Chapter 4: Life Span Development SW

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Chapter 1

4.0 Introduction to Development

Welcome to the story of your life. In this chapter we explore the fascinating tale of how you have grown and developed into the person you are today. We also look at some ideas about who you will grow into tomorrow. Yours is a story of lifespan development (Figure 1.1), from the start of life to the end.

Figure 1.1: How have you changed since childhood? How are you the same? What will your life be like 25 years from now? Fifty years from now? Lifespan development studies how you change as well as how you remain the same over the course of your life. (credit: modification of work by Giles Cook)

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The process of human growth and development is more obvious in infancy and childhood, yet your development is happening this moment and will continue, minute by minute, for the rest of your life. Who you are today and who you will be in the future depends on a blend of genetics, environment, culture, relationships, and more, as you continue through each phase of life. You have experienced firsthand much of what is discussed in this chapter. Now consider what psychological science has to say about your physical, cognitive, and psychosocial development, from the womb to the tomb.

1.1 References


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In this poem, William Wordsworth writes, “the child is father of the man.” What does this seemingly incongruous statement mean, and what does it have to do with lifespan development? Wordsworth might be suggesting that the person he is as an adult depends largely on the experiences he had in childhood. Consider the following questions: To what extent is the adult you are today influenced by the child you once were? To what extent is a child fundamentally different from the adult he grows up to be?

These are the types of questions developmental psychologists try to answer, by studying how humans change and grow from conception through childhood, adolescence, adulthood, and death. They view development as a lifelong process that can be studied scientifically across three developmental domains—physical, cognitive, and psychosocial development. Physical development involves growth and changes in the body and brain, the senses, motor skills, and health and wellness. Cognitive development involves learning, attention, memory, language, thinking, reasoning, and creativity. Psychosocial development involves emotions, personality, and social relationships. We refer to these domains throughout the chapter.

Across these three domains—physical, cognitive, and psychosocial—the normative approach to development is also discussed. This approach asks, “What is normal development?” In the early decades of the 20th century, normative psychologists studied large numbers of children at various ages to determine norms (i.e., average ages) of when most children reach specific developmental milestones in each of the three domains (Gesell, 1933, 1939, 1940; Gesell & Ilg, 1946; Hall, 1904). Although children develop at slightly different rates, we can use these age-related averages as general guidelines to compare children with same-age peers to determine the approximate ages they should reach specific normative events called developmental milestones (e.g., crawling, walking, writing, dressing, naming colors, speaking in sentences, and starting puberty).

Not all normative events are universal, meaning they are not experienced by all individuals across all cultures. Biological milestones, such as puberty, tend to be universal, but social milestones, such as the age when children begin formal schooling, are not necessarily universal; instead, they affect most individuals in a particular culture (Gesell & Ilg, 1946). For example, in developed countries children begin school around

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1This content is available online at <http://cnx.org/content/m55760/1.1/>.

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5 or 6 years old, but in developing countries, like Nigeria, children often enter school at an advanced age, if at all (Huebler, 2005; United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2013).

To better understand the normative approach, imagine two new mothers, Louisa and Kimberly, who are close friends and have children around the same age. Louisa’s daughter is 14 months old, and Kimberly’s son is 12 months old. According to the normative approach, the average age a child starts to walk is 12 months. However, at 14 months Louisa’s daughter still isn’t walking. She tells Kimberly she is worried that something might be wrong with her baby. Kimberly is surprised because her son started walking when he was only 10 months old. Should Louisa be worried? Should she be concerned if her daughter is not walking by 15 months or 18 months?

2.1 ISSUES IN DEVELOPMENTAL PSYCHOLOGY

There are many different theoretical approaches regarding human development. As we evaluate them in this chapter, recall that developmental psychology focuses on how people change, and keep in mind that all the approaches that we present in this chapter address questions of change: Is the change smooth or uneven (continuous versus discontinuous)? Is this pattern of change the same for everyone, or are there many different patterns of change (one course of development versus many courses)? How do genetics and environment interact to influence development (nature versus nurture)?

2.1.1 Is Development Continuous or Discontinuous?

Continuous development views development as a cumulative process, gradually improving on existing skills (Figure 2.1). With this type of development, there is gradual change. Consider, for example, a child’s physical growth: adding inches to her height year by year. In contrast, theorists who view development as discontinuous believe that development takes place in unique stages: It occurs at specific times or ages. With this type of development, the change is more sudden, such as an infant’s ability to conceive object permanence.

![Continuous Development vs. Discontinuous Development](http://cnx.org/content/col11820/1.1)

Figure 2.1: The concept of continuous development can be visualized as a smooth slope of progression, whereas discontinuous development sees growth in more discrete stages.

2.1.2 Is There One Course of Development or Many?

Is development essentially the same, or universal, for all children (i.e., there is one course of development) or does development follow a different course for each child, depending on the child’s specific genetics and
environment (i.e., there are many courses of development)? Do people across the world share more similarities or more differences in their development? How much do culture and genetics influence a child’s behavior?

Stage theories hold that the sequence of development is universal. For example, in cross-cultural studies of language development, children from around the world reach language milestones in a similar sequence (Gleitman & Newport, 1995). Infants in all cultures coo before they babble. They begin babbling at about the same age and utter their first word around 12 months old. Yet we live in diverse contexts that have a unique effect on each of us. For example, researchers once believed that motor development follows one course for all children regardless of culture. However, child care practices vary by culture, and different practices have been found to accelerate or inhibit achievement of developmental milestones such as sitting, crawling, and walking (Karask, Adolph, Tamis-LeMonda, & Bornstein, 2010).

2.1.3 How Do Nature and Nurture Influence Development?

Are we who we are because of nature (biology and genetics), or are we who we are because of nurture (our environment and culture)? This longstanding question is known in psychology as the nature versus nurture debate. It seeks to understand how our personalities and traits are the product of our genetic makeup and biological factors, and how they are shaped by our environment, including our parents, peers, and culture. For instance, why do biological children sometimes act like their parents—is it because of genetics or because of early childhood environment and what the child has learned from the parents? What about children who are adopted—are they more like their biological families or more like their adoptive families? And how can siblings from the same family be so different?

We are all born with specific genetic traits inherited from our parents, such as eye color, height, and certain personality traits. Beyond our basic genotype, however, there is a deep interaction between our genes and our environment: Our unique experiences in our environment influence whether and how particular traits are expressed, and at the same time, our genes influence how we interact with our environment (Diamond, 2009; Lobo, 2008). This chapter will show that there is a reciprocal interaction between nature and nurture as they both shape who we become, but the debate continues as to the relative contributions of each.

2.2 Summary

Lifespan development explores how we change and grow from conception to death. This field of psychology is studied by developmental psychologists. They view development as a lifelong process that can be studied scientifically across three developmental domains: physical, cognitive development, and psychosocial. There are several theories of development that focus on the following issues: whether development is continuous or discontinuous, whether development follows one course or many, and the relative influence of nature versus nurture on development.

2.3 Review Questions

Exercise 2.1  
(Solution on p. 13.)
The view that development is a cumulative process, gradually adding to the same type of skills is known as ________.

a. nature  
b. nurture  
c. continuous development  
d. discontinuous development

Exercise 2.2  
(Solution on p. 13.)
Developmental psychologists study human growth and development across three domains. Which of the following is not one of these domains?

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CHAPTER 2. WHAT IS LIFESPAN DEVELOPMENT?

a. cognitive  
b. psychological  
c. physical  
d. psychosocial

Exercise 2.3  
How is lifespan development defined?

a. The study of how we grow and change from conception to death.  
b. The study of how we grow and change in infancy and childhood.  
c. The study of physical, cognitive, and psychosocial growth in children.  
d. The study of emotions, personality, and social relationships.

2.4 Critical Thinking Questions

Exercise 2.4  
Describe the nature versus nurture controversy, and give an example of a trait and how it might be influenced by each?

Exercise 2.5  
Compare and contrast continuous and discontinuous development.

Exercise 2.6  
Why should developmental milestones only be used as a general guideline for normal child development?
Solutions to Exercises in Chapter 2

Solution to Exercise 2.1 (p. 11)
C

Solution to Exercise 2.2 (p. 11)
B

Solution to Exercise 2.3 (p. 12)
A

Solution to Exercise 2.4 (p. 12)
The nature versus nurture controversy seeks to understand whether our personalities and traits are the product of our genetic makeup and biological factors, or whether they are shaped by our environment, which includes such things as our parents, peers, and culture. Today, psychologists agree that both nature and nurture interact to shape who we become, but the debate over the relative contributions of each continues. An example would be a child learning to walk: Nature influences when the physical ability occurs, but culture can influence when a child masters this skill, as in Aché culture.

Solution to Exercise 2.5 (p. 12)
Continuous development sees our development as a cumulative process: Changes are gradual. On the other hand, discontinuous development sees our development as taking place in specific steps or stages: Changes are sudden.

Solution to Exercise 2.6 (p. 12)
Children develop at different rates. For example, some children may walk and talk as early as 8 months old, while others may not do so until well after their first birthday. Each child's unique contexts will influence when he reaches these milestones.
CHAPTER 2. 4.1 WHAT IS LIFESPAN DEVELOPMENT?

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Chapter 3

4.2 Lifespan Theories

There are many theories regarding how babies and children grow and develop into happy, healthy adults. We explore several of these theories in this section.

3.1 PSYCHOSEXUAL THEORY OF DEVELOPMENT

Sigmund Freud (1856–1939) believed that personality develops during early childhood. For Freud, childhood experiences shape our personalities and behavior as adults. Freud viewed development as discontinuous; he believed that each of us must pass through a series of stages during childhood, and that if we lack proper nurturance and parenting during a stage, we may become stuck, or fixated, in that stage. Freud’s stages are called the stages of psychosexual development. According to Freud, children’s pleasure-seeking urges are focused on a different area of the body, called an erogenous zone, at each of the five stages of development: oral, anal, phallic, latency, and genital.

While most of Freud’s ideas have not found support in modern research, we cannot discount the contributions that Freud has made to the field of psychology. Psychologists today dispute Freud’s psychosexual stages as a legitimate explanation for how one’s personality develops, but what we can take away from Freud’s theory is that personality is shaped, in some part, by experiences we have in childhood. These stages are discussed in detail in the chapter on personality.

3.2 PSYCHOSOCIAL THEORY OF DEVELOPMENT

Erik Erikson (1902–1994) (Figure 3.1), another stage theorist, took Freud’s theory and modified it as psychosocial theory. Erikson’s psychosocial development theory emphasizes the social nature of our development rather than its sexual nature. While Freud believed that personality is shaped only in childhood, Erikson proposed that personality development takes place all through the lifespan. Erikson suggested that how we interact with others is what affects our sense of self, or what he called the ego identity.

1This content is available online at <http://cnx.org/content/m55762/1.1/>.
Erikson proposed that we are motivated by a need to achieve competence in certain areas of our lives. According to psychosocial theory, we experience eight stages of development over our lifespan, from infancy through late adulthood. At each stage there is a conflict, or task, that we need to resolve. Successful completion of each developmental task results in a sense of competence and a healthy personality. Failure to master these tasks leads to feelings of inadequacy.

According to Erikson (1963), trust is the basis of our development during infancy (birth to 12 months). Therefore, the primary task of this stage is trust versus mistrust. Infants are dependent upon their caregivers, so caregivers who are responsive and sensitive to their infant's needs help their baby to develop a sense of trust; their baby will see the world as a safe, predictable place. Unresponsive caregivers who do not meet their baby's needs can engender feelings of anxiety, fear, and mistrust; their baby may see the world as unpredictable.

As toddlers (ages 1–3 years) begin to explore their world, they learn that they can control their actions and act on the environment to get results. They begin to show clear preferences for certain elements of the environment, such as food, toys, and clothing. A toddler's main task is to resolve the issue of autonomy versus shame and doubt, by working to establish independence. This is the "me do it" stage. For example, we might observe a budding sense of autonomy in a 2-year-old child who wants to choose her clothes and dress herself. Although her outfits might not be appropriate for the situation, her input in such basic decisions has an effect on her sense of independence. If denied the opportunity to act on her environment, she may...
begin to doubt her abilities, which could lead to low self-esteem and feelings of shame.

Once children reach the preschool stage (ages 3–6 years), they are capable of initiating activities and asserting control over their world through social interactions and play. According to Erikson, preschool children must resolve the task of initiative versus guilt. By learning to plan and achieve goals while interacting with others, preschool children can master this task. Those who do will develop self-confidence and feel a sense of purpose. Those who are unsuccessful at this stage—with their initiative misfiring or stifled—may develop feelings of guilt. How might over-controlling parents stifle a child's initiative?

During the elementary school stage (ages 6–12), children face the task of industry versus inferiority. Children begin to compare themselves to their peers to see how they measure up. They either develop a sense of pride and accomplishment in their schoolwork, sports, social activities, and family life, or they feel inferior and inadequate when they don't measure up. What are some things parents and teachers can do to help children develop a sense of competence and a belief in themselves and their abilities?

In adolescence (ages 12–18), children face the task of identity versus role confusion. According to Erikson, an adolescent's main task is developing a sense of self. Adolescents struggle with questions such as “Who am I?” and “What do I want to do with my life?” Along the way, most adolescents try on many different selves to see which ones fit. Adolescents who are successful at this stage have a strong sense of identity and are able to remain true to their beliefs and values in the face of problems and other people's perspectives. What happens to apathetic adolescents, who do not make a conscious search for identity, or those who are pressured to conform to their parents' ideas for the future? These teens will have a weak sense of self and experience role confusion. They are unsure of their identity and confused about the future.

People in early adulthood (i.e., 20s through early 40s) are concerned with intimacy versus isolation. After we have developed a sense of self in adolescence, we are ready to share our life with others. Erikson said that we must have a strong sense of self before developing intimate relationships with others. Adults who do not develop a positive self-concept in adolescence may experience feelings of loneliness and emotional isolation.

When people reach their 40s, they enter the time known as middle adulthood, which extends to the mid-60s. The social task of middle adulthood is generativity versus stagnation. Generativity involves finding your life's work and contributing to the development of others, through activities such as volunteering, mentoring, and raising children. Those who do not master this task may experience stagnation, having little connection with others and little interest in productivity and self-improvement.

From the mid-60s to the end of life, we are in the period of development known as late adulthood. Erikson's task at this stage is called integrity versus despair. He said that people in late adulthood reflect on their lives and feel either a sense of satisfaction or a sense of failure. People who feel proud of their accomplishments feel a sense of integrity, and they can look back on their lives with few regrets. However, people who are not successful at this stage may feel as if their life has been wasted. They focus on what “would have,” “should have,” and “could have” been. They face the end of their lives with feelings of bitterness, depression, and despair. Table 3.1: Erikson's Psychosocial Stages of Development summarizes the stages of Erikson's theory.

### Erikson's Psychosocial Stages of Development

<table>
<thead>
<tr>
<th>Stage</th>
<th>Age (years)</th>
<th>Developmental Task</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1     | 0–1         | Trust vs. mistrust | Trust (or mistrust) that basic needs, such as nourishment and affection, will be met

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2 | 1–3 | Autonomy vs. shame/doubt | Develop a sense of independence in many tasks
3 | 3–6 | Initiative vs. guilt | Take initiative on some activities—may develop guilt when unsuccessful or boundaries overstepped
4 | 7–11 | Industry vs. inferiority | Develop self-confidence in abilities when competent or sense of inferiority when not
5 | 12–18 | Identity vs. confusion | Experiment with and develop identity and roles
6 | 19–29 | Intimacy vs. isolation | Establish intimacy and relationships with others
7 | 30–64 | Generativity vs. stagnation | Contribute to society and be part of a family
8 | 65– | Ego Integrity vs. despair | Assess and make sense of life and meaning of contributions

Table 3.1

3.3 COGNITIVE THEORY OF DEVELOPMENT

Jean Piaget (1896–1980) is another stage theorist who studied childhood development (Figure 3.2). Instead of approaching development from a psychoanalytical or psychosocial perspective, Piaget focused on children’s cognitive growth. He believed that thinking is a central aspect of development and that children are naturally inquisitive. However, he said that children do not think and reason like adults (Piaget, 1930, 1932). His theory of cognitive development holds that our cognitive abilities develop through specific stages, which exemplifies the discontinuity approach to development. As we progress to a new stage, there is a distinct shift in how we think and reason.
Piaget said that children develop schemata to help them understand the world. Schemata are concepts (mental models) that are used to help us categorize and interpret information. By the time children have reached adulthood, they have created schemata for almost everything. When children learn new information, they adjust their schemata through two processes: assimilation and accommodation. First, they assimilate new information or experiences in terms of their current schemata: assimilation is when they take in information that is comparable to what they already know. Accommodation describes when they change their schemata based on new information. This process continues as children interact with their environment.

For example, 2-year-old Blake learned the schema for dogs because his family has a Labrador retriever. When Blake sees other dogs in his picture books, he says, “Look mommy, dog!” Thus, he has assimilated them into his schema for dogs. One day, Blake sees a sheep for the first time and says, “Look mommy, dog!”
Having a basic schema that a dog is an animal with four legs and fur, Blake thinks all furry, four-legged creatures are dogs. When Blake’s mom tells him that the animal he sees is a sheep, not a dog, Blake must accommodate his schema for dogs to include more information based on his new experiences. Blake’s schema for dog was too broad, since not all furry, four-legged creatures are dogs. He now modifies his schema for dogs and forms a new one for sheep.

Like Freud and Erikson, Piaget thought development unfolds in a series of stages approximately associated with age ranges. He proposed a theory of cognitive development that unfolds in four stages: sensorimotor, preoperational, concrete operational, and formal operational (Table 3.2: Piaget’s Stages of Cognitive Development).

### Piaget’s Stages of Cognitive Development

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Stage</th>
<th>Description</th>
<th>Developmental issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–2</td>
<td>Sensorimotor</td>
<td>World experienced through senses and actions</td>
<td>Object permanence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stranger anxiety</td>
</tr>
<tr>
<td>2–6</td>
<td>Preoperational</td>
<td>Use words and images to represent things, but lack logical reasoning</td>
<td>Pretend play</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Egocentrism</td>
</tr>
<tr>
<td>7–11</td>
<td>Concrete operational</td>
<td>Understand concrete events and analogies logically; perform arithmetical operations</td>
<td>Conservation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mathematical transformations</td>
</tr>
<tr>
<td>12–</td>
<td>Formal operational</td>
<td>Formal operations Utilize abstract reasoning</td>
<td>Abstract logic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Moral reasoning</td>
</tr>
</tbody>
</table>

Table 3.2

The first stage is the sensorimotor stage, which lasts from birth to about 2 years old. During this stage, children learn about the world through their senses and motor behavior. Young children put objects in their mouths to see if the items are edible, and once they can grasp objects, they may shake or bang them to see if they make sounds. Between 5 and 8 months old, the child develops object permanence, which is the understanding that even if something is out of sight, it still exists (Bogartz, Shinskey, & Schilling, 2000). According to Piaget, young infants do not remember an object after it has been removed from sight. Piaget studied infants’ reactions when a toy was first shown to an infant and then hidden under a blanket. Infants who had already developed object permanence would reach for the hidden toy, indicating that they knew it still existed, whereas infants who had not developed object permanence would appear confused.

**Link to Learning:** Please take a few minutes to view this brief video demonstrating different children’s ability to understand object permanence.

In Piaget’s view, around the same time children develop object permanence, they also begin to exhibit stranger anxiety, which is a fear of unfamiliar people. Babies may demonstrate this by crying and turning away from a stranger, by clinging to a caregiver, or by attempting to reach their arms toward familiar faces.

2http://openstaxcollege.org/1/piaget
such as parents. Stranger anxiety results when a child is unable to assimilate the stranger into an existing schema; therefore, she can’t predict what her experience with that stranger will be like, which results in a fear response.

Piaget’s second stage is the **preoperational stage**, which is from approximately 2 to 7 years old. In this stage, children can use symbols to represent words, images, and ideas, which is why children in this stage engage in pretend play. A child’s arms might become airplane wings as he zooms around the room, or a child with a stick might become a brave knight with a sword. Children also begin to use language in the preoperational stage, but they cannot understand adult logic or mentally manipulate information (the term operational refers to logical manipulation of information, so children at this stage are considered to be pre-operational). Children’s logic is based on their own personal knowledge of the world so far, rather than on conventional knowledge. For example, dad gave a slice of pizza to 10-year-old Keiko and another slice to her 3-year-old brother, Kenny. Kenny’s pizza slice was cut into five pieces, so Kenny told his sister that he got more pizza than she did. Children in this stage cannot perform mental operations because they have not developed an understanding of **conservation**, which is the idea that even if you change the appearance of something, it is still equal in size as long as nothing has been removed or added.

**Link to Learning:** This video\(^3\) shows a 4.5-year-old boy in the preoperational stage as he responds to Piaget’s conservation tasks.

During this stage, we also expect children to display **egocentrism**, which means that the child is not able to take the perspective of others. A child at this stage thinks that everyone sees, thinks, and feels just as they do. Let’s look at Kenny and Keiko again. Keiko’s birthday is coming up, so their mom takes Kenny to the toy store to choose a present for his sister. He selects an Iron Man action figure for her, thinking that if he likes the toy, his sister will too. An egocentric child is not able to infer the perspective of other people and instead attributes his own perspective.

**Link to Learning:** Piaget developed the Three-Mountain Task to determine the level of egocentrism displayed by children. Children view a 3-dimensional mountain scene from one viewpoint, and are asked what another person at a different viewpoint would see in the same scene. Watch the Three-Mountain Task in action in this short video\(^4\) from the University of Minnesota and the Science Museum of Minnesota.

Piaget’s third stage is the **concrete operational stage**, which occurs from about 7 to 11 years old. In this stage, children can think logically about real (concrete) events; they have a firm grasp on the use of numbers and start to employ memory strategies. They can perform mathematical operations and understand transformations, such as addition is the opposite of subtraction, and multiplication is the opposite of division. In this stage, children also master the concept of conservation: Even if something changes shape, its mass, volume, and number stay the same. For example, if you pour water from a tall, thin glass to a short, fat glass, you still have the same amount of water. Remember Keiko and Kenny and the pizza? How did Keiko know that Kenny was wrong when he said that he had more pizza?

Children in the concrete operational stage also understand the principle of **reversibility**, which means that objects can be changed and then returned back to their original form or condition. Take, for example, water that you poured into the short, fat glass: You can pour water from the fat glass back to the thin glass and still have the same amount (minus a couple of drops).

\(^3\)http://openstaxcollege.org/l/piaget2

\(^4\)http://openstaxcollege.org/l/WonderYears

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CHAPTER 3. 4.2 LIFESPAN THEORIES

The fourth, and last, stage in Piaget’s theory is the **formal operational stage**, which is from about age 11 to adulthood. Whereas children in the concrete operational stage are able to think logically only about concrete events, children in the formal operational stage can also deal with abstract ideas and hypothetical situations. Children in this stage can use abstract thinking to problem solve, look at alternative solutions, and test these solutions. In adolescence, a renewed egocentrism occurs. For example, a 15-year-old with a very small pimple on her face might think it is huge and incredibly visible, under the mistaken impression that others must share her perceptions.

3.3.1

As with other major contributors of theories of development, several of Piaget’s ideas have come under criticism based on the results of further research. For example, several contemporary studies support a model of development that is more continuous than Piaget’s discrete stages (Courage & Howe, 2002; Siegler, 2005, 2006). Many others suggest that children reach cognitive milestones earlier than Piaget describes (Baillargeon, 2004; de Hevia & Spelke, 2010).

According to Piaget, the highest level of cognitive development is formal operational thought, which develops between 11 and 20 years old. However, many developmental psychologists disagree with Piaget, suggesting a fifth stage of cognitive development, known as the postformal stage (Basseches, 1984; Commons & Bresette, 2006; Simont, 1998). In postformal thinking, decisions are made based on situations and circumstances, and logic is integrated with emotion as adults develop principles that depend on contexts. One way that we can see the difference between an adult in postformal thought and an adolescent in formal operations is in terms of how they handle emotionally charged issues.

It seems that once we reach adulthood our problem solving abilities change: As we attempt to solve problems, we tend to think more deeply about many areas of our lives, such as relationships, work, and politics (Labourvie-Vief & Diehl, 1999). Because of this, postformal thinkers are able to draw on past experiences to help them solve new problems. Problem-solving strategies using postformal thought vary, depending on the situation. What does this mean? Adults can recognize, for example, that what seems to be an ideal solution to a problem at work involving a disagreement with a colleague may not be the best solution to a disagreement with a significant other.

3.4 THEORY OF MORAL DEVELOPMENT

A major task beginning in childhood and continuing into adolescence is discerning right from wrong. Psychologist Lawrence Kohlberg (1927–1987) extended upon the foundation that Piaget built regarding cognitive development. Kohlberg believed that moral development, like cognitive development, follows a series of stages. To develop this theory, Kohlberg posed moral dilemmas to people of all ages, and then he analyzed their answers to find evidence of their particular stage of moral development. Before reading about the stages, take a minute to consider how you would answer one of Kohlberg’s best-known moral dilemmas, commonly known as the Heinz dilemma:

> In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid $200 for the radium and charged $2,000 for a small dose of the drug. The sick woman’s husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about $1,000, which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: “No, I discovered the drug and I’m going to make money from it.” So Heinz got desperate and broke into the man’s store to steal the drug for his wife. Should the husband have done that? (Kohlberg, 1969, p. 379)

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How would you answer this dilemma? Kohlberg was not interested in whether you answer yes or no to the dilemma: Instead, he was interested in the reasoning behind your answer.

It is important to realize that even those people who have the most sophisticated, post-conventional reasons for some choices may make other choices for the simplest of pre-conventional reasons. Many psychologists agree with Kohlberg’s theory of moral development but point out that moral reasoning is very different from moral behavior. Sometimes what we say we would do in a situation is not what we actually do in that situation. In other words, we might “talk the talk,” but not “walk the walk.”

How does this theory apply to males and females? Kohlberg (1969) felt that more males than females move past stage four in their moral development. He went on to note that women seem to be deficient in their moral reasoning abilities. These ideas were not well received by Carol Gilligan, a research assistant of Kohlberg, who consequently developed her own ideas of moral development. In her groundbreaking book, *In a Different Voice: Psychological Theory and Women's Development*, Gilligan (1982) criticized her former mentor’s theory because it was based only on upper class White men and boys. She argued that women are not deficient in their moral reasoning—she proposed that males and females reason differently. Girls and women focus more on staying connected and the importance of interpersonal relationships. Therefore, in the Heinz dilemma, many girls and women respond that Heinz should not steal the medicine. Their reasoning is that if he steals the medicine, is arrested, and is put in jail, then he and his wife will be separated, and she could die while he is still in prison.

### 3.5 Summary

There are many theories regarding how babies and children grow and develop into happy, healthy adults. Sigmund Freud suggested that we pass through a series of psychosexual stages in which our energy is focused on certain erogenous zones on the body. Eric Erikson modified Freud’s ideas and suggested a theory of psychosocial development. Erikson said that our social interactions and successful completion of social tasks shape our sense of self. Jean Piaget proposed a theory of cognitive development that explains how children think and reason as they move through various stages. Finally, Lawrence Kohlberg turned his attention to moral development. He said that we pass through three levels of moral thinking that build on our cognitive development.

### 3.6 Review Questions

**Exercise 3.1** *(Solution on p. 25.)*
The idea that even if something is out of sight, it still exists is called _______.

a. egocentrism  
b. object permanence  
c. conservation  
d. reversibility

**Exercise 3.2** *(Solution on p. 25.)*
Which theorist proposed that moral thinking proceeds through a series of stages?

a. Sigmund Freud  
b. Erik Erikson  
c. John Watson  
d. Lawrence Kohlberg

**Exercise 3.3** *(Solution on p. 25.)*
According to Erikson's theory of psychosocial development, what is the main task of the adolescent?
a. developing autonomy  
b. feeling competent  
c. forming an identity  
d. forming intimate relationships

3.7 Critical Thinking Questions

Exercise 3.4 (Solution on p. 25.)
What is the difference between assimilation and accommodation? Provide examples of each.

Exercise 3.5 (Solution on p. 25.)
Why was Carol Gilligan critical of Kohlberg’s theory of moral development?

Exercise 3.6 (Solution on p. 25.)
What is egocentrism? Provide an original example.
Solutions to Exercises in Chapter 3

Solution to Exercise 3.1 (p. 23)
B

Solution to Exercise 3.2 (p. 23)
D

Solution to Exercise 3.3 (p. 23)
C

Solution to Exercise 3.4 (p. 24)
Assimilation is when we take in information that is comparable to what we already know. Accommodation is when we change our schemata based on new information. An example of assimilation is a child’s schema of “dog” based on the family’s golden retriever being expanded to include two newly adopted golden retrievers. An example of accommodation is that same child’s schema of “dog” being adjusted to exclude other four-legged furry animals such as sheep and foxes.

Solution to Exercise 3.5 (p. 24)
Gilligan criticized Kohlberg because his theory was based on the responses of upper class White men and boys, arguing that it was biased against women. While Kohlberg concluded that women must be deficient in their moral reasoning abilities, Gilligan disagreed, suggesting that female moral reasoning is not deficient, just different.

Solution to Exercise 3.6 (p. 24)
Egocentrism is the inability to take the perspective of another person. This type of thinking is common in young children in the preoperational stage of cognitive development. An example might be that upon seeing his mother crying, a young child gives her his favorite stuffed animal to make her feel better.

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Chapter 4

4.3 Stages of Development

From the moment we are born until the moment we die, we continue to develop.

As discussed at the beginning of this chapter, developmental psychologists often divide our development into three areas: physical development, cognitive development, and psychosocial development. Mirroring Erikson’s stages, lifespan development is divided into different stages that are based on age. We will discuss prenatal, infant, child, adolescent, and adult development.

4.1 PRENATAL DEVELOPMENT

How did you come to be who you are? From beginning as a one-cell structure to your birth, your prenatal development occurred in an orderly and delicate sequence.

There are three stages of prenatal development: germinal, embryonic, and fetal. Let’s take a look at what happens to the developing baby in each of these stages.

4.1.1 Germinal Stage (Weeks 1–2)

In the discussion of biopsychology earlier in the book, you learned about genetics and DNA. A mother and father’s DNA is passed on to the child at the moment of conception. Conception occurs when sperm fertilizes an egg and forms a zygote (Figure 4.1). A zygote begins as a one-cell structure that is created when a sperm and egg merge. The genetic makeup and sex of the baby are set at this point. During the first week after conception, the zygote divides and multiplies, going from a one-cell structure to two cells, then four cells, then eight cells, and so on. This process of cell division is called mitosis. Mitosis is a fragile process, and fewer than one-half of all zygotes survive beyond the first two weeks (Hall, 2004). After 5 days of mitosis there are 100 cells, and after 9 months there are billions of cells. As the cells divide, they become more specialized, forming different organs and body parts. In the germinal stage, the mass of cells has yet to attach itself to the lining of the mother’s uterus. Once it does, the next stage begins.

1This content is available online at <http://cnx.org/content/m55763/1.1/>. Available for free at Connexions <http://cnx.org/content/col11820/1.1>.
4.1.2 Embryonic Stage (Weeks 3–8)

After the zygote divides for about 7–10 days and has 150 cells, it travels down the fallopian tubes and implants itself in the lining of the uterus. Upon implantation, this multi-cellular organism is called an embryo. Now blood vessels grow, forming the placenta. The placenta is a structure connected to the uterus that provides nourishment and oxygen from the mother to the developing embryo via the umbilical cord. Basic structures of the embryo start to develop into areas that will become the head, chest, and abdomen. During the embryonic stage, the heart begins to beat and organs form and begin to function. The neural tube forms along the back of the embryo, developing into the spinal cord and brain.

4.1.3 Fetal Stage (Weeks 9–40)

When the organism is about nine weeks old, the embryo is called a fetus. At this stage, the fetus is about the size of a kidney bean and begins to take on the recognizable form of a human being as the “tail” begins to disappear.

From 9–12 weeks, the sex organs begin to differentiate. At about 16 weeks, the fetus is approximately 4.5 inches long. Fingers and toes are fully developed, and fingerprints are visible. By the time the fetus reaches the sixth month of development (24 weeks), it weighs up to 1.4 pounds. Hearing has developed, so the fetus can respond to sounds. The internal organs, such as the lungs, heart, stomach, and intestines, have formed enough that a fetus born prematurely at this point has a chance to survive outside of the mother’s womb. Throughout the fetal stage the brain continues to grow and develop, nearly doubling in size from weeks 16 to 28. Around 36 weeks, the fetus is almost ready for birth. It weighs about 6 pounds and is about 18.5 inches long, and by week 37 all of the fetus’s organ systems are developed enough that it could survive outside the mother’s uterus without many of the risks associated with premature birth. The fetus continues to gain weight and grow in length until approximately 40 weeks. By then, the fetus has very little room to move around and birth becomes imminent. The progression through the stages is shown in Figure 4.2.

Figure 4.1: Sperm and ovum fuse at the point of conception.
During the fetal stage, the baby’s brain develops and the body adds size and weight, until the fetus reaches full-term development.

**Figure 4.2:** During the fetal stage, the baby’s brain develops and the body adds size and weight, until the fetus reaches full-term development.

**Link to Learning:** For an amazing look at prenatal development and the

Available for free at Connexions <http://cnx.org/content/col11820/1.1>
process of birth, view the video *Life’s Greatest Miracle* from Nova and PBS.

### 4.1.4 Prenatal Influences

During each prenatal stage, genetic and environmental factors can affect development. The developing fetus is completely dependent on the mother for life. It is important that the mother takes good care of herself and receives **prenatal care**, which is medical care during pregnancy that monitors the health of both the mother and the fetus (Figure 4.3). According to the National Institutes of Health ([NIH], 2013), routine prenatal care is important because it can reduce the risk of complications to the mother and fetus during pregnancy. In fact, women who are trying to become pregnant or who may become pregnant should discuss pregnancy planning with their doctor. They may be advised, for example, to take a vitamin containing folic acid, which helps prevent certain birth defects, or to monitor aspects of their diet or exercise routines.

![Figure 4.3: A pregnant woman receives an ultrasound as part of her prenatal care.](credit: United States Agency for International Development)

Recall that when the zygote attaches to the wall of the mother’s uterus, the placenta is formed. The placenta provides nourishment and oxygen to the fetus. Most everything the mother ingests, including food, liquid, and even medication, travels through the placenta to the fetus, hence the common phrase “eating for two.” Anything the mother is exposed to in the environment affects the fetus; if the mother is exposed to something harmful, the child can show life-long effects.

A **teratogen** is any environmental agent—biological, chemical, or physical—that causes damage to the developing embryo or fetus. There are different types of teratogens. Alcohol and most drugs cross the placenta and affect the fetus. Alcohol is not safe to drink in any amount during pregnancy. Alcohol use during pregnancy has been found to be the leading preventable cause of mental retardation in children in the United States (Maier & West, 2001). Excessive maternal drinking while pregnant can cause fetal alcohol spectrum disorders with life-long consequences for the child ranging in severity from minor to major (Table 4.1: Fetal Alcohol Syndrome Facial Features). Fetal alcohol spectrum disorders (FASD) are a collection of birth defects

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2[http://openstaxcollege.org/l/miracle](http://openstaxcollege.org/l/miracle)

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associated with heavy consumption of alcohol during pregnancy. Physically, children with FASD may have a small head size and abnormal facial features. Cognitively, these children may have poor judgment, poor impulse control, higher rates of ADHD, learning issues, and lower IQ scores. These developmental problems and delays persist into adulthood (Streissguth et al., 2004). Based on studies conducted on animals, it also has been suggested that a mother’s alcohol consumption during pregnancy may predispose her child to like alcohol (Youngen et al., 2007).

**Fetal Alcohol Syndrome Facial Features**

<table>
<thead>
<tr>
<th>Facial Feature</th>
<th>Potential Effect of Fetal Alcohol Syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head size</td>
<td>Below-average head circumference</td>
</tr>
<tr>
<td>Eyes</td>
<td>Smaller than average eye opening, skin folds at corners of eyes</td>
</tr>
<tr>
<td>Nose</td>
<td>Low nasal bridge, short nose</td>
</tr>
<tr>
<td>Midface</td>
<td>Smaller than average midface size</td>
</tr>
<tr>
<td>Lip and philtrum</td>
<td>Thin upper lip, indistinct philtrum</td>
</tr>
</tbody>
</table>

Table 4.1

Smoking is also considered a teratogen because nicotine travels through the placenta to the fetus. When the mother smokes, the developing baby experiences a reduction in blood oxygen levels. According to the Centers for Disease Control and Prevention (2013), smoking while pregnant can result in premature birth, low-birth-weight infants, stillbirth, and sudden infant death syndrome (SIDS).

Heroin, cocaine, methamphetamine, almost all prescription medicines, and most over-the-counter medications are also considered teratogens. Babies born with a heroin addiction need heroin just like an adult addict. The child will need to be gradually weaned from the heroin under medical supervision; otherwise, the child could have seizures and die. Other teratogens include radiation, viruses such as HIV and herpes, and rubella (German measles). Women in the United States are much less likely to be afflicted with rubella because most women received childhood immunizations or vaccinations that protect the body from disease.

Each organ of the fetus develops during a specific period in the pregnancy, called the **critical or sensitive period** (Figure 4.2). For example, research with primate models of FASD has demonstrated that the time during which a developing fetus is exposed to alcohol can dramatically affect the appearance of facial characteristics associated with fetal alcohol syndrome. Specifically, this research suggests that alcohol exposure that is limited to day 19 or 20 of gestation can lead to significant facial abnormalities in the offspring (Ashley, Magnuson, Omnell, & Clarren, 1999). Given regions of the brain also show sensitive periods during which they are most susceptible to the teratogenic effects of alcohol (Tran & Kelly, 2003).

**4.2 INFANCY THROUGH CHILDHOOD**

The average newborn weighs approximately 7.5 pounds. Although small, a newborn is not completely helpless because his reflexes and sensory capacities help him interact with the environment from the moment of birth. All healthy babies are born with **newborn reflexes**: inborn automatic responses to particular forms of stimulation. Reflexes help the newborn survive until it is capable of more complex behaviors—these reflexes are crucial to survival. They are present in babies whose brains are developing normally and usually disappear around 4–5 months old. Let’s take a look at some of these newborn reflexes. The rooting reflex is the newborn’s response to anything that touches her cheek: When you stroke a baby’s cheek, she naturally turns her head in that direction and begins to suck. The sucking reflex is the automatic, unlearned, sucking motions that infants do with their mouths. Several other interesting newborn reflexes can be observed. For instance, if you put your finger into a newborn’s hand, you will witness the grasping reflex, in which a baby automatically grasps anything that touches his palms. The Moro reflex is the newborn’s response when she...
feels like she is falling. The baby spreads her arms, pulls them back in, and then (usually) cries. How do you think these reflexes promote survival in the first months of life?

**Link to Learning:** Take a few minutes to view this brief video clip illustrating several newborn reflexes.

What can young infants see, hear, and smell? Newborn infants’ sensory abilities are significant, but their senses are not yet fully developed. Many of a newborn’s innate preferences facilitate interaction with caregivers and other humans. Although vision is their least developed sense, newborns already show a preference for faces. Babies who are just a few days old also prefer human voices, they will listen to voices longer than sounds that do not involve speech (Vouloumanos & Werker, 2004), and they seem to prefer their mother’s voice over a stranger’s voice (Mills & Melhuish, 1974). In an interesting experiment, 3-week-old babies were given pacifiers that played a recording of the infant’s mother’s voice and of a stranger’s voice. When the infants heard their mother’s voice, they sucked more strongly at the pacifier (Mills & Melhuish, 1974). Newborns also have a strong sense of smell. For instance, newborn babies can distinguish the smell of their own mother from that of others. In a study by MacFarlane (1978), 1-week-old babies who were being breastfed were placed between two gauze pads. One gauze pad was from the bra of a nursing mother who was a stranger, and the other gauze pad was from the bra of the infant’s own mother. More than two-thirds of the week-old babies turned toward the gauze pad with their mother’s scent.

**4.2.1 Cognitive Development**

In addition to rapid physical growth, young children also exhibit significant development of their cognitive abilities. Piaget thought that children’s ability to understand objects—such as learning that a rattle makes a noise when shaken—was a cognitive skill that develops slowly as a child matures and interacts with the environment. Today, developmental psychologists think Piaget was incorrect. Researchers have found that even very young children understand objects and how they work long before they have experience with those objects (Baillargeon, 1987; Baillargeon, Li, Gertner, & Wu, 2011). For example, children as young as 3 months old demonstrated knowledge of the properties of objects that they had only viewed and did not have prior experience with them. In one study, 3-month-old infants were shown a truck rolling down a track and behind a screen. The box, which appeared solid but was actually hollow, was placed next to the track. The truck rolled past the box as would be expected. Then the box was placed on the track to block the path of the truck. When the truck was rolled down the track this time, it continued unimpeded. The infants spent significantly more time looking at this impossible event (Figure 4.4). Baillargeon (1987) concluded that they knew solid objects cannot pass through each other. Baillargeon’s findings suggest that very young children have an understanding of objects and how they work, which Piaget (1954) would have said is beyond their cognitive abilities due to their limited experiences in the world.

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3http://openstaxcollege.org/1/newreflexes
Figure 4.4: In Baillargeon’s study, infants observed a truck (a) roll down an unobstructed track, (b) roll down an unobstructed track with an obstruction (box) beside it, and (c) roll down and pass through what appeared to be an obstruction.

Just as there are physical milestones that we expect children to reach, there are also cognitive milestones. It is helpful to be aware of these milestones as children gain new abilities to think, problem solve, and communicate. For example, infants shake their head “no” around 6–9 months, and they respond to verbal requests to do things like “wave bye-bye” or “blow a kiss” around 9–12 months. Remember Piaget’s ideas about object permanence? We can expect children to grasp the concept that objects continue to exist even when they are not in sight by around 8 months old. Because toddlers (i.e., 12–24 months old) have mastered object permanence, they enjoy games like hide and seek, and they realize that when someone leaves the room they will come back (Loop, 2013). Toddlers also point to pictures in books and look in appropriate places when you ask them to find objects.

Preschool-age children (i.e., 3–5 years old) also make steady progress in cognitive development. Not only can they count, name colors, and tell you their name and age, but they can also make some decisions on their own, such as choosing an outfit to wear. Preschool-age children understand basic time concepts and sequencing (e.g., before and after), and they can predict what will happen next in a story. They also begin to enjoy the use of humor in stories. Because they can think symbolically, they enjoy pretend play and inventing elaborate characters and scenarios. One of the most common examples of their cognitive growth is their blossoming curiosity. Preschool-age children love to ask “Why?”

An important cognitive change occurs in children this age. Recall that Piaget described 2–3 year olds as egocentric, meaning that they do not have an awareness of others’ points of view. Between 3 and 5 years old, children come to understand that people have thoughts, feelings, and beliefs that are different from their own. This is known as theory-of-mind (TOM). Children can use this skill to tease others, persuade their parents to purchase a candy bar, or understand why a sibling might be angry. When children develop TOM, they can recognize that others have false beliefs (Dennett, 1987; Callaghan et al., 2005).

One well-researched aspect of cognitive development is language acquisition. As mentioned earlier, the order in which children learn language structures is consistent across children and cultures (Hatch, 1983). You’ve also learned that some psychological researchers have proposed that children possess a biological predisposition for language acquisition.

Starting before birth, babies begin to develop language and communication skills. At birth, babies apparently recognize their mother’s voice and can discriminate between the language(s) spoken by their mothers and foreign languages, and they show preferences for faces that are moving in synchrony with audible language (Blossom & Morgan, 2006; Pickens, 1994; Spelke & Cortelyou, 1981).

Children communicate information through gesturing long before they speak, and there is some evidence that gesture usage predicts subsequent language development (Iverson & Goldin-Meadow, 2005). In terms of producing spoken language, babies begin to coo almost immediately. Cooing is a one-syllable combination of a consonant and a vowel sound (e.g., coo or ba). Interestingly, babies replicate sounds from their own languages. A baby whose parents speak French will coo in a different tone than a baby whose parents speak
Spanish or Urdu. After cooing, the baby starts to babble. Babbling begins with repeating a syllable, such as ma-ma, da-da, or ba-ba. When a baby is about 12 months old, we expect her to say her first word for meaning, and to start combining words for meaning at about 18 months.

At about 2 years old, a toddler uses between 50 and 200 words; by 3 years old they have a vocabulary of up to 1,000 words and can speak in sentences. During the early childhood years, children’s vocabulary increases at a rapid pace. This is sometimes referred to as the “vocabulary spurt” and has been claimed to involve an expansion in vocabulary at a rate of 10–20 new words per week. Recent research may indicate that while some children experience these spurts, it is far from universal (as discussed in Ganger & Brent, 2004). It has been estimated that, 5 year olds understand about 6,000 words, speak 2,000 words, and can define words and question their meanings. They can rhyme and name the days of the week. Seven year olds speak fluently and use slang and clichés (Stork & Widdowson, 1974).

What accounts for such dramatic language learning by children? Behaviorist B. F. Skinner thought that we learn language in response to reinforcement or feedback, such as through parental approval or through being understood. For example, when a two-year-old child asks for juice, he might say, “me juice,” to which his mother might respond by giving him a cup of apple juice. Noam Chomsky (1957) criticized Skinner’s theory and proposed that we are all born with an innate capacity to learn language. Chomsky called this mechanism a language acquisition device (LAD). Who is correct? Both Chomsky and Skinner are right. Remember that we are a product of both nature and nurture. Researchers now believe that language acquisition is partially inborn and partially learned through our interactions with our linguistic environment (Gleitman & Newport, 1995; Stork & Widdowson, 1974).

4.2.2 Attachment

Psychosocial development occurs as children form relationships, interact with others, and understand and manage their feelings. In social and emotional development, forming healthy attachments is very important and is the major social milestone of infancy. **Attachment** is a long-standing connection or bond with others. Developmental psychologists are interested in how infants reach this milestone. They ask such questions as: How do parent and infant attachment bonds form? How does neglect affect these bonds? What accounts for children’s attachment differences?

Researchers Harry Harlow, John Bowlby, and Mary Ainsworth conducted studies designed to answer these questions. In the 1950s, Harlow conducted a series of experiments on monkeys. He separated newborn monkeys from their mothers. Each monkey was presented with two surrogate mothers. One surrogate monkey was made out of wire mesh, and she could dispense milk. The other monkey was softer and made from cloth: This monkey did not dispense milk. Research shows that the monkeys preferred the soft, cuddly cloth monkey, even though she did not provide any nourishment. The baby monkeys spent their time clinging to the cloth monkey and only went to the wire monkey when they needed to be fed. Prior to this study, the medical and scientific communities generally thought that babies become attached to the people who provide their nourishment. However, Harlow (1958) concluded that there was more to the mother-child bond than nourishment. Feelings of comfort and security are the critical components to maternal-infant bonding, which leads to healthy psychosocial development.

**Link to Learning:** Harlow’s studies of monkeys were performed before modern ethics guidelines were in place, and today his experiments are widely considered to be unethical and even cruel. Watch this video to see actual footage of Harlow’s monkey studies.

While Bowlby thought attachment was an all-or-nothing process, Mary Ainsworth’s (1970) research showed otherwise. Ainsworth wanted to know if children differ in the ways they bond, and if so, why. To find the

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4http://openstaxcollege.org/l/monkeysstudy

Available for free at Connexions <http://cnx.org/content/col11820/1.1>
answers, she used the Strange Situation procedure to study attachment between mothers and their infants (1970). In the Strange Situation, the mother (or primary caregiver) and the infant (age 12-18 months) are placed in a room together. There are toys in the room, and the caregiver and child spend some time alone in the room. After the child has had time to explore her surroundings, a stranger enters the room. The mother then leaves her baby with the stranger. After a few minutes, she returns to comfort her child.

With **avoidant attachment**, the child is unresponsive to the parent, does not use the parent as a secure base, and does not care if the parent leaves. The toddler reacts to the parent the same way she reacts to a stranger. When the parent does return, the child is slow to show a positive reaction. Ainsworth theorized that these children were most likely to have a caregiver who was insensitive and inattentive to their needs (Ainsworth, Blehar, Waters, & Wall, 1978).

In cases of **resistant attachment**, children tend to show clingy behavior, but then they reject the attachment figure's attempts to interact with them (Ainsworth & Bell, 1970). These children do not explore the toys in the room, as they are too fearful. During separation in the Strange Situation, they became extremely disturbed and angry with the parent. When the parent returns, the children are difficult to comfort. Resistant attachment is the result of the caregivers' inconsistent level of response to their child.

Finally, children with **disorganized attachment** behaved oddly in the Strange Situation. They freeze, run around the room in an erratic manner, or try to run away when the caregiver returns (Main & Solomon, 1990). This type of attachment is seen most often in kids who have been abused. Research has shown that abuse disrupts a child's ability to regulate their emotions.

While Ainsworth's research has found support in subsequent studies, it has also met criticism. Some researchers have pointed out that a child's temperament may have a strong influence on attachment (Gervai, 2009; Harris, 2009), and others have noted that attachment varies from culture to culture, a factor not accounted for in Ainsworth's research (Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000; van Ijzendoorn & Sagi-Schwartz, 2008).

**Link to Learning:** Watch this video to view a clip of the Strange Situation. Try to identify which type of attachment baby Lisa exhibits.

### 4.2.3 Self-Concept

Just as attachment is the main psychosocial milestone of infancy, the primary psychosocial milestone of childhood is the development of a positive sense of self. How does self-awareness develop? Infants don't have a self-concept, which is an understanding of who they are. If you place a baby in front of a mirror, she will reach out to touch her image, thinking it is another baby. However, by about 18 months a toddler will recognize that the person in the mirror is herself. How do we know this? In a well-known experiment, a researcher placed a red dot of paint on children's noses before putting them in front of a mirror (Amsterdam, 1972). Commonly known as the mirror test, this behavior is demonstrated by humans and a few other species and is considered evidence of self-recognition (Archer, 1992). At 18 months old they would touch their own noses when they saw the paint, surprised to see a spot on their faces. By 24-36 months old children can name and/or point to themselves in pictures, clearly indicating self-recognition.

Children from 2-4 years old display a great increase in social behavior once they have established a self-concept. They enjoy playing with other children, but they have difficulty sharing their possessions. Also, through play children explore and come to understand their gender roles and can label themselves as a girl or boy (Chick, Heilman-Houser, & Hunter, 2002). By 4 years old, children can cooperate with other children, share when asked, and separate from parents with little anxiety. Children at this age also exhibit autonomy, initiate tasks, and carry out plans. Success in these areas contributes to a positive sense of self. Once

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5http://openstaxcollege.org/l/strangesitu
children reach 6 years old, they can identify themselves in terms of group memberships: “I’m a first grader!” School-age children compare themselves to their peers and discover that they are competent in some areas and less so in others (recall Erikson’s task of industry versus inferiority). At this age, children recognize their own personality traits as well as some other traits they would like to have. For example, 10-year-old Layla says, “I’m kind of shy. I wish I could be more talkative like my friend Alexa.”

Development of a positive self-concept is important to healthy development. Children with a positive self-concept tend to be more confident, do better in school, act more independently, and are more willing to try new activities (Maccoby, 1980; Ferrer & Fugate, 2003). Formation of a positive self-concept begins in Erikson’s toddlerhood stage, when children establish autonomy and become confident in their abilities. Development of self-concept continues in elementary school, when children compare themselves to others. When the comparison is favorable, children feel a sense of competence and are motivated to work harder and accomplish more. Self-concept is re-evaluated in Erikson’s adolescence stage, as teens form an identity. They internalize the messages they have received regarding their strengths and weaknesses, keeping some messages and rejecting others. Adolescents who have achieved identity formation are capable of contributing positively to society (Erikson, 1968).

What can parents do to nurture a healthy self-concept? Diana Baumrind (1971, 1991) thinks parenting style may be a factor. The way a parent is an important factor in a child’s socioemotional growth. Baumrind developed and refined a theory describing four parenting styles: authoritative, authoritarian, permissive, and uninvolved. With the authoritative style, the parent gives reasonable demands and consistent limits, expresses warmth and affection, and listens to the child’s point of view. Parents set rules and explain the reasons behind them. They are also flexible and willing to make exceptions to the rules in certain cases—for example, temporarily relaxing bedtime rules to allow for a nighttime swim during a family vacation. Of the four parenting styles, the authoritative style is the one that is most encouraged in modern American society.

American children raised by authoritative parents tend to have high self-esteem and social skills. However, effective parenting styles vary as a function of culture and, as Small (1999) points out, the authoritative style is not necessarily preferred or appropriate in all cultures.

In authoritarian style, the parent places high value on conformity and obedience. The parents are often strict, tightly monitor their children, and express little warmth. In contrast to the authoritative style, authoritarian parents probably would not relax bedtime rules during a vacation because they consider the rules to be set, and they expect obedience. This style can create anxious, withdrawn, and unhappy kids. However, it is important to point out that authoritarian parenting is as beneficial as the authoritative style in some ethnic groups (Russell, Crockett, & Chao, 2010). For instance, first-generation Chinese American children raised by authoritarian parents did just as well in school as their peers who were raised by authoritative parents (Russell et al., 2010).

For parents who employ the permissive style of parenting, the kids run the show and anything goes. Permissive parents make few demands and rarely use punishment. They tend to be very nurturing and loving, and may play the role of friend rather than parent. In terms of our example of vacation bedtimes, permissive parents might not have bedtime rules at all—instead they allow the child to choose his bedtime whether on vacation or not. Not surprisingly, children raised by permissive parents tend to lack self-discipline, and the permissive parenting style is negatively associated with grades (Dornbusch, Ritter, Leiderman, Roberts, & Fraliegh, 1987). The permissive style may also contribute to other risky behaviors such as alcohol abuse (Bahr & Hoffman, 2010), risky sexual behavior especially among female children (Donenberg, Wilson, Emerson, & Bryant, 2002), and increased display of disruptive behaviors by male children (Parent et al., 2011). However, there are some positive outcomes associated with children raised by permissive parents. They tend to have higher self-esteem, better social skills, and report lower levels of depression (Darling, 1999).

With the uninvolved style of parenting, the parents are indifferent, uninvolved, and sometimes referred to as neglectful. They don’t respond to the child’s needs and make relatively few demands. This could be because of severe depression or substance abuse, or other factors such as the parents’ extreme focus on work. These parents may provide for the child’s basic needs, but little else. The children raised in this parenting style are usually emotionally withdrawn, fearful, anxious, perform poorly in school, and are at an increased risk of substance abuse (Darling, 1999).
As you can see, parenting styles influence childhood adjustment, but could a child's temperament likewise influence parenting? Temperament refers to innate traits that influence how one thinks, behaves, and reacts with the environment. Children with easy temperaments demonstrate positive emotions, adapt well to change, and are capable of regulating their emotions. Conversely, children with difficult temperaments demonstrate negative emotions and have difficulty adapting to change and regulating their emotions. Difficult children are much more likely to challenge parents, teachers, and other caregivers (Thomas, 1984). Therefore, it's possible that easy children (i.e., social, adaptable, and easy to soothe) tend to elicit warm and responsive parenting, while demanding, irritable, withdrawn children evoke irritation in their parents or cause their parents to withdraw (Sanson & Rothbart, 1995).

4.3 ADULTHOOD

Adulthood begins around 20 years old and has three distinct stages: early, middle, and late. Each stage brings its own set of rewards and challenges.

4.3.1 Physical Development

By the time we reach early adulthood (20 to early 40s), our physical maturation is complete, although our height and weight may increase slightly. In young adulthood, our physical abilities are at their peak, including muscle strength, reaction time, sensory abilities, and cardiac functioning. Most professional athletes are at the top of their game during this stage. Many women have children in the young adulthood years, so they may see additional weight gain and breast changes.

Late adulthood is considered to extend from the 60s on. This is the last stage of physical change. The skin continues to lose elasticity, reaction time slows further, and muscle strength diminishes. Smell, taste, hearing, and vision, so sharp in our twenties, decline significantly. The brain may also no longer function at optimal levels, leading to problems like memory loss, dementia, and Alzheimer's disease in later years.

4.3.2 Cognitive Development

Because we spend so many years in adulthood (more than any other stage), cognitive changes are numerous. In fact, research suggests that adult cognitive development is a complex, ever changing process that may be even more active than cognitive development in infancy and early childhood (Fischer, Yan, & Stewart, 2003).

4.3.3 Psychosocial Development

There are many theories about the social and emotional aspects of aging. Some aspects of healthy aging include activities, social connectedness, and the role of a person's culture. According to many theorists, including George Vaillant (2002), who studied and analyzed over 50 years of data, we need to have and continue to find meaning throughout our lives. For those in early and middle adulthood, meaning is found through work (Sterns & Huyck, 2001) and family life (Markus, Ryff, Curan, & Palmersheim, 2004). These areas relate to the tasks that Erikson referred to as generativity and intimacy. As mentioned previously, adults tend to define themselves by what they do—their careers. Earnings peak during this time, yet job satisfaction is more closely tied to work that involves contact with other people, is interesting, provides opportunities for advancement, and allows some independence (Mohr & Zoghi, 2006) than it is to salary (Iyengar, Wells, & Schwartz, 2006). How might being unemployed or being in a dead-end job challenge adult well-being?

Positive relationships with significant others in our adult years have been found to contribute to a state of well-being (Ryff & Singer, 2009). Most adults in the United States identify themselves through their relationships with family—particularly with spouses, children, and parents (Markus et al., 2004). While raising children can be stressful, especially when they are young, research suggests that parents reap the
laws down the road, as adult children tend to have a positive effect on parental well-being (Umberson, Pudrovskia, & Reczek, 2010). Having a stable marriage has also been found to contribute to well-being throughout adulthood (Vaillant, 2002).

4.4 Summary

At conception the egg and sperm cell are united to form a zygote, which will begin to divide rapidly. This marks the beginning of the first stage of prenatal development (germinal stage), which lasts about two weeks. Then the zygote implants itself into the lining of the woman’s uterus, marking the beginning of the second stage of prenatal development (embryonic stage), which lasts about six weeks. The embryo begins to develop body and organ structures, and the neural tube forms, which will later become the brain and spinal cord. The third phase of prenatal development (fetal stage) begins at 9 weeks and lasts until birth. The body, brain, and organs grow rapidly during this stage. During all stages of pregnancy it is important that the mother receive prenatal care to reduce health risks to herself and to her developing baby.

Newborn infants weigh about 7.5 pounds. Doctors assess a newborn’s reflexes, such as the sucking, rooting, and Moro reflexes. Our physical, cognitive, and psychosocial skills grow and change as we move through developmental stages from infancy through late adulthood. Attachment in infancy is a critical component of healthy development. Parenting styles have been found to have an effect on childhood outcomes of well-being. The transition from adolescence to adulthood can be challenging due to the timing of puberty, and due to the extended amount of time spent in emerging adulthood. Although physical decline begins in middle adulthood, cognitive decline does not begin until later. Activities that keep the body and mind active can help maintain good physical and cognitive health as we age. Social supports through family and friends remain important as we age.

4.5 Review Questions

Exercise 4.1
Which of the following is the correct order of prenatal development?

a. zygote, fetus, embryo
b. fetus, embryo, zygote
c. fetus, zygote, embryo
d. zygote, embryo, fetus

(Solution on p. 41.)

Exercise 4.2
The time during fetal growth when specific parts or organs develop is known as ________.

a. critical period
b. mitosis
c. conception
d. pregnancy

(Solution on p. 41.)

Exercise 4.3
What begins as a single-cell structure that is created when a sperm and egg merge at conception?

a. embryo
b. fetus
c. zygote
d. infant

(Solution on p. 41.)

Exercise 4.4
Using scissors to cut out paper shapes is an example of ________.

(Solution on p. 41.)

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Exercise 4.5  
(Solution on p. 41.)
The child uses the parent as a base from which to explore her world in which attachment style?

a. secure  
b. insecure avoidant  
c. insecure ambivalent-resistant  
d. disorganized

Exercise 4.6  
(Solution on p. 41.)
The frontal lobes become fully developed ________.

a. at birth  
b. at the beginning of adolescence  
c. at the end of adolescence  
d. by 25 years old

4.6 Critical Thinking Questions

Exercise 4.7  
(Solution on p. 41.)
What are some known teratogens, and what kind of damage can they do to the developing fetus?

Exercise 4.8  
(Solution on p. 41.)
What is prenatal care and why is it important?

Exercise 4.9  
(Solution on p. 41.)
Describe what happens in the embryonic stage of development. Describe what happens in the fetal stage of development.

Exercise 4.10  
(Solution on p. 41.)
What makes a personal quality part of someone’s personality?

Exercise 4.11  
(Solution on p. 41.)
Describe some of the newborn reflexes. How might they promote survival?

Exercise 4.12  
(Solution on p. 41.)
Compare and contrast the four attachment styles and describe the kinds of childhood outcomes we can expect with each.

Exercise 4.13  
(Solution on p. 41.)
What is emerging adulthood and what are some factors that have contributed to this new stage of development?
Exercise 4.14
Which parenting style describes how you were raised? Provide an example or two to support your answer.

Exercise 4.15
Would you describe your experience of puberty as one of pride or embarrassment? Why?

Exercise 4.16
Your best friend is a smoker who just found out she is pregnant. What would you tell her about smoking and pregnancy?

Exercise 4.17
Imagine you are a nurse working at a clinic that provides prenatal care for pregnant women. Your patient, Anna, has heard that it’s a good idea to play music for her unborn baby, and she wants to know when her baby’s hearing will develop. What will you tell her?
Solutions to Exercises in Chapter 4

Solution to Exercise 4.1 (p. 38)
D

Solution to Exercise 4.2 (p. 38)
A

Solution to Exercise 4.3 (p. 38)
C

Solution to Exercise 4.4 (p. 38)
B

Solution to Exercise 4.5 (p. 39)
A

Solution to Exercise 4.6 (p. 39)
D

Solution to Exercise 4.7 (p. 39)
Alcohol is a teratogen. Excessive drinking can cause mental retardation in children. The child can also have a small head and abnormal facial features, which are characteristic of fetal alcohol syndrome (FAS). Another teratogen is nicotine. Smoking while pregnant can lead to low-birth weight, premature birth, stillbirth, and SIDS.

Solution to Exercise 4.8 (p. 39)
Prenatal care is medical care during pregnancy that monitors the health of both the mother and fetus. It’s important to receive prenatal care because it can reduce complications to the mother and fetus during pregnancy.

Solution to Exercise 4.9 (p. 39)
In the embryonic stage, basic structures of the embryo start to develop into areas that will become the head, chest, and abdomen. The heart begins to beat and organs form and begin to function. The neural tube forms along the back of the embryo, developing into the spinal cord and brain. In the fetal stage, the brain and body continue to develop. Fingers and toes develop along with hearing, and internal organs form.

Solution to Exercise 4.10 (p. 39)
The particular quality or trait must be part of an enduring behavior pattern, so that it is a consistent or predictable quality.

Solution to Exercise 4.11 (p. 39)
The sucking reflex is the automatic, unlearned sucking motions that infants do with their mouths. It may help promote survival because this action helps the baby take in nourishment. The rooting reflex is the newborn’s response to anything that touches her cheek. When you stroke a baby’s cheek she will naturally turn her head that way and begin to suck. This may aid survival because it helps the newborn locate a source of food.

Solution to Exercise 4.12 (p. 39)
With the authoritative style, children are given reasonable demands and consistent limits, warmth and affection are expressed, the parent listens to the child’s point of view, and the child initiates positive standards. Children raised by authoritative parents tend to have high self-esteem and social skills. Another parenting style is authoritarian. The parent places a high value on conformity and obedience. The parents are often strict, tightly monitor their children, and express little warmth. This style can create anxious, withdrawn, and unhappy kids. The third parenting style is permissive. Parents make few demands, rarely use punishment, and give their children free rein. Children raised by permissive parents tend to lack self-discipline, which contributes to poor grades and alcohol abuse. However, they have higher self-esteem, better social skills, and lower levels of depression. The fourth style is the uninvolved parent: They are indifferent, uninvolved, and sometimes called neglectful. The children raised in this parenting style are usually emotionally withdrawn, fearful, anxious, perform poorly in school, and are at an increased risk of substance abuse.

Solution to Exercise 4.13 (p. 39)
Emerging adulthood is a relatively new period of lifespan development from 18 years old to the mid-20s, characterized as a transitional time in which identity exploration focuses on work and love. According to
Arnett, changing cultural expectations facilitate the delay to full adulthood. People are spending more time exploring their options, so they are delaying marriage and work as they change majors and jobs multiple times, putting them on a much later timetable than their parents.
Chapter 5

4.4 Death and Dying

Research has indicated that hospice care is beneficial for the patient (Brumley, Enquidanos, & Cherin, 2003; Brumley et al., 2007; Godkin, Krant, & Doster, 1984) and for the patient’s family (Rhodes, Mitchell, Miller, Connor, & Teno, 2008; Godkin et al., 1984). Hospice patients report high levels of satisfaction with hospice care because they are able to remain at home and are not completely dependent on strangers for care (Brumley et al., 2007). In addition, hospice patients tend to live longer than non-hospice patients (Connor, Pyenson, Fitch, Spence, & Iwasaki, 2007; Temel et al., 2010). Family members receive emotional support and are regularly informed of their loved one’s treatment and condition. The family member’s burden of care is also reduced (McMillan et al., 2006). Both the patient and the patient’s family members report increased family support, increased social support, and improved coping while receiving hospice services (Godkin et al., 1984).

How do you think you might react if you were diagnosed with a terminal illness like cancer? Elizabeth Kübler-Ross (1969), who worked with the founders of hospice care, described the process of an individual accepting his own death. She proposed five stages of grief: denial, anger, bargaining, depression, and acceptance. Most individuals experience these stages, but the stages may occur in different orders, depending on the individual. In addition, not all people experience all of the stages. It is also important to note that some psychologists believe that the more a dying person fights death, the more likely he is to remain stuck in the denial phase. This could make it difficult for the dying person to face death with dignity. However, other psychologists believe that not facing death until the very end is an adaptive coping mechanism for some people.

Whether due to illness or old age, not everyone facing death or the loss of a loved one experiences the negative emotions outlined in the Kübler-Ross model (Nolen-Hoeksema & Larson, 1999). For example, research suggests that people with religious or spiritual beliefs are better able to cope with death because of their hope in an afterlife and because of social support from religious or spiritual associations (Hood, Spilla, Hunsberger, & Corsuch, 1996; McIntosh, Silver, & Wortman, 1993; Paloutzian, 1996; Samarel, 1991; Wortman & Park, 2008).

5.1 Summary

Death marks the endpoint of our lifespan. There are many ways that we might react when facing death. Kübler-Ross developed a five-stage model of grief as a way to explain this process. Many people facing death choose hospice care, which allows their last days to be spent at home in a comfortable, supportive environment.

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1This content is available online at <http://cnx.org/content/m55765/1.1/>. Available for free at Connexions <http://cnx.org/content/col11820/1.1>
5.2 Review Questions

Exercise 5.1  
Who created the very first modern hospice?  

a. Elizabeth Kübler-Ross  
b. Cicely Saunders  
c. Florence Wald  
d. Florence Nightingale

Exercise 5.2  
Which of the following is the order of stages in Kübler-Ross’s five-stage model of grief?  

a. denial, bargaining, anger, depression, acceptance  
b. anger, depression, bargaining, acceptance, denial  
c. denial, anger, bargaining, depression, acceptance  
d. anger, acceptance, denial, depression, bargaining

5.3 Critical Thinking Questions

Exercise 5.3  
Describe the five stages of grief and provide examples of how a person might react in each stage.

Exercise 5.4  
What is the purpose of hospice care?
Solutions to Exercises in Chapter 5

Solution to Exercise 5.1 (p. 44)
B

Solution to Exercise 5.2 (p. 44)
C

Solution to Exercise 5.3 (p. 44)
The first stage is denial. The person receives news that he is dying, and either does not take it seriously or tries to escape from the reality of the situation. He might say something like, “Cancer could never happen to me. I take good care of myself. This has to be a mistake.” The next stage is anger. He realizes time is short, and he may not have a chance to accomplish what he wanted in life. “It’s not fair. I promised my grandchildren that we would go to Disney World, and now I’ll never have the chance to take them.” The third stage is bargaining. In this stage, he tries to delay the inevitable by bargaining or pleading for extra time, usually with God, family members, or medical care providers. “God, just give me one more year so I can take that trip with my grandchildren. They’re too young to understand what’s happening and why I can’t take them.” The fourth stage is depression. He becomes sad about his impending death. “I can’t believe this is how I’m going to die. I’m in so much pain. What’s going to become of my family when I’m gone?” The final stage is acceptance. This stage is usually reached in the last few days or weeks before death. He recognizes that death is inevitable. “I need to get everything in order and say all of my good-byes to the people I love.”

Solution to Exercise 5.4 (p. 44)
Hospice is a program of services that provide medical, social, and spiritual support for dying people and their families.
Glossary

A accommodation
adjustment of a schema by changing a scheme to accommodate new information different from what was already known

adolescence
period of development that begins at puberty and ends at early adulthood

adrenarche
maturing of the adrenal glands

assimilation
adjustment of a schema by adding information similar to what is already known

attachment
long-standing connection or bond with others

authoritarian parenting style
parents place a high value on conformity and obedience, are often rigid, and express little warmth to the child

authoritative parenting style
parents give children reasonable demands and consistent limits, express warmth and affection, and listen to the child's point of view

avoidant attachment
characterized by child's unresponsiveness to parent, does not use the parent as a secure base, and does not care if parent leaves

conception
when a sperm fertilizes an egg and forms a zygote

concrete operational stage
third stage in Piaget's theory of cognitive development; from about 7 to 11 years old, children can think logically about real (concrete) events

conservation
idea that even if you change the appearance of something, it is still equal in size, volume, or number as long as nothing is added or removed

continuous development
view that development is a cumulative process: gradually improving on existing skills

critical (sensitive) period
time during fetal growth when specific parts or organs develop

D developmental milestone
approximate ages at which children reach specific normative events

discontinuous development
view that development takes place in unique stages, which happen at specific times or ages

disorganized attachment
characterized by the child's odd behavior when faced with the parent; type of attachment seen most often with kids that are abused

E egocentrism
preoperational child's difficulty in taking the perspective of others

embryo
multi-cellular organism in its early stages of development

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emerging adulthood
newly defined period of lifespan development from 18 years old to the mid-20s; young people are taking longer to complete college, get a job, get married, and start a family

F fine motor skills
use of muscles in fingers, toes, and eyes to coordinate small actions

formal operational stage
final stage in Piaget’s theory of cognitive development; from age 11 and up, children are able to deal with abstract ideas and hypothetical situations

G gonadarche
maturing of the sex glands
gross motor skills
use of large muscle groups to control arms and legs for large body movements

H hospice
service that provides a death with dignity; pain management in a humane and comfortable environment; usually outside of a hospital setting

M menarche
beginning of menstrual period; around 12-13 years old
mitosis
process of cell division
motor skills
ability to move our body and manipulate objects

N nature
genesis and biology
newborn reflexes
inborn automatic response to a particular form of stimulation that all healthy babies are born with

normative approach
study of development using norms, or average ages, when most children reach specific developmental milestones

nurture
environment and culture

O object permanence
idea that even if something is out of sight, it still exists

P permissive parenting style
parents make few demands and rarely use punishment

physical development
domain of lifespan development that examines growth and changes in the body and brain, the senses, motor skills, and health and wellness

placenta
structure connected to the uterus that provides nourishment and oxygen to the developing baby

prenatal care
medical care during pregnancy that monitors the health of both the mother and the fetus

preoperational stage
second stage in Piaget’s theory of cognitive development; from ages 2 to 7, children learn to use symbols and language but do not understand mental operations and often think illogically

primary sexual characteristics
organs specifically needed for reproduction

psychosexual development
process proposed by Freud in which pleasure-seeking urges focus on different erogenous zones of the body as humans move through five stages of life

psychosocial development
domain of lifespan development that examines emotions, personality, and social relationships
process proposed by Erikson in which social tasks are mastered as humans move through eight stages of life from infancy to adulthood

**Resistant attachment**
characterized by the child’s tendency to show clinging behavior and rejection of the parent when she attempts to interact with the child

**Reversibility**
principle that objects can be changed, but then returned back to their original form or condition

**Schema**
(plural = schemata) concept (mental model) that is used to help us categorize and interpret information

**Secondary sexual characteristics**
physical signs of sexual maturation that do not directly involve sex organs

**Secure attachment**
characterized by the child using the parent as a secure base from which to explore

**Secure base**
parental presence that gives the infant/toddler a sense of safety as he explores his surroundings

**Sensorimotor stage**
first stage in Piaget’s theory of cognitive development; from birth through age 2, a child learns about the world through senses and motor behavior

**Socioemotional selectivity theory**
social support/friendships dwindle in number, but remain as close, if not more close than in earlier years

**Sperначe**
first male ejaculation

**Stage of moral reasoning**
process proposed by Kohlberg; humans move through three stages of moral development

**Temperament**
innate traits that influence how one thinks, behaves, and reacts with the environment

**Teratogen**
biological, chemical, or physical environmental agent that causes damage to the developing embryo or fetus

**Uninvolved parenting style**
parents are indifferent, uninvolved, and sometimes referred to as neglectful; they don’t respond to the child’s needs and make relatively few demands

**Zygote**
structure created when a sperm and egg merge at conception; begins as a single cell and rapidly divides to form the embryo and placenta
Index of Keywords and Terms

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