**Lesson Four: Infancy**

**Objectives: At the end of this lesson, you will be able to**

**1.Summarize overall physical growth during infancy.**

**2.Describe the growth of the brain during infancy.**

**3.Contrast development of the senses in newborns.**

**4.Compare gross and fine motor skills and give examples of each.**

**5.Explain the merits of breastfeeding.**

**6.Discuss nutritional concerns of marasmus and kwashiorkor.**

**7.List and describe the six substages of sensorimotor intelligence.**

**8.Describe stages of language development during infancy.**

**9.Define babbling, holophrasic speech, and overregularization.**

**10.Contrast styles of attachment.**

**11.Discuss the importance of temperament and goodness of fit.**

**12.Describe self-awareness, stranger wariness, and separation anxiety.**

**13.Use Erikson’s theory to characterize psychosocial development during infancy.**

**The objectives are next to reading sections below.**

**Introduction**

Welcome to the story of development from infancy through toddlerhood; from birth until about two years of age. Researchers have given this part of the life span more attention than any other period, perhaps because changes during this time are so dramatic and so noticeable and perhaps because we have assumed that what happens during these years provides a foundation for one’s life to come. However, it has been argued that the significance of development during these years has been overstated (Bruer, 1999). Nevertheless, this is a period of life that contemporary educators, healthcare providers, and parents have focused on most heavily. We will examine growth and nutrition during infancy, cognitive development during the first 2 years, and then turn our attention toward attachments formed in infancy.

**PHYSICAL DEVELOPMENT (Ob1)**

Overall Physical Growth: The average newborn in the United States weighs about 7.5 pounds and is about 20 inches in length. For the first few days of life, infants typically lose about 5 percent of their body weight as they eliminate waste and get used to feeding. This often goes unnoticed by most parents, but can be cause for concern for those who have a smaller infant. This weight loss is temporary, however, and is followed by a rapid period of growth. By the time an infant is 4 months old, it usually doubles in weight and by one year has tripled it birth weight. By age 2, the weight has quadrupled. The average length at one year is about 26-32 inches.

Body Proportions: Another dramatic physical change that takes place in the first several years of life is the change in body proportions. The head initially makes up about 50 percent of our entire length when we are developing in the womb. At birth, the head makes up about 25 percent of our length (think about how much of your length would be head if the proportions were still the same!). By age 25 it comprises about 20 percent our length. Imagine now how difficult it must be to raise one’s head during the first year of life! And indeed, if you have ever seen a 2 to 4 month old infant lying on the stomach trying to raise the head, you know how much of a challenge this is.

**The Brain in the First Two Years (Ob2)**

Some of the most dramatic physical change that occurs during this period is in the brain. At birth, the brain is about 25 percent its adult weight and this is not true for any other part of the body. By age 2, it is at 75 percent its adult weight, at 95 percent by age 6 and at 100 percent by age 7 years.

While most of the brain’s 100 to 200 billion neurons are present at birth, they are not fully mature and during the next several years dendrites or connections between neurons will undergo a period of transient exuberance or temporary dramatic growth. There is a proliferation of these dendrites during the first two years so that by age 2, a single neuron might have thousands of dendrites. After this dramatic increase, the neural pathways that are not used will be eliminated thereby making those that are used much stronger. This activity is occurring primarily in the cortex or the thin outer covering of the brain involved in voluntary activity and thinking. The prefrontal cortex that is located behind our forehead continues to grow and mature throughout childhood and experiences an addition growth spurt during adolescence. It is the last part of the brain to mature and will eventually comprise 85 percent of the brain’s weight. Experience will shape which of these connections are maintained and which of these are lost. Ultimately, about 40 percent of these connections will be lost (Webb, Monk, and Nelson, 2001). As the prefrontal cortex matures, the child is increasingly able to regulate or control emotions, to plan activity, strategize, and have better judgment. Of course, this is not fully accomplished in infancy and toddlerhood, but continues throughout childhood and adolescence.

Another major change occurring in the central nervous system is the development of myelin, a coating of fatty tissues around the axon of the neuron. Myelin helps insulate the nerve cell and speed the rate of transmission of impulses from one cell to another. This enhances the building of neural pathways and improves coordination and control of movement and thought processes. The development of myelin continues into adolescence but is most dramatic during the first several years of life.

**From Reflexes to Voluntary Movements (Ob4)**

Infants are equipped with a number of reflexes which are involuntary movements in response to stimulation. These include the sucking reflex (infants suck on objects that touch their lips automatically), the rooting reflex, which involves turning toward any object that touches the cheek, the palmar grasp (the infant will tightly grasp any object placed in its palm), and the dancing reflex evidence when the infant is held in a standing position and moves its feet up and down alternately as if dancing. These movements occur automatically and are signals that the infant is functioning well neurologically.

Within the first several weeks of life these reflexes are replaced with voluntary movements or motor skills.

**Gross Motor Skills**: These voluntary movements involve the use of large muscle groups and are typically large movements of the arms, legs, head, and torso. These skills begin to develop first. Examples include moving to bring the chin up when lying on the stomach, moving the chest up, rocking back and forth on hands and knees. But it also includes exploring an object with one’s feet as many babies do as early as 8 weeks of age if seated in a carrier or other devise that frees the hips. This may be easier than reaching for an object with the hands, which requires much more practice (Berk, 2007). And sometimes an infant will try to move toward an object while crawling and surprisingly move backward because of the greater amount of strength in the arms than in the legs!

**Fine Motor Skills**: Fine motor skills are more exact movements of the hands and fingers and include the ability to reach and grasp an object. Newborns cannot grasp objects voluntarily but do wave their arms toward objects of interest. At about 4 months of age, the infant is able to reach for an object, first with both arms and within a few weeks, with only one arm. Grasping an object involves the use of the fingers and palm, but no thumbs. Stop reading for a moment and try to grasp an object using these fingers and the palm. How does that feel? How much control do you have over the object? If it is a pen or pencil, are you able to write with it? Can you draw a picture? The answer is probably not. Use of the thumb comes at about 9 months of age when the infant is able to grasp an object using the forefinger and thumb. This ability greatly enhances the ability to control and manipulate an object and infants take great delight in this newfound ability. They may spend hours picking up small objects from the floor and placing them in containers. By 9 months, an infant can also watch a moving object, reach for it as it approaches and grab it. This is quite a complicated set of actions if we remember how difficult this would have been just a few months earlier.

**Sensory Development (Ob3)**

**Vision**: The womb is a dark environment void of visual stimulation. Consequently, vision is the most poorly developed sense at birth. Newborns typically cannot see further than 8 to 16 inches away from their faces, have difficulty keeping a moving object within their gaze, and can detect contrast more than color differences.   If you have ever seen a newborn struggle to see, you can appreciate the cognitive efforts being made to take in visual stimulation and build those neural pathways between the eye and the brain. When you glance at a person, where do you look? Chances are you look into their eyes. If so why? It is probably because there is more information there than in other parts of the face. Newborns do not scan objects this way; rather, they tend to look at the chin another less detailed part of the face. However, by 2 or 3 months, they will seek more detail when exploring an object visually and begin showing preferences for unusual images over familiar ones and for patterns over solids and faces over patterns and three-dimensional objects over flat images. Newborns have difficulty distinguishing between colors, but within a few months are able to discrimination between colors as well as do adults. Infants can also sense depth as binocular vision develops at about 2 months of age. By 6 months, the infant can perceive depth perception in pictures as well (Sen, Yonas, and Knill, 2001). Infants who have experience crawling and exploring will pay greater attention to visual cues of depth and modify their actions accordingly (Berk, 2007).

**Hearing**: The infant’s sense of hearing is very keen at birth. If you remember, this ability to hear is evidenced as soon as the 5th month of prenatal development. In fact, an infant can distinguish between very similar sounds as early as one month after birth and can distinguish between a familiar and non-familiar voice even earlier. Some of this ability will be lost by 7 or 8 months as a child becomes familiar with the sounds of a particular language and less sensitive to sounds that are part of an unfamiliar language.

**Other senses:** Newborns can distinguish between sour, bitter, sweet, and salty flavors and show a preference for sweet flavors.  They are sensitive to touch and can distinguish between their mother's scent and that of others.

**Nutrition (Ob5)**

Breast milk is considered the ideal diet for newborns. It has the right amount of calories, fat, and protein to support overall physical and neurological development, it provides a source of iron more easily absorbed in the body than the iron found in dietary supplements, it provides a resistance against many diseases, it is more easily digested by infants than is formula, and it helps babies make a transition to solid foods more easily than if bottle fed. For all of these reasons, it is recommended that mothers breast feed their infants until at least 6 months of age and that breast milk be used in the diet throughout the first year (U.S. Department of Health and Human Services, 2004a in Berk, 2007). However, most mothers who breastfeed in the United States stop breast feeding at about 6-8 weeks, often in order to return to work outside the home. Mothers can certainly continue to provide breast milk to their babies by expressing and freezing the milk to be bottle fed at a later time or by being available to their infants at feeding time. However, some mothers find that after the initial encouragement they receive in the hospital to breast feed, the outside world is less supportive of such efforts. Some workplaces support breastfeeding mothers by providing flexible schedules and welcoming infants, but many do not. And the public support of breastfeeding is sometimes lacking. Women in Canada are more likely to breastfeed than are those in the United States and the Canadian health recommendation is for breastfeeding to continue until 2 years of age. Facilities in public places in Canada such as malls, ferries, and workplaces provide more support and comfort for the breastfeeding mother and child than found in the United States.

One early argument given to promote the practice of breastfeeding was that it promoted bonding and healthy emotional development for infants. However, this does not seem to be the case. Breastfed and bottle-fed infants adjust equally well emotionally (Ferguson and Woodward, 1999). This is good news for mothers who may be unable to breastfeed for a variety of reasons and for fathers who might feel left out as a result.

In addition to the nutritional benefits of breastfeeding, breast milk is free! Anyone who has priced formula recently can appreciate this added incentive to breastfeeding. Prices for a month’s worth of formula can easily range from $130-200. Breastfeeding also stimulates contractions in the uterus to help it regain its normal size. And women who breastfeed are more likely to space their pregnancies further apart.

**An historic look at breastfeeding**: The use of wet nurses, or lactating women hired to nurse others' infants, during the middle ages eventually declined and mothers increasingly breastfed their own infants in the late 1800s. In the early part of the 20th century, breastfeeding began to go through another decline and by the 1950s, it was practiced less frequently by middle class, more affluent mothers as formula began to be viewed as superior to breast milk. In the late 1960s and 1970s, greater emphasis began to be placed on natural childbirth and breastfeeding and the benefits of breastfeeding were more widely publicized. Gradually rates of breastfeeding began to climb, particularly among middle-class educated mothers who received the strongest messages to breastfeed. Today, women receive consultation from lactation specialists before being discharged from the hospital to ensure that they are informed of the benefits of breastfeeding and given support and encouragement to get their infants to get used to taking the breast. This does not always happen immediately and first time mothers, especially, can become upset or discouraged. In this case, lactation specialists and nursing staff can encourage the mother to keep trying until baby and mother are comfortable with the feeding.

**Global Considerations and Malnutrition  (Ob6)**

In the 1960s, formula companies led campaigns in developing countries to encourage mothers to feed their babies on infant formula. Many mothers felt that formula would be superior to breast milk and began using formula. The use of formula can certainly be healthy under conditions in which there is adequate, clean water with which to mix the formula and adequate means to sanitize bottles and nipples.  However, in many of these countries such conditions were not available and babies often were given diluted, contaminated formula which made them become sick with diarrhea and become dehydrated. Rates of breast feeding declined in Peru from 90 percent to 10 percent in just 8 years time (Berger, 2001). These conditions continue today and now many hospitals prohibit the distribution of formula samples to new mothers in efforts to get them to rely on breast feeding. Many of these mothers do not understand the benefits of breast feeding and have to be encouraged and supported in order to promote this practice. Breast feeding could save the lives of millions of infants each year, according to the World Health Organization, yet fewer than 40 percent of infants are breastfed exclusively for the first 6 months of life.  Find out more at <http://www.who.int/features/factfiles/breastfeeding/en/index.html>  Most women can breastfeed unless they are receiving chemotherapy or radiation therapy, have HIV, are dependent on illicit drugs, or have active, untreated tuberculosis.

Children in developing countries and countries experiencing the harsh conditions of war are at risk for two major types of malnutrition. Infantile **marasmus** refers to starvation due to a lack of calories and protein. Children who do not receive adequate nutrition lose fat and muscle until their bodies can no longer function. Babies who are breast fed are much less at risk of malnutrition than those who are bottle fed. After weaning, children who have diets deficient in protein may experience **kwashiorkor** or the “disease of the displaced child” often occuring after another child has been born and taken over breastfeeding. This results in a loss of appetite and swelling of the abdomen as the body begins to break down the vital organs as a source of protein.

[[](http://angel.southseattle.edu/AngelUploads/Files/9cc63e02-ff82-4004-a25e-7d194b7ce500/Kwashiorkor_6903.jpg)](http://angel.southseattle.edu/AngelUploads/Files/9cc63e02-ff82-4004-a25e-7d194b7ce500/Kwashiorkor_6903.jpg)

 Kwashiorkor (Photo Courtesy Centers for Disease Control and Prevention)

The Breast Milk Industry:   The benefits of breast milk are well-known and publicized. The collection and distribution of breast milk has become a million dollar industry supplying hospitals and others in need of the ideal diet. For more information, go to [www.prolacta.com](http://www.prolacta.com/) to see a current development in the story of breast milk.

Milk Anemia in the United States: About 9 million children in the United States are malnourished (Children’s Welfare, 1998). More still suffer from milk anemia, a condition in which milk consumption leads to a lack of iron in the diet. This can be due to the practice of giving toddlers milk as a pacifier-when resting, when riding, when waking, and so on. Appetite declines somewhat during toddlerhood and a small amount of milk (especially with added chocolate syrup) can easily satisfy a child’s appetite for many hours. The calcium in milk interferes with the absorption of iron in the diet as well. Many preschools and daycare centers give toddlers a drink after they have finished their meal in order to prevent spoiling their appetites.

**COGNITIVE DEVELOPMENT (Ob7)**

**Piaget and Sensorimotor Intelligence**

Remember our discussion of sensorimotor development during the first two years of life. Piaget describes intelligence in infancy as sensorimotor or based on direct, physical contact. Infants taste, feel, pound, push, hear, and move in order to experience the world. Let’s explore the transition infants make from responding to the external world reflexively as newborns to solving problems using mental strategies as two year olds.

**Stage One: Reflexive Action: (Birth through 1st month)**

This active learning begins with automatic movements or reflexes. A ball comes into contact with an infant’s cheek and is automatically sucked on and licked.   But this is also what happens with a sour lemon, much to the infant’s surprise!

**Stage Two: First Adaptations to the Environment (1st through 4th month)**

Fortunately, within a few days or weeks, the infant begins to discriminate between objects and adjust responses accordingly as reflexes are replaced with voluntary movements. An infant may accidentally engage in a behavior and find it interesting such as making a vocalization. This interest motivates trying to do it again and helps the infant learn a new behavior that originally occurred by chance. At first, most actions have to do with the body, but in months to come, will be directed more toward objects.

**Stage Three: Repetition (4th through 8th months)**

During the next few months, the infant becomes more and more actively engaged in the outside world and takes delight in being able to make things happen. Repeated motion brings particular interest as the infant is able to bang two lids together from the cupboard when seated on the kitchen floor.

**Stage Four: New Adaptations and Goal-Directed Behavior (8th through 12th months)**

Now the infant can engage in behaviors that others perform and anticipate upcoming events. Perhaps because of continued maturation of the prefrontal cortex, the infant become capable of having a thought and carrying out a planned, goal-directed activity such as seeking a toy that has rolled under the couch. The object continues to exist in the infant’s mind even when out of sight and the infant now is capable of making attempts to retrieve it. Here is an example of a lack of object permanence.

Was Piaget correct?  Infants seem to be able to recognize that objects have permanence at much younger ages (even as young as 3.5 months of age).

Dr. Rene Baillargeon explains

**Stage Five: Active Experimentation of Little Scientists (12th through 18th months)**

Infants from one year to18 months of age more actively engage in experimentation to learn about the physical world. Gravity is learned by pouring water from a cup or pushing bowls from high chairs. The caregiver tries to help the child by picking it up again and placing it on the tray. And what happens? Another experiment! The child pushes it off the tray again causing it to fall and the caregiver to pick it up again! A closer examination of this stage causes us to really appreciate how much learning is going on at this time and how many things we come to take for granted must actually be learned. I remember handing my daughters (who are close in age) when they were both seated in the back seat of the car a small container of candy. They struggled to move the pieces up and out of the small box and became frustrated when their fingers would lose their grip on the treats before they made it up and out of the top of the boxes. They had not yet learned to simply use gravity and turn the box over in their hands! This is a wonderful and messy time of experimentation and most learning occurs by trial and error.

**Stage Six: Mental Representations (18th month to 2 years of age)**

The child is now able to solve problems using mental strategies, to remember something heard days before and repeat it, to engage in pretend play, and to find objects that have been moved even when out of sight. Take for instance, the child who is upstairs in a room with the door closed, supposedly taking a nap. The doorknob has a safety device on it that makes it impossible for the child to turn the knob. After trying several times in vain to push the door or turn the doorknob, the child carries out a mental strategy to get the door opened-he knocks on the door! Obviously, this is a technique learned from the past experience of hearing a knock on the door and observing someone opening the door. The child is now better equipped with mental strategies for problem-solving. This initial movement from the “hands-on” approach to knowing about the world to the more mental world of stage six marked the transition to preoperational intelligence that we will discuss in the next lesson. Part of this stage involves learning to use language.

**Language Development (Ob8)**

**Newborn Communication**

**Do newborns communicate?** Certainly, they do. They do not, however, communicate with the use of language. Instead, they communicate their thoughts and needs with body posture (being relaxed or still), gestures, cries, and facial expressions. A person who spends adequate time with an infant can learn which cries indicate pain and which ones indicate hunger, discomfort, or frustration.

**Intentional Vocalizations:** Cooing and taking turns: Infants begin to vocalize and repeat vocalizations within the first couple of months of life. That gurgling, musical vocalization called cooing can serve as a source of entertainment to an infant who has been laid down for a nap or seated in a carrier on a car ride. Cooing serves as practice for vocalization as well as the infant hears the sound of his or her own voice and tries to repeat sounds that are entertaining. Infants also begin to learn the pace and pause of conversation as they alternate their vocalization with that of someone else and then take their turn again when the other person’s vocalization has stopped. Cooing initially involves making vowel sounds like “oooo”. Later, consonants are added to vocalizations such as “nananananana”.

**Babbling and gesturing:** At about four to six months of age, infants begin making even more elaborate vocalizations that include the sounds required for any language. Guttural sounds, clicks, consonants, and vowel sounds stand ready to equip the child with the ability to repeat whatever sounds are characteristic of the language heard. Eventually, these sounds will no longer be used as the infant grow more accustomed to a particular language. Deaf babies also use gestures to communicate wants, reactions, and feelings. Because gesturing seems to be easier than vocalization for some toddlers, sign language is sometimes taught to enhance one’s ability to communicate by making use of the ease of gesturing. The rhythm and pattern of language is used when deaf babies sign just as it is when hearing babies babble.

**Understanding:** At around ten months of age, the infant can understand more than he or she can say. You may have experienced this phenomenon as well if you have ever tried to learn a second language. You may have been able to follow a conversation more easily than to contribute to it.

**Holophrasic speech:** Children begin using their first words at about 12 or 13 months of age and may use partial words to convey thoughts at even younger ages. These one word expressions are referred to as holophrasic speech. For example, the child may say “ju” for the word “juice” and use this sound when referring to a bottle. The listener must interpret the meaning of the holophrase and when this is someone who has spent time with the child, interpretation is not too difficult. They know that “ju” means “juice” which means the baby wants some milk! But, someone who has not been around the child will have trouble knowing what is meant. Imagine the parent who to a friend exclaims, “Ezra’s talking all the time now!” The friend hears only “ju da ga” which, the parent explains, means “I want some milk when I go with Daddy.”

**Underextension:** A child who learns that a word stands for an object may initially think that the word can be used for only that particular object. Only the family’s Irish Setter is a “doggie”. This is referred to as underextension. More often, however, a child may think that a label applies to all objects that are similar to the original object. In overextension all animals become “doggies”, for example.

**First words and cultural influences:** First words if the child is using English tend to be nouns. The child labels objects such as cup or ball. In a verb-friendly language such as Chinese, however, children may learn more verbs. This may also be due to the different emphasis given to objects based on culture. Chinese children may be taught to notice action and relationship between objects while children from the United States may be taught to name an object and its qualities (color, texture, size, etc.). These differences can be seen when comparing interpretations of art by older students from China and the United States.

**Vocabulary growth spurt:** One year olds typically have a vocabulary of about 50 words. But by the time they become toddlers, they have a vocabulary of about 200 words and begin putting those words together in telegraphic speech (I think of it now as 'text message' speech because texting is more common and is similar in that text messages typically only include the minimal amout of words to convey the message).

**Two word sentences and telegraphic (text message?) speech:** Words are soon combined and 18 month old toddlers can express themselves further by using expressions such as “baby bye-bye” or “doggie pretty”. Words needed to convey messages are used, but the articles and other parts of speech necessary for grammatical correctness are not yet used. These expressions sound like a telegraph (or perhaps a better analogy today would be that they read like a text message) where unnecessary words are not used. “Give baby ball” is used rather than “Give the baby the ball.” Or a text message of “Send money now!” rather than “Dear Mother.  I really need some money to take care of my expenses“ You get the idea.

**Child-directed speech:**  Why is a horse a “horsie”? Have you ever wondered why adults tend to use “baby talk” or that sing-song type of intonation and exaggeration used when talking to children? This represents a universal tendency and is known as **child-directed speech** or motherese or parentese. It involves exaggerating the vowel and consonant sounds, using a high-pitched voice, and delivering the phrase with great facial expression. Why is this done? It may be in order to clearly articulate the sounds of a word so that the child can hear the sounds involved. Or it may be because when this type of speech is used, the infant pays more attention to the speaker and this sets up a pattern of interaction in which the speaker and listener are in tuned with one another. When I demonstrate this in class, the students certainly pay attention and look my way. Amazing! It also works in the college classroom!

**Theories of Language Development (Ob9)**

The first two theories of language development represent two extremes in the level of interaction required for language to occur (Berk, 2007).

**Chomsky and the language acquisition device**: The view known as nativism advocated by Noam Chomsky suggests that infants are equipped with a neurological construct referred to as the language acquisition device or LAD that makes infants ready for language. Language develops as long as the infant is exposed to it. No teaching, training, or reinforcement is required for language to develop.

**Skinner and reinforcement:** Learning theorist, B. F. Skinner, suggests that language develops through the use of reinforcement. Sounds, words, gestures and phrases are encouraged through by following the behavior with words of praise or treats or any thing that increases the likelihood that the behavior will be repeated.

**Social pragmatics:** Another view emphasizes the child’s active engagement in learning language out of a need to communicate. The child seeks information, memorizes terms, imitates the speech heard from others and learns to conceptualize using words as language is acquired. Many would argue that all three of these dynamics foster the acquisition of language (Berger, 2004).

**PSYCHOSOCIAL DEVELOPMENT**

**Emotional Development (Ob12)**

At birth, infants exhibit two emotional responses: attraction and withdrawal. They show attraction to pleasant situations that bring comfort, stimulation, and pleasure. And they withdraw from unpleasant stimulation such as bitter flavors or physical discomfort. At around two months, infants exhibit social engagement in the form of social smiling as they respond with smiles to those who engage their positive attention. Pleasure is expressed as laughter at 3 to 5 months of age, and displeasure becomes more specific fear, sadness, or anger between ages 6 and 8 months. This fear is often associated with the presence of strangers or the departure of significant others known respectively as **stranger wariness and separation anxiety** which appear sometime between 6 and 15 months. And there is some indication that infants may experience jealousy as young as 6 months of age (Hart & Carrington, 2002).

During the second year of life, children begin to recognize themselves as they gain a sense of self as object. This is illustrated in the 15 month old child’s ability to recognize one’s own reflection in a mirror. (The classic mirror test or rouge test involves showing a toddler a mirror after having secretly rubbed red coloring on the child’s nose. Children who are younger than 15 months of age may try to wipe the color from the mirror. But a 15 month old child may wipe the color from his or her own nose.) Once a child has achieved self-awareness, the child is moving toward understanding social emotions such as guilt, shame or embarassment as well as sympathy or empathy.  These will require an understanding of the mental state of others that is acquired at around age 3 to 5 and will be explored in our next lesson (Berk, 2007).

**Forming Attachments (Ob10)**

The significance of early attachments: An attachment is desire for physical closeness with someone. The formation of attachments in infancy has been the subject of considerable research as attachments have been viewed as foundations for future relationships, as the basis for confidence and curiosity as toddlers, and as important influences on self-concept.

Measuring attachment styles: The classic model for studying styles of attachment involves having a caregiver and child come into a strange room filled with toys and observing the child’s reactions. A securely attached child will play with the toys and bring one to the caregiver to show and describe from time to time. The child is content and secure as he or she explores the situation. An insecurely-resistant child will cling to the caregiver and refuse to go and play. An insecure-avoidant attachment style is indicated by a child who is neither curious nor clingy; rather the child sits and waits until time to go.

Attachment styles vary in the amount of security and closeness felt in the relationship and they can change with new experience.   The type of attachment fostered in parenting styles varies by culture as well. For example, German parents value independence and Japanese mothers are typically by their children’s sides. As a result, the rate of insecure-avoidant attachments is higher in Germany and insecure-resistant attachments are higher in Japan. These differences reflect cultural variation rather than true insecurity, however (van Ijzendoorn and Sagi, 1999).  Keep in mind that methods for measuring attachment styles have been based on a model that reflects middle-class, U. S. values and interpretation. Newer methods for assessment attachment styles involve using a Q-sort technique in which a large number of behaviors are recorded on cards and the observer sorts the cards in a way that reflects the type of behavior that occurs within the situation.

As we explore styles of attachment below, be thinking about how these are evidenced also in adult relationships.

**Types of Attachments**

**Secure:** A secure attachment is one in which the child feels confident that needs will be met in a timely and consistent way. In North America, this interaction may include emotional connection in addition to adequate care. However, even in cultures where mothers do not talk, cuddle, and play with their infants, secure attachments can develop (LeVine et. al., 1994). Secure attachments can form provided the child has consistent contact and care from one or more caregivers. Consistency of contacts may be jeopardized if the infant is cared for in a day care with a high turn-over of caregivers or if institutionalized and given little more than basic physical care. And while infants who, perhaps because of being in orphanages with inadequate care, have not had the opportunity to attach in infancy can form initial secure attachments several years later, they may have more emotional problems of depression, anger, or be overly friendly as they make adjustments (O’Connor et. als., 2003).

**Insecure Resistant:** This attachment style is marked by insecurity and a resistance to engaging in activities or play away from the caregiver. It is as if the child fears that the caregiver will abandon them and clings accordingly. (Keep in mind that clingy behavior can also just be part of a child natural disposition or temperament and does not necessarily reflect some kind of parental neglect.) The child may cry if separated from the caregiver and also cry upon their return. They seek constant reassurance that never seems to satisfy their doubt. This type of insecure attachment might be a result of not having needs met in a consistent or timely way. Consequently the infant is never sure that the world is a trustworthy place or that he or she can rely on others without some anxiety. A caregiver who is unavailable, perhaps because of marital tension, substance abuse, or preoccupation with work, may send a message to the infant he or she cannot rely on having needs met. A caregiver that attends to a child’s frustration can help teach them to be calm and to relax. But an infant who receives only sporadic attention when experiencing discomfort may not learn how to calm down.

**Insecure-Avoidant:** This too is an attachment style marked by insecurity. But this style is also characterized by a tendency to avoid contact with the caregiver and with others. This child may have learned that needs typically go unmet and learns that the caregiver does not provide care and cannot be relied upon for comfort, even sporadically. An insecure-avoidant child learns to be more independent and disengaged. Such a child might sit passively in a room filled with toys until it is time to go.

**Disorganized:** This represents the most insecure style of attachment and occurs when the child is given mixed, confused, and inappropriate responses from the caregiver. For example, a mother who suffers from schizophrenia may laugh when a child is hurting or cry when a child exhibits joy. The child does not learn how to interpret emotions or to connect with the unpredictable caregiver.

How common are the attachment styles among children in the United States?   It is estimated that about 65 percent of children in the United States are securely attached. Twenty percent exhibit avoidant styles and 10 to 15 percent are resistant. Another 5 to 10 percent may be characterized as disorganized. How would this compare with adults in the United States? (We will look at this in our lesson on early adulthood.)

**Temperament (Ob11)**

Perhaps you have spent time with a number of infants.  How were they alike?  How did they differ?  Or compare yourself with your siblings or other children you have known well.  You may have noticed that some seemed to be in a better mood than others and that some were more sensitive to noise or more easily distracted than others.  These differences may be attributed to temperment.  Temperament is an inborn quality noticeable soon after birth.  According to Chess and Thomas (1996), children vary on 9 dimensions of temperament.  These include activity level, regularity (or predictability), sensitivity thresholds, mood, persistence or distractibility, among others.  The New York Longitudinal Study was a long term study of infants on these dimensions which began in the 1950s.  Most children do not have their temperament clinically measured, but categories of temperament have been developed and are seen as useful in understanding and working with children.  These categories include easy or flexible, slow to warm up or cautious, difficult or feisty, and undifferentiated (or those who can't easily be categorized).  Think about how you might approach each type of child in order to improve your interactions with them.  An easy or flexible child will not need much extra attention unless you want to find out whether they are having difficulties that have gone unmentioned.  A slow to warm up child may need to be given advance warning if new people or situations are going to be introduced.  A difficult or feisty child may need to be given extra time to burn off their energy.  A caregiver's ability to work well and accurately read the child will enjoy a goodness of fit meaning their styles match and communication and interaction can flow.  Rather than believing that discipline alone will bring about improvements in children's behavior, our knowledge of temperament may help a parent, teacher or other gain insight to work more effectively with a child.

Temperament doesn't change dramatically as we grow up, but we may learn how to work around and manage our temperamental qualities.  Temperament may be one of the things about us that stays the same throughout development.

**Erikson’s Psychosocial Stage for Infants and Toddlers (Ob13)**

**Trust vs. mistrust**

Erikson maintained that the first year to year and a half of life involves the establishment of a sense of trust. Infants are dependent and must rely on others to meet their basic physical needs as well as their needs for stimulation and comfort. A caregiver who consistently meets these needs instills a sense of trust or the belief that the world is a trustworthy place. The caregiver should not worry about overly indulging a child’s need for comfort, contact or stimulation. This view is in sharp contrast with the Freudian view that a parent who overly indulges the infant by allowing them to suck too long or be picked up too frequently will be spoiled or become fixated at the oral stage of development.

**Problems establishing trust**: Consider the implications for establishing trust if a caregiver is unavailable or is upset and ill-prepared to care for a child. Or if a child is born prematurely, is unwanted, or has physical problems that make him or her less desirable to a parent. Unwanted pregnancies can be experienced by busy, upper-middle class professional couples as well as young, unmarried mothers, or couples in the midst of relational strains. Under these circumstances, we cannot assume that the parent is going to provide the child with a feeling of trust. However, keep in mind that children can also exhibit strong resiliency to harsh circumstances. Resiliency can be attributed to certain personality factors, such as an easy-going temperament and receiving support from others. So a positive and strong support group can help a parent and child build a strong foundation by offering assistance and positive attitudes toward the newborn and parent.

**Autonomy vs. shame and doubt:**As the child begins to walk and talk, an interest in independence or autonomy replaces a concern for trust. The toddler tests the limits of what can be touched, said, and explored. Erikson believed that toddlers should be allowed to explore their environment as freely as safety allows and in so doing will develop a sense of independence that will later grow to self-esteem, initiative, and overall confidence. If a caregiver is overly anxious about the toddler’s actions for fear that the child will get hurt or violate other’s expectation, the caregiver can give the child the message that he or she should be ashamed of their behavior and instill a sense of doubt in their own abilities. Parenting advice based on these ideas would be to keep your toddler safe, but let him or her learn by doing. A sense of pride seems to rely on doing rather than being told how capable one is as well (Berger, 2005).

**Conclusion**

We have explored the dramatic story of the first two years of life. Rapid physical growth, neurological development, language acquisition, the movement from hands on to mental learning, an expanding emotional repertoire, and the initial conceptions of self and others make this period of life very exciting. These abilities are shaped into more sophisticated mental processes, self-concepts, and social relationships during the years of early childhood.

**References**

Berger, K. S. (2001). *The developing person through the life span*. New York: Worth.

Berger, K. S. (2005). *The developing person through the life span* (6th ed.). New York: Worth.

Berk, L. E. (n.d.). *Development through the life span* (4th ed.). Boston: Allyn and Bacon.

Bruer, J. T. (1999). *The myth of the first three years: A new understanding of early brain development and lifelong learning*. New York: Simon and Schuster.

Chess, S., & Thomas, A. (1996). *Temperament: Theory and practice*. New York: Brunner/Mazel.

Children's Welfare. (1998). *Welfarem-L Digest*, june 25. Retrieved August 10, 2006, from welfare-L@American.edu

Hart, S., & Carrington, H. (2002). Jealousy in 6-month-old infants. *Infancy*, *3*(3), 395-402.

LeVine, R. A., Dixon, S., LeVine, S., Richman, A., Leiderman, P. H., Keefer, C. H., & Brazelton, T. B. (1994). *Child care and culture: Lessons from Africa*. New York: Cambridge University Press.

O'Connor, T. G., Marvin, R. S., Rotter, M., Olrich, J. T., Britner, P. A., & The English and Romanian Adoptees Study Team. (2003). Child-parent attachment following early institutional deprivation. *Development and Psychopathology*, *15*, 19-38.

Sen, M. G., Yonas, A., & Knill, D. C. (2001). Development of infants' sensitivity to surface contour information for spatial layout. *Perception*, *30*, 167-176.

Van Ijzendoorn, M. H., & Sagi, A. (n.d.). Cross-cultural patterns of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 713-734). New York: Guilford.

Webb, S. J., Monk, C. S., & Nelson, C. A. (2001). Mechanisms of postnatal neurobiological development: Implications for human development. *Developmental Neuropsychology*, *19*, 147-171.