



Figure 7.3 | Harlow's Motherless Monkeys and Surrogate Mothers | In Harry Harlow's research on the role of feeding in the attachment process, he found that contact comfort, rather than feeding, was the most important factor in an infant monkey's attachment. The infant monkeys spent most of their time on the terry cloth surrogate mother regardless of whether she provided their nourishment or not. The infant monkey would often even cling to the cloth monkey while feeding from the wire mother.

while feeding from the wire mother. In brief, the infant monkeys would spend most of each day on the cloth mother. The monkeys clearly had become attached to the cloth mother. Harlow concluded that “contact comfort” (bodily contact and comfort), not reinforcement from nourishment, was the crucial element for attachment formation.

In addition, the infant monkeys would cower in fear when confronted with a strange situation (an unfamiliar room with various toys) without the surrogate mother. When the surrogate mother was brought into the strange situation, the infant monkeys would initially cling to the terry cloth mother to reduce their fear, but then begin to explore the new environment and eventually play with the toys. Harlow concluded that the presence of the surrogate mother made the monkeys feel secure and therefore sufficiently confident to explore the strange situation. This situation is very similar to the Strange Situation procedure developed by Mary Ainsworth to study the attachment relationship in human infants (Ainsworth, 1979; Ainsworth, Blehar, Waters, & Wall, 1978). In this procedure, an infant's behavior is observed in an unfamiliar room with toys, while the infant's mother and a stranger (an unfamiliar woman) move in and out of the room in a structured series of situations. The key observations focus on the infant's reaction to the mother's leaving and returning, both when the stranger is present and absent, and on the child exploring the situation (the room and the toys in it).

Types of attachment. Ainsworth and her colleagues found three types of attachment relationships—secure, insecure-avoidant, and insecure-ambivalent. **Secure attachment** is indicated by the infant exploring the situation freely in the presence of the mother, but displaying distress when the mother leaves, and responding enthusiastically when the mother returns. **Insecure-avoidant attachment** is indicated by exploration but minimal interest in the mother, the infant showing little distress when the mother leaves, and avoiding her when she returns. **Insecure-ambivalent attachment** is indicated by the infant seeking closeness to the mother and not exploring the situation, high levels of distress when the mother leaves, and ambivalent behavior when she returns by alternately clinging to and pushing away from her. About two-thirds of the infants studied are found to have a secure attachment, and the other third insecure attachments. Cross-cultural research indicates that these proportions may vary across different cultures, but the majority of infants worldwide seem to form secure attachments. Later researchers have added a fourth type of insecure attachment, **insecure-disorganized (disoriented) attachment**, which is indicated by the infant's confusion when the mother leaves and when she returns. The infant acts disoriented, seems overwhelmed by the situation, and does not demonstrate a consistent way of coping with it (Main & Solomon, 1990).

Before putting the infants in the Strange Situation series, researchers observed the infant-mother relationship at home during the first 6 months of an infant's life. From such observations, they found that the sensitivity of the mother is the major determinant of the quality of the attachment relationship. A mother who is sensitive and responsive to an infant's needs is more likely to develop a secure attachment with the infant. Although the mother's caregiver style is primary, does the infant also contribute to the attachment formation? The answer is yes. Each of us is born with a **temperament, a set of innate tendencies or dispositions that lead us to behave in certain ways**. Our temperament is fundamental to both our personality development and also how we interact with others (our social development). The temperaments of infants vary greatly. Some infants are more responsive, more active, and happier than others. How an infant's temperament matches the childrearing expectations and personality of his caregiver is important in forming the attachment relationship. A good match or fit between the two enhances the probability of a secure attachment.

The type of attachment that is formed is important to later development. Secure attachments in infancy have been linked to higher levels of cognitive functioning and social competence in childhood (Jacobsen & Hoffman, 1997; Schneider, Atkinson, & Tardif, 2001). This doesn't mean, however, that the type of attachment cannot

secure attachment The type of attachment indicated by the infant exploring freely in the presence of the mother in the Ainsworth Strange Situation procedure, displaying distress when the mother leaves, and responding enthusiastically when she returns.

insecure-avoidant attachment The type of attachment indicated by the infant exploring with little interest in the mother in the Ainsworth Strange Situation procedure, showing only minimal distress when the mother leaves, and avoiding her when she returns.

insecure-ambivalent attachment The type of attachment indicated by the infant not exploring but seeking closeness to the mother in the Ainsworth Strange Situation procedure, showing high levels of distress when the mother leaves, and ambivalent behavior when she returns—by alternately clinging to and pushing away from her.

insecure-disorganized (disoriented) attachment The type of attachment indicated by the infant's confusion when the mother leaves and returns in the Ainsworth Strange Situation procedure. The infant acts disoriented, seems overwhelmed by the situation, and does not demonstrate a consistent way of coping with it.

temperament The set of innate tendencies or dispositions that lead a person to behave in certain ways.

Study Guide

Chapter Key Terms

You should know the definitions of the following key terms from the chapter. They are listed in the order in which they appear in the chapter. For those you do not know, return to the relevant section of the chapter to learn them. When you think that you know all of the terms, complete the matching exercise based on these key terms.

developmental psychology	sensorimotor stage	conventional level of moral reasoning
zygote	object permanence	postconventional level of moral reasoning
gene	preoperational stage	attachment
chromosomes	egocentrism	secure attachment
identical (monozygotic) twins	conservation	insecure-avoidant attachment
fraternal (dizygotic) twins	reversibility	insecure-ambivalent attachment
teratogens	centration	insecure-disorganized (disoriented) attachment
fetal alcohol syndrome (FAS)	concrete operational stage	temperament
sucking reflex	formal operational stage	authoritarian parenting
rooting reflex	information-processing approach to cognitive development	authoritative parenting
habituation	zone of proximal development	permissive parenting
phonemes	scaffolding	uninvolved parenting
baby talk (parentese)	cross-sectional study	theory of mind
babbling	longitudinal study	
holophrase	cohort effects	
overextension	preconventional level of moral reasoning	
underextension		
telegraphic speech		
assimilation		
accommodation		

Key Terms Exercise

Identify the correct term for each of the following definitions. The answers to this exercise follow the answers to the ConceptChecks at the end of the chapter.

1. The knowledge that an object exists independent of perceptual contact with it.

Object permanence

2. An innate human reflex that leads infants to turn their mouth toward anything that touches their cheeks and search for something to suck on.

rooting reflex

3. The fertilized egg that is formed from the union of the sperm and egg cells in human reproduction.

zygote

4. Piaget's term for the modification of present schemas to fit with new experiences.
accommodation
5. A style of parenting in which the parents are demanding, but set rational limits for their children and communicate well with their children.
Authoritative
6. The type of attachment indicated by the infant exploring freely in the presence of the mother in the Ainsworth Strange Situation procedure, but displaying distress when the mother leaves, and responding enthusiastically when she returns.
Secure attachment
7. The different format of speech that adults use when talking with babies that involves the use of shorter sentences with a higher, more melodious pitch.
parentese (baby talk)
8. Agents such as drugs, viruses, diseases, and physical conditions that impair prenatal development and lead to birth defects and sometimes death.
teratogens
- * 9. A study in which the performance of the same group of participants is examined at different ages. longitudinal study
10. According to Vygotsky, the difference between what a child can actually do and what the child could do with the help of others. Zone of proximal development
11. The smallest distinctive speech sounds in a language.
phonem
12. Using two-word sentences with mainly nouns and verbs.
telegraph speech
13. The knowledge that the quantitative properties of objects (such as mass and number) remain the same despite changes in appearance.
Conservation

14. A style of teaching in which the teacher adjusts the level of help in relation to the child's level of performance while orienting the child toward the upper level of his or her zone of proximal development.
scaffolding
15. The set of innate tendencies or dispositions that lead a person to behave in certain ways.
temperments

Practice Test Questions

The following are practice multiple-choice test questions on some of the chapter content. The answers are given after the Key Terms Exercise answers at the end of the chapter. If you guessed on a question or incorrectly answered a question, restudy the relevant section of the chapter.

- In human conception, another name for the fertilized egg is _____.
 - gene
 - zygote
 - chromosome
 - teratogen
- At about 6 or 7 months of age, an infant starts rhythmically repeating various syllables. This is called _____.
 - baby talk
 - holophrase
 - telegraphic speech
 - babbling
- According to Piaget's theory of cognitive development, children are in the _____ stage if they have symbolic ability but lack conservation.
 - sensorimotor
 - preoperational
 - concrete operational
 - formal operational

4. According to Piaget, _____ is the interpretation of new experiences in terms of present schemas, and _____ is the modification of present schemas to fit with new experiences.
- assimilation; accommodation
 - accommodation; assimilation
 - reversibility; centration
 - centration; reversibility
5. Vygotsky's term for the difference between what a child can actually do and what the child can do with the help of others is _____.
- zone of proximal development
 - erogenous zone
 - scaffolding
 - cohort effect
6. In a _____ study, people of different ages are studied at one point in time and compared with one another.
- cross-sectional
 - longitudinal
 - habituation
 - scaffolding
- 7. According to Kohlberg, a person who complies with rules and laws to avoid punishment is in the _____ level of moral development.
- A:A
- preconventional
 - conventional
 - postconventional
 - authoritarian
8. According to Ainsworth, a child who shows little distress when the mother leaves in the Strange Situation procedure and neglects her when she returns has developed a(n) _____ attachment.
- secure
 - insecure-disorganized
 - insecure-ambivalent
 - insecure-avoidant
- 9. Which of the following parenting styles is most positively related to academic success, happiness, independence, and self-confidence?
- authoritative
 - authoritarian
 - permissive
 - indifferent
10. According to Erikson's psychosocial theory, _____ is the issue that a person faces during adolescence.
- initiative versus guilt
 - industry versus inferiority
 - identity versus role confusion
 - intimacy versus isolation
11. During the _____ stage of prenatal development (the final stage starting about two months after conception), the body structures and organs complete their growth.
- embryonic
 - fetal
 - germinal
 - zygote
12. A decrease in the physiological responding to a stimulus once it becomes familiar is called _____.
- assimilation
 - centration
 - habituation
 - conservation
13. Johnny, who is only 4 years old, stands in front of you blocking your view of the television screen, and he does not realize that he is doing so. He thinks that his view is the same as yours. Johnny is displaying _____ and is in Piaget's _____ stage of cognitive development.
- egocentrism; concrete
 - egocentrism; preoperational
 - centration; concrete
 - centration; preoperational

14. Michelle, who is 18 months old, has a pet dog named Sam. After she learns the name of her dog, she calls all of the dogs she sees Sam. Michelle is demonstrating _____.
- babbling
 - holophrase
 - underextension
 - overextension
15. Studies of intelligence in adulthood reveal that fluid intelligence abilities _____ with age, and crystallized intelligence abilities _____ with age.
- increase; increase
 - increase; decrease
 - decrease; increase
 - decrease; decrease

Chapter ConceptCheck Answers

ConceptCheck | 1

- Teratogens are agents such as drugs, viruses, and diseases and conditions such as malnutrition that impair prenatal development and lead to birth defects or even death. Thus, they are not due to heredity (nature). They are prenatal environmental factors, and therefore their effects are due to nurture.
- Habituation, a decrease in physiological responding to a stimulus once it becomes familiar, is used to determine what stimuli an infant can perceptually discriminate. The inference is that if an infant looks longer at a new stimulus than an old one, then the infant must be able to perceive the difference. In addition to looking, researchers use other measures such as changes in the rates of sucking on a pacifier and the infant's heart rate.

ConceptCheck | 2

- Overextension and underextension in language development involve using a word too broadly or too narrowly, respectively. Through experience we learn to extend a word's meaning correctly. Overextension can be viewed as overassimilation—incorrectly attempting to assimilate the new object into the existing schema for the word when accommodation is necessary.

Underextension can be viewed as underassimilation—failing to assimilate the new object into the existing schema for the word. In overextension, the child assimilates when he needs to accommodate, and in underextension, the child does not assimilate when he needs to assimilate.

- A child who thought that a pizza cut into eight slices was more than the same pizza cut into six slices would be in the preoperational stage, because she is not demonstrating knowledge of conservation. She is centering her attention on the number of slices and not the size of the slices.
- Together these two concepts, zone of proximal development and scaffolding, make up a teaching method. First, the zone of proximal development (the difference between what a child can actually do and what the child could do with help) is determined. Then scaffolding (adjusting the level of help in relation to the child's level of performance) is used to structure and guide the learning to the upper level of the child's zone of proximal development.

- In a cross-sectional study, groups of participants of different ages are studied at one point in time. In a longitudinal study, one group of participants is studied at many different points in time as the group ages. The cross-sectional method is less time-consuming and expensive but subject to cohort effects created by factors unique to each generation in the study. Because the same participants are tested at different ages, the longitudinal method is not subject to such effects; but due to participant attrition, sample-group changes over time may impact the results.

ConceptCheck | 3

- The response indicates that Heinz should not steal the drug because he would be caught and sent to jail—punished. Even if he weren't caught, his conscience would punish him. Thus, Kohlberg would classify this explanation for not stealing the drug as reflective of Stage 1 (punishment orientation) in which people comply with rules in order to avoid punishment.
- An infant's temperament is the set of innate dispositions that lead him to behave in a certain way. It determines the infant's responsiveness in interactions with caregivers, how happy he