiences requiring matching and sorting by size, shape, and color. Learning how objects are alike and different is an important skill. When appropriate, caregivers need to introduce words to describe color, size, shape, and texture. They also need to introduce

math words, such as *bigger, smaller, more, less, and one more*.

Motor Development: Prenatal to Eight Years

Motor development requires complex brain networking. The window of opportunity begins before children are even born. The window lasts for the first eight years. This time allows for creation of stable, long-lasting structures. Young children need a variety of gross- and fine-motor activities to support motor development.

Lesson 3.1 Review

- Which type of development includes changes in bone thickness, vision, and hearing? (3.1.1)
 - Physical development
 - Cognitive development
 - Social-emotional development
 - Heredity
- True or False.** Nature and nurture work together to contribute to healthy brain development. (3.1.2)
- Each of the following is an example of executive function during the early years except (3.1.2)
 - problem-solving.
 - reasoning.
 - object permanence.
 - controlling impulses.

Lesson 3.2

Historical Factors and Theories of Development

Essential Question



In what ways do theories about development and learning continue to shape caregiving and teaching practices today?

Learning Outcomes

After studying this lesson, you will be able to

- 3.2-1 explain** the historical influences on educating young children.
- 3.2-2 summarize** how theories about development and learning are used as practical guides to early care and education.

Key Terms

theory	concrete operations
autonomy	formal operations
schemata	Montessori approach
assimilation	private speech
accommodation	zone of proximal development (ZPD)
sensorimotor stage	scaffolding
object permanence	multiple intelligences
preoperational stage	

Understanding historical influences and the theories about how people develop helps form your knowledge base in caring for and educating young children. Your beliefs about how children learn and develop will influence how you plan curriculum and how you teach young children. Erickson, Piaget, Vygotsky, Montessori, Dewey, and Gardner have influenced the content of this book.

3.2-1 Historical Influences on Early Childcare and Education

To understand early childhood education, the past is important. Many of the current practices have their roots in the past. Throughout history, differing viewpoints, committed educators, and changes in popular practice have all helped shape early care and education. Views and treatment of children have recycled. Today new and old traditions influence best practices in early care and education.

During the 1700s, children were raised in difficult and rigid environments. Children were treated as adults in early America. They received little attention and were expected to grow up quickly. Religious institutions controlled much of what people believed about children. Children were taught to read the Bible at an early age with their fathers serving as teachers. The focus was on religious and moral education.

In the 1800s, the movement toward an industrial society shaped life. In school, the basics of reading, writing, math, and citizenship were taught, but few children received formal schooling. Later in the century, improving the educational system became a priority. Free schools and libraries were built for children of all levels of society. Kindergartens were opened to help younger children, particularly those from families with fewer economic resources, succeed in school.

The 1900s included the scientific revolution. During this time, the work of several theorists contributed to the understanding of how young children develop and learn. This work helped guide the practice of parenting. Early childhood education became a public concern. Federal

legislation was passed to meet children's needs. Childcare became an important profession. Printed books and newspapers became more affordable to the public. With these changes, knowledge began to spread quickly. The first printed information on childcare was imported from Europe and emphasized the mother's role.

In the twenty-first century, advances in education have been rampant. Use of technology occurs in every aspect of life. Curriculum, whether preschool, elementary, high school, or college emphasizes science, technology, engineering, and mathematics. Prekindergartens are being funded by local and state departments of education. Historically Black colleges, formerly housed in Home Economics departments, continue making contributions to the understanding of young children and cultural diversity. With the encouragement of Hispanic leaders, bilingual education programs are flourishing.

Many people contributed to the understanding of how children grow and develop. Some developed theories and published books. Some opened and worked in children's programs. Others showed leadership by introducing professional organizations. All their work and beliefs have shaped current practices about young children and early childhood education. **Figure 3.9** outlines historical influences on educating children.

Early Childhood Insight A B C

Learning Standards

All states have developed a set of learning standards for children below kindergarten age. These standards are expectations for the children's learning. Learning standards affect curriculum planning, are research based, and linked to specific ages or developmental periods. The goal of learning standards is to provide guidelines that define the desired content and outcomes of young children's education. They define the foundational steps for learning. Effective standards should be developmentally appropriate in content and outcomes.

3.2-2 Theories of Development

Psychologists continue to study human development. They hold different theories about how people learn, grow, and develop. Some theories, once considered universal, people now recognize as varying by experience and culture. Over the past century, many researchers have provided theories that are practical guides. A **theory** is a principle or idea that is proposed, researched, and generally accepted as an explanation. Theories describe, explain, and predict behavior. They help you understand how, why, and when learning occurs.

Theories are useful decision-making tools. They are helpful for understanding and guiding developmental processes. Theories differ, and no single theory tells people everything. The theory of *nature* or genetics supports the idea that children mature as they grow older. Another theory, *nurture*, supports that their environment shapes children. Still, other theories support both environment and genetics as influences on children's learning and behavior.

Since a variety of theories exist, teachers and care providers need to understand these different approaches for working with children. Theories will help you form your personal values and beliefs about learning. They will also help you understand strategies for promoting children's development. Chances are you will choose parts from various theorists.

In this chapter, you will learn about five major theories on how children learn. These include theories of mid-twentieth-century psychologists Erik Erikson, Jean Piaget, Maria Montessori, Lev Vygotsky, and John Dewey. The final theorist, Howard Gardner, is a twenty-first-century developmental psychologist. They base these theories on observation and experiences with children. Think about the children you know as you read about theories that helped form today's ideas about working with young children.

Historical Influences on Educating Children

Date	Historical Influence
1632	John Locke, father of educational philosophy, claimed that children are born with a clean slate and molded by experience. Locke believed in the importance of nurture over nature. He also believed the main goal of education was self-control.
1801	Johann Heinrich Pestalozzi published <i>How Gertrude Teaches Her Children</i> , which emphasized home education. He believed all children are capable of learning and activities should focus on the manipulation of objects.
1826	Friedrich Froebel is known as the “father of the kindergarten.” Froebel published <i>Education of Man</i> , which included the first system of kindergarten as a “children’s garden.” He advocated a play-based learning environment and introduced stories, finger plays, songs, sewing, and cutting.
1837	Froebel opened the first kindergarten in Germany.
1856	Margarethe Schurz opens a German-speaking kindergarten in her home in Watertown, Wisconsin. Schurz’s program focused on Froebel’s principles.
1860	Elizabeth Peabody opened the first English-speaking kindergarten in Boston, Massachusetts. Peabody adapted Froebel’s approach and included individualized instruction by adapting activities to the children’s abilities. She helped gain support for public kindergartens in the United States.
1896	John Dewey opened a laboratory school at the University of Chicago. Dewey supported a child-centered approach where children learn by doing. He believed children should be able to explore the world around them. He encouraged teachers to observe children use the children’s interests for integrating subject matter into the curriculum. Through a purposeful curriculum, Dewey also encouraged the development of critical-thinking and problem-solving skills.
1900s	Arnold Gesell, the Director of Yale Clinic of Child Development, developed age-related norms that characterize children’s tasks and behaviors. He found that children reach developmental milestones in a fairly predictable sequence and within a reasonable time frame. He believed a child’s development was directed by the action of genes.
1907	Maria Montessori, an Italian doctor, opened her first school in the slums of Rome. She is well-known for her work with children with disabilities. Montessori stressed practical life tasks such as washing and dressing. Her schools emerged in America after her death in 1951. Today her theories influence how many early childhood programs are structured.
1911	Margaret McMillan, who had a background in social work, opened a nursery school in the slums of London. The child’s overall welfare was the focus. Hygiene, active hands-on learning, and outdoor play were emphasized. McMillan was the first to write about the influence teachers could have on a child’s brain development during this formative time.
1916	The first parent cooperative for children between 18 months and 7 years of age began at the University of Chicago.
1920s and 1930s	Many college home economics departments began nursery schools. The emphasis was on the whole child with children playing freely indoors and outdoors in carefully designed learning environments.
1923	Jean Jacques Piaget published <i>The Language and Thought of the Child</i> . He developed the cognitive theory of development, which focuses on how children’s intelligence and thinking abilities emerge through distinct stages. According to Piaget, children play an active role in their own cognitive development.
1926	Patty Smith Hill founded the National Association of Nursery Education, which is now called the National Association for the Education of Young Children (NAEYC). Hill believed that kindergartens should be open to innovation as well as remain faithful to Froebel’s ideas. She brought innovation to Froebel’s kindergarten, establishing the foundation for modern kindergartens in the United States today. However, critics thought it was too rigid.
1940s	Benjamin Spock introduced a best-selling book on child care, <i>The Common Sense Book of Baby and Child Care</i> .
1942	The <i>Lanham Act</i> passed. Federally funded day care provided support to mothers working in defense plants.
1943–1945	The Kaiser Company opened two child care centers in Portland, Oregon, to attract female workers during the war.
1944	<i>Young Children</i> , a journal for people working with young children, was first published.

Continued

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Figure 3.9 Many people and events have had great influence on the education of young children.

Historical Influences on Educating Children (continued)

Date	Historical Influence
1946	Mamie Phipps Clark was the first African American woman to earn a Ph.D. in experimental psychology, which she did from Columbia University. She is best known for her research on race, self-esteem, and child development. Clark and her husband founded the Northside Child Development Center in the basement of the Paul Lawrence Dunbar Apartments. The center was the first to provide therapy for Black children in Harlem. They also helped families in need of housing. Today, the center provides math tutoring, nutritional workshops, and parental training.
1950	Erik Erikson, who developed the psychosocial theory, published <i>Childhood and Society</i> . Erikson's work is the foundation of current beliefs about children's personality development. His theory covers the human life span.
1954	Inez Beverly Prosser was the first African American woman to earn a doctorate degree in psychology. Her historic academic work focused on the damaging effect of racism on African American children and how best to educate Black students. Prosser's work was referenced in the debates surrounding the <i>Brown v. the Board of Education of Topeka, Kansas</i> U.S. Supreme Court ruling of 1954, mandating integration in the nation's public schools.
1964	Martha Bernal was the first Latina woman in the United States to earn a doctorate degree in psychology. Bernal's work helped advance a multicultural psychology that promotes diversity in training, research, and practice. She provided clinical psychologists with training on mental health issues. While working at UCLA's Neuropsychiatric Institute, Bernal assisted with the development of behavioral interventions. Parents were given training and lesson plans to help with their children's behavioral challenges.
1965	The first <i>Head Start</i> pilot program was introduced as part of President Lyndon Johnson's War on Poverty initiatives. The focus was to alleviate the risks to children and families related to living in poverty through health, wellness, and education. Head Start has become the largest provider of medical services and education for children of low-income families.
1972	The Child Development Associate Consortium (CDA) was founded to develop professional training programs. The credential is competency based.
1978	Lev Vygotsky's book, <i>Mind in Society: The Developmental of Higher Psychological Processes</i> , was printed in English. Vygotsky believed historic and social forces shape intellectual ability and children use language to organize their thinking.
1983	Howard Gardner published <i>Frames of Mind</i> , which describes his theory of multiple intelligences. The teacher's role is to assess each child's abilities, interests, and goals as a foundation for curriculum development. Learning experiences should be comfortable for the children and stimulate their development in each of the intelligences.
1986	The National Association for the Education of Young Children (NAEYC) published a position paper, "Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth to Age 8." The publication included standards for high-quality care and education for young children.
1993	Universal preschools began to emerge. The goal of public prekindergarten is to enable every child with the skills needed to succeed in school.
1996	The Family and Work Institute published <i>Rethinking the Brain</i> , which includes new research on brain development. The book shows the importance of early experiences.
1998	Head Start was reauthorized to provide additional resources for quality enhancement and technical assistance.
2000	The Reggio Emilia approach to education gained increasing attention. The child-centered curriculum is based on many of Piaget's and Vygotsky's theoretical principles. This approach emphasizes the importance of creating authentic learning environments. There is a focus on relationships among parents, teachers, and the community. Much of the curriculum focuses on projects that allow a child to explore a personally meaningful concept or theme. Children's work is carefully documented through transcripts of discussions and photographs of their activities.
2001	The <i>No Child Left Behind Act</i> became law. The law was designed to improve the quality of education and improve outcomes for all students. The law requires that teachers to be highly qualified and schools to be accountable for student achievement.
2003	Early Learning Standards defining what children should know and be able to know emerged.
2012	NAEYC published <i>The Common Core State Standards: Caution and Opportunity for Early Childhood Education</i> .
2014	Every state has Early Learning Standards, and most states have proposed changes to them. Most states have Kindergarten Entry Assessments (KEA).
2019	NAEYC adopted a position statement on <i>Advancing Equity in Early Childhood</i> .
2021	NAEYC adopted the Fourth Edition of <i>Developmentally Appropriate Practices</i> .

Safety First



The Human Need for Safety

According to psychologist Abraham Maslow, the human need for safety must be met before growth and development occurs in other areas. This is especially true for young children. What does this mean for early childhood teachers and caregivers? Be alert to what causes children in your care to feel unsafe or have fear. Some children may cling to you for security. Others may act out by hitting or biting. Still others may react negatively to “strangers” in the room. On a continuing basis, look for ways to keep children feeling secure. For example, this may mean standing close to a child who fears strangers when a new person is in the room.

Erikson’s Psychosocial Theory

Erik Erikson (1902–1994) proposed a theory of *psychosocial development*. He believed development occurs throughout the life span in a series of stages. Each stage represents a vital period in social development. His theory provided new insights into the formation of a healthy personality. It emphasizes the social and emotional aspects of growth. Children’s personalities develop in response to their social environment. The same is true of their skills for social interaction.

Erikson’s theory includes eight stages that reflect feelings people bring to tasks. At each stage, a social conflict or crisis occurs. These are not generally tragic situations; however, they require solutions that are satisfying both personally and socially. Erikson believed that each stage must be resolved before children can ascend to the next stage.

Maturity and social forces help in the resolution of the crisis or conflict. Therefore, teachers and parents play a powerful role in recognizing each stage. By providing social opportunity and support, teachers and parents can help children overcome each crisis.

Figure 3.10 contains the first four stages of Erikson’s theory. These stages occur during the early childhood years. The paragraphs that follow summarize these early stages.

Stage 1: Trust Versus Mistrust

From birth through the first year of life, children learn to trust or mistrust their environment. To develop trust, they need to have warm, consistent, predictable, and attentive care (**Figure 3.11**). They need caregivers who will accurately read and respond to their signals. When infants are distressed, they need to be comforted. They also need loving physical contact, nourishment, cleanliness, and warmth. Then they will develop a sense of confidence and trust that the world is safe and dependable. Mistrust will occur if an infant experiences an unpredictable world and is handled harshly.

Erikson’s Stages of Development During Early Childhood

Stage	Approximate Age	Psychosocial Crisis	Strength
I	Birth–18 months	Trust versus mistrust	Hope
II	18 months–3 years	Autonomy versus shame and doubt	Willpower
III	3–6 years	Initiative versus guilt	Purpose
IV	6–12 years	Industry versus inferiority	Competence

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Figure 3.10 According to Erikson, children’s personalities develop in response to their social environment. During these stages, children experience a social conflict or crisis that they must resolve before moving to the next stage. **Give an example of a crisis a child may experience between the ages of six and eleven years of age. What factors may influence a child’s success in handling the crisis?**



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Figure 3.11 These children build trust by forming a loving, caring relationship with their teacher.

Stage 2: Autonomy Versus Shame and Doubt

This second stage occurs between one and three years of age. During this stage, toddlers use their new motor and mental skills. They want to be independent from those with whom they bonded. They want to choose and do things for themselves. They are in the process of discovering their own bodies and practicing their developing locomotor (physical movement) and language skills.

During this stage, children need clear and consistent limits. They rebel against rules and are often negative when confronted by a caregiver. The objective of this stage is to gain self-control without a loss of self-esteem. Fostering independence in children is important. At this age, toddlers start to become self-sufficient. They need to learn to make simple choices and decide for themselves. To do this, toddlers need a loving, supportive environment. Positive

opportunities for self-feeding, toileting, dressing, and exploration will result in **autonomy**, or independence. In contrast, overprotection or lack of adequate activities results in self-doubt, poor achievement, and shame.

Stage 3: Initiative Versus Guilt

Between three to six years of age, the third stage occurs. According to Erikson, it emerges because of the many skills children have developed. Now children have the capacity and are ready to learn constructive ways of dealing with people and things. They are learning how to take initiative without being hurtful to others. They are also busy discovering how the world works. Children begin to realize that they can influence the world, too. Challenged by the environment, children are constantly attempting and mastering new tasks. Aided by strong initiative, they can move ahead energetically and quickly forget failures. This gives them a sense of accomplishment.

Children at this stage need to create, take risks, and develop a sense of purpose. This happens when adults direct children's urges toward acceptable social practices. If children are discouraged by criticism, feelings of incompetence and guilt are likely to emerge. This can also occur if parents demand too much control.

Stage 4: Industry Versus Inferiority

The major crisis of this stage occurs between six and eleven years of age when children enjoy planning and carrying out projects. This helps them learn society's rules and expectations. During this stage, children gain approval by developing intellectual skills, such as reading, writing, and math. Successes in and out of school will make them feel competent.

The way family, neighbors, teachers, and friends respond to children affects their future development. Realistic goals and expectations enrich children's sense of self. Children can become frustrated by criticism or discouragement, or if parents demand too much control. Feelings of incompetence and insecurity will emerge.

Workplace Connections

Observing Erikson's Stages in Children

Observe infant, toddler, and preschool-age children at play in a childcare center. Try to identify activities or actions a child performs that show which of Erikson's stages of development the child is demonstrating.

1. Interview the center's staff to discover how they view Erikson's developmental theories.
2. What role do Erikson's theories play in the center's daily program?

Piaget's Cognitive Development Theory

Jean Piaget's (1896–1980) thinking has challenged teachers to focus on the ways children learn to know as opposed to what they know. His theory of cognitive development focuses on predictable cognitive (thinking) stages and

ages. Piaget believed that thinking was different during each stage of development. His theory explained mental operations, which includes how children perceive, think, understand, and learn about their world. He was interested in what knowledge is and how children acquire it.

Piaget's theory focuses on how thinking and language influence all aspects of life. He believed that children naturally attempt to understand what they do not know. They are little scientists and construct their own intelligence. Children gradually build knowledge through active involvement in first-hand experiences with people, places, and objects in their world. For example, by physically handling objects, young children discover that relationships exist between them (**Figure 3.12**). Terms Piaget used to describe these processes were *schemata*, *adaptation*, *assimilation*, and *accommodation*. These processes occur during each stage of development.

Schemata are mental representations of organized units of knowledge. As children receive new information, they are constantly creating, modifying, organizing, and reorganizing schemata. Piaget believed physical activity was important in the process of developing new schemes.

Adaptation is a term Piaget used for children mentally organizing what they perceive in their environment. When new information or experiences occur, children must adapt to include



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Figure 3.12 According to Piaget, children construct their knowledge of the world through activities. **What activities might help a child develop the skill of conservation during the preoperational stage?**

this information in their thinking. If this new information does not fit with what children already know, a state of imbalance occurs. To return to balance, adaptation occurs through either assimilation or accommodation.

- **Assimilation** is the process of taking in new information and adding it to what the child already knows.
- **Accommodation** is adjusting what is already known to fit the new information. This process is how people organize their thoughts and develop intellectual structures.

Piaget's stages of cognitive development are the same for all children. Most children proceed through the stages in order. Each stage builds on a previous stage. The age at which a child progresses through these stages, however, is variable due to differences in maturation.

Although Piaget did not apply his theory directly to education, he did strongly influence children's early education. Many teaching strategies have developed from his work. Caregivers and teachers now know that learning is an active process. Providing children with stimulating, hands-on activities helps them build knowledge. Piaget's theory includes four age-related stages: *sensorimotor*, *preoperational*, *concrete*, and *formal operations*. The first three stages occur during early childhood and the early school-age years.

The **sensorimotor stage** takes place between birth and about two years of age. Infants use all their senses and motor activity to explore and learn. In this way, sensory experiences and motor development promote cognitive development. Babies' physical actions, such as sucking, grasping, and gross-motor activities help them learn about their surroundings. Movements are random at first. Gradually they become intentional as children repeat these behaviors. During this stage, children begin to learn **object permanence**, which is the knowledge that objects still exist even when they are out of sight. Through exploration and exposure to new experiences, children learn new concepts (Figure 3.13).

The **preoperational stage** takes place between ages two and seven. Children during



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Figure 3.13 This child is at the sensorimotor stage of Piaget's cognitive development and is using all senses to learn.

this stage are very *egocentric*. This means that they assume others see the world the same way they do. Children do not yet have the ability to see others' points of view. During this time, children learn representation skills, including language, symbolic play, and drawing. Children learn to use symbols and internal images, but their thinking is illogical. It differs greatly from that of adults. Children begin to understand that changing the physical appearance of something does not change the amount. They can recognize the difference between size and volume. They can stretch a ball of clay into a long rope. Even if the physical appearance changes, the amount of the object does not change. This skill is called *conservation*. At this stage, children can also classify groups of objects and put objects in a series in order.

During the ages of seven to about age twelve years of age **concrete operations**, the third stage of Piaget's theory of cognitive development, begins. Children develop the capacity to think systematically, but only when they can refer to actual objects and use hands-on activities. Then they begin to internalize some tasks. This means they no longer need to depend on what they see. Children become capable of reversing operations. For example, they understand that $3 + 1$ is the same as $1 + 3$. When presented with actual

situations, children are beginning to understand others' points of view.

The fourth stage, **formal operations**, takes place from eleven years of age to adulthood. According to Piaget, young people develop the capacity to think in purely abstract ways. They no longer need concrete examples. Problem solving and reasoning are key skills developed during this stage.

Montessori Method

In the early 1900s, Maria Montessori developed her own method of education. She was the first woman in Italy to receive a degree in medicine. Early in her career, she was an assistant doctor at a clinic that served children with mental disabilities. Montessori's observations of these children indicated that they lacked stimulation.

Montessori brought her scientific skills to the classroom to determine the children's needs. She developed her theory of education while working with and observing these children. This theory stated children learn best by being active in well-planned spaces. Montessori soon learned these methods were usable with other children. This led to the development of the first Montessori School in Rome.

Knowledge of Montessori's theory and methods spread throughout the world. After a short period of popularity, however, interest in this method declined over the next 40 years. In the 1950s, there was a rebirth of the Montessori method. Magazines and television helped make this method known. Montessori received nominations for a Nobel Peace Prize three times. Today her philosophy, materials, and methods are in use in private and public schools throughout the world. By observing in Montessori programs, you will note a wide diversity. While some programs strictly adhere to Montessori's principles, others do not.

Montessori Approach

In her first schools in Rome, Montessori stressed proper nutrition, cleanliness, manners, and sensory training. Children also worked with special equipment she designed (**Figure 3.14**).

These materials were self-correcting and required little adult guidance. The teacher organized these materials from simple to complex to make learning possible. By handling and moving the materials, the children's senses were trained and they learned to think. They also learned number concepts as well as motor, language, writing, and self-help skills.

Montessori created interesting and beautiful environments to stimulate the children's senses. The tables, chairs, and tools were child-sized. Children's artwork was carefully matted and hung. This practice allowed the children to appreciate the work by observing the color and design. Children were also encouraged to take responsibility for the environment by being involved in real-life work. For instance, they washed and set the tables for lunch.

Montessori believed in self-education in multiage groups. The primary goal of the **Montessori approach** was for children to "learn how to learn" in a prescribed environment. After observing and analyzing the children, teachers would provide instructional materials in a prescribed sequence, which related to the children's physical and mental development. This self-directed learning approach allowed the child to interact with the environment by exploring materials. Montessori believed that this approach



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Figure 3.14 According to Vygotsky, children learn the rules of social interaction through play. **What social skills do you think these two young peers are learning?**

would provide the child freedom within limits. It would also help the children to learn logically.

In Montessori schools, daily living exercises were designed to promote independence. Children must learn to care for themselves and learned self-reliance. Teachers provided little help. As a result, children learned to button, zip, tie, and put on coats and boots.

The purpose of sensory training was to help children refine their senses and help develop intelligence. They learned touch, taste, sight, and auditory discrimination. One piece of equipment for this training was a set of sandpaper blocks that vary in texture. The children were to rub their fingers across the blocks. Their goal was to correctly match blocks with like textures. Musical bells with varying tones were used similarly. Children matched bells that have like tones. Montessori schools still use teaching equipment like this today.

Montessori programs also stressed academics. Before introducing children to these experiences, however, they usually had to achieve mastery of sensory training. Then, to teach letter recognition, sandpaper letters were used. After the teacher introduced a letter, children were encouraged to trace the letter with their fingertips. Teachers taught numbers in the same manner. When children demonstrated knowledge of and interest in letters, they began reading instruction.

In addition to daily living exercises, sensory training, and academics, teachers planned artistic or cultural experiences, too. Exposure to artistic materials helped children learn about color and line. By playing with instruments and dancing, they learned music appreciation.

Observing in a current Montessori program, you typically will find

- well-planned spaces for children focused on beauty and order;
- child-sized tables and chairs;
- child-sized tools workbenches, hammers, saws, and scissors;
- materials and equipment carefully organized and within the child's reach;
- children assuming responsibility caring for the environment;

- scheduling that includes large blocks of time so children will not be interrupted; and
- teachers using observation to support children's needs and behavior.

Vygotsky's Sociocultural Theory

Both Jean Piaget and Lev Vygotsky (1896–1984) were *constructivists*. They believed that children build knowledge by being mentally and physically involved in learning activities. Piaget believed this happened through exploration with hands-on activities. Vygotsky believed that children learn through social and cultural experiences. He was interested in how the values, customs, beliefs, and skills of a social group were transmitted to the next generation. He believed that social interactions with peers and expert adults help children in this process. For this reason, families and teachers should provide plenty of social interaction for young children (**Figure 3.15**).

Vygotsky believed that language is an important tool for thought and plays a key role in cognitive development. He introduced the term **private speech**, or self-talk. This refers to when children “think out loud” as a means of guidance and direction. After learning language, children engage in self-talk to help guide their activity and develop their thinking. Generally, self-talk continues until children reach school age.

One of Vygotsky's most important contributions was the **zone of proximal development (ZPD)**. This concept presents learning as a scale. One end of the scale or “zone” includes the tasks that are within the child's current developmental level. The other end of the scale includes tasks too difficult for children to accomplish, even with help. In the middle are the tasks children cannot accomplish alone. Children achieve these tasks with guidance and encouragement from another knowledgeable peer or adult. The term used for this assistance is **scaffolding**. Just as a painter needs a structure on which to stand and paint a building, scaffolding provides the structure for learning to occur. For example, a teacher could scaffold a child's learning while constructing a puzzle. The



FatCamera/E+ via Getty Images

Figure 3.15 Vygotsky believed it is important to support language development. During storytelling, the teacher extends the experience by asking questions.

teacher might show how a piece fits or provide clues regarding color, shape, or size. The “zone” is constantly changing. In contrast to Piaget, Vygotsky believed that learning was not limited by stage or maturation. Children move forward in their cognitive development with the right social interaction and guided learning.

John Dewey: Progressive Teaching Theory

John Dewey (1859–1952), was an American philosopher, psychologist, and educational reformer, is credited with some of America’s best educational practices. Until his death, at the age of 93, Dewey was a prolific writer committed to progressive education.

While at the University of Chicago, Dewey founded the *Laboratory School*. The school

provided him a site to introduce and test his progressive teaching methods. He was opposed to the techniques used in the nineteenth and twentieth century. At the time, the American schools were authoritarian, rigid, and highly structured. Young children sat quietly in rows and spent hours, even days, memorizing information.

Dewey believed in progressivism. It was an educational theory that emphasized the child’s nature and interests as opposed to those of the teacher. According to Dewey, children were social beings. They learned best while interacting and problem-solving with others. He also believed schools should be more democratic. Schools were to promote socially responsible citizens. This meant teachers needed to teach and model how to live in society.

Dewey's Approach

Like Montessori, Dewey supported a child-centered educational philosophy and the power of observation and play. One of his publications was entitled, *The Child and Curriculum*. To provide a quality curriculum, teachers carefully conducted a plan by using observation. Progress, achievement, behavior, and needs required regular documentation. A child's interests formed the basis for planning educational experiences. The intention of these real-life learning experiences was to prepare the child for the future.

Dewey thought teachers needed to ask themselves a series of questions during the curriculum-planning process. Included were:

- Is the experience based on the children's interests and/or needs?
- What is the purpose of the activity?
- What new knowledge and or skills will children gain?
- Will the children be physically engaged manipulating physical objects to learn concepts, knowledge and skills?

Many of Dewey's beliefs today are the basis for developmentally appropriate practices (DAP). Much like the focus on intentionality today, Dewey felt teachers needed to prepare learning experiences carefully. These experiences included *hands-on* and *minds-on* learning activities that involved the children's manipulation and exploration of objects.

Gardner's Multiple Intelligences Theory

Howard Gardner (1943-) has helped teachers rethink how they work with young children. He describes intelligence in terms of cognitive skills, talents, and abilities. Gardner's theory of **multiple intelligences** emphasizes that there are eight potential pathways to learning. Gardner believes intelligence results from the complex interactions between children's heredity and experiences. This theory focuses on how cultures shape human potential. Since publishing his theory in the 1980s, Gardner has continued to expand and revise parts of his theory.

Early Childhood Insight

Kohlberg's Theory of Moral Development

Lawrence Kohlberg, an American developmental psychologist, formed his theory on how children develop an understanding of moral concepts by interviewing children over a period of 20 years. Based on his research, Kohlberg determined that moral development occurred in six stages he grouped into three major levels.

- **Pre-Conventional Level:** At this level, children are very egocentric in their views on morality. They judge moral issues based on whether they will receive punishment. They do

not understand that others have different viewpoints.

- **Conventional Level:** Children and adolescents at this level have a basic understanding of morality. They accept and obey society's moral rules even if there are no consequences.
- **Post-Conventional Level:** At this level, individuals may base moral decisions on their own views or principles over society's views. They hold mutual respect, however, for those values and opinions that differ.

Pre-Conventional Level	Conventional Level	Post-Conventional Level
Stage 1: Obedience and punishment orientation	Stage 3: Interpersonal accord and conformity	Stage 5: Social contract orientation
Stage 2: Self-interest orientation	Stage 4: Authority and social-order maintaining orientation	Stage 6: Universal ethical principles

Gardner claims that intelligence is pluralistic. Children learn and express themselves in many ways. In the process, they are using several types of intelligence. Each intelligence functions separately, but all are closely linked. According to Gardner, unless nurtured, a potential intelligence will not develop. Learning is best achieved by using a child's strongest intelligence. Gardner claims, however, that all children need opportunities to develop all areas of intelligence.

The multiple intelligence theory allows teachers to see the positive attributes of all children. Teachers also view Gardner's theory as a meaningful guide for making curriculum decisions. It gives them a chance to assess children's learning strengths. From this data, teachers can plan a wide variety of learning experiences to encourage various intelligences

in all children. They can individualize their curriculum, environment, and approaches. **Figure 3.16** lists the intelligences currently endorsed by Gardner. The paragraphs that follow explain these intelligences. Other proposed intelligences, which are still under examination, may be added to Gardner's theory in the future.

Bodily-Kinesthetic Intelligence

Bodily-kinesthetic intelligence involves the ability to coordinate one's own body movements. This includes using parts of the body to solve problems, handle objects, and express emotions. People with this type of intelligence typically enjoy sports, dance, or creative drama. They can express themselves with their entire bodies. Children will benefit from creative-movement experiences and role-playing.

Gardner's Intelligences

Intelligence Type	Description
Bodily-kinesthetic	Ability to control one's own body movements and manipulate objects Use of fingers, hands, arms, and legs to solve problems, express ideas, construct, and repair
Musical-rhythmic	Ability to recognize, create, and appreciate pitch, rhythm, and tone quality Ability to use different forms of musical expression
Logical-mathematical	Ability to use logic, reason, and mathematics to solve problems Ability to apply principles of cause-and-effect and prediction Appreciation of patterns as well as relationships
Verbal-linguistic	Ability to use well-developed language skills to express thoughts, feelings, and ideas and understand others Sensitivity to sounds, rhythm, and meaning of words
Interpersonal	Ability to understand feelings, behaviors, and motives of others Ability to work effectively with others
Intrapersonal	Ability to understand personal strengths, weaknesses, talents, and interests Knowledge of skills, limitations, emotions, desires, and motivations
Visual-spatial	Ability to form mental images Ability to visualize the relationship of objects in space
Naturalistic	Ability to distinguish between living things such as plants and animals Ability to detect features of the natural world such as rock configurations and clouds

Figure 3.16 Gardner believes that a potential intelligence requires nurturing to develop. He also believes that children need opportunities to develop all areas of intelligence. **Read Gardner's list of intelligences. Do you agree or disagree that children need opportunities to develop all areas of intelligence? Explain your response.**

Gardner suggests children with this type of intelligence process knowledge through a physical experience. They enjoy touch and creating with their hands. Therefore, teachers and caregivers should provide children with daily opportunities for hands-on manipulative activities. Clay, sand, dough, feely boxes, and other sensory activities help them develop fine-motor skills. Movement is also necessary for gross-motor skills and coordination. It is important for caregivers and teachers to provide activities involving physical challenges. These may include playing kickball, jumping rope, and moving to music.

Musical-Rhythmic Intelligence

Musical-rhythmic intelligence involves the ability to recognize musical patterns. It also includes the ability to produce and appreciate music. Since music evokes emotion, this is one of the earliest intelligences to emerge. Composers and musicians are examples of people with this type of intelligence.

Children with this type of intelligence love listening to and moving to music. They are drawn to the art of sound and appreciate all forms of musical expression. They have a well-developed auditory sense and can discriminate tone, pitch, and rhythmic patterns. As a result, they often cannot get songs out of their minds. You will hear them repeatedly singing or humming. This helps them understand concepts and remember information.

Activities to support musical intelligence can be included throughout the day. Offer opportunities for sound exploration through listening and singing. Use songs for directions and moving children from one activity to another. They love making the connection between their bodies and music. Play background music during self-selected play. Include songs during large- and small-group activities. Record the children creating their own music while singing or chanting. Explore rhythm by moving to recorded music. Use different instruments and instruments from other cultures to add variety.

Logical-Mathematical Intelligence

Logical-mathematical intelligence is more than just the ability to use math. It is the ability to use logic and reason to solve problems. Math experts have this form of intelligence. Scientists, composers, and computer programmers also use this type of intelligence in their work. This intelligence involves the ability to explore categories, patterns, and other relationships (**Figure 3.17**). It includes applying the principle of cause-and-effect.

Children with this type of intelligence take pleasure in problem-solving by finding patterns and relationships. They enjoy discovering similarities and differences. Teachers and caregivers should provide manipulatives for matching, measuring, and counting. Blocks can encourage the children's problem-solving and reasoning skills. Storybooks that show a sequence of events hold appeal for this type of intelligence. Water and sand activities with different-sized containers help teach the concept of volume.

Verbal-Linguistic Intelligence

Verbal-linguistic intelligence involves the ability to use language for expression. People with this type of intelligence have listening, speaking, reading, and writing skills. They demonstrate



Rawpixel via Getty Images

Figure 3.17 Children with logical-mathematical intelligence enjoy discovering similarities and differences.

sensitivity to the meaning, sound, and rhythm of words. Lawyers, poets, public speakers, and language translators have this type of intelligence.

Young children with this intelligence enjoy learning by talking, listening, reading, writing, learning languages, and playing word games. These children quickly learn the words to new stories, songs, and finger plays. They enjoy talking to other people and find the right words to express themselves. They can also speak in an interesting and engaging manner. They are also able to learn a second language with ease.

Environments rich with language opportunities can nurture verbal-linguistic intelligence. Children learn language in settings where it is used. Teachers need to follow the children's interests and then use these interests to engage children in meaningful conversations. Children's storybooks, songs, poetry, chants, riddles, and rhymes can serve as a means for learning new vocabulary words. Listening to and telling stories can also promote language development.

Interpersonal Intelligence

People with *interpersonal intelligence* display excellent communication and social skills. These people have a gift for understanding the feelings, behaviors, moods, and motives of others. They make friends easily and understand their intentions and desires. They use language to develop trust and bonds with others. They are also skilled in supporting others and empathizing with them. These skills are important for teachers, politicians, religious leaders, comedians, salespeople, and people working in the service industry.

These skills are nurtured in young children when caring behaviors are modeled for them. Teachers should keep this in mind. They can share experiences and provide the children with chances for verbal interaction. Children can act out stories from books focusing on emotions.

Intrapersonal Intelligence

Intrapersonal intelligence, or self-awareness, is the ability to understand the inner self. It involves knowing your strengths, limits, and feelings. It includes understanding your desires and motives.

The ability to organize groups of people is part of this strength. Communicating needs clearly is another aspect. Psychologists, social workers, religious leaders, and counselors are examples of people with this type of intelligence.

How can you foster this type of intelligence? In the classroom, share emotions that all children experience. These include joy, sadness, regret, and disappointment. Along with sharing classroom experiences, share storybooks as well as that contain emotional concepts.

Visual-Spatial Intelligence

Visual-spatial intelligence allows people to visualize the world in three dimensions. They use their vision to develop mental images. People who have this type of intelligence are observant and show a preference for pictures and images. Photographers, artists, scientists, and athletes are some examples. Architects, engineers, and surgeons also need this ability to see the relationship between objects in space.

Teachers can foster this intelligence by providing children with a stimulating environment. Building blocks, solving puzzles, and reading maps and charts strengthen this type of intelligence (**Figure 3.18**). Children like



snowcake/Shutterstock.com

Figure 3.18 Visual-spatial intelligence can be promoted through toys such as blocks and puzzles. **As a future teacher or caregiver, what other activities might you offer children to promote visual-spatial intelligence?**

to see, touch, and manipulate objects. Make and use visual aids wherever possible. For example, display all classroom schedules, recipes, and stories in charts. They can label shelving units with pictures cut from equipment catalogs.

Naturalistic Intelligence

Development of *naturalistic intelligence* occurs from the need to survive. This is the ability to classify living objects in nature, such as animals and plants. It depends on a type of pattern recognition. This strength also includes the ability to distinguish among types and brands of objects. Sailors, gardeners, zoologists, biologists, chefs, and farmers are people who have this intelligence.

To build on this intelligence, provide cooking activities, nature walks, and classroom animals. These activities help develop use of the senses to gather information. Planting and growing a garden help the children observe cycles. Children can collect rocks, seashells, flowers, leaves, seeds, and coins. In the classroom, they can sort and classify their findings. Post picture collections of plants, animals, bugs, fish, and seashells. Share books about natural events.

Making the Pieces Fit

You might think, “How will understanding the areas and principles of development, the brain, and theories help me when working with children?” The answer is both simple and complex. It is much like fitting together the pieces of a puzzle. To become a nurturing, responsive teacher, you must have insight into how children grow and develop.

The brain affects all aspects of growth and development. The areas and principles of development are similar for all children. Development generally progresses predictably for all children. Although each theory looks at development from a different angle, each offers a wealth of insight into how children develop and learn. On what do the theorists agree? Children learn best in a predictable, caring environment rich with opportunity for learning. In addition, caregivers help build the self-confidence and self-worth that children need to safely explore the world.

Lesson 3.2 Review

- True or False.** Children were treated as adults in early America. (3.2.1)
- Which of the following is not a stage of Erikson’s psychosocial theory that takes place during the early childhood years? (3.2.2)
 - Trust versus mistrust
 - Executive function versus inaction
 - Autonomy versus shame and doubt
 - Initiative versus guilt
- The purpose of Montessori’s daily living exercises was to (3.2.2)
 - promote independence.
 - teach pre-reading skills.
 - promote trust between children and their caregivers.
 - ease separation anxiety.
- What term did Vygotsky use to describe assistance provided to a child by a knowledgeable peer or adult? (3.2.2)
 - Zone of Proximal Development (ZPD)
 - Private speech
 - Scaffolding
 - Multiple intelligences

Chapter 3 Review and Assessment

Summary

Lesson 3.1

- 3.1-1** Understanding and applying the principles of child development will help make you a successful caregiver or early childhood teacher.
- 3.1-1** The study of child development is divided into three main domains—physical, cognitive, and social-emotional development. This specialized body of knowledge informs teaching practices.
- 3.1-2** Brain development occurs rapidly during the first three years of life and is influenced by a number of factors.
- 3.1-2** The connections between nerve cells are created as a child interacts with the environment. The brain's structure is changed by learning new things.
- 3.1-2** Infant care and interaction with caregivers is crucial to brain development, and can affect lifelong outcomes in learning, behavior, health, and opportunity.

Lesson 3.2

- 3.2-1** High quality programs contribute to children's healthy development, behavior, learning, resilience, and opportunity.
- 3.2-1** New and old traditions influence best practices in early childhood education. So, understanding theories is important.
- 3.2-2** Theories help explain children's growth, development, and learning.
- 3.2-2** Understanding theories will help you plan an interesting classroom environment and learning experiences to best promote developmentally appropriate practices.

- 3.2-2** The theories of Erikson, Piaget, Montessori, Vygotsky, Dewey, and Gardner present differing views on how children grow, develop, and learn that can help inform how teachers and caregivers provide activities to support children's growth, development, and learning.

Vocabulary Activity

In small groups, create categories for the for the chapter Key Terms and classify as many of the terms as possible. Then, share your ideas with the other groups in the class.

Critical Thinking

1. **Create.** Create a digital photo file of children at various stages of maturation. Prepare a digital slide show of the photos and discuss the stage of development demonstrated in each picture.
2. **Make Inferences.** Visit an infant or toddler program. Observe and record strategies used by teachers to promote the development of trust.
3. **Execute.** Contact the public relations personnel of your school and research the legalities concerning taking pictures of children. Create a form to use when seeking permission to take and use photographs of children for educational purposes. Save the project in your portfolio.
4. **Draw Conclusions.** Observe a group of preschool children in a classroom setting. Record examples of how the teachers used scaffolding the children's learning.
5. **Analyze.** Review Gardner's theory of multiple intelligences. Analyze and describe the intelligence area that you believe is your strength. What evidence do you have that supports your belief? Investigate what other researchers say about the validity of Gardner's multiple intelligences. Do these comments change your opinion about the area of intelligence you regard as your strength? Why or why not?

Core Skills

1. **Research.** Use psychology references and websites to review theories of development discussed in this chapter.
2. **Math.** Search for information regarding the development of mathematical and logic abilities in infants and young children. What do researchers say about this subject? What role, if any, do worksheets and flash cards have in the development of these skills? What developmentally appropriate activities can be recommended for the development of these skills during the critical years between one and four years of age? Discuss your findings in class.
3. **Reading.** Read the information at the website *Zero to Three* about stimulating the infant's developing brain through touch, voice, movement, and vision.
4. **Research and Writing.** Search online for information concerning conditions in children that might cause development delays. Are these delays the result of genetics, accident, or disease? Are they always permanent? What treatments are available for children with developmental challenges? For genetic conditions, are any prenatal screenings available to detect the presence of the defect before birth? Write a brief report of your findings.
5. **Research and Writing.** Research the formation of Piaget's cognitive development theory. What early professional experiences led Piaget to propose his theory? What are the two major aspects of Piaget's theory? How did Piaget's early training as a biologist influence his beliefs concerning how individuals begin to learn? Write a short essay based on your research.
6. **Research and Speaking.** Search online for information regarding the appropriate age for introducing technology toys and games for young children. What can young children gain from playing with hi-tech toys? How might growth and development be affected when children engage more often in play with hi-tech toys than in creative and imaginative play with traditional play materials and equipment? Choose a side and debate the merits of each.
7. **Research and Writing.** Using online or print resources, research the biography of Maria Montessori. Write a one-page report detailing how Maria Montessori's early experiences in medicine led her to define a philosophy of early childhood education. Discuss her contribution to the way children are educated today.
8. **CTE Career Readiness Practice.** Examine and analyze Figure 3.9 in your text. How can this help you in working with young children? Then answer the following questions regarding information the author presented in this figure.
 - A. Who opened the first English-speaking kindergarten?
 - B. What act provided federally funded day care to mothers working in defense plants?
 - C. When was the first Head Start pilot program introduced?
 - D. Where did Maria Montessori open her first school?
 - E. How did the No Child Left Behind Act affect education?

Portfolio Project

1. Using print or Internet sources, search for information on Piaget's conservation experiments. Attempt to duplicate the experiments with young children from a local preschool classroom, kindergarten, or early elementary school. What do the results of the experiments convey about a young child's development of conservation abilities? What about a young child's ability to think and reason logically? Write an essay of your findings and place a copy in your portfolio.
2. Research the work of Howard Gardner and how he came to develop his theory. For example, why is the work of Dr. Gardner relevant considering today's educational crisis? How can applying Dr. Gardner's theory to the classroom encourage greater success in today's students? Write a brief essay on how you would incorporate the use of the intelligences in education and activities for young children. Save a copy of the essay in your portfolio.