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TEXT: National Center for Technology Innovation (NCTI), American Institutes for Research (AIR)

Infancy and Childhood

ESSENTIAL QUESTIONS • *How do our abilities change from birth to childhood?*
• *What impact do parents have on the development of their children?*

networks

There's More Online about infancy and childhood.

CHAPTER 3

Psychology Matters...

According to Greek mythology, the goddess Athena sprang full-grown from the head of her father Zeus. While it may seem efficient to skip childhood and adolescence, imagine what your life would be like today if you had missed those early steps. The process that brought you to your present stage of development helped make you the person you are today. In this chapter, we will learn about the development that occurs prior to birth, during infancy, and into childhood.

◀ Childhood is a time of rapid growth and development. Families provide an ideal setting for nurturing this growth.

Rob Howard/Corbis

CHAPTER 3

Lab Activity

Learning Languages

THE QUESTION...

RESEARCH QUESTION How do we acquire language?

Have you ever heard someone say that a toddler is like a sponge? In fact, a toddler's capacity for language is amazing: By the time a child is two years old, she will acquire many hundreds of words; if raised in a household where adults speak in two languages, she will acquire both with the same speed as a child who is exposed to just one.

However, how we acquire a second language later in life is a different cognitive process. We can learn to read, write, and speak fluently in a second language, but we are no longer "sponges." For most of us, it takes a lot of effort to learn a new language or to increase our vocabulary once we leave childhood. Two of the most common ways to learn a new word are with memory exercises or with physical activity. Is one method better than the other?

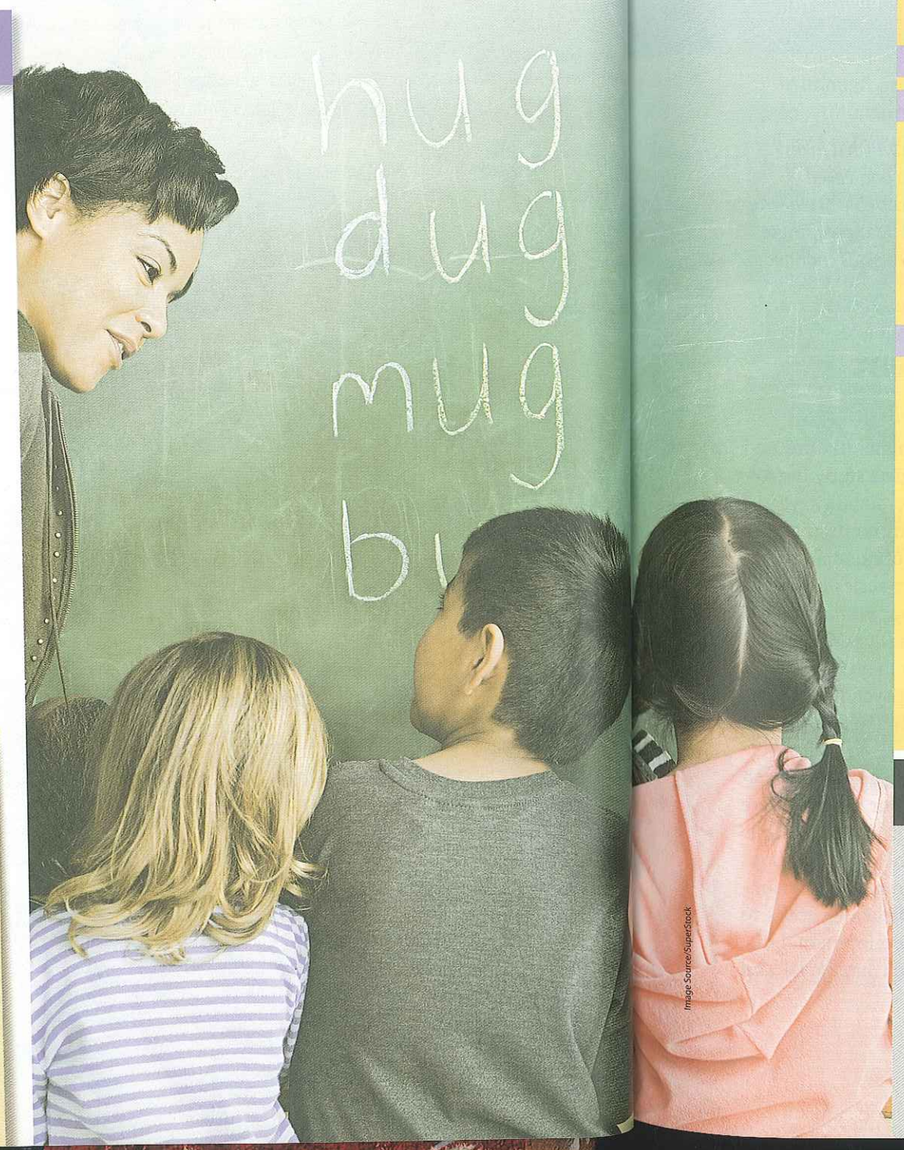


Image Source/SuperStock

Psychology Journal Activity CCSS

Think about how you learn new words, whether in a foreign language class or in a favorite subject. Write about this experience in your Psychology Journal. Some things to consider as you write: Is learning new words difficult for you, or does it come easily? Do words in some subjects come more easily than in others? What tricks do you use when you are learning new words?

FINDING THE ANSWER...

HYPOTHESIS New words are easier to memorize when paired with a physical activity.

THE METHOD OF YOUR EXPERIMENT

MATERIALS paper and writing utensils for six people

PROCEDURE Invent and define five new words. These invented words must be verbs and must be simple actions that one can do in everyday life. Example: "snorfle" might mean to hold your nose closed for three seconds. Next, recruit six people. Randomly divide them into two groups of three, and place each group in two different rooms. The three people assigned to Group A must spend five minutes memorizing the five new words and their definitions. The three people in Group B must learn the five new words by acting them out repeatedly for five minutes, for example, pinching their noses closed for three seconds and saying "snorfle."

DATA COLLECTION At the end of the five minutes, hand each person a blank sheet of paper and a writing utensil and ask them to write the words and definitions. Count the number of correct answers from Group A and average their scores. Do the same for Group B's scores. Does one group's results suggest that their learning method was more successful than the others?

ANALYSIS & APPLICATION

1. Did the results support the hypothesis?
2. What are some of the benefits of learning words with physical activity? With memory exercises?
3. If young people learn language better through physical activity than by memorization alone, how might schoolwork be different in the future?

networks ONLINE LAB RESOURCES

Online you will find:

- An **interactive lab experience**, allowing you to put principles from this chapter into practice in a digital psychology lab environment. This chapter's interactive lab will include an experiment allowing you to explore issues related to infancy and childhood.
- A **Skills Handbook** that includes a guide for using the scientific method, creating experiments, and analyzing data.
- A **Notebook** where you can complete your Psychology Journal, and record and analyze data collected in your experiments.

networks

There's More Online!

- ☑ **CHART** Flowering of Language
- ☑ **CHART** Visual Preference of Infants
- ☑ **DIAGRAM** Physical and Motor Development
- ☑ **IMAGE** Visual Cliff
- ☑ **SELF-CHECK QUIZ**

LESSON 1
Physical, Perceptual, and Language Development

ESSENTIAL QUESTION • *How do our abilities change from birth to childhood?*

Reading HELPDESK

CCSS

Academic Vocabulary

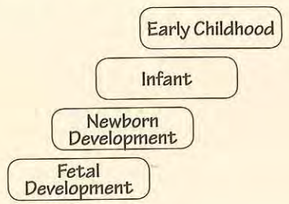
- **capacity**
- **symbol**

Content Vocabulary

- **developmental psychology**
- **grasping reflex**
- **rooting reflex**
- **telegraphic speech**

TAKING NOTES:
Key Ideas and Details

SEQUENCING Use a graphic organizer like the one below to identify ways in which humans develop from conception through early childhood.



It Matters Because

Human development is remarkable for the speed with which it takes place. In a mere three years, a human will move from a one-celled organism to a living, breathing, responsive child fully capable of walking, talking, thinking, and making its likes and dislikes clearly known. These complex and fascinating first steps into life involve numerous changes in physical and mental development.

Fetal and Newborn Development

GUIDING QUESTION *How are the capabilities of newborns measured?*

Developmental psychology is the study of how humans mature and why they develop as they do. Developmental psychologists study the following main issues: continuity versus discontinuity, stability versus change, and nature versus nurture. Psychologists studying continuity versus discontinuity ask the question: How much developmental change occurs gradually over time, and how much occurs in a series of clearly defined steps or stages? The question asked by psychologists studying the stability versus change issue is: Do various traits, such as shyness or extraversion, remain stable and consistent through life or do they change over time? Finally, on the question of nature versus nurture, psychologists ask: How much of development is the result of inheritance (heredity), and how much is the result of what we have learned?

Some psychologists believe that most of our behaviors are the result of genetics or inheritance. Others believe that most of our behaviors are the result of experience and learning. Separating biological and environmental causes of behavior is very complicated. Usually behavior develops as a result of the interaction of both heredity and environment. For example, Attention Deficit Hyperactivity Disorder (ADHD), which leads to the inability of children to stay focused on tasks, is a developmental disorder that demonstrates the close relationship between biological and environmental causes of behavior.

Fetal Development

Human development begins long before an infant is born. Over the span of roughly 40 weeks, a fertilized egg develops into a newborn baby. This development is rapid and complex. By the end of the first week, the embryo consists of more than 100 cells. By Week 2, these first cells are no longer alike. They are developing into a variety of cell types, including bone, muscle, nerve, and blood cells. Arteries and veins are forming by the end of Week 2. By the end of Week 4, the embryo consists of millions of cells and has the beginnings of eyes, ears, a brain, and a face. The heart and nervous system also begin development.

By the end of Week 5, the embryo has all its internal organs. The brain continues to develop during this period, and by Week 8 the number of nerve cells in the brain is increasing at the rate of 100,000 cells per minute. By the end of the first trimester, which is the first three months of development, the embryo is called a fetus and is continuing to grow at an amazing rate. At this time the fetus is about 3 inches long and looks like a tiny adult. The next several weeks are crucial as the organs develop and the fetus grows in size. Expectant mothers can feel strong movement and kicking—even hiccuping—inside them during the final stages of pregnancy. It is common for a fetus to suck its thumb, even though it has never suckled at its mother's breast or had a bottle.

Although protected in its mother's womb, the developing fetus remains vulnerable to factors that can harm its growth. Environmental factors, such as the mother's exposure to radiation, mercury, lead, or other contaminants, may damage the developing organs, particularly the brain. Exposure to diseases such as rubella, especially in the first month of pregnancy, can cause physical or mental damage in the early stages of the development of the embryo. In addition, a mother's use of alcohol, drugs, or nicotine can harm the developing fetus. Fetal alcohol syndrome, producing physical and mental damage in the fetus and behavioral difficulties in childhood, is one of many possible results.

Biological factors can affect the developing fetus, too. Some birth defects are caused by genetics. Conditions such as sickle cell anemia, Tay-Sachs disease, and Down syndrome are all hereditary. Sickle cell anemia can lead to heart deformities. Tay-Sachs disease usually leads to death within three to four years after birth.

developmental psychology the study of changes that occur as an individual matures

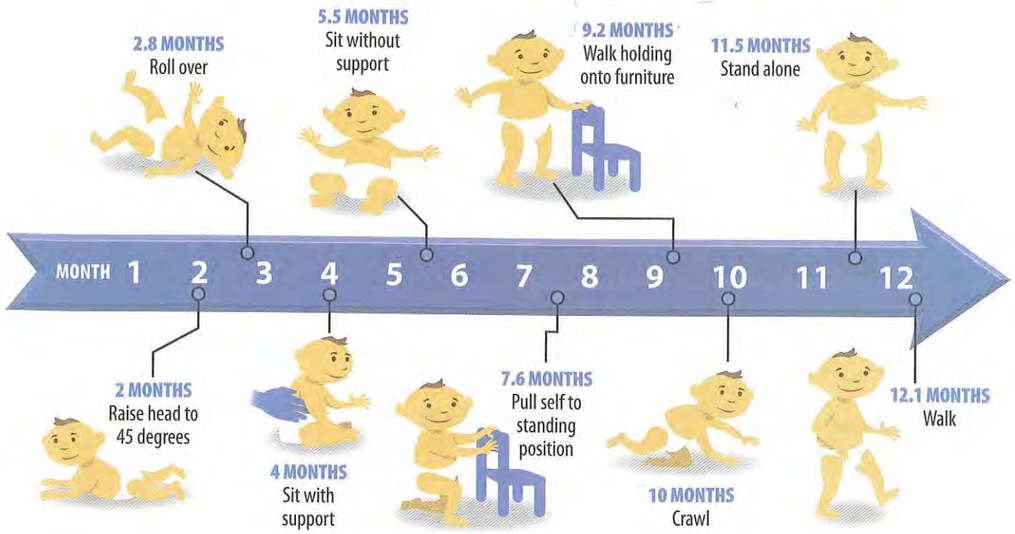
DIAGRAM

PHYSICAL & MOTOR DEVELOPMENT

Infants achieve milestones in motor development at different times but in the same order. This chart shows the average ages when milestones are achieved.

▶ CRITICAL THINKING

1. ***Analyzing Visuals*** At what age would you expect an infant to start standing? To start walking?
2. ***Interpreting*** What test might a pediatrician use to measure the development of a three-month-old infant?



More ABOUT...

Reflexes

The *rooting* and *sucking* reflexes, present in all human infants, gradually decline in strength. The *grasping* reflex disappears during the first six months in those infants where it is present at birth. The Moro, or *startle*, reflex is quite unusual. An infant lying on its back when startled by a loud noise out of sight above his or her head will show a very complex response. The arms will spread out at right angles to the body and grasp upwards, and the legs will spread outward and pull in.

Now consider this situation. What would happen if someone ran a thumbnail right up the center bottom of your foot? Your toes would curl, and your foot would withdraw. Before her first birthday, an infant will do exactly the opposite—the toes flare outward, and the foot presses against the stimulus. This is called the *Babinski* reflex. Pediatricians use the shift in the Babinski from infantlike to adultlike form around the first birthday as a sign of normal neurological development.

Down syndrome produces varying levels of mental retardation. The developmental disorder ADHD seems to begin during fetal brain development; the brain scans of affected children are different from those of other children. The disorder may run in families, which suggests a genetic component, though its exact cause is not yet clear. Researchers continue to explore the possibility that some developmental disorders, such as ADHD, are the result of a combination of genetic, environmental, and physiological factors.

Newborn Development

While 40 weeks is the normal period needed for a human baby to develop, some are born before that time. If the baby is born before Week 37 it is considered premature. Although the baby's organs are formed by Week 5, the next 35 weeks are needed for the organs to grow and develop to the point that the fetus can survive after birth. The more time these organs have to grow, the better the chance of a premature baby's survival. Babies born as early as 17 weeks can survive, but they are more likely to have serious health difficulties. Because their organs are not fully formed, premature babies are subject to heart defects, respiratory problems, blindness, and brain damage. Hospitals with neonatal intensive care units are equipped to deal with the special needs of dangerously premature infants.

Newborns have the ability at birth to see, hear, smell, and respond to the environment. These abilities allow them to adapt to the world around them. Psychologists have found that birth puts staggering new demands on a baby's **capacity**, or ability, to adapt and survive. Newborns go from an environment in which they are protected from the world to one in which they are assaulted by it. From the moment it is born the newborn is confronted by bright lights, loud sounds, unfamiliar touches, and temperature extremes. The newborn is capable of certain automatic, coordinated movement patterns, called reflexes, that help them respond to their new environment. Reflexes can be triggered by the right stimuli. Many, but not all, infants are born with these reflexes.

The **grasping reflex**, for example, is a response to a touch on the palm of the hand. Infants can grasp an object, such as a finger, with enough strength that they can be lifted into the air. Also vital is the **rooting reflex**. When alert newborns are touched anywhere around the mouth, they will move their head and mouth toward the source of the touch. In this way the touch of a mother's breast on her newborn's cheek guides the infant's mouth toward her nipple. The sucking that follows such contact is one of the infant's most complex reflexes. The infant is able to suck, breathe, and swallow milk twice a second without getting confused.

How do we measure the capabilities of newborn infants who cannot speak or understand the questions of curious psychologists? One reasonable way to answer these questions is to take advantage of the things infants *can* do. What they can do is suck, turn their heads, look at things, cry, smile, and show signs of surprise or fright. The vigor of an infant's sucking, the patterns of eye movements, and expressions of pleasure and displeasure are all closely tied to how the infant is being stimulated. By measuring these behaviors while stimulating the infant in different ways, we can infer how the infant perceives the world.

Infants on average weigh 7.3 pounds at birth. Their weight can grow rapidly during their first year of life and on average infants can weigh as much as 20 or 25 pounds by the end of the first year. This first year also sees substantial growth in length. From birth, infants grow about 1 inch per month during their first year of life. By their first birthday, infants are on average 1.5 times longer than their length at birth. The changes that happen in the first years of life are substantial. In the space of two years, the grasping, rooting, searching infant will develop into a child who can walk, talk, and feed herself or himself. This transformation is the result of both maturation and learning.

capacity an individual's mental or physical ability, aptitude, or skill

grasping reflex an infant's clinging response to a touch on the palm of his or her hand

rooting reflex an infant's response in turning toward the source of touching that occurs anywhere around his or her mouth

Maturation

Infants will begin to lift their heads at about 3 months, smile at 4 months, and grasp objects at 5 to 6 months. Crawling appears at 8 to 10 months. By this time infants may be able to pull themselves into a standing position, although they will fall if they let go. They will begin to walk 3 or 4 months later, tentatively at first, but gradually acquiring a sense of balance. Psychologists call this complex growth process maturation.

Maturation is as important to development as learning or experience, especially in the first years. Unless children are persistently underfed, severely restricted in their movements, or deprived of human contact and things to look at, they will develop more or less according to this schedule. Purely as a matter of efficiency, it is worthwhile to wait until an infant reaches *maturational readiness* before pushing that infant into mastering new skills. No amount of coaching will enable children to walk or speak before they are physiologically ready.

The process of maturation becomes obvious when you think about walking. Infants lack the physical control walking requires. By the end of the first year, however, the nerves connected to the muscles have grown and the infant is ready to walk. By recording the ages at which thousands of infants first began to sit upright, to crawl, and to try a few steps, psychologists were able to develop an approximate timetable of maturation. This schedule helps doctors and other health professionals spot potential abnormalities. If a child has not begun to talk by the age of 2½, a doctor will recommend tests to determine if something is wrong.

Elizabeth Crews/The Image Works

The visual cliff study demonstrated that infants display the ability to perceive depth. Though some, such as the infant at left, demonstrate little fear of it. Researchers found that infants' heart rates increased as they approached the perceived drop-off of the visual cliff.

▶ CRITICAL THINKING

Hypothesizing Why do you think researchers measured the infants' heart rates during this experiment?

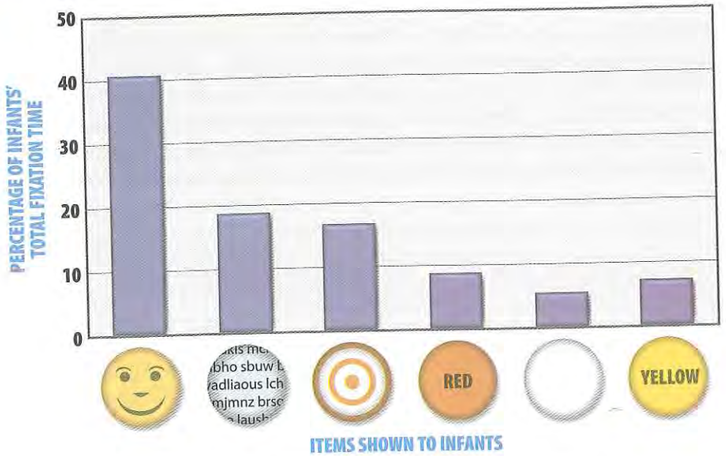
GRAPH

VISUAL PREFERENCE OF INFANTS

Three- or four-month-old infants show a strong preference for faces and patterns, suggesting that infants are born with and develop visual preferences.

▶ CRITICAL THINKING

1. ***Assessing*** For which circle did infants show the least preference? Why do you think this was so?
2. ***Interpreting*** Why do you think infants showed the greatest visual preference for the face image?



One of the facts to emerge from this effort, however, is that the maturational plan inside each child is unique. The average infant starts walking at 12 to 13 months. Some, though, are ready at 9 months, and others delay walking until 18 months. Each infant also has his or her own temperament. Some infants are extremely active from birth and some are quiet. Some are cuddly and some are stiff. Some cry a great deal and some do not. Although no two infants are exactly alike and no two mature according to the same timetable, most infants progress through the same sequential steps. Identifying similarities and differences in growth patterns is one of the many challenges for developmental psychologists.

Perceptual Development

Newborns can do more than grasp and suck. They also look at their bodies and at their surroundings. In the early months of life, the human brain continues to develop, and external experiences directly influence changes in the infant's perceptual development. That is, the newborn's brain continues to "wire" itself in response to its environmental stimuli, such as light, color, and movement. Different areas of the brain develop as the infant matures to support different processes of perception, such as vision, hearing, taste, touch, and smell, as well as perception of movement, color, and depth. Auditory perception—especially voice recognition—is in place at birth, while brain areas implicated for vision continue to develop after the baby is born.

In 1961 researcher Robert Fantz showed infants different faces and discovered that babies have a preference for looking at human faces and patterned materials. Infants also benefit greatly from being touched by their parents. A pair of experimenters devised the visual cliff to determine whether infants have depth perception. The visual cliff is a platform, part of which has a checkerboard pattern. The other part consists of a sheet of glass with the checkerboard pattern a few feet below it. This creates the view of a clifflike drop-off. Whereas very young infants seemed unafraid, older infants (6 months and older) who were experienced at crawling refused to cross over the cliff. The older infants had explored the world, apparently finding that drop-offs are dangerous. Also, researchers found that there were changes in the heart rates of very young infants as they would crawl farther, implying that newborns are born with some perceptual capabilities.

READING PROGRESS CHECK

Describing What tests would you expect a physician to make regarding the developmental progress of a three-month-old baby?

Language Acquisition

GUIDING QUESTION *What steps are involved in learning language?*

Language and thought are closely intertwined. Both abilities involve using representations or **symbols**. We are able to think and talk about objects that are not present and about ideas that are not necessarily true. A child begins to think, to represent things to himself, before he is able to speak. The acquisition of language propels the child into further intellectual development.

symbol something that stands for or suggests something else; a visible sign of something invisible

Many psychologists argue that language is a learned behavior, while others claim it is inborn. Some psychologists claim there is a critical period, or a window of opportunity, for learning a language. Humans *may* have a sensitive period early in life in which acquisition of language is easier.

How Children Acquire Language

In the beginning, infants and toddlers learn the signs of communication—whether by hand or by mouth. As they grow, they will slowly develop their vocabulary and understanding of grammar. During the first year of life, the average child makes many sounds, beginning mostly with cooing sounds. These sounds develop into a babble that includes every sound humans can make—Chinese vowels, Xhosa clicks, German rolled *r*'s, and English *o*'s. Late in the first year, the strings of babble begin to sound more like the language the child hears. Children imitate the speech of their family members, and are greeted with approval whenever they say something that sounds like a word. In this way children learn to speak their native language, though they could just as easily learn any other.

The leap to using sounds as symbols occurs sometime early in the second year. The first attempts at saying words are primitive. "Ball" usually sounds like "ba," and "cookie" may even sound like "doo-da." The first real words usually refer to things the infant can see or touch. Often they are labels or commands ("dog!," "cookie!"). By the time children are 2 years old, they have a vocabulary of 500 to 1,500 words. Near the end of the second year, they begin to join words into two-word phrases. From about 18 months to 5 years of age, children are adding approximately 5 to 10 words a day to their vocabulary.

At age 2, though, a child's grammar is still unlike that of an adult. Children use **telegraphic speech** such as "Where apple?" or "Daddy fall." They leave out words or use the wrong verb tense but still get the intended message across to the listener.

telegraphic speech the kind of verbal utterances in which words are left out, but the meaning is usually clear

CHART

FLOWERING OF LANGUAGE

Between the ages of 2 and 5, the typical child learns an average of 10 words a day—nearly 1 word every hour awake!

▶ CRITICAL THINKING

1. ***Analyzing*** When should new parents expect to hear their baby's first word?
2. ***Predicting*** When a pediatrician is measuring the capabilities of a three-year-old, what level of speech would he or she expect to hear?

Age	Language Abilities	Example
1 year	Babbling begins and increases; by year's end, infant masters sounds of own language and usually says his or her first word	baba mama
2 years	Infant will progress to saying dozens of words; begins to speak in paired words; to ask a question, child issues a declaration in a rising tone; to negate something, child uses nouns with a negative word	Allgone ball. More ball. Jenny go? No ball.
3 years	Child acquires more grammatical knowledge; says appropriate sentences; uses simple declaratives; produces correct negative sentences; average size of vocabulary is over 5,000 words	I eating. I'm eating Don't go.
4 years	Child uses more grammatical rules and future tense; asks questions in adult form; average vocabulary is about 9,000 words	Will Jenny go? I can't go. Why is Jenny crying?
5 years	Child uses more complex clauses; joins two or more ideas in one sentence; has problems with noun/verb agreement	I see what you did.

Source: Adapted from *Developmental Psychology* by Howard Gardner, 1963.

As psychologists have discovered, 2-year-olds already understand certain rules. They place words in the same order adults do. At first children imitate the correct verb form: "Daddy went yesterday." Once children discover the rule for forming past tenses, they replace the correct form with sentences like "Daddy *goed* yesterday." When the correct form appears, the child has shifted from imitation to rule-based language. By age 4 or 5, children have a several thousand word vocabulary.

Scientists have long known that areas in the left hemisphere of the brain are used for learning how to speak and understand language. Several other areas of the brain are also involved in processing language. Studying babies who were born prematurely can begin to explain the brain's role in language development. Children born prematurely may have a more difficult time with language as it becomes more complex. One study found that preterm babies can show normal language development until they are around age 2, while language is fairly simple. Research using brain imagery suggests that the brain can create neurological connections that help compensate for the babies' early development. As language becomes more complex, however, it appears that the brain is limited in its ability to compensate.

Animals and Language

We have been able to learn much about language acquisition from animal research. Psychologists believe that chimpanzees develop at least as far as 2-year-old humans, as they will look for a toy or a bit of food that has disappeared. They can represent the existence of that toy or bit of food mentally. Can they be taught to "talk" about it? Beatrice and Allen Gardner raised a baby chimp named Washoe in their home and taught her to use American Sign Language. At 3½ years of age, Washoe knew at least 87 signs that could represent words such as *food*, *dog*, and *toothbrush*. By age 5, Washoe used more than 160 signs. Chimpanzees have been trained on special typewriters connected to computers. One chimpanzee, Panzee, used a special computer keyboard with symbols to communicate with humans.

The chimps use only some aspects of the human language. Chimps use words as symbols but do not apply grammatical rules. The ability to arrange symbols in new combinations to produce new meanings is especially well developed in the human brain. The rules for such organization of symbols are called *grammar*. Grammatical rules are what make the sentence "the rhinoceros roared at the boy" mean the same thing as "the boy was roared at by the rhinoceros." It is in our unique ability to use such grammatical rules that we surpass the simpler language of the chimpanzee.

READING PROGRESS CHECK

Explaining What is the role of the brain in language acquisition?

LESSON 1 REVIEW CCSS

Reviewing Vocabulary

1. ***Identifying*** Describe two reflexes that infants display.
2. ***Making Connections*** How is telegraphic speech different from grammatical speech?

Using Your Notes

3. ***Comparing*** Use your notes to compare the development of a fetus with development in early childhood.

Answering the Guiding Questions

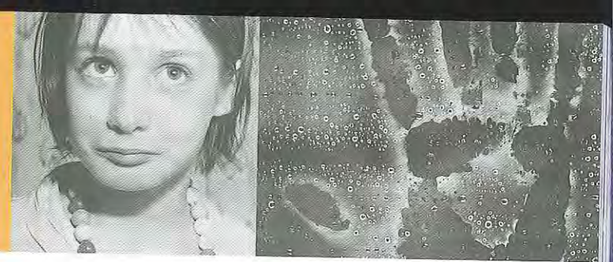
4. ***Stating*** How can the capabilities of newborns be measured?
5. ***Listing*** What steps are involved in learning language?

Writing Activity

6. ***Informative/Explanatory*** Research the neonatal intensive care options available at hospitals in or near your community. Visit the Web site of the hospital to learn the level and scope of care available for premature infants. Then, research how environmental factors assist in brain development of a premature baby. Assess the level of care provided by your hospital, and present your findings in an essay.

FOCUS on research

Case Study



Too Late for Words: The Case of Genie

Period of Study: 1981

Introduction: In 1970 an unusual and unfortunate discovery was made in California. A 13-year-old girl known as "Genie" had spent all 13 years of her life locked in a room isolated from the world. Her parents had kept her harnessed to a potty-chair, which allowed only small movements of her hands and feet. At night Genie was put in a type of straitjacket and forcefully placed in a wire cage. Her parents refused to communicate with her in any way and demanded Genie's siblings avoid any form of communication with her as well. Genie was discovered by a combined effort of people in social services and the police. When she was discovered, she had no bowel or bladder control, could not chew solid food, had severely damaged posture from years of sitting, and she could not speak or understand language. After nursing her back to physical health, Genie's caregivers called upon psychologists to evaluate her mental and emotional conditions, as well as to begin teaching her how to communicate.

Hypothesis: The unfortunate case of Genie provided psychologists with some clues in defining whether language can be learned at any point in time or if there is a specific stage of development in which humans need to learn language and communication skills. The control of language has been traced to the left hemisphere of the brain. However, much evidence suggests a window exists in early childhood that allows language to be learned easily.

Method: Placed in a hospital, Genie was described as "a pitiful, malformed, incontinent, unsocialized, and severely malnourished creature." Genie was given tests that were designed to measure social maturity and school-level placement. She scored at a level equal to that of a normal 1-year-old. As time passed, Genie learned to recognize her written name. After 7 months passed, she began to develop spoken use of the phrases "stopit" and "nomore," one-word utterances similar to what toddlers use. One-word use progressed to two words. However, Genie's development was slower than that of a toddler with similar language skills.

Results: Genie made limited progress in language development. After 7 years had passed, she had acquired as much language skill as a normal child learns in 2 to 3 years. When she was 24 years old, she had the language skills of a 5-year-old. Even though Genie learned much about language, she could not fully understand grammar or the use of pronouns and was unable to control the pitch of her voice. Perhaps Genie's window for learning language had passed; thus her brain could only understand language in a simplified form. The physical, emotional, and mental abuse that Genie sustained during her first 13 years of life undoubtedly played key roles in her development.

PRIMARY SOURCE

Noam Chomsky, of the MIT Department of Linguistics & Philosophy, suggested that language is an ability born with all people. He hypothesized that people are born with an understanding of the rules, which he calls "Universal Grammar." These rules provide people with the ability to build and use human languages.

> *"The most striking aspect of linguistic competence is what we may call the 'creativity of language,' that is, the speaker's ability to produce new sentences, sentences that are immediately understood by other speakers although they bear no physical resemblance to sentences which are 'familiar.'"*
>
> —*Noam Chomsky*

Analyzing the Case Study

1. ***Identifying Cause and Effect*** Why was Genie unable to speak coherently or understand language when she was found?
2. ***Assessing*** Describe Genie's ability to learn to use language properly. How much progress in language development did Genie make? Explain.
3. ***Drawing Conclusions*** What conclusions can you draw from this case and your study of the chapter regarding a window of opportunity to learn language? Are the results conclusive? Explain.
4. ***Integrating Information*** What does the case of Genie demonstrate about Chomsky's hypothesis?

networks

There's More Online!

- ☑ **IMAGE** Imprinting
- ☑ **IMAGE** Parental Scaffolding
- ☑ **TABLE** Piaget's Stages of Cognitive Development
- ☑ **TABLE** Tasks to Measure Conservation
- ☑ **SELF-CHECK QUIZ**



Reading HELPDESK

CCSS

Academic Vocabulary

- **invariably**
- **research**

Content Vocabulary

- **schema**
- **assimilation**
- **accommodation**
- **representational thought**
- **conservation**
- **egocentric**
- **imprinting**

TAKING NOTES:
Integration of Knowledge and Ideas

SUMMARIZING Use a table like the one below to record the level of cognitive and emotional development in a child at each age.

Age	Cognitive Development	Emotional Development
1–12 months		
12–24 months		
2–4 years		
5–7 years		

LESSON 2

Cognitive and Emotional Development

ESSENTIAL QUESTION • *How do our abilities change from birth to childhood?*

It Matters Because

If you have a younger brother or sister, you may remember times when your parents insisted that you let the younger one play with you and your friends. No matter how often you explained hide-and-seek to your 4-year-old brother, he spoiled the game. Why couldn't he understand that he had to keep quiet or he would be found right away?

Cognitive Development

GUIDING QUESTION *What are the stages of cognitive development in children?*

A newborn baby is not simply a small adult. A baby develops physically, mentally, and emotionally on the road to adulthood. Just as the body grows in size, strength, and ability, so too does the brain. The human brain develops most rapidly during the early years of childhood. This brain development allows children to learn and understand the world around them. This is called cognitive development—the construction of thought processes, such as thinking, recalling, and analyzing.

Spend just a little time with a child and it will become obvious that children think differently from adolescents and adults in numerous ways. It could be said that children form their own hypotheses about how the world works. In order to better understand the cognitive development of children, Swiss psychologist Jean Piaget (1896–1980) chronicled the development of thought in his own daughter, whom he referred to as "L.," more than 80 years ago. According to Piaget, intelligence, or the ability to understand, develops gradually as the child grows. The sharpest, most inquisitive 4-year-old simply cannot understand things that a 7-year-old grasps easily.

What accounts for the dramatic changes between the ages of 4 and 7? Piaget spent years observing, questioning, and playing games with babies and young children—including his own. He concluded that young children think in a different way than older children and adults; they use a different kind of logic. A 7-year-old is completely capable of answering the question "Who was born first, you or your mother?" but a 4-year-old is not capable of answering this same question. Intellectual development involves quantitative changes, or growth in the *amount* of information as well as qualitative changes, or differences in the *manner* of thinking.

Understanding the world involves the construction of **schemas**, or mental representations of the world. Each of us constructs intellectual schemas, applying them and changing them as needed. We try to understand a new or different object or concept by applying it to one of our preexisting schemas, or by changing one of our schemas to fit the object. We employ two different processes when using existing schemas or developing new ones: assimilation and accommodation. In the process of **assimilation**, we try to fit the new object into this schema. In the process of **accommodation**, we reverse this process and change our schema to fit the characteristics of the new object.

For example, suppose a child encounters a new block. The block fits his schema for other blocks he has encountered before. The child has stacked blocks before and can easily assimilate the new block into his existing stacking schema. Suppose he then encounters an open box. He may at first try to fit the box into his stacking schema but finds that a block just falls inside the box. Now his stacking schema must be altered to accommodate this new object. Assimilation and accommodation work together to produce intellectual growth and allow us to use our schemas in a variety of new ways. When events do not fit into existing schemas, new and grander schemas have to be created. The child begins to see and understand things in new ways.

Object Permanence

An infant's understanding exists only in the here and now. For infants, the sight of a toy, the way it feels in their hands, and the sensation it produces in their mouths are all that they know about the toy. They do not imagine it, picture it, think of it, remember it, or even forget it. When a toy is hidden from an infant, the infant acts as if the toy has ceased to exist. The infant does not look for it. Instead, the infant grabs whatever else he or she can find and plays with that new object, or he or she may simply start crying. At 7 to 12 months this pattern begins to change. When you take the infant's toy and hide it under a blanket while he or she is watching, the infant will search for it under the blanket. However, if you change tactics and put the toy behind your back, the infant will continue to look for it under the blanket—even if that infant was watching you the whole time.

You cannot fool a 12- to 18-month-old quite so easily. A child this age watches closely and searches for the toy in the last place she saw you put it. Suppose you take the toy, put it under the blanket, conceal it in your hands, and then put it behind your back. A 12-month-old will act surprised when she does not find the toy under the blanket—and keep searching there. An 18- to 24-month-old will guess what you have done and walk behind you to look. She knows the toy must be somewhere.

This is a giant step in intellectual development. The child has progressed from a stage where she apparently believed that her own actions created the world, to a stage where she realizes that people and objects are independent of her actions. Piaget called this concept object permanence. A child who lacks object permanence will reach for a visible toy but not for one that is hidden behind a barrier—even if the child has seen someone place the toy behind the barrier. A child who has object permanence, however, will reach for a toy he or she has seen being placed behind a barrier. The concept might be expressed in this way: "Things continue to exist even though they cannot be seen or touched." Understanding object permanence signifies a big step in the second year of a child's life.

Profiles in Psychology

Jean Piaget
(1896–1980)

Jean Piaget sought to answer one question in his life work: How does knowledge grow? To answer this question, Piaget spent his time watching and playing with thousands of children. He told them stories and listened to their stories. He invented problems for them to solve and asked them what they dreamed about.

Piaget discovered that children develop logic and think differently at different ages. Piaget's theory challenged the behaviorists' view that the environment determines behavior. He stressed a child's role in gaining knowledge.

Some of Piaget's findings are being questioned today. Even so, he is still considered the greatest child psychologist of the twentieth century.

▶ **CRITICAL THINKING**

Contrasting How would a behaviorist's view of object permanence differ from Piaget?

schema a conceptual framework a person uses to make sense of the world

assimilation the process of fitting objects and experiences into one's schemas

accommodation the adjustment of one's schemas to include newly observed events and experiences

representational thought the intellectual ability of a child to picture something in his or her mind

conservation the principle that a given quantity does not change when its appearance is changed

Representational Thought

The achievement of object permanence suggests that a child has begun to engage in what Piaget calls **representational thought**. The child's intelligence is no longer one of action only. Now, children can picture (or represent) things in their minds. At 14 months of age, Piaget's daughter demonstrated this. When she was out visiting another family, she happened to witness a child throwing a temper tantrum. She had never had a temper tantrum herself, but the next day she did—screaming, shaking her playpen, and stamping her feet just as she had seen the other child do. She had formed so clear an image of the tantrum in her mind that she was able to create an excellent imitation of it a day later. To Piaget, this meant that his daughter was using symbols. Soon she would learn to use a much more complex system of symbols—spoken language.

The Principle of Conservation

More complex intellectual abilities emerge in childhood. Between the ages of 5 and 7, most children begin to understand what Piaget calls **conservation**, the principle, or rule, that a given quantity does not change even when its appearance is changed in some way. For example, if you have two identical short, wide jars filled with water and you pour the contents of one of these jars into a tall, thin jar, a child under 5 will say that the tall jar contains more water than the short one. If you pour the water back into the short jar to show the amount has not changed, the child will still maintain that there was more water in the tall container. Children under 5 do not seem to be able to think about two dimensions such as height and width at the same time. They do not understand that a change in the width of the small glass is made up for by a change in the height of the tall glass.

Conservation happens because children use centered thought, or thought focused on one feature or aspect of a problem. Centered thought also results in largely **egocentric** thinking. Egocentric thinking refers to seeing and thinking of the world from your own standpoint and having difficulty understanding someone else's viewpoint and other perspectives. Egocentrism lessens as children age. By age 7, the same child from the above example will tell you that the tall jar contains the same amount of water as the short one.

TABLE

TASKS TO MEASURE CONSERVATION

The concept of conservation can be used to show that children think less logically than adults. Children in the preoperational stage do not understand that the property of a substance remains the same although its appearance may change.

▶ CRITICAL THINKING

1. ***Making Connections*** How is conservation related to egocentric thinking?
2. ***Interpreting Significance*** Why does the preconserving child think that one stick is longer than the other in the second display?

TYPE OF CONSERVATION		
LENGTH COMPARISON		CHILD IS ASKED *Which stick is longer?*
 FIRST DISPLAY The child agrees that the sticks are of equal length.	 SECOND DISPLAY The experimenter moves one stick to the right so it is closer to the child.	PRECONSERVING CHILD will say that one stick is longer. CONSERVING CHILD will say that the sticks are the same length.
AMOUNT COMPARISON		CHILD IS ASKED *Do the two pieces have the same amount of clay?*
 FIRST DISPLAY The child acknowledges that the balls have equal amounts of clay.	 SECOND DISPLAY The experimenter rolls out one of the balls.	PRECONSERVING CHILD will say that the long piece has more clay. CONSERVING CHILD will say that the two pieces have the same amount of clay.

Stage	Approximate Age	General Characteristics
Sensorimotor	Birth–2 years	Behavior consists of simple motor responses to sensory stimuli; lacks concept of object permanence
Preoperational	2–7 years	Lacks operations (reversible mental processes); exhibits egocentric thinking; lacks concept of conservation; uses symbols (such as words or mental images) to solve simple problems or to talk about things that are not present
Concrete operations	7–11 years	Begins to understand concept of conservation; still has trouble with abstract ideas; classification abilities improve; masters concept of conservation
Formal operations	11 years–onward	Understands abstract ideas and hypothetical situations; capable of logical and deductive reasoning

Piaget's Stages of Cognitive Development

Piaget described the changes that occur in children's understanding in four stages of cognitive development. In the *sensorimotor stage*, the infant uses schemas that primarily involve his body and sensations. That is, during the first two years of the child's life, learning is done through movements and the sensations that result from them. A child can only form schemas for objects that they are seeing, hearing, or touching at that time. It is during this stage that the development of object permanence happens.

The *preoperational stage* emerges when the child begins to use mental images or symbols to understand things. Children use symbols in their play, for example, riding a broom as if it were a horse. Language also develops during this stage and children have an egocentric view of the world. During this stage, roughly between the ages of 2 and 7, children learn concrete concepts such as counting or classifying objects, but most of their thought is in the present and concrete thought, rather than thinking of abstract thought, or the past or future.

By the third stage, *concrete operations*, children are able to use logical schemas, but their understanding is limited to concrete objects or problems. During this stage, from about ages 7 to 11, children no longer focus on one feature of an object as they did in the preoperational stage, such as the height of a glass. They also begin to be able to see things from another person's viewpoint and imagining things or events that can happen outside of their own lives.

In the *formal operations stage*, usually over the age of 11, the person is able to solve abstract problems and think about ideological or abstract issues. They are able to speculate about what is possible in the future. According to Piaget, development through these four stages depends on both the maturation of the nervous system and on individual past experiences. Everyone goes through the stages in the same order, but not necessarily at the same age.

Piaget was considered one of the most influential and groundbreaking psychologists of his time, and since then, researchers have continued to build upon his ideas. However, many psychologists today think that although Piaget was accurate in his description of the sequence of cognitive stages, there is much about the development of children that he did not consider. For example, many contend that children in the preoperational stage are not as egocentric as Piaget proposed, and that they are able to consider situations that are not part of their concrete lives. They can have sympathy for others and understand their viewpoint. Some argue that Piaget's theories underestimate the ability of developing children, especially infants. Others think that, when it comes to the formal operational stage, Piaget's theories overestimate the abilities of teens; as their brains continue to develop, teens need more time to slowly develop abstract thinking and logic. Piaget's stages are now recognized as a framework of ideas to be explored in more depth, rather than the final word in children's cognitive development.

TABLE

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

Piaget stressed the active role of the child in gaining knowledge. He also stressed the differences in the way a child thinks during different stages of maturity.

▶ CRITICAL THINKING

1. ***Analyzing Visuals*** At which of Piaget's stages do children lack the concept of conservation?
2. ***Drawing Conclusions*** Based on this chart, why would it be difficult for a 7-year-old child to understand the concept of algebraic variables?

egocentric a young child's inability to understand another person's perspective

Fuse/Getty Images

According to Vygotsky's theory, adults provide children with supportive problem-solving methods.

▶ CRITICAL THINKING

Making Connections What kind of scaffolding might a parent or teacher provide while a child is learning to read?

A Different Approach: Lev Vygotsky

Russian psychologist Lev Vygotsky (1896–1934) had another perspective from which to study child development. Like Piaget, Vygotsky believed that children develop slowly in stages until they can function independently and feel confident enough to think for themselves. However, in contrast to Piaget's emphasis on the internal origin of schemas, Vygotsky emphasized an external origin of cognitive development, taking into account the culture the child comes from and the social relationships and interactions the child is exposed to. Vygotsky considered a child's surroundings a critical aspect of his or her development.

One of Vygotsky's concepts is the zone of proximal development, in other words, children learn from watching and working with others. The guidance and encouragement a child gets from her teacher or parent—and even from her siblings and peers—provides a scaffold, or support, for that child to perform a task. For example, when a child is learning to ride a bicycle, an adult is usually running alongside, holding the bicycle steady while the child learns to pedal and steer. When the child is ready, the adult provides less and less support until the scaffolding is no longer needed and the child is able to do the task alone. Then, too, while an adult models and encourages behavior such as learning to read or write, that adult is also providing scaffolding for the child to experience important ideas of the culture, such as the way people should interact with one another and form social relationships. Then, too, a child who is being taught something is not only learning an idea or task, but is also learning to solve problems and apply reasoning skills on his or her own.

In contrast to Piaget's belief that a child's cognitive development must precede learning, Vygotsky argued that social learning tends to precede cognitive development. According to Vygotsky, a child develops with the help of social and cultural interactions, and not just the maturation process of the brain as Piaget described. For this reason, cultural differences can be seen in the stages of a developing child. For instance, a child raised in a culture where there is more access to technologies and modern conveniences will quickly learn about those things, no matter what stage of development she is in.

☑ READING PROGRESS CHECK

Stating At what age should a child begin to understand the concept of object permanence?

Emotional Development

GUIDING QUESTION *How does attachment affect emotional development?*

While the child is developing the ability to use his body, to think, and to express himself, he is also developing emotionally. He begins to become attached to specific people and to care about what they think and feel. A child's emotional development is as important as his cognitive and physical development. It is the desire to connect with others that motivates a child to learn. How well a child learns, as well as the quality of the relationships that child has with others, depends in large part on the child's sense of emotional attachment and security.

Experiments with Animals

Experiments with baby birds and monkeys have shown that early in life there is a maturationally determined time of readiness for attachment. If the infant is too young or too old, the attachment usually cannot be formed, but the attachment itself is a kind of learning. If the attachment is not made, or if a different attachment is made, the infant will develop in a different way as a result.

Konrad Lorenz (1903–1989) became a pioneer in the field of animal learning. Lorenz discovered that baby geese become attached to their mothers in a rapid, virtually permanent learning process called **imprinting**. A few hours after they struggle out of their shells, goslings are ready to start waddling after the first thing they see that moves. Whatever it is, they usually stay with it and treat it as though it were their mother from that time on. Usually, of course, the first thing they see is the mother goose. Yet Lorenz found that if he substituted himself or some moving object like a green box being dragged along the ground, the goslings would follow that. Lorenz's goslings followed him wherever he went and ran to him when frightened, showing the importance of imprinting for survival.

Imprinting inherited tendency of some newborn animals to follow the first moving object they see

Imprinting is hypothesized to have a critical period that is strongest about 13 to 16 hours after birth. A critical period is a time in the cycle of development when animals and humans are best able to learn a skill or behavior. Goslings are especially sensitive just after birth, and whatever they learn during this critical period makes a deep impression that resists change. If a gosling has imprinted on a human being instead of a goose, it may or may not correct its imprinted response when later exposed to its actual mother goose.

Nina Leen/Time & Life Pictures/Getty Images

The experimenter, Konrad Lorenz, was the first moving object the goslings saw after they hatched, so they became imprinted on him.

▶ CRITICAL THINKING

Making Connections How is imprinting related to survival?

An American psychologist, Harry Harlow (1905–1981), studied the relationship between mother and child in a species more similar to humans, the rhesus monkey. His first question was: What makes the mother so important? He tried to answer this question by taking baby monkeys away from their natural mothers as soon as they were born. Harlow raised the monkeys with two surrogate, or substitute, mothers. Each monkey could choose between a mother constructed of wood and wire and a mother constructed in the same way but covered with soft cloth. In some cases, the cloth mother was equipped with a bottle; in others, the wire mother was so equipped.

The results were dramatic. The young monkeys became strongly attached to the cloth mother, whether it gave food or not, and for the most part ignored the wire mother. If a frightening object was placed in the monkey's cage, the baby monkey would **invariably** run to the cloth mother for security, not to the wire mother. It was the touching—physical contact—that mattered, not the feeding. Harlow referred to this as *contact comfort*. He concluded that the young monkeys clung to the cloth mothers because of the need for contact comfort.

invariably always

research a careful study of a subject, especially in order to discover new facts or information

Human Infants

Is there a sensitive period when infants need to become attached to a caregiver, as Lorenz's experiments suggest? Some psychologists would answer this question with a firm "yes." Infants begin to form an attachment to their mothers, or to a surrogate mother, at about 6 months, when they are able to distinguish one person from another and are beginning to develop object permanence. Attachment is a deep, caring, close, and enduring emotional bond between an infant and caregiver. This attachment seems to be especially strong between the ages of 6 months and 3 years. By 3 years, the child has developed to the stage where he is able to remember and imagine his parents or caregivers and maintain a relationship with them in imagination even if they are absent.

When an attachment bond to one person has been formed, disruption can be disturbing to the infant. For example, when a 1-year-old child encounters a stranger, that child may display anxiety even when the mother is present. If the mother remains nearby, this anxiety, known as *stranger anxiety,* will pass. *Separation anxiety* occurs whenever the child is suddenly separated from the mother. If the separation persists over time, the child may then come to develop certain psychological disorders. Securely attached children are generally more sociable, well-adjusted, happier, and more cooperative. They often do better in school because they get along well with their peers and adults. Insecure attachment in infants is often a predictor of disorders in adolescents.

Mary Ainsworth, with John Bowlby, studied attachment in families. Ainsworth devised a technique called the Strange Situation to measure attachment. In this technique, mothers and children underwent a series of episodes that sometimes involved the mother leaving and coming back into the room when a stranger was present and when a stranger was not present. From her **research**, she found there were three patterns of attachment in children: *secure attachment, avoidant attachment,* and *resistant attachment*. Psychologists have since identified a fourth attachment, called *disorganized attachment*. The behaviors involved in evaluating attachment are the effort to maintain nearness to a caregiver and anxiety when separated from the caregiver.

Lifesize/Getty Images

Children with secure attachments are able to balance the need to explore their world with the need to be close to their parent or caregiver.

▶ CRITICAL THINKING

Making Connections What signs of resistant attachment is the child in this picture showing?

Infants who demonstrate secure attachment balance the need to explore and the need to be close. A securely attached infant may protest mildly when her mother leaves, but welcomes her back when she returns and is free of anger. An infant with avoidant attachment may be somewhat distressed at her mother's departure, play well by herself while she is away, but avoid or ignore her mother when she returns. An infant with resistant attachment is not upset when her mother leaves, but rejects her or acts angrily when she returns. An infant with disorganized attachment behaves inconsistently. She seems confused and acts in contradictory ways. This attachment seems to be the least secure attachment. Mothers who are sensitive and responsive tend to have securely attached infants. Affection and reliability are also important characteristics in developing a securely attached child. However, there is a complex interplay between caregivers and infants.

Ainsworth further identified three stages of attachment. During the first three months of life infants experience the initial attachment phase, where they attach themselves indiscriminately to caregivers. Around three or four months, infants move to the attachment-in-the-making phase, where infants develop preferences for familiar figures. Beginning at six or seven months, infants enter the clear-cut attachment phase in which they become more dependent on primary caregivers.

Attachment can become a loaded issue for families with children in daycare. With most mothers working at least part time, many children spend part of their day in a caregiving situation outside of their own home. Infants form attachments to their caregivers in daycare, particularly if the ratio of children per daycare worker is low and the quality of the stimulation the environment provides is high. Infants cared for at home and those in daycare are almost equally likely to form secure attachments with their caregivers.

Quick Lab

HOW DO CHILDREN EXHIBIT ATTACHMENT?

How do children show emotional attachment to their parents or caregivers?

Procedure

1. Observe a 1- or 2-year-old child with a parent or caregiver for signs of emotional attachment. A day-care center, a pediatrician's waiting room, or the play area in a shopping mall are good places to observe.
2. Watch for the following: How often does the child make contact with his or her parent? Does the child move away and explore? How does the child respond to unfamiliar people or objects?

Analysis

1. Did the child exhibit separation anxiety? What were the signs?
2. In a short paragraph, assess the emotional attachment of the child you observed.

☑ READING PROGRESS CHECK

Paraphrasing How does a securely attached child respond to his mother when she returns after an absence?

LESSON 2 REVIEW CCSS

Reviewing Vocabulary

1. ***Making Connections*** How do experiences alter our schemas? Describe two processes of change of schemas in Piaget's theory.
2. ***Understanding Relationships*** How is imprinting different from attachment?

Using Your Notes

3. ***Synthesizing*** Review the notes you completed during the lesson. Write a description of the cognitive and emotional development of a healthy, well-adjusted three-year-old child.

Answering the Guiding Questions

4. ***Listing*** What are Piaget's stages of cognitive development in children?
5. ***Identifying Cause and Effect*** How can attachment affect emotional development?

Writing Activity

6. ***Informative/Explanatory*** Write an observation-style paragraph describing the behavior of a child who displays an avoidant attachment reaction to his or her mother's separation and return.

Analyzing

Readings in Psychology

Reader's Dictionary

Making Smarter Computers by Teaching Them to Think Like Children

causal: expressing or indicating cause

intuitive: without obvious inference or rational thought

Babies Remember Even as They Seem to Forget

milestone: a significant point in development

inkling: a vague idea

What can young children teach us about cognitive development? Children as young as infants may provide insights into the processes of learning and remembering. In these related articles, researchers have chosen to study infants and young children in order to gain insights into how we learn and how human development can help advance the technology we use.

Making Smarter Computers

by Teaching Them to Think Like Children

By Lauren Gravitz

PRIMARY SOURCE

Rather than using computers to help children learn, one group of researchers at the University of California, Berkeley, is far more interested in using children to help computers learn. In cognitive development labs at the university, psychologists are using puppets, flashing toys, lollipops, and a variety of other tools to determine how young children—some not even talking yet—make calculations in their head that help them understand the world around them. By studying how the kids' fast-growing brains process information, the psychologists and their computer-scientist colleagues hope to create computers that think and react in more human-like ways.

While people constantly assess one another's mental state and use it to inform how they interact with each other, computers aren't yet able to evaluate a user's mood. But imagine if your computer could interpret facial expressions and tone of voice so as to read your frustration level, or put two-and-two together to understand that you work more slowly before you've had your morning coffee, it would be a huge leap forward for artificial intelligence.

"We're trying to understand what makes human beings such good learners. We learn language, **causal** relationships, and new concepts from small amounts of data," says Tom Griffiths, director of the university's computational cognitive science lab. "And children are particularly interesting because they're doing the largest amounts of learning. In just a few years, a child is going to speak a language, understand causal relationships in the world around him and learn concepts, like TV and computers, that haven't appeared anywhere in our evolutionary history."

The cognitive psychologists are testing infants, toddlers, and preschoolers to better understand how they figure out the world around them. One of the psychologists had toddlers watch her while she tasted different foods while making faces, then showed that the children were capable of empathy and could pick up on her preferences. Another one showed that even babies who can't yet speak seem to be capable of calculating odds ratios. When the researcher showed them two jars of candy, with different proportions of black and pink lollipops in each, then removed one from each without showing them the color, the infants almost always crawled toward the hidden pop removed from the primarily pink jar.

Figuring out how kids' developing brains make these calculations could lead to more **intuitive** computers that can interact more sensitively, intelligently, and responsively, in applications ranging from language learning, online tutoring and call-answering, to research labs in need of smarter processing power. "We have computer scientists, but we don't have computers that are scientists. That kind of causal reasoning and discovery is still something humans can do that computers can't," Griffiths says.

Babies Remember

Even as They Seem to Forget

Johns Hopkins University

Fifteen years ago, textbooks on human development stated that babies of six months of age or younger had no sense of "object permanence"—the psychological term that describes an infant's belief that an object still exists even when it is out of sight. That meant that if mom or dad wasn't in the same room with junior, junior didn't have the sense that his parents were still in the world.

These days, psychologists know that isn't true: for young babies, out of sight doesn't automatically mean out of mind. But how much do babies remember about the world around them, and what details do their brains need to absorb in order to help them keep track of those things?

A new study led by a Johns Hopkins psychologist and child development expert has added a few pieces to this puzzle. Published in a recent issue of the journal Psychological Science, the study reveals that even though very young babies can't remember the details of an object that they were shown and which then was hidden, the infants' brains have a set of built in "pointers" that help them retain a notion that something they saw remains in existence even when they can't see it anymore.

"This study addresses one of the classic problems in the study of infant development: what information do infants need to remember about an object in order to remember that it still exists once it is out of their view?" said Melissa Kibbe, a post-doctoral researcher in the Department of Psychological and Brain Sciences at the Krieger School of Arts and Sciences at Johns Hopkins, who collaborated with colleague Alan Leslie at Rutgers University on the study. "The answer is, very little."

The team found that even though infants cannot remember the shapes of two hidden objects, they are surprised when those objects disappear completely. The conclusion? Infants do, indeed, remember an object's existence without remembering what that object is. This is important, Kibbe explains, because it sheds light on the brain mechanisms that support memory in infancy and beyond.

"Our results seem to indicate that the brain has a set of 'pointers' that it uses to pick out the things in the world that we need to keep track of," explains Kibbe, who did the majority of the work on this study while pursuing her doctorate in Leslie's laboratory at Rutgers. "The pointer itself doesn't give us any information about what it is pointing to, but it does tell us something is there. Infants use this sense to keep track of objects without having to remember what those objects are." In addition, the study may help researchers establish a more accurate timeline of the mental **milestones** of infancy and childhood.

In the study, six-month-olds watched as a triangle was placed behind a screen and then as a second object (a disk) was placed behind a second screen. Researchers then removed the first screen to reveal either the expected original triangle, the unexpected disk, or nothing at all, as if the triangle had vanished completely. The team then observed the infants' reactions, measuring how long they looked at expected versus unexpected outcomes. In the situation where the objects were swapped, the babies seemed to hardly notice a difference, Kibbe said, indicating that they didn't retain a memory of that object's shape. In their minds, a triangle and a disk were virtually interchangeable.

However, when one of the objects had disappeared, the babies were surprised and gazed longer at the empty space, indicating that they expected something to be where something was before. "In short, they retained an **inkling** of the object," said Leslie, of Rutgers.

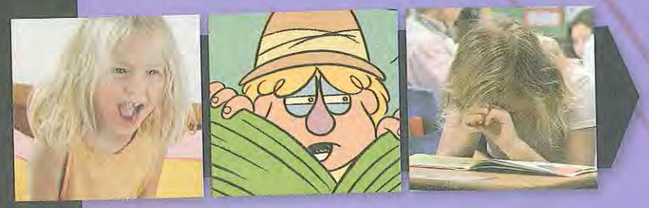
Analyzing Primary Sources

1. ***Analyzing*** Why did the researchers discussed in the first article study learning in young children rather than adults?
2. ***Contrasting*** How did the findings of the researchers in the second article contradict previous ideas of object permanence?
3. ***Speculating*** How might the researchers in the first article use the findings discussed in the second article?

networks

There's More Online!

- ☑ **DIAGRAM** Erikson's Theory of Psychosocial Development
- ☑ **DIAGRAM** Freud's Theory of Psychosexual Development
- ☑ **CARTOON** Gender Roles
- ☑ **TABLE** Kohlberg's Stages of Moral Development



LESSON 3
Parenting Styles and Social Development

ESSENTIAL QUESTION • *What impact do parents have on the development of their children?*

Reading HELPDESK

Academic Vocabulary

- **theory**
- **issue**

Content Vocabulary

- **socialization**
- **identification**
- **sublimation**
- **role taking**

TAKING NOTES:
Key Ideas and Details

ORGANIZING Use a graphic organizer like the one below to organize information on parenting styles and families as you read.

Parenting Style	Role of Parents	Role of Children

It Matters Because

Have you ever been seated near families with small children in a restaurant? If one child spent the entire meal crying, whining, or complaining, what were your thoughts? Chances are you did not blame the child but instead blamed the parents for this disruptive behavior. If a child at another table was quiet, content, and well behaved, you may have even compared the parents of the two children. You were evaluating parenting styles because of the children's behavior.

Parenting Styles

GUIDING QUESTION *What are the four types of parenting styles?*

The way in which children seek independence, and the ease with which they resolve conflicts about becoming adults, depends largely on the parent-child relationship. Diana Baumrind observed and interviewed nursery school children and their parents. Parenting styles may differ across cultures and groups, and Baumrind's research focused on European-American children. Follow-up observations when the children were 8 or 9 led to several conclusions about the impact of four distinct parenting styles, or methods, on children.

In authoritarian families, parents are the bosses of the home. The parents do not believe that they have to explain their actions or demands to their children. In fact, such parents may believe that their children have no right to question any parental decisions. Authoritarian parents are more likely to utilize strong disciplinary methods, including frequent spankings.

In democratic or authoritative families, children participate in decisions affecting their lives. There is a great deal of discussion and negotiation in such families. Parents listen to their children's reasons for wanting to go somewhere or do something and make an effort to explain their rules and expectations. The children make many decisions for themselves, but the parents retain the right to veto plans of which they disapprove. The discipline in these families will probably be balanced between strict enforcement and gentler methods of securing compliance, mixing spanking, time out, and loss of privilege with verbal cues and encouragement.

In permissive or laissez-faire families, children have the final say. The parents may attempt to guide the children but give in when the children insist on having their own way. Or the parents may simply give up their child-rearing responsibilities—setting no rules about behavior, making no demands, voicing no expectations, virtually ignoring the young people in their house. Discipline in the permissive family might be given only in moments of extreme frustration, making it much less effective than where the boundaries are well-established and maintained. Psychologists have recently identified a fourth parenting style: uninvolved parents. These parents were typically egocentric in their child rearing and seemed uncommitted to their roles and quite distant from their children.

Effects of Parenting Styles

Numerous studies suggest that adolescents who have grown up in democratic or authoritative families are more confident of their own values and goals than other young people. This seems to come from two features—the *establishment of limits* on the child and *responding* to the child with warmth and support. The children of democratic families are more likely to want to make their own decisions with or without advice. There are several reasons for this: First, the child is able to *assume responsibility gradually*. He or she is not denied the opportunity to exercise judgment, as in authoritarian families, or given too much responsibility too soon, as in permissive families. Second, the child is more likely to *identify with parents* who love and respect him or her than with parents who treat him or her as incompetent or who seem indifferent. Finally, through their behavior toward the child, democratic parents *present a model of responsible, cooperative independence* for the growing person to imitate.

Although the style parents adopt in dealing with their children influences adolescent development, it would be wrong to conclude that parents are solely responsible for the way their children turn out. Children themselves may contribute to the style parents embrace, with consequences for their own personal development. Parents may adopt a laissez-faire attitude simply because they find that style the easiest way to cope with a teenager who insists on having his or her own way. Adolescents experiencing rapid physical and emotional changes may force their parents to make major adjustments in their parenting style.

Developmental issues such as ADHD, autism, Asperger syndrome, or other special needs also impact parenting styles. Even though a child may have reached an age at which a democratic parenting style would provide more responsibility, the child may not be ready to accept this responsibility. The ADHD child may need to be required to take medicine to relieve his or her symptoms. The child may need special therapy. In such situations, the parents may feel ineffective or overwhelmed by their child's needs. In some cases, this may lead to mistreatment.

Child Abuse

Child abuse includes the physical or mental injury, sexual abuse, negligent treatment, or mistreatment of children under the age of 18 by adults entrusted with their care. Accurate statistics are difficult to compile, since many incidents of child abuse go unreported. In 2010 more than 2.6 million cases of child abuse were reported. After investigation, an estimated 700,000 children were confirmed as victims of actual abuse or neglect situations.

Child abuse is viewed as a social problem that results from a variety of causes. Many abusive parents were themselves mistreated as children, suggesting that these parents may have learned an inappropriate way of caring for children. Such

Psychology & YOU

Nature versus Nurture

Researcher Judith Rich Harris argues that other than the genes parents contribute to their children, they can have little to no impact on what kind of adult the child will become. Harris claims that peer groups, not parents, teach children how to behave in the world. So, according to her, the only influence parents have over their children is by choosing the environment in which their children meet other peers. Critics claim that there is a strong relationship between parenting styles and social development. They argue that although two children may share the same parents, they may be treated differently by them and, thus, turn out differently.

More ABOUT...

Discipline

One of the most controversial aspects of parental discipline relates to the use of corporal punishment, particularly spanking. While people agree that beating a child is unacceptable, there are differences of opinion over whether spanking is the same as beating. One viewpoint asserts that a light spanking can prevent the child from doing something harmful. Another view holds that no form of physical punishment is effective and it will damage a child's self-esteem. All sides agree that, if a parent has a history of abuse, anger issues, or a tendency to over-discipline, corporal punishment should be avoided. Praise and positive reinforcement of good behavior minimize the need for discipline. Some nonviolent disciplines include time outs and loss of privilege. To be effective and avoid confusion appropriate methods of discipline should be used consistently.

parents tend to use the harsh physical discipline that they saw their own parents using. Many abusive parents have little patience with their children. Often they have unrealistic expectations.

Overburdened and stressed parents are more likely to abuse their children. Low-birthweight infants and those children who are hyperactive or mentally or physically disadvantaged experience a higher than normal incidence of abuse. One reason for this higher incidence may be that such children are less responsive and more difficult to care for, thus making greater demands on and providing fewer rewards for the parents. Social-cultural stresses such as unemployment and lack of contact with family, friends, and groups in the community are other factors associated with child abuse.

Abuse has many developmental effects for its victims. It may rob children of their childhood and create a loss of trust and feelings of guilt. In turn, this may lead to antisocial behavior, depression, identity confusion, loss of self-esteem, and other emotional problems. Every state and most counties have social services agencies that provide protective services to children. They have legal authority to investigate reported incidents of child abuse.

Several strategies show promise in reducing child abuse. For example, parent education for abusive parents enables them to learn new ways of dealing with their children. By providing information about resources and a support system for these families, communities may reduce the incidence of child abuse. States, counties, cities, and private organizations provide protection for children in abusive situations. They also offer family counseling to help parents learn to discipline without abuse. Childhelp and the American Humane Association provide hotlines, literature, and information on child abuse.

READING PROGRESS CHECK

Specifying According to research on European-American children, which parenting style seems to lead to more confident children?

Social Development

GUIDING QUESTION *What central themes are shared by Freud and Erikson's theories?*

As a child develops, he or she grows physically, mentally, emotionally, and socially. Researchers who study this development argue over how much is impacted by nature and how much by nurture. Psychologists also debate stability versus change and continuity versus discontinuity. Do our traits remain static from birth or do they change? Does change occur slowly over time or in a series of distinct steps? Most **theories** involve steps. Learning the rules of behavior of the culture in which you are born and grow up is a process known as **socialization**. To live with other people, a child has to learn what is considered acceptable and unacceptable behavior. This is not as easy as it sounds. Some social rules are considered very important and are inflexible. Other social rules leave room for individual decisions, so that sometimes there seems to be a gray area between right and wrong.

theory a plausible or scientifically acceptable general principle or body of principles offered to explain phenomena

socialization the process of learning the rules of behavior of the culture within which an individual is born and will live

Some rules change from situation to situation. Some apply to certain categories of people. For example, some rules for boys in our society are different from the rules for girls. We tend to encourage boys to express aggression but not fear; traditionally, girls have been raised to express emotions but not ambitions. Of course, the rules for feminine behavior have changed over the years. Learning what the rules are—and when to apply or bend them—is, however, only one dimension of socialization. Every society has ideas about what is meaningful, valuable, worth striving for, and beautiful. Every society classifies people according to their family, sex, age, skills, personality characteristics, and other criteria. Every culture has notions about what makes individuals behave as they do. In absorbing these notions, a child acquires an identity as an individual member of a society, a member of different social categories, and a member of a family. Acquiring these identities is the second dimension of socialization.

Finally, socialization involves learning to live with other people and with oneself. Anyone who has seen the shock on a 2-year-old's face when another child takes a toy he wants, or the humiliation a 4-year-old experiences when she discovers she is unable to hit a baseball on the first try, knows how painful it can be to discover that other people have rights and that we all have limitations.

Freud's Theory of Psychosexual Development

Sigmund Freud believed that all children are born with powerful sexual and aggressive urges. In learning to control these impulses, children acquire a sense of right and wrong. The process—and the results—are different for boys and girls. According to Freud, in the first few years of life, boys and girls have similar experiences. Their erotic pleasures are obtained through the mouth, sucking at their mother's breast. Weaning the child from nursing is a period of frustration and conflict—it is the child's first experience with not getting what he or she wants. Freud called this the *oral stage* of development. Later the anus becomes the source of erotic pleasure, giving rise to what Freud called the *anal stage*. Through toilet training the child learns to curb freedom and establish social control.

A major conflict comes between the ages of 3 and 5, when children discover the pleasure they can obtain from their genitals. As a consequence, they become extremely aware of the differences between themselves and members of the opposite sex. In this *phallic stage*, according to Freud, the child becomes a rival for the affections of the parent of the opposite sex. The boy wants to win his mother for himself and finds himself in hostile conflict with his father. The girl wants her father for herself and tries to shut out her mother. These struggles take place on an unconscious level. Generally, the child and the parents do not have any clear awareness that it is going on. In this process, which is called **identification** with the aggressor, the boy takes on all his father's values and moral principles. Thus, at the same time that he learns to behave like a man, he internalizes his father's morality. The girl also goes through this process and begins to identify with her mother. She feels her mother's triumphs and failures as if they were her's and internalizes her mother's moral code.

Freud believed that at about age 5 or 6, children enter a *latency stage*. Sexual desires are pushed into the background, and children explore the world and learn new skills. This process of redirecting sexual impulses into learning tasks is called **sublimation**. Ideally, when one reaches the *genital stage* at adolescence, one derives as much satisfaction from giving pleasure as from receiving it. For Freud, personality development is essentially complete as we enter adolescence. Today, relatively few psychologists believe that sexual feelings disappear in childhood, or that Freud's stages are the norm.

identification the process by which a child adopts the values and principles of the same-sex parent

sublimation the process of redirecting sexual impulses into learning tasks

DIAGRAM

FREUD'S THEORY OF PSYCHOSEXUAL DEVELOPMENT

Freud identified traits common to various age groups and organized these into five stages of psychosexual development.

CRITICAL THINKING

1. ***Reading Charts*** At what stage do children compete with their parents?
2. ***Determining Central Ideas*** What is the central theme of Freud's theory?

ORAL STAGE	ANAL STAGE	PHALLIC STAGE	LATENCY STAGE	GENITAL STAGE
Infant's pleasure seeking focused on the mouth.	Infant's pleasure seeking centered on functions of elimination.	Infant's pleasure seeking focused on the genitals.	Sexual thoughts repressed; child focuses on developing social and intellectual skills.	Sexual desires are renewed; individual seeks relationships with others.
AGES: first 18 months of life	**AGES:** 1 1/2–3 years	**AGES:** 3–6 years	**AGES:** 6 years to puberty	**AGES:** puberty through adulthood

Erikson's Theory of Psychosocial Development

Erik Erikson (1902–1994) took a broader view of human development than Freud in terms of both time and scope. Although he recognized the child's sexual and aggressive urges, he believed that the need for social approval is just as important. Erikson studied what he called *psychosocial* development—life periods in which an individual's goal is to satisfy desires associated with social needs. Although Erikson believed that childhood experiences have a lasting impact on the individual, he saw development as a lifelong interactive process between people (see Erikson's Stages of Psychosocial Development).

issue a problem or worry

Erikson argued that we all face many crises as we grow from infancy to old age, as we mature, and as people expect more from us. Each of these crises represents an **issue** that everyone faces. The child, adolescent, or adult may develop more strongly in one way or another, depending on how other people respond to his or her efforts. For example, the 2-year-old is delighted with his newfound ability to walk, to get into things, to use words, and to ask questions. The very fact that he has acquired these abilities adds to his self-esteem, and he is eager to use them. If the adults around him applaud his efforts and acknowledge his achievements, he begins to develop a sense of autonomy, or independence. However, if they ignore him except to punish him for going too far or being a nuisance, the child may begin to doubt the value of his achievements. He may also feel shame because the people around him act as if his new desire for independence is bad.

READING PROGRESS CHECK

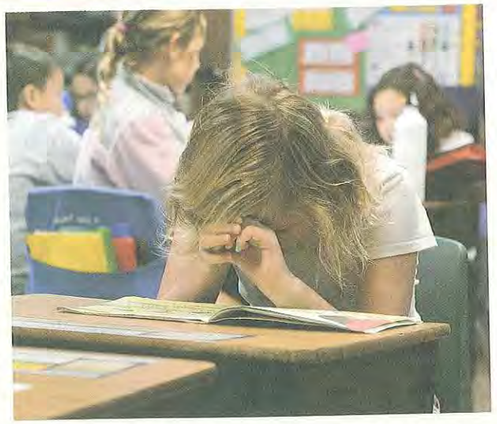
Listing What are the three dimensions of socialization?

Connecting Psychology to Civics

PUBLIC SERVICE AND DEVELOPMENTAL HEALTH

Less than fifty years ago, mental illness was regarded as the result of parenting styles and family dynamics. As a result, families with a mentally ill member tended to be ashamed of the fact. Medical professionals often isolated the mentally ill individual from his or her family and kept family members out of the loop on the individual's care. Gradually, however, science and medicine identified underlying genetic and/or medical causes of mental illness. Mental illness has become a medical issue, to be treated with drugs and ongoing therapy. As the viewpoint regarding causes changed, so too did family involvement in the care of mentally ill family members.

The government has taken a role in researching mental illness and in connecting families with professional help. Families, parenting styles, government intervention, and medical understanding of mental illness intersect in the National Institute of Mental Health (NIMH) and the National Alliance for the Mentally Ill (NAMI). NIMH funds research into all aspects of mental illness. This organization also generates interventions, education, and training for parents and other caregivers dealing with issues surrounding childhood maltreatment and abuse, mental illnesses, and developmental difficulties and disorders children face, such as autism and ADHD. The NIMH Web site (www.nimh.nih.gov) provides information on mental illness through publications as well as audio and video resources. NAMI exists to provide education and resources for individuals and their families.



Robin Nelson/ZUMA Press/Corbis

▲ **Today, children with special needs like this young girl are often given support in regular classrooms thanks to NIMH and NAMI.**

CRITICAL THINKING

1. ***Drawing Conclusions*** Do you think that the NIMH and NAMI provide an important public service? Explain.
2. ***Identifying Cause and Effect*** How has changing awareness of mental illness changed the part played by families in caring for the mentally ill?

DIAGRAM

ERIKSON'S THEORY OF PSYCHOSOCIAL DEVELOPMENT

According to Erikson, a child encounters a psychosocial challenge at each stage. If the child successfully resolves the issue, the child develops a positive social trait and progresses to the next stage.

CRITICAL THINKING

1. ***Analyzing Visuals*** What issues concern a child in the first year of life?
2. ***Analyzing Ideas*** How are the issues of a child in Stage 4 different from those of a child in Stage 3?

The Cognitive-Developmental Approach

GUIDING QUESTION *What occurs in the stages of moral development?*

Both Freud and Erikson stress the emotional dynamics of social development. Their theories suggest that learning social rules is altogether different from learning to ride a bicycle or to speak a foreign language. Many psychologists disagree. They believe children learn the ways of their social world because they are rewarded for conforming and because they copy older children and adults in anticipation of future rewards. In other words, social development is simply a matter of learning and imitating.

Theorists who emphasize the role of cognition or thinking in the development of children view the growing child differently. Learning theory implies that the child is essentially passive—a piece of clay to be shaped by experience. The people who administer rewards and punishments and serve as models do the shaping. Cognitive theorists see the child as the shaper. Taking their cue from Jean Piaget, they argue that social development is the result of the child's acting on the environment and trying to make sense out of his experiences. The games children play illustrate this.

Games and Play

Children's games are serious business. When left to their own devices, youngsters spend a great deal of time making up rules. This enables them to learn for themselves the importance of agreeing on a structure for group activities. A child can relax and enjoy himself without fear of rejection as long as he does not break the rules. The world of play thus becomes a miniature society, with its own rules and codes. Games also teach children about aspects of adult life in a nonthreatening way.

role taking children's play that involves assuming adult roles, thus enabling the child to experience different points of view

In young children's games, it is the experience of playing, not winning, that counts. Much of the children's play involves **role taking**. Youngsters try on such adult roles as mother, father, teacher, storekeeper, explorer, and rock star. Role taking allows them to learn about different points of view firsthand. Suppose a child plays a mother opposite another child who plays a whiny, disobedient baby. When she finds herself totally frustrated by the other child's nagging, she begins to understand why her mother gets mad. You are unable to cook even a pretend meal when the baby keeps knocking over the pots and pans.

Moral Development

Lawrence Kohlberg's studies show just how important being able to see other people's points of view is to social development in general and to moral development in particular. Kohlberg studied the development of moral reasoning—deciding what is right and what is wrong—by presenting children of different ages with a series of moral dilemmas. Kohlberg gave the following example: In Europe, a woman was near death from cancer. One drug might save her, a form of radium that a druggist in the same town had recently discovered. The druggist was charging $2,000, ten times what the drug cost him to make. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could get together only about half of what it cost. He told the druggist that his wife was dying and asked him to sell the drug cheaper or let him pay later. But the druggist said, "No." The husband got desperate and broke into the man's store to steal the drug for his wife. Should the husband have done that? Why?

Stages of Moral Development

Kohlberg explored the issue further in a 1969 study. While the answer to the question was immaterial, what interested Kohlberg most was how each child arrived at a conclusion. He wanted to know what sort of reasoning they used. After questioning 84 children, Kohlberg identified six stages of moral development. He then replicated his findings in several different cultures.

In stage one, children are totally egocentric. They do not consider other people's points of view and have no sense of right and wrong. Their main concern is avoiding punishment. A child in this stage will say that the man should steal because people will blame him for his wife's death if he does not, or that he should not steal because he will go to jail when he's caught.

CARTOON

A child plays by pretending to be an adult. This role-taking play provides an opportunity to see the world through the eyes of another.

▶ CRITICAL THINKING

1. ***Drawing Conclusions*** How does this cartoon demonstrate role taking?
2. ***Analyzing*** What do you notice about the role chosen by the boy? What about the role chosen by the girl?

Stage	Level	Orientation	Reference Group	Example
1	Pre-conventional	Obedience and punishment	Self	It's OK for Heinz to steal if he doesn't get caught.
2		Instrumental relativist	Immediate family	Stealing the drug helps his wife.
3	Conventional	Good boy/Nice girl	Extended family	His in-laws will respect him if he steals the drug.
4		Law and order	Self-serving view of society	It's illegal to steal.
5	Post-conventional	Social contract	Interactive view of society	It's OK to steal because the druggist is charging too much.
6		Universal ethics principle	Balanced cost/benefit analysis of self/society	If the situations were reversed, would the druggist steal from Heinz?

TABLE

KOHLBERG'S STAGES OF MORAL DEVELOPMENT

Each stage of Kohlberg's theory is cognitively more complex than the last.

▶ CRITICAL THINKING

1. ***Interpreting*** Why would a child in the first stage choose to listen to his or her parents?
2. ***Assessing*** Which stage has the most rigid sense of right and wrong?

Children in stage two have a better idea of how to receive rewards as well as how to avoid punishment. Youngsters at this level interpret the Golden Rule "do unto others as you would have them do unto you" as "help someone if he helps you, and hurt him if he hurts you." They are still egocentric and premoral. They evaluate acts in terms of their consequences, not in terms of right and wrong. A child who is in stage two might support Heinz stealing the drug to help his wife, but he might oppose Heinz's theft because it would harm the druggist.

In stage three, children become acutely sensitive to what other people want and think. A child in this stage will say that the man in the story should steal because people will think he is cruel if he lets his wife die, or that he should not steal because people will think he is a criminal. In other words, children want social approval in stage three, so they apply the rules other people have decreed literally and rigidly.

In stage four, a child is less concerned with the approval of others. The key issue here is law and order—a law is seen as a moral rule and is obeyed because of a strong belief in established authority. For example, a woman may stay married because she took a vow, or a driver may obey the speed limit when no police are around. Moral thinking here, as at stage three, is quite rigid. For a child in stage four, Heinz should not steal the drug only because it is against the law. In the remaining two stages, people continue to broaden their perspective.

The stage-five person is primarily concerned with whether a law is fair or just. He believes that laws must change as the world changes, and that laws are never absolute and should not be followed rigidly. For a stage-five child, Heinz's theft could be excused because the druggist was unfairly charging too much. The important question for an individual in stage five is whether a given law is good for society as a whole.

Stage six involves an acceptance of ethical principles that apply to everyone, like the Golden Rule. A moral imperative such as the Golden Rule cannot be disobeyed or broken; they are more important than any written law. People at a stage-six level of development may sometimes find themselves obeying their principles despite great personal sacrifice.

Kohlberg's research demonstrated that while the levels are not strictly tied to the age of an individual, there are some correlations. He found that most adolescents and adults reason conventionally, although postconventional reasoning is the highest level he identified. However, if a person reaches the post-conventional level, he or she is most likely to reach it during adolescence. Of the adolescents he studied, Kohlberg found that 20 percent reached stage-five reasoning while about 5 percent reached stage six.

Children learn to respect the feelings of others through caring for a pet.

▶ CRITICAL THINKING

Drawing Conclusions Which stage and orientation of moral development are these girls exhibiting?

Photodisc/Getty Images

Critics of Kohlberg, such as Carol Gilligan, point out that there is a gender bias in Kohlberg's theory. Gilligan theorizes that boys and girls use different principles when they are deciding between what is right and what is wrong. She argues that girls have been socialized to consider the needs of others and to avoid one-dimensional judgments. Girls are taught to be empathetic and caring, whereas boys are taught the goal of justice and fairness. Therefore, girls might argue that both stealing and letting Heinz's wife die are wrong, while boys might argue that life has greater value than property. Using these arguments, Kohlberg would place boys at higher levels of moral development. While Gilligan and others recognize the different reasoning that is employed, they would disagree that this indicates a lower level of moral development.

Other researchers suggest the need for studying the development of racial identity, as well as how racial identity interacts with gender and sexual orientation identities. William Cross followed the progression of racial identity for African Americans through a series of five steps, moving from a point of racial unawareness to a point of multicultural concern for all "oppressed groups." Janet Helms developed one of the first racial identity models for whites. Her work focused on six statuses in the development of a white racial identity. In the first three statuses, an individual moves away from the point of having a racist frame or perspective, and in the final three statuses, the individual develops a white identity that is nonracist and willing to confront racism in everyday life.

To reach the highest levels of moral development, a child must first be able to see other people's points of view. Yet this understanding is no guarantee that a person will respect the rights of others. Thus, the development of thinking or cognitive abilities influences moral development.

☑ READING PROGRESS CHECK

Contrasting How does a cognitivist's view of social development differ from Freud's view?

LESSON 3 REVIEW

Reviewing Vocabulary

1. ***Defining*** Describe role taking in children's play.

Using Your Notes

2. ***Comparing*** Review the notes that you completed during the lesson. Compare the role of parents and children in authoritarian and permissive families.

Answering the Guiding Questions

3. ***Differentiating*** Identify and describe the three types of parenting styles.
4. ***Comparing*** What central themes are shared by Freud's and Erikson's theories?
5. ***Describing*** List Kohlberg's stages of moral development and describe what occurs in each.

Writing Activity

6. ***Informative/Explanatory*** Go to a public place where you can observe children, such as a playground, park, or shopping mall. Note the interactions between parents and children and among the children as they play. Record your observations. Write about your analysis of the different parenting styles you observed.

CHAPTER 3 Assessment

Directions: On a separate sheet of paper, answer the questions below. Make sure you read carefully and answer all parts of the question.

Lesson Review

Lesson 1

1. ***Describing*** Describe capacities newborns display.
2. ***Identifying*** Identify biological and environmental influences on development of the prenatal brain.
3. ***Summarizing*** Summarize the typical stages of language development in children.

Lesson 2

4. ***Defining*** What is egocentric thinking?
5. ***Drawing Conclusions*** Explain imprinting in relation to Lorenz's geese. What would most likely have happened if the first thing the goslings saw was a dog?

Lesson 3

6. ***Interpreting Significance*** Define socialization and explain why it is so important to development.
7. ***Identifying*** Use Erikson's Stages of Psychosocial Development to match the following items:

Ego integrity vs. _____
Identity vs. _____
Autonomy vs. _____
Intimacy vs. _____
Initiative vs. _____

a. shame and doubt
b. role confusion
c. isolation
d. despair
e. guilt

8. ***Understanding Perspectives*** Max is a very outgoing 3-year-old. In the stability versus change issue, suggest how each viewpoint would say he might behave as an adult.

College and Career Readiness

9. ***Reaching Conclusions*** Write a caption for the image that describes the type of parenting style this picture demonstrates. How does this style of parenting affect the children? Based on this image, describe this family when the girl is 16.

10. ***Finding the Main Idea*** Explain the views of Cross, Helms, and Gilligan in relation to Kohlberg's stages of moral development.

Critical Thinking Questions

11. ***Making Connections*** Describe fetal brain development and its role in relation to the developing fetus.
12. ***Synthesizing*** Review the concept of continuity versus discontinuity and use this to identify and evaluate limitations of one of the stage theories discussed in this chapter.

LEMONIE/age fotostock

Need Extra Help?

If You've Missed Question	1	2	3	4	5	6	7	8	9	10	11	12
Go to page	54	56	57	62	65	72	75	72	71	78	53	72

CHAPTER 3 Assessment

Directions: On a separate sheet of paper, answer the questions below. Make sure you read carefully and answer all parts to the question.

13 ***Making Inferences*** Based on what you have learned about development, should young children be treated as "little adults"? Why or why not?

14 ***Evaluating Information*** Determine how well your beliefs agree with those of your parents. How much do you think your early social training impacted your beliefs?

15 ***Analyzing Concepts*** Describe typical play activities for boys and girls. Use the theories of social development to explain why these play styles are typical.

Exploring the Essential Question

16 ***Using Context Clues*** Select and print out a short story, poem, or song lyrics that addresses growing up. Identify instances in which the subject meets a psychosocial challenge, such as "Am I good or bad?" or "Who am I?" or "Have I lived a full life?". Label with the age range or stage of psychosocial developent and draw a picture that represents that child's (or parent's) stage.

21st Century Skills

17 ***Understanding Relationships Among Events*** How does the maturation process explain why a 4-month-old infant cannot be taught to walk?

18 ***Decision Making*** Review the nature versus nurture issue. Do you think development is the result of heredity (nature) or learning (nurture) or both? Why?

19 ***Time, Chronology, and Sequencing*** Using Piaget's stages, create a time line that tracks the cognitive development of a child.

Research and Technology

20 ***Evaluating*** How do advertisements or products aimed at children contribute to the choices a child has for role-taking? Look through magazines and newspapers, watch television commercials, listen to the radio, and use the Internet. Present your findings in an illustrated, captioned poster.

DBQ Analyzing Primary Sources

Use the document below to answer the following questions.

PRIMARY SOURCE

"Children are influenced by the model for behavior set by adults in their environment. When adults use physical punishment, children are likely to learn that this behavior is the desirable choice in discipline. Spanking, hitting and slapping are not effective and are damaging to the self-respect and self-esteem of children. There are many healthier and more effective forms of discipline that can be taught and utilized as alternatives to physical punishment."

—American Humane Child Protection Position Statements, 16

21 ***Constructing Arguments*** Agree or disagree with this statement and explain your reasoning. Be sure to identify alternate methods of discipline and parenting, and evaluate their effectiveness versus physical punishment.

Psychology Journal Activity

22 ***Informative/Explanatory*** Review your entry in your Psychology Journal for this chapter. What did you learn in this chapter about childhood development that relates to how you learn new words or foreign languages? Don't forget to address the importance of one's environment and surroundings.

Need Extra Help?

If You've Missed Question	13	14	15	16	17	18	19	20	21	22
Go to page	60	72	75	60	55	72	60	76	71	50