**Chapter 4**

**Objective 1**| **State the three areas of change that developmental psychologists study, and identify the three major issues in developmental psychology.**Developmental psychologists study physical, mental, and social changes throughout the life span. The three major issues are the relative influence of nature (heredity) and nurture (experience); whether development is a continuous processor a series of discrete stages; and whether personality is stable or changes as we age.

 Pages: 139

**Objective 2**| **Describe the union of sperm and egg at conception.** At conception, only one of the man’s sperm can penetrate the outer coating of the woman’s egg before the egg’s surface blocks out all others. Within about 12 hours, the nuclei of the sperm and egg fuse into a single cell.

 Pages: 139-140

**Objective 3**| **Define *zygote, embryo,*and *fetus,*and explain how teratogens can affect development.**A *zygote*is a fertilized egg, which becomes increasingly diverse. After about 10 days, the outer part of the cell mass attaches to the mother’s uterine wall and the inner cells soon become the *embryo,*beginning a stage of development when major organs form and begin to function. From 9 weeks after fertilization until birth, the organism, now known as a *fetus,* continues to develop and grow. *Teratogens*are potentially harmful agents that can pass through the placental screen and harm the developing embryo or fetus.

 Pages: 140-142

**Objective 4**| **Describe some abilities of the newborn, and explain how researchers use habituation to assess infant sensory and cognitive abilities.**Infants are born with a number of automatic responses (reflexes) that aid survival, including the rooting reflex that helps them locate food. Newborns’ rapidly developing senses of sight and hearing seem tuned to social events, such as a caretaker’s face or voice. Researchers can discover some of what preverbal infants sense and think by observing how they react to novel stimuli (such as colors, shapes, and forms) and grow bored with (habituate to) familiar stimuli. To recognize a new stimulus as different, an infant must remember the old stimulus, which indicates a simple form of learning.

 Pages: 142-143

**Objective 5**| **Describe some developmental changes in a child’s brain, and explain why maturation accounts for many of our similarities.**A newborn’s immature nervous system undergoes a rapid growth spurt after birth, as neural networks proliferate. Between ages 3 and 6, growth is most pronounced in the frontal lobes. Development in the association areas of the cortex enables thinking, memory, and language. Brain pathways continue to develop and strengthen with use until puberty, when pruning begins to eliminate excess connections. In the absence of severe abuse or neglect, maturation—the orderly sequence of genetically determined biological processes—guides all infants along the same general course of development. Pages: 144-145

**Objective 6**| **Outline four events in the motor development sequence from birth to toddlerhood, and evaluate the effects of maturation and experience on that sequence.** Though the timing may vary, almost all babies follow the same sequence of first rolling over, then sitting unsupported, then crawling, then walking. Experience has little influence; maturation, including that of the cerebellum, enables these events.

 Pages: 145-146

**Objective 7**| **Explain why we have few memories of experiences during our first three years of life.** “Infantile amnesia”—an inability to consciously recall events that happened before age 3—results from a change in the way the brain organizes memories at about that age. As the cortex matures, long-term storage increases; in addition, young children’s preverbal memories are not easily transformed into language.

 Pages: 146

**Objective 8**| **State Piaget’s understanding of how the mind develops, and discuss the importance of assimilation and accommodation in this process.**Piaget proposed that children’s reasoning develops in a series of stages, and that children actively construct and modify their understanding of the world as they interact with it. They form *schemas*(concepts or frameworks for organizing experience).They then*assimilate*(interpret) information by means of these schemas, or—if the information does not conform to the schema—they *accommodate*(adjust) the schema to incorporate the new information.

 Pages: 147-148

**Objective 9**| **Outline Piaget’s four main stages of cognitive development, and comment on how children’s thinking changes during these four stages.** In the *sensorimotor stage*(birth to age 2), children experience the world through their senses and actions. In the first six months, infants lack object permanence, or the awareness that things exist when out of sight. In the *preoperational stage*(age 2to about 6 or 7), children learn to use language and can represent things with words and images, but they are unable to reason logically. They lack a theory of mind and are egocentric, or have difficulty taking another person’s point of view (people with the disorder of autism also lack a theory of mind). Preoperational children have no concept of conservation—the understanding that things can change form but retain their mass, volume, or number. In the *concrete operational stage* (about age 7 to 11), children can think logically about concrete events, grasp analogies, and perform arithmetical operations. In the *formal operational stage*(12 through adulthood), they gain the ability to reason abstractly. Piaget viewed the ages connected with these stages as approximate, but the sequence as universal.

 Pages: 148-154

**Objective 10**| **Discuss psychologists’ current views on Piaget’s theory of cognitive development.** Contemporary research shows that formal logic plays a smaller part in cognitive development than Piaget believed, and that the development of cognitive abilities is more continuous, with stages starting earlier and less abruptly. Nevertheless, Piaget’s views about the *sequence*of development of children’s cognitive abilities have been supported repeatedly.

 Pages: 154

**Objective 11**| **Define *stranger anxiety.****Stranger anxiety*is the fear of strangers that infants begin to display at about 8 months of age. Children of this age have formed schemas for familiar faces, and they become distressed when faces do not match their schemas.

 Pages: 154-155

**Objective 12**| **Discuss the effects of nourishment, body contact, and familiarity on infant social attachment.** Until the Harlows’ research in the mid-1950s, many psychologists believed that, through a conditioning process, children become attached (form an emotional tie) to those who provide nourishment. The Harlows’ experiments showed that infant monkeys would search out a non-nourishing “mother” that provided comfort in preference to one that provided nourishment without comfort. Ducks and other animals imprint, forming an attachment to a significant organism or object during a *critical period*(a time shortly after birth when proper development depends on exposure to certain stimuli or experiences).Humans do not imprint, but they do become attached to familiar people and things, which provide feelings of safety.

 Pages: 155-156

**Objective 13**| **Contrast secure and insecure attachment, and discuss the roles of parents and infants in the development of attachment and an infant’s feelings of basic trust.** In the experimental condition called the strange situation, researchers observe a mother and her child in a laboratory playroom, taking note of the child’s reactions as the mother leaves and reenters. Securely attached children play and explore comfortably in the mother’s presence, are distressed when she leaves, and seek contact when she returns. Insecurely attached children explore less in the mother’s presence and may cling to her, cry loudly when she leaves, and remain upset or act indifferent when she returns. Other studies show that sensitive responsive parents tend to have securely attached children. Genetically influenced temperament may evoke responsive parenting, but parental sensitivity has been taught and does increase infant attachment security to some extent. Father love as well as mother love is a predictor of children’s health and well-being. Adult relationships tend to reflect the secure or insecure attachment styles of early childhood, lending support to Erik Erikson’s idea that basic trust is formed in infancy by our experiences with responsive caregivers.

  Pages: 156-158

**Objective 14**| **Assess the impact of parental neglect, family disruption, and day care on attachment patterns and development.** When parental neglect or other trauma deprive children of the opportunity to form attachments, children become withdrawn and frightened and may not develop speech. If prolonged, childhood abuse places children at risk for a variety of physical, psychological, and social problems and may alter the brain’s production of serotonin. Damage from disruption of attachment bonds, as happens when children are placed in fostercare, appears to be minimal before 16 months of age. Children who are moved repeatedly or otherwise prevented from forming attachments by age 2, however, may be at risk for attachment problems. Quality day care, with responsive adults interacting with children in a safe and stimulating environment, does not appear to harm children’s thinking and language skills, but some studies have linked extensive time in daycare with increased aggressiveness and defiance.

 Pages: 158-161

**Objective 15**| **Trace the onset and development of children’s self-concept.***Self-concept,*a sense of one’s identity and personal worth, emerges gradually, beginning at about 6 months. At 15 to 18months, children recognize themselves in a mirror. By school age, they can describe many of their own traits, and by age 8to 10, their self-image is stable.

 Pages: 161

**Objective 16**| **Describe three parenting styles, and offer three potential explanations for the link between authoritative parenting and social competence.***Authoritarian*parents impose rules and expect obedience. *Permissive* parents submit to children’s demands, ask little, and punish rarely. *Authoritative*parents are demanding but responsive to their children. Authoritative parenting correlates with social competence, but the cause-effect relationship is not clear. This style of parenting may produce socially competent children, or agreeable easygoing children may evoke authoritative parenting. Or a third factor, such as shared genes, may lead to a temperament that is comfortable with an authoritative parenting style and that manifests itself in agreeable easygoing social interactions.

 Pages: 161-163

**Objective 17**| **Define *adolescence.****Adolescence*is the transition period from childhood to adulthood, extending from puberty to independence.

 Pages: 164-165

**Objective 18**| **Identify the major physical changes during adolescence.**Adolescence begins with puberty, the period of sexual maturation that enables reproduction. A surge of hormones triggers a two-year growth spurt, beginning at about age 11 in girls and age 13 in boys. Primary sex characteristics (the reproductive organs and external genitalia) and secondary sex characteristics (nonreproductive sexual characteristics such as a girl’s breasts and a boy’s deepened voice) develop during puberty, though the exact timing varies from one person to another. For most girls, menarche happens within a year of age 12. For most boys, spermarche occurs by about age 14.Heredity and environment interact, and other people’s reactions to early or late maturation can influence adolescents’ adjustment. There is also significant brain development during adolescence, with frontal lobe maturation and selective pruning of unused neurons and their connections.

 Pages: 165-167

**Objective 19**| **Describe the changes in reasoning abilities that Piaget called formal operations.** With the development of formal operations, adolescents gain the ability to reason abstractly. This ability lets them form hypotheses and deduce consequences.

 Pages: 167-168

**Objective 20**| **Discuss moral development from the perspectives of moral thinking, moral feeling, and moral action.** In Piaget’s view, moral judgments reflect the developing child’s reasoning powers. Lawrence Kohlberg proposed three levels of *moral thinking.*Preconventional morality is self interested morality based on reasoning that attempts to avoid punishment or gain concrete rewards. Conventional morality is law-abiding morality based on reasoning that existing laws must be upheld. Post conventional morality (not everyone attains this final stage) is self-defined morality based on abstract reasoning about what is ethical, right, and fair. The social intuitionist view of morality proposes that*moral feelings*precede moral thinking and judgments. Some brain-imaging experiments confirm that the brain’s emotion areas are active when people consider moral dilemmas. The*moral action*perspective focuses on social influences on decisions to do the right thing. Programs based on the moral action perspective teach children to empathize with others’ feelings and to delay gratification to enable bigger rewards later.

 Pages: 168-170

**Objective  21**| **Identify Erikson’s eight stages of psychosocial development and their accompanying issues.** Erik Erikson proposed that we pass through eight stages in life (loosely associated with age), each with its own psychosocial task. In infancy (to 1 year), the issue is trust versus mistrust; in toddlerhood (1 to 2 years), the issue is autonomy versus shame and doubt. Preschoolers (3 to 5) learn initiative or guilt, and elementary school children (6 to puberty), competence or inferiority. A chief task of adolescence (teens to twenties) is solidifying one’s sense of self—one’s identity. For young adults (twenties to early forties), the issue is intimacy versus isolation, and for middle adulthood (forties to sixties), generativity versus stagnation. Late adulthood’s (late sixties and up) task is integrity versus despair.

 Pages: 170-171

**Objective 22**| **Explain how the search for identity affects us during adolescence, and discuss how forming an identity prepares us for intimacy.** In Western cultures, most adolescents try out different selves before settling into a consistent and comfortable identity. A smaller number unthinkingly adopt the identity of their parents or, rejecting the values of parents and society, take on the identity of peers. Self-esteem increases with identity achievement. Erikson believed that having a clear and comfortable identity is a precondition for forming close relationships.

 Pages: 171-172

**Objective 23**| **Contrast parental and peer influences during adolescence.**Adolescents in Western cultures do tend to become increasingly independent of their parents, but researchers have found that most teenagers nevertheless relate to their parents reasonably well. Peer approval and relationships are very important, and teens talk, dress, and act like their peers. Parents continue to influence teens in such areas as religiosity and college and career choices.

 Pages: 172-173

**Objective 24**| **Discuss the characteristics of emerging adulthood.***Emerging adulthood*refers to the period from about age 18 to the mid-twenties, when many young people in Western cultures are no longer adolescents but have not yet achieved full independence as adults. During this time, many young people attend college or work but continue to live in their parents’ home. In the United States, the age of first marriage now extends into the mid-twenties for men and women.

 Pages: 173-174

**Objective 25**| **Identify the major physical changes that occur in middle adulthood.** Muscular strength, reaction time, sensory abilities, and cardiac output begin to decline in the late twenties. Around age50, menopause ends women’s period of fertility, but they may continue to enjoy a satisfying sex life. Most women do not experience depression or other psychological problems with menopause. Men do not undergo a similar sharp drop in hormone levels or fertility.

 Pages: 175-177

**Objective 26**| **Compare life expectancy in the mid-twentieth and early twenty-first centuries, and discuss changes in sensory abilities and health (including frequency of dementia) in older adults.**Worldwide, life expectancy has increased from 49 years in the mid-twentieth century to 67 in the early twenty-first century, and it exceeds 80 in some developed countries. Women outlive men and outnumber men at most ages past early infancy. In late adulthood, especially after age 70, hearing, distance perception, and the sense of smell diminish, as do muscle strength, reaction time, and stamina. As the body’s immune system weakens, the elderly become vulnerable to life-threatening diseases such as cancer and pneumonia, but short-term ailments are fewer. Neural processes slow, especially for complex tasks, and by about age 80, the brain shrinks by about 5percent. Physical exercise can stimulate the development of some new brain cells and connections. With age, the incidence of dementia—including the progressive deterioration of Alzheimer’s disease—increases, doubling every five years from the early sixties on. Dementia is not a normal part of the aging process.

 Pages: 177-181

**Objective 27**| **Assess the impact of aging on recall and recognition in adulthood.** The ability to recall new information declines during early and middle adulthood, but the ability to recognize such information does not. Older adults recall meaningful information more easily than meaningless information, but they may take longer to produce the words describing what they know. Prospective memory (“remember to . . .”) remains strong when cues are available, but without reminder cues, time-based and habitual tasks are vulnerable to memory loss.

 Pages: 181-182

**Objective 28**| **Summarize the contributions of cross-sectional and longitudinal studies to our understanding of the normal effects of aging on adult intelligence.***Cross-sectional*studies (comparing people of different ages with one another) suggested that intelligence declines steadily after early adulthood, but this research failed to consider generational differences in education and other life experiences. *Longitudinal studies*(retesting the same people over a long period of time) suggested intelligence was stable until very late in life. But longitudinal research failed to account for those who dropped out of the studies, who may have been less intelligent than the survivors or in poor health, leaving an above-average group of participants in late life. Today’s view is that *fluid intelligence*(the ability to reason speedily and abstractly) declines in later life, but*crystallized intelligence*(accumulated knowledge and skills) does not.

 Pages: 183-185

**Objective 29**| **Explain why the path of adult development need not be tightly linked to one’s chronological age.** Psychologists doubt that adults pass through an orderly sequence of age-bound stages, some accompanied by times of crisis, such as a midlife crisis in the early forties. Life crises tend to be triggered by major events (such as divorce) or chance occurrences (such as meeting a future partner) rather than predictable stages. Stage-defined crises also imply rigid timing of social events, and research shows that the *social clock*(the cultural prescription of the “right time” for such events) varies from place to place and from time to time.

 Pages: 185-186

**Objective 30**| **Discuss the importance of love, marriage, and children in adulthood, and comment on the contribution of one’s work to feelings of self-satisfaction.** Love and work are the defining themes in adult life. Evolutionary psychologists believe commitment had survival value for our ancestors, in that parents who stayed together, cooperated, and raised children to a child-bearing age had a better chance of passing along their genes to posterity. The likelihood of divorce has doubled over the past 40 years, partly because of women’s increased economic independence and partly because of men’s and women’s increased expectations of acceptable qualities in a life partner. Cohabitation before marriage has correlated with higher rates of divorce and marital dysfunction. Most people still expect to marry, and those who do tend to be happier than their single counterparts. The birth of a child is usually a welcome event but may strain a couple’s financial and emotional resources. Settling into a career path is difficult and time consuming, but satisfying work (that fits your interests and gives a sense of competence and accomplishment) also correlates with life satisfaction.

 Pages: 186-189

**Objective 31**| **Describe trends in people’s life satisfaction across the life span.** Well-being and people’s feelings of satisfaction are stable across the life span. Studies show that as we age, highs may be less high and lows less low, but the average level of satisfaction remains stable.

 Pages: 189-190

**Objective 32**| **Describe the range of reactions to the death of loved one.** There is no “normal” reaction or series of grief stages after the death of a loved one. Grief is most severe when the death is sudden or before its expected time, as in the death of a child. People who in old age achieve a sense of integrity, in Erikson’s terms, may meet death by affirming that their own life was meaningful and worthwhile. Pages: 190-191

**Objective 33**| **Summarize current views on continuity versus stages and stability versus change in lifelong development.** Researchers viewing development as a slow continuous process are generally those who emphasize experience and learning. Researchers who emphasize biological maturation see development as a series of genetically predisposed steps. Later research has modified the stage theories of Piaget (cognitive development), Kohlberg (moral development), and Erikson (psychosocial development), but these theories have enriched psychology by alerting us to ways people differ at various points in the lifespan. Research also shows that lifelong development features both stability and change. Personality gradually stabilizes as people age, but a toddler’s traits do not necessarily predict the adult’s, and older children and adolescents also change. Some traits, such as temperament, are more stable than others. As we age, we may change relative to our earlier selves while sustaining our characteristic traits in comparison to our age mates.

 Pages: 193-194