
UNIT 6 PHYSICAL AND PERCEPTUAL DEVELOPMENT⁶

Structure

- 6.0 Introduction
- 6.1 Body Growth and Changes
- 6.2 Motor Development
 - 6.2.1 Reflexes
 - 6.2.2 Gross Motor Skills
 - 6.2.3 Fine Motor Skills
- 6.3 Sensory and Perceptual Development
 - 6.3.1 The Ecological View
 - 6.3.2 Touch
 - 6.3.3 Taste and Smell
 - 6.3.4 Hearing
 - 6.3.5 Vision
 - 6.3.6 Depth Perception
 - 6.3.7 Pattern Perception
 - 6.3.8 Face Perception
 - 6.3.9 Object Perception
- 6.4 Intermodal perception
- 6.5 Nature, Nurture and Perceptual Development
- 6.6 Summary
- 6.7 Keywords
- 6.8 Review Questions
- 6.9 References and Further Reading
- 6.10 Additional Online Resources

Learning Objectives

After reading this unit, you will be able to:

- explain the dynamic systems view;
- describe how motor skills develop in an infant, and
- outline the course of sensory and perceptual development.

⁶ Vrushali Pathak, Research Scholar, Department of Psychology, Jamia Millia Islamia, New Delhi

6.0 INTRODUCTION

The view of infancy has changed drastically over the time. There was a time, when a newborn was considered as passive and incompetent with minimal abilities. In 1890, William James described the world of a neonate as “a blooming, buzzing confusion” (Friedman & Vietze, 1972). But current researches have demonstrated how developed are the sensory and perceptual abilities in a newborn. Careful observations and refined methods have enabled the researchers to arrive at a conclusion that the infants can display many complex abilities than that was previously thought. Babies are active right from the beginning, especially in relating to their physical and social world. Yet, debates continue over various aspects such as: What capacities are present in the infants from the beginning? How many of them mature with time? How much time is required in that process? Which one of these is a result of infant’s interaction with the environment? In what aspects genetics and environment meet to exhibit some of these skills and capacities in the infant? In this Unit, we will try to find answers to some of these questions and learn about the early reflexes, various motor skills, and sensory and perceptual capacities of the infant.

6.1 BODY GROWTH AND CHANGES

A baby’s head is usually large when she/he is born in comparison to the body which looks very small and delicate. They also have large eyes, smaller nose in comparison, and relatively fat cheeks. According to Vance (2007), there might be an evolutionary reason for this- it makes babies appear cute and thus, we become all the more attentive in caring for them. The infant grows rapidly until 2 years. For instance, by about 5 months of age, the infants’ weight doubles his/her birth weight and increases almost three times by one year. After the age of two, this growth pattern slows down. So, their trunk and limbs become proportionate to their head with time and their bodily proportions become similar to those of adults.

Young children also lose the chubbiness that is usually associated with infancy. For instance, by the age of 5, the layer of subcutaneous fat reduces to almost one-half thickness of the layer of fat in a 9-month-old (Huelke, 1998). During early childhood, losing fat and gaining muscle is common, although gender variations may exist. According to Sakai, Demura, and Fujii (2012), by the age of 5, girls are usually found to have more fat than boys who have more muscle in comparison. As per the growth chart, growth is understood as a continuous function but typically growth occurs in spurts of about 24 hours, and for some weeks or even days after that there is no growth (Adolph & Berger, 2006). During adolescence another period of rapid growth (especially in height) is seen when growth hormones and sex hormones act together. It has been found that in girls growth spurt usually begins around 9-10 years of age while in boys around the age of 11-12 years (Malina, Bouchard, & Oded,

2004). This pubertal growth spurt may end between the ages of 15-17 for many adolescents.

With bodily growth and proportions changing, another major change encountered is development of teeth. We all know that babies are born toothless but teeth start emerging within the first year itself. This also leads to changes in their facial structure. However, baby teeth are not permanent which eventually begin to push up through the gums after the loss of baby teeth.

Another major set of changes encountered by children are related to their prepubescent years and puberty. Between the age of 5 and 9, adrenal glands increase the production of androgens in both girls and boys which are linked to the growth of facial hair and muscle mass in boys and pubic hair and underarm hair in both girls and boys. Later, production of estrogen in girls would lead to development of breasts, changes in uterus and vagina. Estrogen also plays a role in the beginning of menstruation in girls, which can begin as early as 10 years. Puberty is marked by physical changes in adolescents and development of primary and secondary sex characteristics. Primary sex characteristics involve changes in ovaries, uterus in women and testes and penis in men. For females, the process culminates in *menarche*-first menstrual flow or popularly called as period. For men, it culminates in *spermarche*-ability to produce sperms. Secondary sex characteristics are the ones that do not involve the sex organs directly, such as deepening of voice in males, breast development in females, and growth of pubic and armpit hair in both males and females. These are considered as important overt signs of physical maturity and interestingly, these changes affect the interaction of the individual with their peers and other adults. Factors such as diet, body type, weight, health, family history, and racial background may affect the timing of puberty in an individual (Ersoy, Balkan, Gunay, & Egemen, 2005). For example, African-American children (girls and boys) are found to attain puberty earlier than Hispanic children (Herman-Giddens et al., 2012). Parent and colleagues (2003) concluded that girls from families with high social and economic resources reach menarche earlier than girls from comparatively disadvantaged families. They attributed it to better diet and overall better health and resources in the family. In a very small percentage of girls, the earliest physical changes such as appearance of breast buds etc. have been reported as early as 6 or 7 years of age (Nield, Cakan, & Kamat, 2007) followed by early menarche. This has been termed as *precocious puberty*.

Check Your Progress 1

1. How do bodily proportions change from infancy through childhood?

.....

.....

.....

.....

.....

2. What are the physical changes encountered by boys and girls during puberty?

.....

.....

.....

3. Explain precocious puberty.

.....

.....

.....

6.2 MOTOR DEVELOPMENT

Gesell (1934) had argued that motor development takes place in a fixed order and within a specific time frame. Thus, he concluded that motor development follows a genetic plan which gets unfolded. However, later studies demonstrated that the sequence of developmental milestones is not fixed and may not be completely due to heredity (Adolph, Burger, & Leo, 2010; Adolph, Karasik, & Tamis-LeMonda, 2010). An influential theory has been proposed by **Esther Thelen** in this area called as the *dynamic systems theory*. According to it, to develop motor skills, infants must perceive something in the environment which eventually would motivate them to act upon it. Then they would use their perceptions to fine-tune their movements (Thelen & Smith, 2006). Thus, infants assemble motor skills for perceiving and acting. When infants are motivated to do something, they may actually end up creating a new motor behavior (Clearfield et al., 2009) which could be a result of various factors such as- development of nervous system, physical capability and properties of the body, environmental support for the motor skill in question, and the goal the child is motivated to reach (Von Hofsten, 2008). According to this view, the universal milestones such as reaching to an object, crawling, and walking etc. are learned through adaptation, wherein infants modulate their movement patterns in order to fit the task by exploring and selecting various possible solutions and eventually fine-tuning them to accomplish it. For instance, when an infant is given a toy, no one can exactly tell the infant how to move his/her arm and fingers to grasp the toy and actually hold it. If the baby is in the sitting position, he/she will have to make adjustments to extend the arm and hold his/her body also steady, so that he/she does not fall over the toy. Muscles in the arm and the shoulder will have to exert itself in order to put force and improvise ways to reach out to the toy and wrap fingers around it and pick it up. Thus, motor development is not just a passive process based on genetic unfolding of skills over a time, rather, the infant puts together various skills to achieve the goal within the existing limitations of his/her body and environment. In the following section, we will pay attention towards how motor development begins with reflexes.

6.2.1 Reflexes

Newborns do not have a lot of control over their limbs, but they seemed to have a set of involuntary, patterned motor responses that they are born with which are controlled by the lower brain centers. These are called as reflexes. These reflexes are not learned behaviors as they are already hardwired into their system and help them to respond to the environmental stimuli. For example, a newborn holds its breath and contracts its throat to keep water out on its own. When someone strokes the infant's cheeks softly, he/she turns his head in that person's direction. This is called as **rooting reflex**. Reflexes have an adaptive value and thus are considered as genetically carried survival mechanisms. Another one is the **sucking reflex**, which enables the infant to get nourishment even before they have associated a nipple or breast with food. **Moro reflex** occurs in response to a sudden or intense noise from the environment. When the infant is alarmed, he/she arches its back, throws back its heads and flings out its arms and legs which is followed by another rapid movement of closing the arms and legs. It is like an attempt to grab some support while falling and definitely has survival value.

With time, the higher brain centers develop and most of these reflexes slowly go away. They are replaced by intentional and voluntary actions (Pedroso, 2008). For instance, with a gentle touch on cheek, the newborn will reflexively turn in the direction of touch (as mentioned above) putting in position to nurse, but with time he/she will learn the signal about being fed and will start turning in the direction of the caregiver as soon as one senses the cues about being fed, this will be an intentional and voluntary action now. An overview of reflexes and its developmental pattern is given in Table 6.1.

Table 6.1 Description of reflexes in the infant and its developmental pattern

Reflex	Stimulation	Response of the infant	Developmental pattern	Function
Blinking	Flash of light, puff of air, clap hands near head	Quickly closes eyelids	Permanent	Protects infant from strong stimulation
Rooting	Cheek stroked near corner of mouth	Turns head, opens mouth and sucks	Becomes voluntary head turning after 3-4 months	Helps infant find the nipple
Sucking	Object touching mouth	Sucks automatically and rhythmically	Voluntary sucking starts after 3-4 months	Permits feeding
Swimming	When infant is face down in pool or	Paddles and kicks, coordinated	Disappears after 6-7 months	Helps infant in survival if dropped in

	water	swimming movements		water
Babinski	Stroking sole of foot	Fans out toes and twists foot in	Disappears after 9 months – 1 year	Unknown
Grasping	Palms touched	Grasps tightly	Weakens after 3-4 months	Prepares for voluntary grasping
Moro	Sudden stimulation such as a loud sound, being dropped	Startles, arches back, throws head back, flails arms and legs outwards and closes them to center of body	Disappears after 3-4 months	May have helped infant evolutionarily in clinging to the mother
Stepping	Hold infant under arms and bare feet lowered to touch a flat surface	Infant shows stepping response- moves feet as if to walk	Disappears after 3-4 months (may differ due to infants' weight)	Prepares for voluntary walking
Tonic neck	Infant paced on back	Infant lies as if in "fencing position"- stretches out the arm and leg in direction he/she is facing and pull inward the opposite arm and leg.	Disappears after 4 months	Prepares for voluntary reaching

6.2.2 Gross Motor Skills

Gross motor skills refer to control over actions that help an infant to move around in his/her environment. They involve large muscle activities, such as moving one's arms, crawling, standing or walking. Thus, infants transform from babies who cannot lift their head to toddlers who can crawl, chase a pet at home, and participate in family's social life with enthusiasm (Thelen, 2000). Table 6.2 shows the average age at which infants and toddlers achieve various gross and fine motor skills. It also depicts the age range during which most babies (90 percent) accomplish a skill. It would be important to note that large individual differences exist in it, thus, a baby who reaches towards objects early might not necessarily be an early walker. Thus, the concern about child development arises only when many motor skills get delayed. As

discussed, motor skills are interrelated with each other and every child acquires motor skills in their individual ways, there may not be a necessary fixed pattern. For instance, most babies crawl before they stand or walk, yet there are those infants who stand first and crawl later. They may display skills such as rolling, sitting, crawling or walking in a varied fashion (Adolph, Karasik, & Tamis-LeMonda, 2010; Eaton, 2008). As suggested by *dynamic systems theory*, both internal and external influences have a role to play in the development of motor competencies, especially in the first two years. Every new skill is considered as a product of certain factors. They are: (1) development of central nervous system, (2) body's movement capacity, (3) goal in the mind of the child, and (4) support received from the environment for the skill. All of these four factors have an important role to play but their influence may vary depending upon the age and stage of the infant. At an earlier stage, brain and body growth are more important as the infant starts gaining control over his/her head, shoulder, upper torso, but, later goals of the infant (reaching to a toy) and environmental support (encouragement etc.) may play a greater role in comparison. As babies attempt a new skill, they keep moving between the known and unknown, for instance, they might display a particular skill today but may not do so for next 2-3 days and then may again do it the following week. Any motor skill requires immense practice on the part of the toddler, for instance, gradually their unsteady steps change to longer strides, feet moving closer instead of their previously waddling stance and toes point to the front making their walking systematic and more coordinated (Adolph, Vereijken, & Shrout, 2003).

It is quite clear that these skills require postural control, for instance, before the infant can walk, he/she must be able to balance on one leg. Here, posture is not just about holding oneself in one position straight, it is rather a dynamic process that is also linked with sensory information in the skin, muscles, and joints; in vestibular organs in the inner ear responsible for the regulation of balance and equilibrium; even in vision and hearing (Thelen & Smith, 2006). It would be interesting to note that the neural pathways required to control alternation of leg (while walking) are in place from an early age itself. According to a study (Barbu-Roth et al., 2009) 3-day old infants can adapt their stepping pattern to the available visual input. For instance, in this study, the young infant took more steps when he/she saw a visual treadmill moving under their feet than their counterparts who saw either a stationary image or a rotating image. It also demonstrates the concept of coupling of perception and action as suggested in dynamic systems theory. An interesting aspect to note here is that despite this early ability, infants can not walk until about the age of 1. The crucial skill in walking is perhaps the balance that the infant develops on one leg, at least long enough till the next leg comes forward and he/she shifts the weight without falling; and it takes the infant almost a year to do so (Badaly & Adolph, 2008). As these movements are repeated a lot of times, they promote connections in the brain governing motor patterns. Thus, dynamic systems theory elaborates why motor development is not solely dependent upon the genetic make-up of the infant. It is also motivated by infants' exploration to master new tasks available in the environment (Adolph, 2008).

Table 6.2 Some Gross and Fine motor skills attained by the child in first two years.

Source: Bayley, 1969, 1993, 2005 (as cited in Berk, 2013).

Motor Skill	Average age achieved	Age range in which 90 percent of infants achieve the skill
When held upright holds head erect and steady	6 weeks	3 weeks - 4 months
When prone, lifts self by arms	2 months	3 weeks - 4 months
Rolls from side to back	2 months	3 weeks – 5 months
Grasps a cube	3 months, 3 weeks	2-7 months
Rolls from back to side	4 and a half months	2-7 months
Sits alone (on its own)	7 months	5-9 months
Crawls	5 months	7-11 months
Pulls to stand	8 months	5-12 months
Plays pat-a-cake	9 months, 3 weeks	7-15 months
Stands alone	11 months	9-16 months
Walks alone	11 months	9-17 months
Builds tower of 2 cubes	11 months	10-19 months
Vigorous scribbling	14 months	10-21 months
Walks upstairs with help and support	16 months	12-23 months
Jumping in a place	23 months	17-30 months
Walks on tiptoe	25 months	16-30 months

Box 6.1 Cultural variations in infants' motor development

Cross-cultural researches have played a role in illustrating how early movement opportunities which may differ from one culture to another have a role to play in motor development. According to Hopkins (1991), mothers in developing countries are found to stimulate their infants' motor skills than the other countries. For instance, in African, Caribbean and Indian cultures, the mothers regularly massage and stretch their infants especially during their bath time (Adolph, Karasik, & Tamis-LeMonda, 2010). Mothers in the Gusii culture of Kenya encourage movement in babies (Hopkins & Westra, 1988), whereas Japanese believe that these efforts could be unnecessary as the children "just learn" (Seymour, 1999). Among the Zinacanteco Indians of South Mexico, rapid motor progress is discouraged as they feel that the babies who walk before they understand what could be dangerous for them (cooking with fire etc.), can hurt themselves or become disruptive to others (Greenfield, 1992).

In Kipsigis, Kenya and West India (Jamaicans), babies hold their heads up and walk earlier than North American infants as in these societies parents promote practicing formal exercises to stimulate certain skills (Adolph, Karasik, & Tamis-LeMonda, 2010). Here walking is encouraged by making the babies stand in adults' laps, bouncing them on feet, and working on their stepping reflex (Hopkins & Westra, 1988).

6.2.3 Fine Motor Skills

Gross motor skills involve large muscle activity, but fine motor skills which will be the focus in this section, involve finely tuned movements, anything that requires finger dexterity- grasping a toy, holding a spoon, buttoning a shirt, tying shoes laces etc. At birth infants do not have control over their fine motor skills but the onset of reaching and grasping mark a significant achievement in their ability to interact with environment (von Hof, van der Kemp, & Savelsbergh, 2008). By reaching to things, grasping them, turning them over, infants learn about sights, sounds, and even feel of different objects (texture). Both reaching and grasping are initially gross and diffused activities before the infant masters it. Newborns usually make poorly coordinated swipes, especially at early stages which is called as **prereaching**. The infant tries to reach towards an object kept in front of him/her but due to poor arm and hand control and coordination fails to do so. With eventual improvement in eye movement, around the age of 7 weeks, the infant drops prereaching as now he/she can track and fixate objects better, which plays an important role in reaching (von Hofsten, 2004). Then they constantly keep refining their reach and grasp (Needham, 2009). From reaching by moving the shoulders and elbows sketchily, they progress by reaching for an object by moving their wrist, rotating their hands and coordinating their thumbs and forefingers to grasp it. Infants develop two types of grasps- **Palmer or Ulnar grasp** (the infant grips the object with the whole hand) and **Pincer grasp** (grasping small objects with thumb and forefinger). Between 8-11 months most infants are often found practicing reaching and grasping, thus, by their first birthday they can pick up almonds, turn knobs, and even open and close small boxes. By this time, they start varying their grip depending upon the size, shape and texture of the object, for instance, they grip small objects with thumb and forefinger (middle finger in certain cases), whereas they grip larger objects with all the fingers of one hand and even with both their hands sometimes.

Perceptual-motor coupling plays an important role in grasping which varies with their age (Barrett, Traupman, & Needham, 2008). According to Newell and colleagues (1989), four-month-olds rely mainly on touch to decide how they will grasp but an 8-month-old will use vision to guide grasping. Interestingly, many infants develop the pincer grasp and begin to crawl at about the same time. So, they pick up almost everything in sight and put it in their mouth, making parental vigilance and monitoring very important (Keen, 2005). This capability of reaching for and manipulating an object perhaps also increases infants' attention to different ways in which adults reach for the same object (Hauf, Aschersleben, & Prinz, 2007). Eventually, this may

broaden their horizon as they watch what others do and may also understand the range of actions that can be performed on various objects.

With age fine motor skills further improve (Sveistrup et al., 2008), for instance, by the age of 3 years, although the child can pick up tiniest of objects and build high block towers with concentration but they are often not in a straight line. Even with simple board puzzles placing of the pieces can be rough and clumsy. By the age of 5 years, motor coordination becomes finer and fingers, hand, and arm move better as they are guided by the eyes. By 10-12 years of age, children become even better at these skills, almost similar to that of adults. Even complex and intricate movements required to play a musical instrument can be mastered by then. It has also been found that girls usually outperform boys in fine motor skills (Vedul-Kjelsås, Stensdotter, & Sigmundsson, 2013).

Check Your Progress 2

1. Explain the dynamic systems view.

.....

.....

.....

2. What is a reflex?

.....

.....

.....

3. Differentiate between gross motor skills and fine motor skills.

.....

.....

.....

4. What is prereaching?

.....

.....

.....

6.3 SENSORY AND PERCEPTUAL DEVELOPMENT

Information coming through the senses help infants and children in “knowing” many things in their environment such as how soft is a cloth, color of the block he/she plays with etc. Sensation is a result of information’s interaction with the sensory receptors- eyes, ears, nostrils, tongue, and skin. Perception is the interpretation of all that is sensed by the individual, for instance, the wave that contacts the ear can either be interpreted as musical sounds or noise, depending on how it is perceived.

6.3.1 The Ecological View

Gibson (1989, 2001) posited that we should not take bits and pieces here and there from our sensory data to build up how we perceive the world. Rather, it was propounded that our perceptual system selects from the rich information that the environment provides. Ecological view “connects perceptual capabilities to information available in the world of the perceiver” (Kellman & Arterberry, 2006, p. 112). Therefore, it can be concluded that its perception that brings us in contact with the world- interact with it and also adapt to it.

Action and perception are not separate aspects of experience, rather go hand-in-hand. Motor activity is an important means through which we explore and learn about the world, and it improves perception that in return also brings about effective motor activity-supporting development of one another (Adolph & Berger, 2006). According to Gibson’s view, objects provide us with the opportunities to interact with them and they fit within our capabilities to perform various activities. It is called as **affordance**. For example, a pot may afford a toddler something to bang and it may afford an adult to cook in it. We adults know when a surface is safe for walking or if the object kept in front of us is within our reach. We perceive these affordances by sensing information from the environment. Infants who would have just learnt to crawl or walk are usually less cautious when they encounter a steep slope in comparison to the experienced walkers or crawlers (Adolph, 1997) who can perceive that a slope affords possibility for falling. This makes it very clear that infants eventually unify perception and action to make a decision about how to act in the environment. Thus, perceptual development makes children efficient at discovering and using affordances.

6.3.2 Touch

Infants respond to touch right from the beginning. As discussed above, a touch to the cheeks produces turning of head or touch to lips usually produces sucking movements. It has also been established that touch helps in encouraging physical growth and is also vital for emotional development. During the prenatal period, areas such as mouth, palms, soles of feet, and genitals are the first to become sensitive to touch (Humphrey, 1978; Streri, 2005). Trevarthen (1993) observed and concluded that brain to brain interaction is required for the growth of an infant’s brain and it occurs in the context of a positive affective relationship. Schore (2001) further concluded that “the emotional communications of evolving attachment transactions directly impact the experience-dependent maturation of the infant’s developing brain.” (p. 21).

Newborns can also feel pain (Gunnar & Quevado, 2007) and touch can prove to be very soothing in such cases. In a study by Gray, Watt, and Blass (2000), they found that babies who were held by their mothers in a skin-to-skin contact position cried less when undergoing a painful medical procedure. It is because physical touch releases endorphins which are considered as pain killing chemicals in the brain (Axelin, Salantera, & Lehtonen, 2006). Discussing in the context of pain, circumcision is usually performed in certain cultures on young boys about the third day of their birth. Babies are

found to respond to this pain with a high-pitched, shrill, stressful cry and a rise in their heart beat, palm sweating, muscle tension and increase in blood pressure (Lehr et al., 2007). Some procedures using Event Related Potential (ERP) and Near Infrared Spectroscopy (NIRS) have also indicated that male babies show higher activation of sensorimotor areas in the cerebral cortex when encountering painful situations (Slater et al., 2010). For several years doctors have performed various operations and even circumcision without anesthesia because of the dangers associated with anesthesia and the supposed belief that newborns do not feel pain. But, some researches in the past few years have established the safety of certain local anesthetics, thus, promising to ease the pain of medical procedures (Taddio, 2008). A nipple delivering sugar solution can be helpful as it has found to be useful in reducing the crying and discomfort in young babies. Breast milk of the mother is also very effective in these cases in comparison to another mother's milk or formula milk (Nishitani et al., 2009).

Massage is another form of touch that is a crucial part of infant routine care in many cultures. Interestingly, mothers from different cultures have cited various reasons to massage their kids. The Bedouin Arabs apply a mixture of salt and oil for some initial days to protect the babies from evil spirits. Mothers from India believed that massage is good for circulation, helps in strengthening the bones, and also helps in squeezing the baby's head, nose, etc. into shape (Barnett, 2005; Field, 2014). In New Zealand, Maori mothers massage the ankle and knees of the infant as they believe it makes the child's joints supple. British infant massage therapists have concluded that massage is good for emotional wellbeing as it improves communication between the mother and the child. Massage can also be helpful for children with anxiety (Field, 2010) and to improve conditions of children with HIV (Diego et al., 2001).

We already know that infants use touch to explore their world. They use their palms to distinguish between different shapes (such as a cylinder versus a square) and textures (rough versus smooth). This has been indicated by their tendency to hold unfamiliar objects for a longer duration than the familiar ones (Sann & Streri), 2008).

6.3.3 Taste and Smell

Research has demonstrated that sensitivity to taste is usually present even before birth (Doty & Shah, 2007). In a study, saccharin was added to amniotic fluid of an almost near-term fetus and it was found that their swallowing increased (Windle, 1940). In another study it was revealed that babies who were just 2 hours old made different facial expressions when they tasted sweet, bitter, and sour solutions, demonstrating that newborns can distinguish between several tastes (Rosenstein & Oster, 1988). Infants prefer sweet taste (Figure 6.1), as they relax their facial muscles in response to sweetness and react negatively to salty, sour (purse their lips), and bitter (make an arch like mouth opening) tastes (Bezerra, Russo, & Alves, 2013; Rosenstein & Oster, 2005; Steiner et al., 2001). Mother's milk is sweet in taste which draws the baby to both the food and to the mother as well.

It has also been established that along with taste, odor preferences are also present at birth. According to a study done by Steiner (1979) infants like the smell of vanilla and strawberry but do not like the way rotten eggs and fish smell. They know and start recognizing their mother's smell very early in life (Lipsitt & Rovee-Collier, 2012). Infants can latch on to mother's breast and start sucking within an hour of their birth. If one of the breasts is washed to devoid it of its natural scent, most of the new born infants move towards the unwashed breast, indicative of the fact that they are guided by smell (Varendi & Porter, 2001). It has also been found that a 4 days old baby prefers the smell of their own mother's breast than any other unfamiliar lactating woman (Cernoch & Porter, 1985) but, both breast-fed and bottle-fed 4-day olds seem to prefer unfamiliar human milk than formula milk (Marlier & Schaal, 2005) indicating that the babies prefer human milk.



Figure 6.1 Facial responses of infants to basic tastes. (a) elicited by sweet solution, (b) sour solution, and (c) bitter solution.

Source: Santrock, (2011). *Child development*. 13th ed.

6.3.4 Hearing

Hearing becomes functional when the fetus is still in the mother's womb and can hear the mother's voice, music etc. (Kisilevsky & Hains, 2010) and show preference for their mother's voice in comparison to that of another woman's voice (Kisilevsky et al., 2003). In response to a tape recording of the infant's mother reading a poem, the heart rate of the infant accelerated whereas their heart rate decelerated in comparison when they heard a stranger woman reciting the same poem. In another research, Lee and Kisilevsky (2014) demonstrated that newborns show clear preference for their mother's voice over their father's voice. 6–12-month-olds can make comparable discrimination in human speech, as they can readily detect sound irregularities which will also prove to be useful and facilitate language learning later.

Box 6.2 Changes in hearing during infancy

- **Loudness:** as adults, we can hear a whisper from about 4 to 5 feet of a distance but newborns require sound to be closer to a normal conversation to be heard from such a distance. A stimulus has to be loud enough to be heard by a newborn as they cannot hear soft sounds (Trehub et al., 1991).
- **Pitch:** infants have been found to be less sensitive to a low-pitched sound (Aslin, Jusczyk, & Pisoni, 1998). It is only by the age of 2 years that they are able to distinguish sounds with different pitches.
- **Localization:** newborn infants can determine the location or direction from which a sound is coming but their ability to localize sounds continue to improve during the second year (Saffran, Werker, & Warner, 2006).

Vouloumanos (2010) concluded that infants tend to listen longer to human speech than to non-speech sounds even the ones that are structurally similar to human speech. They can even differentiate among various speech sounds. To study this, Aldridge, Stillman, and Bower (2001) gave a nipple to the infants that turns on the “ba” sound. They found babies sucking vigorously for a while and then got habituated to it. When a stimulus is presented repeatedly for a while, we lose interest in it, but as soon as the stimulus changes, it recaptures our attention. This process is called as **habituation**. Once the infants got habituated to “ba” sound, it was switched to “ga” and it was found that the sucking was picked up again, indicating that the infants can detect subtle differences.

Table 6.3 Development of Touch, Taste, Smell, and Hearing

Source: Berk(2013) Child development. 9th ed.

Age	Touch	Taste and Smell	Hearing
Birth	• Responsive to touch and pain • Can distinguish between shape of object when placed in palm	• Can distinguish between sweet, sour, and bitter tastes • Prefers sweetness • Can distinguish between odors • Prefers smell of lactating breast and mother’s amniotic fluid	• Prefers complex sounds to pure tones • Can distinguish between certain sound patterns • Prefers listening to own mother’s voice over unfamiliar woman or even father’s voice • Can make subtle distinctions between almost all speech sounds • Localization exists (turning head in the

			direction of sound)
1-6 months	Engages in exploratory mouthing behavior	- Shows preference for salty taste than plain water - Changing taste preferences with experience	- Prefers listening to human sounds - Can identify location of a sound more precisely
7-12 months			- Can recognize same melody played in different keys - Can “screen out” sounds not used in native language

As communication is considered multisensory (verbal, visual, and tactile) in nature, mothers often provide synchrony between words, object motions, and touch when talking to their babies. For example, saying “bear” while moving a bear and, sometimes touching the baby with the bear. This helps in creating a supportive learning environment. It has been understood that when the infants are able to view an adult’s face while saying two similar native-language sounds, it helps in facilitating sound discrimination, especially in babies who are 6 months old (Teinonen et al., 2008).

Check Your Progress 3

1. Define sensation and perception.

.....

.....

.....

2. How does each of the senses develop during infancy?

.....

.....

.....

3. Do newborns feel pain? Explain.

.....

.....

.....

.....

.....

6.3.5 Vision

Humans depend on vision more than any other sense while exploring their environment and it is true for the infants too. But vision is the least developed

of the senses at birth as the visual structure in eye and brain are yet to be formed fully. As a result, newborns cannot see small things that are far away. The vision of a newborn is estimated to be 20/600, that is, an object at 20 feet is clear to the newborn as it would be if it were 600 feet away from an adult with normal vision (Slater et al., 2010). By 6 months the acuity improves to 20/25 or 20/30. Right from their birth, infants are attracted to look at the faces of people. Interestingly, they concentrate on areas of high contrast (where darkest of dark meets the lightest of light). So, at first, they may stare at their parent's hairline but by the age of 2 months, they pay more attention to eyes as the white of the eye surrounds a darker center (Ramsey-Rennels & Langlois, 2007). This can also be understood as an adaptive way for babies to attract others to interact with them and take care of them. Research also demonstrated that mothers are more likely to continue warm interaction with the infant when they are looking their mothers in the eye (Nomikou, Rohlfing, & Szufnarowska, 2013).

Although newborns are found to prefer colored stimuli over gray ones, they do not develop color discrimination at least till they are 4 months old (Kellman & Arterberry, 2006). A study by Franklin and colleagues (2010) indicated that 4 to 5 months old infants looked longest at reddish shades and shortest at greenish color tones. However, experience is also necessary for development of normal color vision (Sugita, 2004). Although their eye movements are slow and perhaps even inaccurate, they improve gradually over the first six months as they are building an organized perceptual world for themselves. Scanning enhances perception and similarly scanning is also enhanced by the process of perception. In the following section, we would explore development of some more aspects of vision- depth, pattern, face, and object perception.

6.3.6 Depth Perception

Depth perception is the ability to perceive the world in three dimension, where people can judge the distance of objects from one another and also from themselves. It plays an important role in the exploration of the environment, understanding it and also guiding subsequent motor activity. A classic experiment was conducted by Gibson and Walk (1960) to study depth perception in infants. They constructed a miniature cliff in the laboratory with a plexiglass. Beneath the glass was a "shallow" side with a checkerboard pattern which was just under the glass, and a "deep" side with a checkerboard pattern several feet below the glass. They asked the mothers to coax their infants to crawl onto the glass. They found that the babies readily crossed the shallow side but avoided the deep side, indicating that they can perceive depth. Thus, they concluded that around the age when babies start crawling, they are able to distinguish between deep and shallow surfaces to avoid drop-offs.

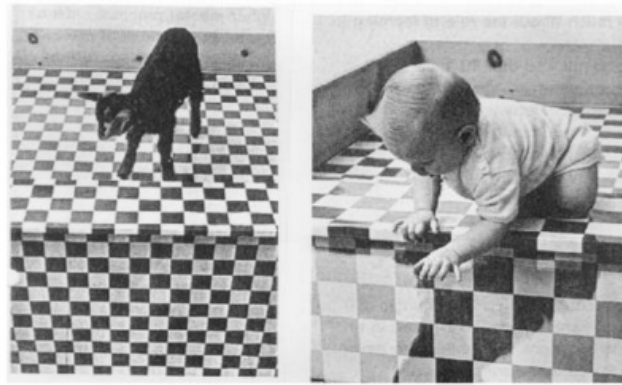


Fig. 6.2 The Visual Cliff, Eleanor Gibson and Richard Walk, 1960

Source: 1950. Eleanor Gibson (1910–2002), James J... | by Yurina Kodama | Medium

However, it was critics who argued that visual cliff is a better test of social referencing and fear of heights than depth perception. Also, as the younger infants cannot crawl it is difficult to understand their perception of depth. Campos and colleagues (1970) found that 2–4-month-old infants show increased heart rate when placed directly on the deep side of the visual cliff, but these differences might be due to the difference in visual characteristics of the deep and shallow sides and they may not have any knowledge of depth as such.

According to various researchers (Bushnell & Boudreau, 1993; Soska, Adolph, & Johnson, 2010) perception of the depth cues emerge in an order as motor development is involved in it. First depth cue that infants become sensitive to is **motion**. This has been demonstrated by a basic aspect that 3 to 4 weeks old infants blink their eyes when an object is moved closer to their face. It is perhaps a defense reaction to save themselves, as if they are going to be hit by the object. Artberry, Carton, and Yonas (1993) concluded that by the time they are 3 months old, they are able to figure out that the objects exist in three dimensions. A study (Brown & Miracle, 2003) revealed that sensitivity to binocular depth cues emerge between 2 to 3 months and improves over the first year. They use these cues in adjusting their arm and hand movement to reach an object, it helps them in understanding the distance of objects from the eyes. Around 6 months, the infants start developing the ability to turn and also feel surfaces of the objects which promotes the development of pictorial cues. Now, the infant can gather information about size, texture, and three-dimensional shapes (Soska, Adolph, & Johnson, 2010). Research also suggests that everyday experiences have a role to play in the way babies figure out depth cues. Interestingly, for each body position, postural control differs and its loss may lead to a fall. Some 9-month-olds who were novice crawlers but experienced at sitting, were placed on the edge of a shallow drop-off (Adolph, 2008) and it was found that they avoided leaning out for an attractive toy at distance that could likely result in a fall, but, in unfamiliar crawling position, they headed over the edge. As the infants learn to avoid falling in different situations and postures, their depth perception also enhances.

6.3.7 Pattern Perception

As infants grow older, they prefer complex patterns over the simpler ones or a basic plain stimulus. A study demonstrated how 3 weeks old looked longest at black and white checkerboards with large squares in comparison to a simple square, whereas 8- to 14-month-old preferred the checkerboard with many more squares (Fantz, 1963; Brennan, Ames, & Moore, 1966). This preference for a particular kind of pattern can be explained with contrast sensitivity- difference in the amount of light between to neighboring patterns. Usually, babies prefer the pattern with more contrast. Vision is poor for newborn babies, so they prefer to look at large checkerboard patterns but as it improves, infants become sensitive to the available contrast, preferring complex patterns.

Infants gradually combine different patterns of element to perceive an object. A few weeks old infant stares at a single, high-contrast feature and faces difficulty in shifting its gaze (Hunnius & Geuze, 2004). 1-month old usually focus on the edges of the stimulus such as hairline, chin in human faces. By the time they become 2 to 3 months old, due to better scanning abilities and more contrast sensitivity, they can also explore other features and look at salient parts of the pattern. This further improves with age. It is important to remember here that exploring complex patterns that are moving is more demanding for the infants than the exploring simple patterns that are still or immobile. Thorough inspection of a dynamic moving stimuli is usually delayed (Hunnius & Geuze, 2004). Once they start taking in different aspects of patterns, they also integrate it together to form a unified whole and by the age of 4 months they start detecting organization in a pattern as well (Ghim, 1990).

6.3.8 Face Perception

It has been well established that infants show a lot of interest in human faces soon after their birth (Balas, 2010; Cashon, 2010). It's their tendency to search for structure in a pattern that applies to face perception. Turati and colleagues (2006) found that although their ability to differentiate between real and unreal faces on the basis of inner or finer features is limited, they prefer looking at photos of faces with eyes open and a direct gaze. Figure 6.3 is a computer estimation of what a picture of a human face looks like to an infant at different ages from a distance of about 6 inches.

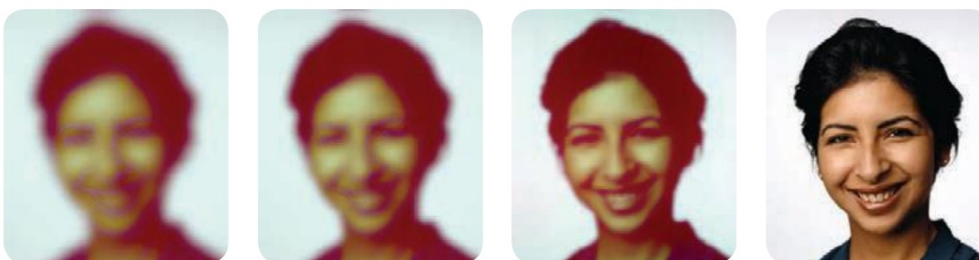


Figure 6.3 Visual acuity during the initial few months. The above given four photographs represent a computer estimation of what a picture may look like to a 1-month-old, 2-month-old, 3-month-old, and 1 year old child. The last one (1 year old) approximates the visual acuity of an adult.

By the time the infants are 3 months old, they start matching voices to faces, differentiate between male and female faces, and also distinguish between faces of their own ethnic group (showing preference to them) from that of the others (Kelly et al., 2007, 2009). This preference for one's own ethnic group is not found in babies who are in regular contact with people from other ethnic origins and can also be reversed through exposure to diverse people. Many researchers have argued that as newborns are exposed to faces more often than any other stimuli, their brains get "wired" to detect faces and even prefer attractive ones (Nelson, 2011).

6.3.9 Object Perception

Researchers have shared some intriguing insights stating that infants' perception go beyond the basic information that their senses provide them with (Slater et al., 2010). This can be understood with perceptual constancy, where the sensory stimulation is changing but the perception of the physical world remains constant. It also helps in looking and perceiving the world as stable or else every time infants see an object at a different distance, they would perceive it to be a different object. Two types of perceptual constancy are: size constancy and shape constancy.

Size constancy is the perception of an object's size as the same even when the retinal image of the object changes as one move towards or away from the object. Size constancy is evident in the first week of life itself. Researchers Slater et al., 2010) habituated infants to a cube (small in size). They showed it to them from different distances to desensitize them to change in cube's retinal image. Then they presented this small cube with a larger cube, but both the cubes were kept at different distances in a way that the retinal image of both were the same. They found that the infants looked longer at the new large cube, indicating that they could differentiate it from the other cube (they were habituated to) on the basis of the object's actual size and not the retinal image size. It continues to develop until the age of 10 or 11 years (Kellman & Banks, 1998).

Shape constancy is the perception of an object as same even when there is a change in the shape projected on retina due to change in orientation. Very much like size constancy, shape constancy is also present in the first week after birth. However, shape constancy for irregularly shaped objects is absent even in infants who are 3 months old (Cook & Birch, 1984).

Some objects around us are **occluded** or blocked by other objects that are in front of them, such as a chair behind a desk or a photo frame kept behind some books. In the initial two months after birth, infants donot perceive occluded objects as complete. They only perceive what is visible to them (Johnson, 2009). Perception of occluded objects begin only after initial two months and develops completely with learning, experience, and self-directed exploration especially through eye movement (Johnson, 2004, 2009, 2010). The ability to track an occluded moving object develops between 4 to 5

months (Bertenthal, 2008) and infants are better at predicting the path of a moving object when it disappears gradually than when it abruptly disappears.

6.4 INTERMODAL PERCEPTION

When playing or watching a game of lawn tennis, we experience many visual inputs at once—ball coming and going, movement of the players. We also experience various auditory inputs at the same time—sound of the ball bouncing on the ground, being hit, grunts of the players, etc. There is also a sync between these two modalities, for instance, when we see the ball bounce, we hear a bouncing sound or when we see the ball connecting with the racquet, we can hear the sound as well. Thus, we experience a unitary event and not distinct sounds or sight. It is due to intermodal perception—integrating information from two or more modalities or sensory systems, such as visual and auditory in the case above (Bremner, 2010).

An important aspect in intermodal perception is amodal information. Amodal information is the one that is common across two or more than two senses. For instance, temporal and spatial aspects of stimulation are conveyed by multiple senses and are very basic to amodal information. The sound and sight of hands clapping are in sync with each other temporally and share a common rate and rhythm. The comprehension of amodal relations precedes and provides the foundation for detecting intermodal matches in environment, such as the relation between a person's face and sound (his/her voice) or between an object and the verbal label given to it (what it is called). With more experience overtime, perceptual capacities become flexible. Intermodal perception is important as it helps infants in their efforts to bring some order in what is happening around them and build a more predictable world for them.

6.5 NATURE, NURTURE AND PERCEPTUAL DEVELOPMENT

Nature-Nurture debate has been central to developmental psychology and it has been the case with perceptual development as well. There has been a long-standing interest in what influences the infants most—nature or nurture (Aslin, 2009; Slater et al., 2010).

According to the nativists (nature proponents), the ability to perceive the world in an organized way is innate, while the empiricists (nurture proponents) emphasize learning and experience. We began this Unit by discussing Gibson's ecological view which has more nativist leanings. It puts forth that perception is direct and evolves over time to become sensitive to size and shape constancy, intermodal perception, etc. early in infancy. However, Gibson's view was not completely nativist as it also emphasized that "perceptual development involves distinct features that are detected at different ages" (Slater et al., 2010). It is important to understand here that this view is different from a constructivist view which holds an empiricist approach. For instance, Piaget believed that perceptual development in

infancy depends on their cognitive development. Thus, for him, the ability to perceive size and shape constancy or intermodal perception develops later in infancy. However, research has clearly demonstrated that an extreme empiricist position on this issue is of no use and much of early perception is due to innate foundations, whereas other abilities unfold with time-maturation (Arterberry, 2008). Thus, a complete picture of perception includes the influence of both nature and nurture and also the sensitivity child develops, to the information around them.

Check Your Progress 4

1. Explain the findings of visual cliff experiment.

.....

.....

.....

.....

2. Explain the development of perceptual constancy in infants.

.....

.....

.....

3. What is intermodal perception and why is it important?

.....

.....

.....

6.6 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learnt:

- According to Thelen's dynamic systems theory, development of motor skills is an assembling of behaviors for perception and action. It is considered complex in nature and depends upon the development of nervous system, physical limitations of the body, the goal the child is motivated to reach, and environmental support available for the skill.
- Reflexes are built-in reactions of the infants to the stimulus in the environment. They include sucking, rooting and moro reflexes, which would disappear after initial three to four months and would be replaced by deliberate or voluntary actions.
- Gross motor skills involve large muscle activities, such as walking, posture control etc. and will improve with time. Fine motor skills which involve more finely tuned movements become much more precise by the age of 4 years.

- The infants can hear their mothers even when they are in their womb and changes occur in the perception of loudness, pitch, and localization of sound during infancy.
- Newborns can respond touch and feel pain right after birth. They can also differentiate between odors and are sensitive to taste may be even before birth.
- Infants show an interest in human faces after birth and can even systematically scan faces after a few weeks or months.
- Size and shape constancy helps infants to construct a clear and coherent world for themselves. By the time they are 4 months old, they start relying on features of the objects- shape, color, and pattern. Soon they can monitor a moving object, followed by tracing the path of an occluded object as well.
- A complete account of perceptual development involves role of nature, nurture, and increasing sensitivity to information.

6.7 KEYWORDS

Affordances Opportunities for interaction offered by objects, necessary to perform activities.

Fine motor skills Involves finely tuned movements, involving something such as finger dexterity.

Gross motor skills It involves large muscle activities- walking, moving an arm etc.

Habituation If a stimulus is presented repeatedly, responsiveness to it decreases.

Intermodal perception Ability to integrate information from two or more sensory modalities.

Moro reflex A startle response that occurs as a reaction to a sudden, intense noise or movement.

Reflexes An inborn, automatic response to some form of stimulation.

Rooting reflex Built-in reaction of the infant, wherein on stroking the cheek of the infant, he/she turns the head in the same direction.

Size constancy Recognition that the object remains the same even though its image on the retina changes.

6.8 REVIEW QUESTIONS

1. What are the factors affecting puberty in children?
2. Explain the role of culture in motor development.
3. How do infants' sensory preferences connect them to their caregivers?
4. Explain the ecological view of development.

5. List the changes that occur in hearing during infancy.
6. How does the perception of depth cues emerge?

6.9 REFERENCES AND FURTHER READING

Adolph, K. E. (1997). Learning in the development of infant locomotion. *Monographs of the Society for Research in Child Development*, 62 (3, Serial No. 251).

Adolph, K. E. (2008). Learning to move. *Current Directions in Psychological Science*, 17, 213–218.

Adolph, K. E., & Berger, S. E. (2006). Motor development. In W. Damon & R. Lerner (Series Eds.), & D. Kuhn & R. S. Siegler (Vol. Eds.), *Handbook of child psychology: Vol. 2: Cognition, perception and language* (6th ed., pp. 161–213). New York: John Wiley & Sons.

Adolph, K. E., Berger, S. E., & Leo, A. (2010). Developmental continuity? Crawling, cruising, and walking. *Developmental Science*.

Adolph, K. E., Karasik, L. B., & Tamis LeMonda, C. S. (2010). Motor skill. In M. H. Bornstein (Ed.), *Handbook of cultural developmental science* (pp. 61–88). New York: Psychology Press.

Adolph, K. E., Vereijken, B., & Shrout, P. E. (2003). What changes in infant walking and why. *Child Development*, 74, 475–497.

Aldridge, M. A., Stillman, R. D., & Bower, T. G. R. (2001). Newborn categorization of vowel-like sounds. *Developmental Science*, 4, 220–232.

Arterberry, M. E. (2008). Perceptual development. In M. E. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.

Arterberry, M. E., Craton, L. G., & Yonas, A. (1993). Infants' sensitivity to motion carried information for depth and object properties. In C. E. Granrud (Ed.), *Visual perception and cognition in infancy* (pp. 215–234). Hillsdale, NJ: Erlbaum.

Aslin, R. N. (2009). The role of learning in cognitive development. In A. Woodward & A. Needham (Eds.), *Learning and the infant mind*. New York: Oxford University Press.

Aslin, R. N., Jusczyk, P. W., & Pisoni, D. B. (1998). Speech and auditory processing during infancy: Constraints on and precursors to language. In W. Damon (Ed.), *Handbook of child psychology* (5th ed., Vol. 2). New York: Wiley.

Axelin, A., Salanterä, S., & Lehtonen, L. (2006). 'Facilitated tucking by parents' in pain management of preterm infants—a randomized crossover trial. *Early human development*, 82(4), 241–247.

Badaly, D. & Adolph, K. E. (2008). Beyond the average: Walking infants take steps longer than their leg length. *Infant Behavior and Development*, 31, 554–558.

- Balas, B. (2010). Using innate visual biases to guide face learning in natural scenes: A computational investigation. *Developmental Science*, 13, 469–478.
- Barbu-Roth, M., Anderson, D. I., Despres, A., Provasi, J., Cabrol, D., & Campos, J. J. (2009). Neonatal stepping in relation to terrestrial optical flow. *Child Development*, 80, 8–14.
- Barnett, L. (2005). Keep in touch: The importance of touch in infant development. *Infant Observation*, 8, 115–123. 10.1080/13698030500171530.
- Barrett, T. M., Traupman, E., & Needham, A. (2008). Infants' visual anticipation of object structure in grasp planning. *Infant Behavior and Development*, 31, 1–9.
- Bayley, N. (1969). *Bayley Scales of Infant Development*. New York: Psychological Corporation.
- Bayley, N. (1993). *Bayley Scales of Infant Development* (2nd ed.). New York: Psychological Corporation.
- Bayley, N. (2005). *Bayley Scales of Infant and Toddler Development* (3rd ed.). (Bayley III). San Antonio, TX: Harcourt Assessment.
- Berk, L. E. (2013). *Child Development Ninth Edition*. Pearson.
- Bertenthal, B. I. (2008). Perception and action. In M. M. Haith & J. B. Benson (Eds.), *Infant and early childhood development*. Oxford, UK: Elsevier.
- Bezerra Alves, J. G., Russo, P. C., & Alves, G. V. (2013). Facial responses to basic tastes in breastfeeding and formula-feeding infants. *Breastfeeding Medicine*, 8(2), 235–236. doi:10.1089/bfm.2012.0092
- Bremner, J. G. (2010). Cognitive development: Knowledge of the physical world. In J. G. Bremner & T. D. Wachs (Eds.), *WileyBlackwell handbook of infant development: Vol. 1. Basic research* (2nd ed., pp. 204–242). Oxford, UK: Wiley.
- Brennan, W. M., Ames, E. W., & Moore, R. W. (1966). Age differences in infants' attention to patterns of different complexities. *Science*, 151, 354–356.
- Brown, A. M., & Miracle, J. A. (2003). Early binocular vision in human infants: Limitations on the generality of the Superposition Hypothesis. *Vision Research*, 43, 1563–1574.
- Campos, J. J., Langer, A., & Krowitz, A. (1970). Cardiac responses on the visual cliff in prelocomotor human infants. *Science*, 170, 196–197.
- Cashon, C. (2010). Development of specialized face perception during infancy: An information processing perspective. In L. Oakes, C. Cashon, M. Casasola, & D. Rakison (Eds.), *Infant perception and cognition*. New York: Oxford University Press.
- Cernoch, J. M., & Porter, R. H. (1985). Recognition of maternal axillary odors by infants. *Child development*, 1593–1598.
- Clearfield, M. W., Dineva, E., Smith, L. B., Diedrich, F. J., & Thelen, E. (2009). Cue salience and infant perseverative reaching: Tests of the dynamic field theory. *Developmental Science*, 12, 26–40.

- Diego, M. A., Field, T., Hernandez-Reif, M., Shaw, K., Friedman, L., & Ironson, G. (2001). HIV adolescents show improved immune function following massage therapy. *International Journal of Neuroscience*, 106(1-2), 35-45.
- Doty, R. L., & Shah, M. (2008). Taste and smell. In M. M. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.
- Eaton, W. O. (2008). Milestones: Physical. In M. M. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.
- Ersoy, B., Balkan, C., Gunay, T., & Egemen, A. (2005). The factors affecting the relation between the menarcheal age of mother and daughter. *Child: Care, Health and Development*, 31(3), 303–308.
- Fantz, R. L. (1963). Pattern vision in newborn infants. *Science*, 140, 296–297.
- Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behavior and Development*, 33, 1–6.
- Field, T. (2014). Massage therapy research review. *Complementary therapies in clinical practice*, 20(4), 224-229.
- Franklin, A., Bevis, L., Ling, Y., & Hulbert, A. (2010). Biological components of color preference in infancy. *Developmental Science*, 13, 346–354.
- Friedman, S., & Vietze, P. M. (1972). The competent infant. *Peabody Journal of Education*, 49(4), 314-322.
- Gesell, A. L. (1934). *Infancy and human growth*. New York: MacMillan.
- Ghim, H. R. (1990). Evidence for perceptual organization in infants: Perception of subjective contours by young infants. *Infant Behavior and Development*, 13, 221–248.
- Gibson, E. J. (1989). Exploratory behavior in the development of perceiving, acting, and the acquiring of knowledge. *Annual Review of Psychology*, 39. Palo Alto, CA: Annual Reviews.
- Gibson, E. J. (2001). *Perceiving the affordances*. Mahwah, NJ: Erlbaum.
- Gibson, E. J., & Walk, R. D. (1960). The “visual cliff.” *Scientific American*, 202, 64–71.
- Gray, L., Watt, L., & Blass, E. M. (2000). Skin-to-skin contact is analgesic in healthy newborns. *Pediatrics*, 105(1), e14-e14.
- Greenfield, P. (1992, June). Notes and references for developmental psychology. Conference on Making Basic Texts in Psychology More Culture-Inclusive and Culture-Sensitive, Western Washington University, Bellingham, WA.

Gunnar, M. R., & Quevado, K. (2007). The neurobiology of stress and development. *Annual Review of Psychology (Vol. 58)*. Palo Alto, CA: Annual Reviews.

Hauf, P., Aschersleben, G., & Prinz, W. (2007). Baby do–baby see! How action production influences action perception in infants. *Cognitive Development, 22*, 16–32.

Herman-Giddens, M. E., Steffes, J., Harris, D., Slora, E., Hussey, M., Dowshen, S. A., . . . Reiter, E. O. (2012). Secondary sexual characteristics in boys: Data from the pediatric research in office settings network. *Pediatrics, 130*(5), e1058–e1068. doi: 10.1542/peds.2011-3291

Hopkins, B. (1991). Facilitating early motor development: An intracultural study of West Indian mothers and their infants living in Britain. In J. K. Nugent, B. M. Lester, & T. B. Brazelton (Eds.), *The cultural context of infancy, Vol. 2: Multicultural and interdisciplinary approaches to parent–infant relations*. Norwood, NJ: Ablex.

Hopkins, B., & Westra, T. (1988). Maternal handling and motor development: An intracultural study. *Genetic Psychology Monographs, 14*, 377–420.

Huelke, D. F. (1998). An overview of anatomical considerations of infants and children in the adult world of automobile safety design. *Annual Proceedings of the Association for the Advancement of Automotive Medicine, 42*, 93–113.

Humphrey, T. (1978). *Function of the nervous system during prenatal life*. In U. Stave (Ed.), *Perinatal physiology* (pp. 651–683). New York: Plenum.

Hunnius, S., & Geuze, R. H. (2004). Developmental changes in visual scanning of dynamic faces and abstract stimuli in infants: A longitudinal study. *Infancy, 6*, 231–255.

Johnson, S. P. (2004). Development of perceptual completion in infancy. *Psychological Science, 15*, 769–775.

Johnson, S. P. (2009). Development origins of object perception. In A. Woodward & A. Needham (Eds.), *Learning and the infant mind*. New York: Oxford University Press.

Johnson, S. P. (2010). Perceptual completion in infancy. In S. P. Johnson (Ed.), *Neoconstructivism: The new science of cognitive development*. New York: Oxford University Press

Kellman, P. J., & Arterberry, M. E. (2006). Infant visual perception. In W. Damon & R. Lerner (Eds.), *Handbook of child psychology* (6th ed.). New York: Wiley.

Kellman, P. J., & Banks, M. S. (1998). Infant visual perception. In W. Damon (Eds.), *Handbook of child psychology* (5th ed., Vol. 2). New York: Wiley.

Kelly, D. J., & others. (2007). Cross-race preferences for same-race faces extend beyond the African versus Caucasian contrast in 3-month-old infants. *Infancy, 11*, 87–95.

- Kelly, D. J., Liu, S., Lee, K., Quinn, P. C., Pascalls, O., Slater, A. M., & Ge, L. (2009). Development of the other-race effect in infancy: Evidence toward universality? *Journal of Experimental Child Psychology*, 104 (1), 105–114.
- Kisilevsky, B. S., & Hains, S. M. J. Lee. (2010). Onset and maturation of fetal heart rate response to the mother's voice over late gestation. *Developmental Science*.
- Kisilevsky, B. S., Hains, S. M. J., Lee, K., Xie, X., Huang, H., Ye, H. H., et al. (2003). Effects of experience on fetal voice recognition. *Psychological Science*, 14, 220–224.
- Lee, G. Y., & Kisilevsky, B. S. (2014). Fetuses respond to father's voice but prefer mother's voice after birth. *Developmental Psychobiology*, 56(1), 1–11. doi:10.1002/dev.21084
- Lipsitt, L. P., & Rovee-Collier, C. (2012). The psychophysics of olfaction in the human newborn. *Olfactory Cognition: From perception and memory to environmental odours and neuroscience. Advances in Consciousness Research*, 58, 221–235.
- Malina, R. M., Bouchard, C., & Oded, B. (2004). Growth maturation and physical activity. Champaign, IL: Human Kinetics.
- Marlier, L., & Schaal, B. (2005). Human newborns prefer human milk: conspecific milk odor is attractive without postnatal exposure. *Child development*, 76(1), 155–168.
- Needham, A. (2009). Learning in infants' object perception, object-directed action, and tool use. In A. Woodward & A. Needham (Eds.), *Learning and the infant mind*. New York: Oxford University Press.
- Nelson, C. A. (2011). Brain development and behavior. In A. M. Rudolph, C. Rudolph, L. First, G. Lister, & A. A. Gersohon (Eds.), *Rudolph's pediatrics* (22nd ed.). New York: McGraw-Hill
- Newell, K., Scully, D. M., McDonald, P. V., & Baillargeon, R. (1989). Task constraints and infant grip configurations. *Developmental Psychobiology*, 22, 817–832.
- Nield, L. S., Cakan, N., & Kamat, D. (2007). A practical approach to precocious puberty. *Clinical Pediatrics*, 46(4), 299–306.
- Nishitani, S., Miyamura, T., Tagawa, M., Sumi, M., Takase, R., Doi, H., et al. (2009). The calming effect of a maternal breast milk odor on the human newborn infant. *Neuroscience Research*, 63, 66–71.
- Nomikou, I., Rohlfing, K. J., & Szufnarowska, J. (2013). Educating attention: Recruiting, maintaining, and framing eye contact in early natural mother-infant interactions. *Interaction Studies*, 14(2), 240–267.
- Parent, A. S., Teilmann, G., Juul, A., Skakkebaek, N. E., Toppari, J., & Bourguignon, J. P. (2003). The timing of normal puberty and the age limits of sexual precocity: Variations around the world, secular trends, and changes after migration. *Endocrine Reviews*, 24(5), 668–693.

- Pedroso, F. S. (2008). Reflexes. In M. H. Haith & J. B. Benson (Eds.), *Infant and early childhood development*. Oxford, UK: Elsevier.
- Ramsey-Rennels, J. L., & Langlois, J. H. (2006). Differential processing of female and male faces. *Current Directions in Psychological Science*, 15, 59–62.
- Rosenstein, D., & Oster, H. (1988). Differential facial responses to four basic tastes in newborns. *Child Development*, 59, 1555–1568.
- Rosenstein, D., & Oster, H. (2005). Differential facial responses to four basic tastes in newborns. In P. Ekman & E. L. Rosenberg (Eds.), *What the face reveals: Basic and applied studies of spontaneous expression using the facial action coding system (FACS)* (2nd ed., pp. 302–327). New York: Oxford University Press.
- Saffran, J. R., Werker, J. F., & Warner, L. A. (2006). The infant's auditory world: Hearing, speech, and the beginnings of language. In W. Damon & R. Lerner (Eds.), *Handbook of child psychology* (6th ed.). New York: Wiley.
- Sakai, T., Demura, S., & Fujii, K. (2012). Relationship between body composition and BMI in preschool children. *Sport Sciences for Health*, 7(1), 5–12.
- Sann, C., & Streri, A. (2008). The limits of newborn's grasping to detect texture in a cross-modal transfer task. *Infant Behavior and Development*, 31, 523–531.
- Santrock, J.W. (2011). *Child development*. 13th ed. New York: McGraw Hill.
- Schore, A. (2001). Effects of a secure attachment relationship on right brain development, affect regulation and infant mental health. *Infant Mental Health Journal*, 22(1-2) 7-66.
- Seymour, S. C. (1999). *Women, family, and child care in India*. Cambridge, UK: Cambridge University Press.
- Slater, A., Riddell, P., Quinn, P. C., Pascalis, O., Lee, K., & Kelly, D. J. (2010). Visual perception. In J. G. Bremner & T. D. Wachs (Eds.), *Wiley-Blackwell handbook of infant development: Vol. 1. Basic research* (2nd ed., pp. 40–80). Chichester, UK: Wiley-Blackwell.
- Soska, K. C., Adolph, K. E., & Johnson, S. P. (2010). Systems in development: Motor skill acquisition facilitates three-dimensional object completion. *Developmental Psychology*, 46, 129–138.
- Steiner, J. E. (1979). Human facial expression in response to taste and smell stimulation. In H. W. Reese & L. P. Lipsitt (Eds.), *Advances in child development and behavior* (Vol. 13, pp. 257–295). New York: Academic Press.
- Steiner, J. E., Glaser, D., Hawilo, M. E., & Berridge, D. C. (2001). Comparative expression of hedonic impact: Affective reactions to taste by human infants and other primates. *Neuroscience and Biobehavioral Reviews*, 25, 53–74.

- Streri, A. (2005). Touching for knowing in infancy: The development of manual abilities in very young infants. *European Journal of Developmental Psychology*, 2, 325–343.
- Sugita, Y. (2004). Experience in early infancy is indispensable for color perception. *Current Biology*, 14, 1267–1271.
- Sveistrup, H., Schneiberg, S., McKinley, P. A., McGadyen, B. J., & Levin, M. F. (2008). Head, arm, and trunk coordination during reaching in children. *Experimental Brain Research*, 188 (2), 237–247.
- Taddio, A. (2008). Circumcision. In M. M. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.
- Teinonen, T., Aslin, R. N., Alku, P., & Csibra, G. (2008). Visual speech contributes to phonetic learning in 6-month-old infants. *Cognition*, 108, 850–855.
- Thelen, E. (2000). Motor development as foundation and future of developmental psychology. *International Journal of Behavioral Development*, 24(4), 385–397.
- Thelen, E., & Smith, L. B. (2006). Dynamic systems theories. In R. M. Lerner (Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 258–312). Hoboken, NJ: Wiley.
- Trehub, S. E., Schneider, B. A., Thorpe, L. A., & Judge, P. (1991). Observational measures of auditory sensitivity in early infancy. *Developmental Psychology*, 27, 40–49.
- Trevarthen, C. (1993). The self born in intersubjectivity: The psychology of an infant communicating.
- Turati, C., Cassia, V. M., Simion, F., & Leo, I. (2006). Newborns' face recognition: Role of inner and outer facial features. *Child Development*, 77, 297–311.
- van Hof, P., van der Kamp, J., & Savelsbergh, G. J. (2008). The relation between infants' perception of catchableness and the control of catching. *Developmental Psychology*, 44(1), 182.
- Varendi, H., & Porter, R. H. (2001). Breast odour as the only maternal stimulus elicits crawling towards the odour source. *Acta Paediatrica*, 90(4), 372–375.
- Vedul-Kjelsås, V., Stensdotter, A., & Sigmundsson, H. (2013). Motor Competence in 11-Year-Old Boys and Girls. *Scandinavian Journal of Educational Research*. 57. 10.1080/00313831.2012.732603.
- von Hofsten, C. (2004). An action perspective on motor development. *Trends in Cognitive Sciences*, 8, 266–272.
- Von Hofsten, C. (2008). Motor and physical development manual. In M. M Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.

Vouloumanos, A. (2010). Three-month-olds prefer speech to other naturally occurring signals. *Language Learning and Development*, 6, 241–257.

Windle, W. F. (1940). *Physiology of the human fetus*. Philadelphia: W. B. Saunders.

6.10 ADDITIONAL ONLINE RESOURCES

Fine motor development from birth to 5 years by Occupational Therapy Department of Children's Hospital, Health Sciences Centre, Winnipeg.

- https://www.youtube.com/watch?v=LiTuGv_GeaE

An Experiment by Joseph Campos: The Visual Cliff:

- <https://www.youtube.com/watch?v=p6cqNhHrMJA>



UNIT 7 COGNITIVE DEVELOPMENT⁷

Structure

7.0 Introduction

7.1 Piaget's Theory of Cognitive Development

7.1.1 Sensorimotor Stage

7.1.2 Preoperational Stage

7.1.3 Concrete Operational Stage

7.1.4 Formal Operational Stage

7.2 Assessing Piaget's Theory of Cognitive Development

7.3 The Core Knowledge Perspective

7.3.1 The Domain of Objects

7.3.2 The Domain of Numbers

7.4 Vygotsky's Theory of Cognitive Development

7.4.1 The Zone of Proximal Development

7.4.2 Scaffolding

7.4.3 Private Speech

7.5 Comparison between Vygotsky's and Piaget's theories

7.6 Information Processing

7.6.1 Attention

7.6.2 Memory

7.6.3 Metacognition

7.7 Summary

7.8 Keywords

7.9 Review questions

7.10 References and Further Reading

7.11 Additional Online Resources

Learning objectives:

After reading this unit, you will be able to:

- explain Piaget's four stages of cognitive development and what occurs at each stage;
- identify the basic processes discussed by Vygotsky's sociocultural theory;
- describe the theory of core knowledge;

⁷ Vrushali Pathak, Research Scholar, Department of Psychology, Jamia Millia Islamia, New Delhi.

- explain the information processing approach, and
- outline the developmental changes in attention, memory, and metacognition.

7.0 INTRODUCTION

An intriguing aspect of human development is thinking. We often wonder about the thoughts of a child. How the intellectual capacities of a child changes into that of an adolescent or eventually an adult. The difference between how children think and how adults think is not just about how much they know of the world around them, it also lies in the very way they make sense (think and understand) of their experiences. The inner processes and products of mind that leads to ‘knowing’ is called as **cognition** (Berk, 2013). All mental activities are a part of it, such as attention, planning, categorizing, problem solving, reasoning, creativity, symbolizing etc. Some important aspects considered by researches in making sense of cognitive development are- (i) mapping out a typical course to identify if most children go through similar transformations, (ii) examining individual differences, and (iii) how genetic and environmental factors work together to govern change. You have learnt about cognitive perspective to human development in Unit 3. In this Unit, we will learn about theories and researches that contribute to the current understanding of cognitive development.

7.1 PIAGET’S THEORY OF COGNITIVE DEVELOPMENT

There is no doubt that the Swiss cognitive theorist Jean Piaget revolutionized the study of cognitive development in children. Although his theory received criticisms and has undergone various revisions over the years, it definitely provides a set of basic cognitive principles guiding much research even today. Some of these important ideas are as follows:

- Intelligence is an active, constructive and dynamic process.
- Mistakes made by children help us in making sense of their thought process at that particular stage of development.
- With time, structure of thinking changes in children but these new modes are based on their earlier structures (Flavell, Miller, & Miller, 2002).

Piaget’s theory tries to unify how biology and experience shapes cognitive development. He believed that like our physical bodies which adapt to the world, we also build mental structures which help us in adapting to the world. We actively and systematically try to make sense of our experiences to adapt to our environment, that is, we organize our experiences into schemas, frameworks that place concepts, objects etc. into categories. All of us have unique ways of organizing our experiences based on the schemas we develop.

Schema is a specific psychological structure which is understood as organized ways we use to make sense of the experiences around us. These are actions and mental representations that change with age. According to Piaget,

behavioral schemes (physical activities) involving sensorimotor action patterns characterize infancy- such as sucking, grasping; and mental schemes (cognitive activities) develop in childhood (Lamb, Bornstein, & Teti, 2002) involving skills such as problem solving, categorization etc. Cognitive approaches are based on mental representations-internal depiction of information which the mind can manipulate. Images (mental pictures of objects, people etc.) and concepts (categories to group similar objects or events) are two of the mental representations. Piaget discussed two process which are important for the change from sensorimotor to representational schemes- **adaptation** and **organization**.

Whenever we have a new experience, we try to make sense of it by fitting it into a schema we already have. For example, a child may have a new kind of sandwich (with different filling but very similar to the one he/she had earlier) that he/she understands as a food that was consumed earlier. Fitting new experiences easily into our preexisting schemas is called as **assimilation**. However, if the child is served with food, he/she has never seen earlier, they may not connect it with their schema for food. This may throw them in a state of confusion and this is called as **disequilibrium**. Disequilibrium can be an uncomfortable state for an individual, so they would try to make sense out of it in order to return to a comfortable state, a process called as **equilibration**. In order to change the schema to fit our new experience, we use **accommodation** because now we will be changing or accommodating the way we think about certain things to understand this new information. Thus, if the parent can convince the child to eat a burger or a taco, he/she may discover that it is a delicious food, and accommodate the existing schema for including burger or taco in it and equilibrium is restored. Thus, the child soon fine tunes the category to accommodate burger and taco in the scheme. In accommodation, we either create new schemes such as calling it a taco here or adjust the old ones after realizing that the current scheme does not capture the environment completely. In this case, the child may call taco, a “crispy sandwich”. When children are not changing much, they assimilate more than they accommodate maintaining their equilibrium and shift to accommodation due to cognitive discomfort of not being able to make sense of the information. After they modify their schema (accommodate), they again shift back to assimilation until they have to modify it again. Thus, adaptation involves building schemes through direct interaction with the environment and both assimilation and accommodation help in it. Another process that helps in changing the schemes is called as **organization**. Once new schemas are formed, children rearrange them as they also link them with other existing schemas, this creates an interconnected cognitive system. Thus, organization is grouping of isolated behavior and thoughts and continuous refinement of organization is an integral part of development in humans. Piaget (1936/1952) discussed that schema actually reach equilibrium as they become part of a broader network which we eventually apply to our world.

Piaget identified four stages in the cognitive development process (Figure 7.1) from infancy to adolescence. Each stage represents different qualities of thought and is built on the abilities acquired during the previous stage. According to Piaget, these stages occur in a prescribed order, that is, in order

to reach the 4th stage, the child has to systematically go through the each one and cannot jump from 2nd to 4th suddenly.

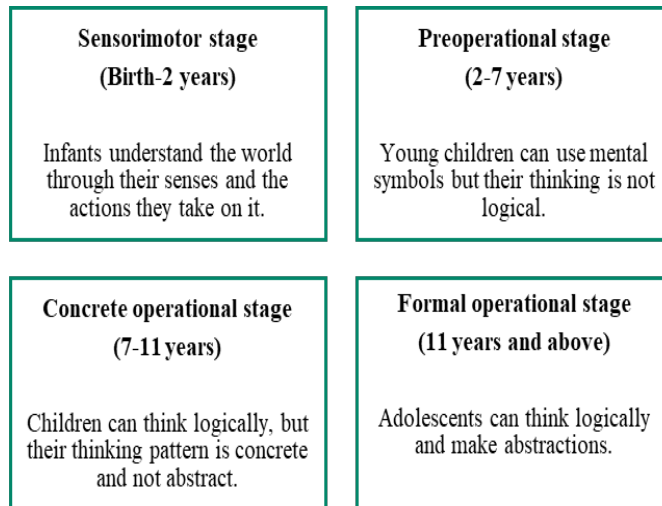


Figure. 7.1 Stages of cognitive development by Piaget

7.1.1 Sensorimotor Stage

As the name suggests, infants organize their world by means of their senses and the physical actions they take on it. Piaget divided this stage further into six substages but also said that, “the fact remains so complicated and their sequence can be so rapid that it would be dangerous to separate these stages too much” (Piaget, 1952, p. 331). Table 7.1 summarizes the six substages as discussed by Piaget which point at four basic trends in development: (1) moving from reflexes to goal-directed activity, (2) attention from one’s body to the outside world, (3) development of object permanence, and (4) shift from motor action to mental representation. They are discussed in detail in the following section.

Table 7.1 Six substages of sensorimotor development

Source: Adapted from Santrock (2011) *Child Development*, 13th ed.

Substage	Age	Description/Characteristics	Example
Simple Reflexes	Birth to 1 month	Coordination of sensation and action through reflexive behavior	Infants make sucking motion with mouth (reflexive) when stroked on the cheek
First habits and primary circular reactions	1 to 4 months	Adaptation of reflexes to environment	Infants adjust sucking to accommodate to a new pacifier
Secondary circular reactions	4 to 8 months	Infants become more object-oriented, repetition of actions that make interesting events last	Infant moves and swings the arm to hit the bell, he/she

			repeats the action many times
Coordination of secondary circular reactions	8 to 12 months	Action schemas applied, eye-hand coordination, coordination of schemes and intentionality	Infant taps a bell and it rings, tries tapping another object similarly
Tertiary circular reactions, novelty and curiosity	12 to 18 months	Intrigued by various properties of the object; intentional discovery to explore environment	Rings the bell and discovers hitting bell with a stick also makes it ring
Internalization of schemes	18 to 24 months	Use of mental activity to help with exploration	Sees a playmate throwing a tantrum, retains a memory of it and throws one himself the next day

- *Simple reflexes* (Birth to 1 month): In this substage, sensation and action are coordinated mainly through reflexive behavior- sucking, grasping. Soon the baby would produce behaviors resembling the reflexes even in the absence of the usual stimulus for the reflex, that is, they might suck even when the bottle or nipple is nearby rather than when it is directly placed in the mouth, as was in the beginning.
- *First habits and primary circular reactions* (1 to 4 months): in this substage, sensation and two types of schemes- habits and primary circular reactions are coordinated. Habit can be understood as a reflex (as discussed in the previous substage) that has become independent from its stimulus- now the infant may suck even when the bottle is not present or nowhere around him/her. A primary circular reaction is reproducing an event later that had occurred by chance in the first place. Babies may also vary their behavior to adapt to the environmental demands- opening mouth differently for nipple than a spoon. Anticipation of events can also be seen in this substage, that is, a hungry infant may stop crying as the mother would enter the room, a signal to be fed.
- *Secondary circular reactions* (4 to 8 months): Infants become object-oriented by this substage. They may improve their skill of sitting up, reaching for an object and manipulating it. Their motor achievements support their secondary circular reaction and they try to repeat interesting events around them. Piaget (1936/1952) hung a few dolls in front of his 4-month-old baby which he knocked accidentally to produce a swinging movement, fascinated by it he built a scheme of “hitting”. The infant repeats actions but is not able to coordinate them. They are able to

imitate certain actions, at least the ones that they have already been doing.

- *Coordination of secondary circular reactions* (8 to 12 months): Eye-hand coordination is an important aspect of this substage. Infants combine and recombine schemes that they have learnt earlier in a much more coordinated way. For instance, they might look at a toy, grasp it and explore it with their fingers. Intentionality can also be seen in the infants as they may hit and remove one block to reach and play with another. Thus, by this substage, they can engage in intentional, goal-directed behavior, and coordinate schemes to solve some problems. For instance, Piaget, designed an object-hiding task wherein an attractive toy was hidden under a cover. The infant could retrieve the toy by “pushing” the obstacle aside and “grasping” the toy. This is also indicative that **object permanence**- understanding that the object exists even when it is out of sight, has begun. Despite this they make A-not-B search error, indicating that object permanence is not yet complete, that is, if they find an object at one hiding place (A) and even if they see it being moved to another place (B), they still search for it in its original place (A).
- *Tertiary circular reactions* (12 to 18 months): this stage marks the beginning of human curiosity and novelty. Infants get fascinated by various properties of an object and try to explore it- a block can rotate at its place, hit another one, can be stacked on others, slid across the table etc. This exploratory approach also makes them a better problem solver. By this substage, object permanence becomes better and A-B search is more accurate.
- *Internalization of schemes* (18 to 24 months): by the final sensorimotor substage, infants develop their ability to use symbols- an internalized sensory image that represents an event. For instance, Piaget’s daughter saw a matchbox being opened and closed and later mimicked the event by opening and closing her mouth- an expression of her image of the event. A sign of the development of their mental representation is their capacity to arrive at solutions to problems suddenly (by “thinking”) rather than through trial-and-error. They can also solve **invisible displacement problems**- finding a toy that was moved when out of sight. The ability to remember and copy behavior of models not present, can also be seen during this substage, paving way for make-believe play, known as **deferred imitation**..

Piaget portrayed the cognitive development of infants as a neat package, yet some of his concepts and explanations have been challenged and are debated upon by researchers (Luo & Baillargeon, 2005). Box 7.1 discusses some of the criticisms of sensorimotor stage.

Box 7.1 Evaluation of Sensorimotor stage

- Various theorists believe that infants' perceptual abilities are better developed than Piaget anticipated very early in life (Bremner, 2010; Gibson, 2001).
- Researchers believe that infants see objects as unitary, solid figures, separate from their background right after the birth or shortly thereafter, but definitely by 3 to 4 months of age which is much earlier than what Piaget had envisioned.
- Various researchers claimed that object permanence develops in the first few months itself- by three and a half months (Baillargeon & DeVos, 1991; Bjorklund, 2005).
- As per Piaget, infants lead a sensorimotor life till 18 months and mentally represent experiences only after that but, their ability to recall (at the age of 8 months) the location of a hidden object even after a delay of more than one minute is indicative of the fact that they construct mental representations of objects (Mc Donough, 1999).
- Some laboratory studies have revealed that deferred imitation is present even at six weeks of age! Infants who saw even an unfamiliar adult's facial expression could imitate it when they were exposed to the same adult after 24 hours (Meltzoff & Moore, 1994).

Check Your Progress 1

1. Define schemes.

.....

.....

.....

2. What is object permanence?

.....

.....

.....

3. Differentiate between assimilation and accommodation.

.....

.....

4. Name the six substages of sensorimotor stage.

.....

.....

.....

7.1.2 Preoperational Stage

As Piaget gives the label preoperational to this substage, it is important to understand the term first. Operations are internalized actions which permit a child to do things mentally that he/she was doing physically earlier. These are reversible mental actions, thus mentally adding numbers is considered as operations. The child is not capable of performing operations mentally yet. However, preoperational thought is the beginning of an ability to reconstruct in thought what was previously established in behavior. The major achievement of this substage is the ability to use symbols. For instance, children can tell us about the 'orange' they ate yesterday, unlike the infant who would show us the 'orange'. Although, it is important to note here that symbols at this stage are concrete and not abstract. It is basically a transitional stage, a waiting period for the next stage, as by the end of sensorimotor stage, the child has achieved equilibrium at a behavioral level and concrete operational stage would represent new higher order equilibrium. Preoperational stage can be further divided into 2 substages-Symbolic function substage and Intuitive thought.

Symbolic function substage

Between the ages of 2-4 years, the child gains an ability to mentally represent an object that is not present. Thus, he/she represents the world with words, images, and drawings (Deloache, 2011). Mental representation advances of this substage are discussed below:

1. Language and thought: Piaget acknowledged language to be our most flexible means of mental representation and yet did not attribute it a major role in cognitive development. Instead, he believed that sensorimotor activity would lead to internal images of experiences which children would eventually label with words (Piaget, 1952). Gopnik and Meltzoff (1997) pointed towards the development of action-oriented language. For instance, term "all gone" may emerge for disappearance of an object at about the same time as mastery of advanced object-permanence problems.
2. Development of Make-Believe play: through pretend play, children practice and strengthen the representational schemes they have acquired. With time children are able to pretend with less realistic toys and become more flexible with their actions. For example, a child with age less than 2 years can pretend to talk using a toy telephone. After the age of 2, they may use a block for a telephone (O'Reilly, 1995). Overtime, play also becomes less centered, that is, they can pretend actions towards other objects and later they may also act as a detached participant who make a doll feed itself or play as a third party with a family of dolls acting on its own. Box 7.2 discusses some of the benefits of the make-believe play.
3. Drawings: in children, it starts with a scribble (around the age of 2 years) which contains intended representation and by the age of 3, they start drawing recognizable shapes. Most children use line drawing making simple forms of different figures. With improvement in cognitive and fine motor skills, they create more complex and realistic drawings with

more details. It would be interesting to note that in cultures with emphasis on artistic expression, children produce better and elaborate drawings whereas in cultures with little interest in it, even the adolescents produce extremely simple drawings.

4. Symbol-Real World Relations: in an interesting study by De Loache (1987) two and a half and three-year-old watched an adult hiding a toy in a model of a room which they could retrieve. Then they had to find a larger toy hidden in the room similar to the model (a representation), which they could do only after the age of 3. Dual representation is visualization of an object as both a symbol and an object in its own right, but the young preschoolers have a difficulty with this concept. They cannot understand that a drawing (an object in its own right) can also represent real world objects (Callaghan, 1999).

Box 7.2 Benefits of Make-Believe play

- It has an emotionally integrative function. For instance, they may revisit anxiety provoking events in their play and may try to take control and power, thus compensating for their unpleasant experiences (Ginsburg, 2007).
- Preschoolers who spend a lot of time at sociodramatic play have been seen as more socially competent (Connolly & Doyle, 1984).
- It strengthens sustained attention, memory, logical reasoning, language, creativity, imagination, self-reflection, and perspective taking (Berk & Meyers, 2013).
- Through their play, they get to pretend that they are adults and learn to act out their emotions. This also has a role to play on developing a sense of empathy and self-esteem.

Intuitive thoughts substage

Around the age of 4-5 years, children are found to be asking a lot of “why” questions. For instance, “why is the sky blue?” “Why does the sun shine?” “Who was the mother when everyone was a baby?” “How do we grow?” etc. These questions are a signal of increasing curiosity in children and emergence of interest in reasoning and figuring the world they live in (Elkind, 1976). This stage has been called intuitive as the children are sure about their knowledge but are not aware of its source. Beginning of primitive reasoning is an important highlight of this substage.

Box 7.3 What children lack during preoperational thought?

1. **Egocentrism:** While representing their world, children focus on their own viewpoint ignoring others'. Piaget has explained this through a 3-mountains problem. A display of 3 mountains was prepared wherein each one could be distinguished from other- one had a red cross, another one with a small house, and third one had a snow-capped peak. A child was asked to walk around the display finally settling down on one side. A doll was placed on various locations and the child had to select from different pictures the one that would show the mountains from the doll's perspective. Until, the age 6 or 7 children select photos that show their perspective.
2. **Animistic Thinking:** It is the belief that inanimate objects such as scooter, toy etc. has lifelike qualities- thoughts, feelings, and intentions, just like themselves (Gelman & Opfer, 2004). They describe and draw sun, moon etc. with human-like features.
3. **Inability to conserve:** Conservation is the ability to understand that a certain quantity remains same despite the changes or adjustments in the apparent size, shape or container. A child is shown two tall glasses filled with water and once the child agrees that both glasses are equally filled, water from one glass is poured into a wider container. Now, if the child is asked if both the container and the remaining taller glass has equal amount of water, the child disagrees.
4. **Lack of hierarchical classification:** Preoperational children cannot organize objects on the basis of classes and sub classes by differentiating them on the basis of their similarities and differences. They fail the class inclusion problem of Piaget. If children are shown 12 pencils, 4 of which are red and 8 are yellow and when asked "if there are more yellow pencils or more pencils?" they respond "more yellow pencils" completely failing to realize that both yellow and red pencils are under the category of pencils.

Box 7.4 Evaluation of Preoperational Stage

- It was found that when given simplified and familiar tasks children are able to perform many of the Piagetian problems that they had failed. For instance, when researchers change the nature of 3 mountains problem and use of picture selection method, even 4-year-olds are able to take others' vantage point (Newcombe & Huttenlocher, 1992).
- Some researchers have argued that Piaget overestimated the animistic belief of the preschoolers. The objects to which they mainly attribute human-like qualities appear to be self-moving, a characteristic of living beings and also some life-like qualities, for instance, headlights of a car may actually look like eyes.
- Some questions have been raised against the Piagetian belief of poor conservation skills in young preschoolers. Gelman (1969) believed that attention is important in explaining conservation and demonstrated that with attentional training on one aspect (such as number), improvement is visible in another dimension as well (such as mass). Other researches demonstrated how conservation can also be taught to the preschoolers.

Many of the limitations found in a preoperational child (as discussed in Box 7.3) are overcome by him/her by the time they reach the next stage where they can perform concrete operations.

Check Your Progress 2

1. Define animistic thinking.
.....
.....
.....
2. Why is make-believe play important for cognitive development in children?
.....
.....
.....
3. What is conservation?
.....
.....
.....
4. Preschoolers are described as egocentric because they are selfish. True or False.
.....
.....

7.1.3 Concrete Operational Stage

This stage is considered as a significant turning point in the cognitive development of children. Concrete operational reasoning is much more logical, flexible and organized than sensorimotor or preoperational thought. They apply their reasoning to concrete and specific information which can be directly perceived. Their mental operations are very poor with abstract ideas. Let's discuss some of the achievements or abilities specific to this stage.

1. Conservation: the ability to conserve (as discussed in the previous stage) provides a clear evidence of operations. In conservation of liquid (discussed in Box 7.3), the child at this stage is able to engage in decentration-recognition that change in one aspect (height) is compensated for by change in another (width). By now, they are not distracted by superficial perceptual appearances and they show reversibility. It is the ability of the child to imagine water being returned (poured back) to the original glass as a proof of conservation. Thus, they do not ignore the transformation and are able to connect the initial and the final state of water as two related events, unlike the previous stage. Conservation is usually acquired in a sequence- number, length, quantity, mass, area, weight, and volume of objects.

2. Hierarchical classification: Between ages 7 to 10 children are able to pass the class inclusion problem (discussed in Box 7.3), thus becoming aware of classification hierarchies and relationships between general and specific categories. They are also able to draw and understand basic family trees (Furth & Wachs, 1975).
3. Seriation: It is the ability to order items along a particular dimension such as length or weight. For instance, arranging pencils from shortest to longest. Interestingly, children can also seriate mentally, that is, they are capable of transitive inference. If stick A is longer than stick B and stick B is longer than stick C, children can draw the mental inference that stick A is longer than stick C. They keep improving at their analogical reasoning but still are not able to deal with a hypothetical version of this task because of its abstract nature.
4. Spatial Reasoning: This stage clearly demonstrates that children are capable of understanding directions, distance, and maps. By this age (7 to 11 years), they understand that a filled space has same value as an empty space (Piaget, Inhelder, & Szeminska, 1960). They can perform mental rotations, that is they can align the self's frame to match another person. So, they can tell the difference from left to right from another individual's perspective also. In the early school years itself children's maps become much more organized. They get better at drawing landmarks along a route they travel and can also read maps when they are rotated.

Box 7.5 Evaluation of Concrete Operational Stage

- Research suggests that taking part in everyday activities usually help children in mastering conservation and other such tasks (Fahrmeier, 1978; Light & Perrett-Clemont, 1989). The experience of school promoted the mastery of many Piagetian tasks as children learnt formally about many of these situations in their curriculum.
- It was also found that many children from tribal areas or the ones not going to school could not perform well on these Piagetian tasks but could solve similar problems when they were presented in everyday life.

7.1.4 Formal Operational Stage

The ability to work on abstract concepts and operations begin around the age of 11 years. By this stage, children do not require concrete things and events; instead, they can come up with general and logical rules about things. Thus, they just do not “operate on reality” (like concrete operational children) but can also “operate on operations” (Inhelder & Piaget, 1958). They solve problems using **hypothetico-deductive reasoning** rather than trial and error. They try to come up with all possible hypotheses (possible solutions or predictions), then test them to see which one would actually work. Piaget's pendulum problem illustrated hypothetico-deductive reasoning in adolescents. Various school children and adolescents were given strings of different lengths, objects with different weights and a bar with which the strings could be hung. They were asked to determine what would influence the speed of the pendulum. Formal operational adolescents could come up

with different hypotheses and by varying one factor at a time, keeping others constant they could figure out that the string's length was responsible for speed.

Unlike school children, adolescents can evaluate the logic of verbal statements or propositions. They do not have to necessarily refer to real-world situations to relate to it. For instance, researchers asked a group of participants to tell if each statement that they presented was true, false or uncertain. The statements used were: "Either chip in my hand is green or it is not green" and "The chip in my hand is green and it is not green". Osherson and Markman (1975) found that school children ended up focusing on the concrete properties of the chip and not on the logic of the statements. In contrast, adolescents analyzed the propositions, thus, they understood that an "either-or" statement is always true and the "and" statement is false, regardless of the actual color property of the chip. It is important to mention here that although Piaget did not give language a central role in cognitive development but acknowledged its increasing importance in adolescence.

Piaget discussed about a new kind of egocentrism which develops during this stage- the inability to differentiate between the abstract perspectives of self and others. Adolescents have a heightened sense of self-consciousness and they believe that others have a lot of interest in them and their lives, almost as much as they are interested in themselves. Elkind (1978) divided it into two types of social thinking- **imaginary audience** and **personal fable**. Adolescents usually feel that they are always on stage and are a focus of everyone's attention around them, that is, they have an imaginary audience. This can be justified by the amount of time they spend in front of the mirror inspecting their appearance or the lengths they go to for grooming themselves. This also makes them sensitive to public criticism. As they are so certain that they are being observed and scrutinized all the time, they develop an inflated opinion of their importance and self. Due to this they may view themselves reaching heights of achievement and glory or feeling great despair (Elkind, 1994). Some researchers have indicated that their reckless behavior may be a result of a sense of invincibility that comes from this sort of personal fable. Both imaginary audience and personal fable are strongest during the transition from concrete to formal operations and it gradually declines as abstract thinking develops. Like all the other stages, even formal operational stage had its share of criticisms, some of which are discussed in Box 7.6.

Box 7.6 Evaluation of Formal Operational Stage

- One of the biggest criticisms has been that almost 40 to 60 percent of college students fail Piaget's formal operational tasks. They found that extensive experience and the courses they took helped them in formal reasoning. So, Mathematics and Science helped with propositional thought, whereas Social Science in methodological and statistical reasoning (Lehman & Nisbett, 1990).
- In many tribal societies formal operations are never mastered. Thus, the question that arises- is this stage actually children's independent effort to make sense of their world or is it a culturally transmitted way of thinking?

Box 7.7 Imaginary Audience Scale

Elkind developed the Imaginary Audience Scale (IAS) to measure the aspect of adolescent egocentrism (Elkind & Bowen, 1979). As an example, we are discussing one of its items in detail.

Instruction: Read the following stories carefully and assume that the events have happened to you in reality. Place a check next to the answer that best describes what would you feel or do in the real situation.

You are sitting in class and have realized that the jeans you are wearing has a small but noticeable split along the side seam. The teacher has offered extra credit toward his/her course grade to anyone who can write the correct answer to a question written on the blackboard. Would you get up in front of the class and go to the blackboard, or would you prefer remaining in your seat?

- Go to the blackboard as though nothing had happened.
- Go to the blackboard and try to hide the split.
- Remain seated.

(Elkind & Bowen, 1979)

The first answer would reflect a willingness to be exposed to an imaginary audience. The second one, is about discomfort the individual would face, and the third one reflects the most discomfort with exposure. The highest scores on this scale are indicative of an acute awareness of an imaginary audience. Takishima-Lacasa and colleagues (2014) found it very high in children who were in eighth grade- a time when adolescents are very sensitive about their appearance. It would be significant to note here that thoughts about imaginary audience may vary depending upon the life events they may come across (Galanaki, 2012).

Check Your Progress 3

1. What is reversibility?

.....

.....

.....

2. Explain seriation and transitive inference.

.....

.....

.....

3. Define hypothetico-deductive reasoning.

.....

.....

4. What kind of egocentrism develops during formal operational stage?

.....

.....

.....

7.2 ASSESSING PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

Contribution

- Piaget paved way for psychologists and educators to a perspective that children are knowledge seekers and a curious one at that. Thus, they contribute to their own development. His theory act as “road map” for various other upcoming theories.
- Piaget did not just describe but rather explained the cognitive development of children. He gave accounts of various biological, environmental, and psychological factors responsible for it.
- Careful observation adopted by Piaget became an important tool to study children and their behavior. His emphasis on studying shifts from one stage to another (example, from preoperational to concrete operations) and process involved in that also paved way for many new concepts and theories. Another important aspect that can be learnt from is that the concepts do not emerge suddenly, there is a gradual mastery involved, thus recognizing the steps in it.
- Piaget has put psychological insight ahead of operationalized theories which many before him had neglected.

Criticisms

Like many other theories, Piaget's theory has also not gone unchallenged (Byrnes, 2003; Mandler, 2004).

- Children acquire many cognitive skills and concepts at a much earlier age than Piaget assumed (Wang et al., 2005). Research has also indicated that various training programs can enable students to learn certain concepts before they have reached certain stages. Thus, there has been an oversimplification of structurally distinct stages.
- Interestingly, cognitive development is not always self-generating. If left to their own devices, children may not notice certain aspects of situation that are needed for an improved understanding (Kuhn, 2008).
- Piaget's work is characterized by lack of controls (from the standpoint of experimental design), small sample, and absence of statistical analysis. Reliability of his observations has been questioned due to the generality of his results.
- Piaget's clinical method of data collection was highly debated, especially with young children. It has been seen that preschoolers can be very social in their speech and approach without being egocentric.

- It seems Piaget overlooked the effect of cultural and social groups while studying cognitive development in children. For instance, in many cultures such as Wolof in West Africa, central Australia, New Guinea, many of 10–13-year-old are not able to attain conservation successfully (Cole, 2006).
- Much of the empirical data has never been published. We only have a sample of verbatim excerpts to substantiate empirical statements made by Piaget. The generalizations offered by Piaget are intended to be representative but seemed to be biased and favoring certain selected hypotheses.

Despite all the criticism and arguments, it would be essential to emphasize that Piaget had accomplished an important task of theorizing; and what remains is to test it by designing more experiments with better controls and different situations. Even if some of the experiments disconfirm certain concepts of the theory, it does not reduce its value, rather gives scope to refine and advance the theory further.

7.3 THE CORE KNOWLEDGE PERSPECTIVE

Core knowledge theory addresses the question of what capacities are innate (thus, a product of evolution) and what are acquired through experience. The theory emphasizes that infants begin their life with innate, special purpose knowledge systems. These are called as core domains of thought. Initial knowledge is considered innate but it expands and elaborates as the child starts exploring the environment, play with various objects and others, and interact with people around him/her (Leslie, 2004; Spelke & Kinzler, 2007). An important tenet of this approach is that in humans there exists a set of perceptual and conceptual capacities that are common in everyone. These innate capacities help in relating to new information; this supports early and rapid cognitive development (Leslie, 2004). Each core domain is considered essential for survival and thus has evolved over years (Spelke, 2004). Spelke and Kinzler (2007) presented evidence for four major areas of core knowledge, which are as follows:

- Knowledge of an object moving as an organized and interrelated unit
- Knowledge that people act purposefully towards a goal- infants understand that objects do not act with a goal “in mind” like humans.
- They have a knowledge of number (within limits) and experience in all modalities- for instance, seeing a number of objects
- Knowledge of spatial relationships

Two of the core domains to be discussed here are: physical knowledge (understanding of objects and their effects on others) and numerical knowledge (keeping track of different objects and adding or subtracting small quantities from it).

7.3.1 The Domain of Objects

It is interesting that how we never receive clear instructions about the behavior of a particular object(s) or how to relate to it, yet we end up drawing more or less similar expectations and conclusions about it. For instance, we are expected to have a basic understanding of gravity that an unsupported object would fall down. We agree that objects remain in the same place unless they are moved (object permanence). It has been found that expectations about objects are evident not only in humans but also in other species. These abilities may have a history and thus could be a product of the evolutionary processes. Hespos and vanMarle (2012) explained that from an early age infants can explain or understand the visual array into objects and events. For instance, in an experiment, 2 months old infant were found to have object permanence and that two objects cannot occupy the same space at the same time (Hespos & Baillargeon, 2001). At 9½ months, they expect an object placed inside a transparent container to be visible through it (Baillargeon et al., 2009). Although object knowledge is present early in life, it is not fully mature at birth. During the course of development, infants learn what will let them predict an event's outcome in a more precise manner. They achieve this through associative learning, memory abilities and interaction with environment which become integrated with the core knowledge systems. For example, at the age of 2 months, they know that an object placed inside a container will move as the container is moved from one location to another but they cannot identify various other variable such as that height of the object determines how much of it will remain hidden inside the container, this is achieved by the age of 8 months. These findings provide evidence that the change which has occurred in the object knowledge is of elaboration and refinement mainly.

7.3.2 The Domain of Numbers

Very much like the objects, we also have knowledge about numbers. Without even counting we can tell the difference between eight lines and sixteen lines. Many other primates like monkeys, rats, pigeons etc. can also make such judgments. In a study done with 5-month-old infants, they were shown a single toy which was then hidden behind a screen. Then they watched a hand placing a second toy behind the screen. Finally, the screen was removed and either one or two toys were revealed. It was observed that infants looked longer at the impossible event that is when only one toy was found after the screen was removed, suggesting that they kept track of the two objects and were expecting that. This would require them to add one object to another. Further investigations have revealed that infants can differentiate up to three and use this knowledge to perform basic addition and subtraction (Kobayashi et al., 2004; Kobayashi, Hiraki, & Hasegawa, 2005). Interestingly, this ability to differentiate is found to be based on analog magnitudes- the proportions and not absolute differences or values. Infants from an early age of 6 months can detect a 1:2 ratio change in large numbers, but they cannot detect 2:3 ratio change. They achieve this precision by the age of 9 months only. This ability helps in predicting performance across other stimuli as well, such as objects, tones, and actions (for instance, jumps of a toy). This ability to

abstract numerical information across a variety of stimuli is based on ratios and similar to object knowledge, the change over time appears to be one of elaboration and refinement.

Children are considered as naïve theorists, building on these concepts of core knowledge to explain their day-to-day experience in different areas- physical, psychological, and biological. According to this theory (that is, theory of children as theorists), children observe an event and then take help of their innate concepts to explain it or attribute a cause to it. They also test their naïve theory against experience around them. They revise it when new information they encounter does not fit it (Gelman & Kalish, 2006). This aspect is similar to Piagetian theory, but theorists claim that because children start with innate knowledge, their reasoning advances rapidly, that is much earlier than what Piaget proposed. This theory has also been criticized by many researchers. For instance, it has been pointed out that these abilities are not innate but learned at a very early stage. Woodward (2009) concluded that infants understand others' intentions in reaching for objects because they themselves learn to intentionally reach for an object. Cole and Cagigas (2010) concluded that this approach is "woefully inadequate to fully explain adult human functioning" (p. 131). They have discussed how culture has an important role to play in shaping the nature of cognition.

7.4 VYGOTSKY'S THEORY OF COGNITIVE DEVELOPMENT

The theories discussed so far highlight the biological aspect of cognitive development. According to Piagetian theory and core knowledge perspective, child is the most important source, who like an explorer forms ideas and also tests them. Lev Vygotsky, on the other hand, emphasized the effects of social and cultural context in cognitive development. His view included a focus on the process of development, collective activities, and importance of making sense of development in the context of cultural and historical context of the child (Gielen & Jeshmaridian, 1999).

As discussed, Piaget saw the child as an active and an independent learner, but Vygotsky believed that ideas and learning begin mainly in the social world. Thus, he argued that because we are situated within a culture, our learning is based on it. Consequently, cultural tools such as language, actions, behavior etc. shape the cognitive abilities of a child (Gauvain & Parke, 2010). Vygotsky emphasized that children learn by collaborating with someone who is more knowledgeable than them. In his theory, other people and language have an important role to play. There are three ways discussed in his theory that help a child in shaping his/her ideas: the zone of proximal development, scaffolding, and private speech.

7.4.1 The Zonal of Proximal Development

Zone of proximal development (ZPD) is a term for a range of tasks that the child cannot do or master independently but they can be learned with some assistance and guidance of an adult or some other more skilled child. So, it is

the difference between what a child can do independently and what he/she can do with some help and support (Vygotsky, 1978). Therefore, the lower limit of ZPD is the level of skill reached by the child on his/her own, that is independently and the upper limit is the level of additional responsibility that the child can accept with assistance of an instructor.

7.4.2 Scaffolding

The concept of scaffolding is closely linked to the idea of ZPD. It means changing the level of support as per the child's need. During a teaching session, a skilled teacher adjusts his/her instructions as per the amount of guidance required for the child to master the skill (DeVries, 2001). Let's take an example to understand this. When teaching someone to tie her shoes, the instructions change as per the stage and need of the child. For an infant, we would just simply tie her shoes. For a 2-year-old, we may hold her hands and do it with her. For a preschooler, we may show them a simple approach, in which she forms two loops and circles one around the other. By the age of 6 or 7, we may teach a child how to wrap a string around the other. So, the amount of help that we have provided to the child at each step is the scaffold that supports the child's learning. Finally, when the child can perform the task on her own, there would be no need for scaffolding. It's like helping the child achieve what is out of reach and then stepping back when the child can do it alone. The learning occurs when instructions are effective and most importantly in the right zone- just a little beyond the child's current level. Thus, *dialogue* is an important tool of scaffolding in the ZPD.

7.4.3 Private Speech

According to Vygotsky, speech is not just used for social communication, but also to solve tasks. Children's use of language for self-regulation is called as private speech. Children use it to plan, monitor, and guide their own behavior. Scaffolding is done by the adults, but private speech is what the child does to change external interactions into internal thoughts. For instance, an adult might scaffold a child's attempt to put together pieces of puzzles, he/she may also give instructions to the child in the process. But then we may hear the child saying to himself/herself, "Find flat pieces first, c'mon". Here the child is talking to himself/herself to guide his/her own actions. It is believed that as the difficulty level of the task increases, children talk more to themselves in this way (Aro, et al., 2015).

Vygotsky believed that language and thought develop independently at first and then they merge with each other. It is important to note here that children must communicate externally and use language for a long period before they make the transition from external to internal speech. Thus, gradually the self-directed or private speech becomes inner, unvocalized, and finally it becomes a thought. Interestingly, children also use private speech when they are not learning a new skill or performing a difficult task. Many children are seen talking to themselves during make-believe play or before they go to bed. This is called as "crib speech" (Nelson, 2015). Piaget believed that self-talk is egocentric and reflects immaturity, however, Vygotsky considered it to have

a positive role in child development and researchers have also supported this view (Winsler, Diaz, & Montero, 1997; Winsler, Carlton, & Barry, 2000).

Box 7.8 Teaching strategies according to Vygotsky's theory

Vygotsky's theory has been appreciated and applied by many teachers to the field of education (Rowe & Wertsch, 2004). Here are some of the ways in which his theory can be used:

- Assess the child's ZPD: skilled helper should present the child with tasks of varying levels of difficulty to determine the level at which instructions should begin.
- Use the child's ZPD in teaching: teaching should begin towards the upper limit of the child's zone and one should offer 'just enough' assistance or support only when needed.
- Use more-skilled peers as teachers: children also benefit from support of their skilled peers or children who are slightly elder to them.
- Monitor and encourage children's use of private speech: in the elementary school years, encourage the child to internalize and regulate their talk to themselves.
- Place the instructions in a meaningful context: provide students with opportunities to experience learning in real world setting.

7.5 COMPARISON BETWEEN VYGOTSKY'S AND PIAGET'S THEORIES

Vygotsky's is a social constructivist approach, which emphasizes the social context of learning and construction of knowledge through social interaction (Mooney, 2006), unlike Piaget who adopted a cognitive constructivist approach as he believed that children themselves discover or construct all knowledge about their world through their own activity. Interestingly, from Piaget to Vygotsky, a shift is evident from individual to collaboration, social interaction and cultural influence. Piaget had a strong emphasis on the stages of cognitive development and its sequence, but Vygotsky did not propose any general stages of development. Thus, unlike Piaget, Vygotsky's endpoint of cognitive development would depend upon the skill that is considered most important in a particular culture. In the Vygotskian perspective, language is considered to play an important role in shaping thought which was given minimal importance by Piaget. Their views on education were also quite different. For Vygotsky, education plays a central role and helps children in learning the tools of the culture; whereas for Piaget, education refines the child's cognitive skills that have already emerged. But, both of them believed that teacher should act as a facilitator and guide, not as a director.

Check Your Progress 4

1. Name four areas of core knowledge that have been identified.
.....
.....
.....
2. What is the zone of proximal development?
.....
.....
.....
3. What is the function of scaffolding in the Vygotskian view of cognitive development?
.....
.....
.....

For Vygotsky cognition and learning existed within the context of culture and history of an individual. By contrast, in the following section we would understand information processing- a theory which focuses on various internal cognitive processes that is connected with individual brain function.

7.6 INFORMATION PROCESSING

Information processing is an important contemporary approach to the study of cognitive development. A computer metaphor exemplifies very well how information processing approach can be used for cognitive development. Information processing in a computer is governed by its hardware and software. For instance, the hardware limitations include amount of data the machine can process, its capacity, speed etc. and the software decides the kind of data that can be used as input, how it can be manipulated etc. Similarly, in a child's case information processing is limited by capacity and speed along with their ability to apply different skills and strategies to acquire and use knowledge.

Both capacity and speed of processing highly influence the developmental changes in information processing. They are called as cognitive resources which are impacted by both biology and experience (Goldstein, 2011). For instance, we can process information faster in our native language in comparison to a second language. Changes in the brain, such as the ones at the neuronal level, structural level etc. provide biological foundation for increased cognitive resources. In the following section, we will talk about the processes which allow us to take in information, manipulate it, and think about the things we are acting upon. These processes include attention, memory, executive function, and metacognition.

7.6.1 Attention

‘Paying attention’ is a very common phrase that we hear in our daily lives. What it actually means is that we should focus our mental processes on one thing and not on others. It means tuning in to certain things while tuning out others and also maintaining focus over time (Fan et al., 2009). At a given point of time, we can pay attention to only a limited amount of information but it has a crucial role in improving cognitive processing for many tasks. We allocate our attention in different ways (Refer Box 7.9). Next, we would examine how these aspects of attention develop during infancy, childhood, and adolescence.

Box 7.9 Different ways of allocating attention

- **Selective attention:** tuning in to specific things or aspects of an experience while tuning out others that are irrelevant. For instance, paying attention to teacher’s words and ignoring friend’s conversation in the class.
- **Divided attention:** concentrating on more than one activity at the same time. For instance, listening to music and reading a novel at the same time.
- **Sustained attention:** maintaining focus to a selected stimulus over time. It is also called as focused attention and vigilance.
- **Executive attention:** involves planning, allocating attention to goals, detection of errors, monitoring progress, and also dealing with new or difficult situations.
- **Joint attention:** also called as shared attention. It is the shared focus of two individuals on one object or event. One individual directs another one’s attention towards an object by verbal or non-verbal communication which is followed by reciprocal interaction.
- **Habituation:** reduction in the response to a stimulus that is repeated.

Infancy

Researchers have clearly established that infants look longer at novel stimuli. This also helps them in learning about their world as their attention is focused on the new object (Amos & Johnson, 2006). The other side of this benefit is that the infant also loses interest in what they have seen before. So, as they become habituated to the stimuli, they lose interest in it. Thus, habituation is the process of decreased responsiveness to a stimulus after it is repeatedly presented. This process is studied to determine the extent to which babies can see, hear, smell, taste, and experience touch. The rate of habituation is how quickly the infant decreases the time duration spent at looking objects which are being repeated. With age, habituation to familiar stimulus gets quicker, showing their efficiency at information processing (Colombo & Mitchell, 2009). It is due to sustained attention that they learn about the characteristics of a stimulus which makes them familiar to it. Although the rate of

habituation is predictive of later cognitive abilities but it is not indicative of intelligence.

Childhood

With age, children become more capable of directing and sustaining their attention. In a longitudinal study, parents were asked to rate their 4-year-old child's attention span. It was found that those children who were better able to maintain focused attention and who persisted at it even when they faced difficulties were good at higher math and reading achievement at the age of 21 (McClelland, et al., 2013). Individual differences exist in this ability as well which could be genetic and/or experience based. In the preschool years, attention has been linked to difference in parenting, family environment, and economic situation of the families. According to a study by Dilworth-Bart, Khurshid,&Vandell (2007), mothers belonging to low socio-economic conditions experienced more stress and thus provided lesser stimulation to their children. These children were found to be more impulsive and with less sustained attention in comparison to their peers at the age of 5. Low-income preschoolers were also found to have less selective attention that is, they would get distracted easily (Neville et al. 2013).

Attention is also shaped by another process called as **automaticity**- when a skill becomes well practiced and one can do it without much conscious thought. This is important in freeing up processing capacity which can be used for other tasks. For instance, with time, age, and experience children move from focusing their attention on the process of sounding out words (which they consider laborious initially) to focus instead on reading words and sentences for comprehension eventually.

Adolescence

Adolescents definitely have better attentional skills in comparison to children. Sustained attention and executive attention are considered as two very important aspects in cognitive development of adolescents. Ability to sustain attention is crucial for them as they are required to engage in activities and events that require longer attention spans. Similarly, increase in executive attention helps in gaining control that is required in completing complex academic tasks (Rothbart & Gartstein, 2008). Another important aspect that is important at this stage is the ability to multitask- attending to several things at the same time. We would often find someone reading a book, replying to texts with music there in the background. In switching back and forth between tasks, we often lose track of our original idea and miss some of the aspects while we make a switch. Some researchers have concluded that teenagers and young adults who talk on mobile phones while driving have delayed reaction times to events on roads and are more likely to have an accident (Drews, et al. 2009). In one of the researches in the area of study habits it was found that those children who did their homework with soap operas on TV in background took longer time to finish their homework and only had a lesser, superficial understanding of it (Pool, Koolstra, & van der Voort, 2003). Neurological researches have also confirmed that when we try to do two things at once, the part of brain involved in deep processing

does not get utilized properly, rather the part designed for superficial and rapid processing is used (Foerde, Knowlton, & Poldrack, 2006).

7.6.2 Memory

After we have paid attention to something, it should be moved to memory, especially if we wish to use that information in future. Memory is understood as retention of information over time. It gives continuity to our lives and makes us perform our daily activities as well.

Processes and types of memory

Encoding, storage, and retrieval are the basic processes required for memory, and failures can occur in these processes. The process involves getting information into memory (encoding), retaining it over time (storage), and later taking the information out of storage (retrieval). When paying attention to an event, some part of it might not be encoded, thus it is not stored and consequently we are unable to retrieve it or because the encoding or storage was not proper, the retrieval also becomes difficult or incomplete.

It was in the late 1960s and early 1970s that information processing theories emerged. One such important theory is called the **store model**, which assumes that information is held or stored in three parts of the mental system for processing: sensory register, short-term memory, and long-term memory (Atkinson & Shiffrin, 1968). The information flows sequentially (refer to Figure 7.2) from one part to another and various mental strategies are used to transform it and increase the chances of retention.

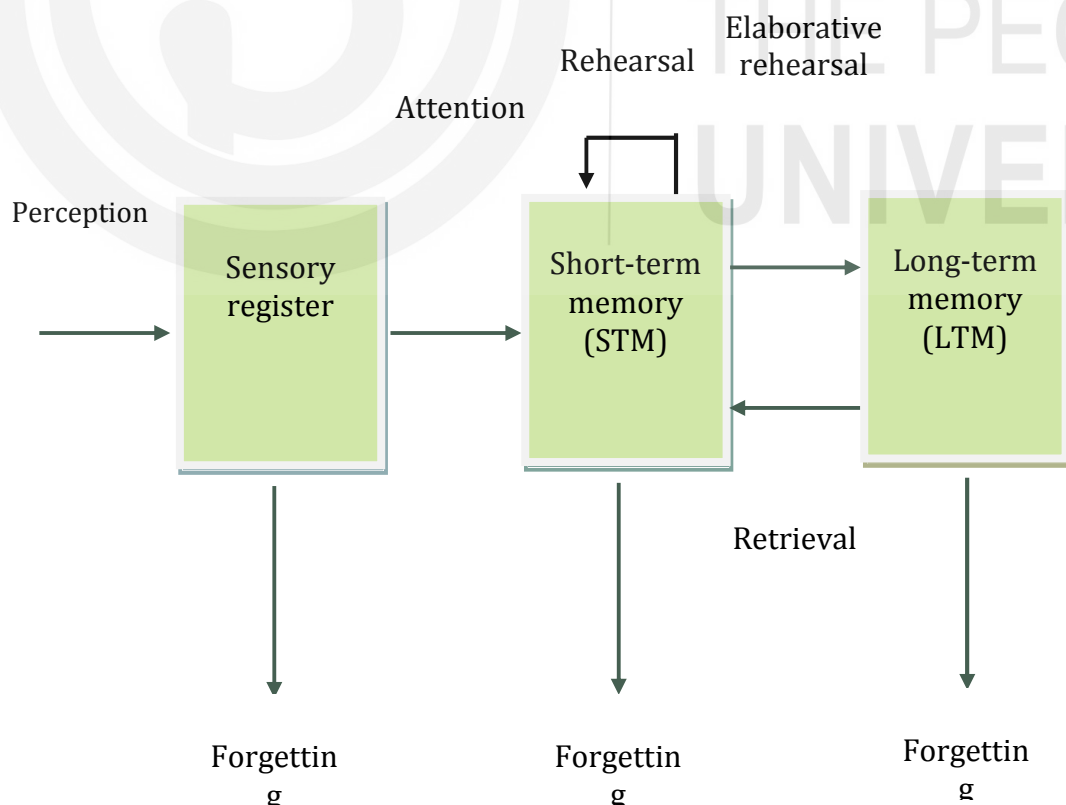


Figure 7.2 Store Model

Information comes in through our senses and enters the sensory register; it is retained there for a brief period of time. For instance, an image of what we see around persists for a few seconds and then decays unless we attend to it carefully in comparison to other information that we encounter. Thus, it stores a fleeting impression of the sensory stimuli and if the information is attended to, it transfers to the next step of the information processing system, short-term memory. STM stores the information for up to 30 seconds and has a capacity of 7 ± 2 chunks. One way of storing information here is through maintenance rehearsal-verbally or mentally repeating information, for instance, remembering a phone number only long enough to make a phone call immediately. Continuing the rehearsal may “regenerate” or “renew” the information, making it a stronger memory and transferring it to LTM. Thus, elaborative rehearsal which allows making meaning of the information, understanding it and making connections with it transfers it to LTM. Information is lost through displacement or decay. Further, LTM has an unlimited capacity and duration. Elaborative rehearsal also involves linking new information in a meaningful way with information that is already stored in the LTM. Information can be recalled from LTM to STM whenever it is needed.

The notion of working memory acknowledges the importance of manipulation of information that happens in the STM. Working memory is like a “workbench” where we manipulate and assemble information while making decision, solving problems, comprehension etc (Baddeley, 1990, 2001). Working memory includes two stores phonological loop (for speech) and visuo-spatial working memory (for visual and spatial information), as well as central executive, which monitors and controls the whole system. Working memory has been found to be linked to various aspects of development such as reading comprehension, problem solving etc. (Bjorklund, 2005).

Infancy

In her classic work with infants, Rovee-Collier (1999) designed an experiment wherein infants were placed in a crib under a mobile with attractive toys hanging on it. A ribbon was tied from the baby’s ankle to the mobile so whenever the baby kicked, it would make the mobile shake followed by a pleasant sound. The babies were brought back into the situation after a few days and some after a few weeks. She found that babies tried to kick to make the mobile move, even if the mobile was not tied to their ankle. If the mobile toy is changed, babies did not kick and if the similar mobile is placed again, they would begin kicking (Hayne, 2004). It was concluded that 3-month-olds could remember for 1 week and 18 months old could remember for 13 weeks. Thus, infants can remember perceptual-motor information. Bearce and Rovee-Collier (2006) also found that when the experimenter shook the mobile, 3-month-olds remembered what to do even after 1 month.

Jean Mandler (2000) argued that infants in Rovee-Collier’s experiment were displaying implicit memory- procedural memory without any conscious recollection, and not explicit memory- conscious recollection of facts and figures, which starts showing only after 6 months or later. Memory increases

especially between the ages of 1 and 2. Bauer and Leventon (2013) taught 13-, 16-, and 20-month-olds to imitate an action and found that 13-month-olds failed to remember it even for a month. 16- and 20-month-olds could remember it for a month, but not for 3 months unless they were reminded of the action.

Most of us cannot recall events from the first 3 years of our life. This is called as **infantile amnesia** or **childhood amnesia**. It does not mean that infants cannot remember what happens to them but rather, it is difficult for them to remember it later in life. Let's look into some of the explanations offered for infantile amnesia. One of it is that physical changes occur in the brain; important parts of hippocampus and prefrontal cortex, responsible for storing memories become functional between 20 and 24 months of age (Bauer, 2007); rapid production of neurons in hippocampus may also interfere with formation of stable memories (Akers et al., 2014). Another interesting explanation revolves around the idea that these events cannot be remembered as the infant has not formed a clear sense of self, thus cannot form a coherent story. It is difficult to remember random events than the ones that can be tied in a meaningful way to form a story. It has also been argued that only when we can talk about events properly, we do remember them in conscious thought (Fogel, 2002).

Childhood

It has been found that major changes occur in the working memory as children develop. Research with memory span task (presenting a short list of words or digits which the child recalls) suggest that memory span increases from about 2 digits in 2-year-olds to about 5 digits in 7-year-olds (Alloway, 2010). Speed of processing the information which improves with age may have a role to play here. Speed of processing increases throughout childhood and adolescence and it has been linked to changes that happen in structure of the brain during these years (Erus et al., 2015). This helps in improving rehearsal skills and retrieving information efficiently.

Fuzzy trace theory suggested another way in which memory may develop during childhood. According to this theory, when an individual encodes information, two types of memory representations are created- verbatim trace (with details) and fuzzy trace or gist (central idea). Young children tend to encode, store, and retrieve verbatim traces, whereas elementary school aged children begin to use gist more.

Children also develop different encoding strategies that play a role in storing and retrieving information. Camos and Barrouillet (2011) found that children below the age of 5 or 6 do not use specific strategies to remember information but they can do so if taught. It is only during middle or late childhood that children use organization as a strategy to remember information. Elementary school children can be taught to use elaboration as a strategy to learn a task but they may not be able to do it on their own. Verbal strategy has been found to be the most effective at this age. They may use mental scripts to remember what to do in similar situations.

Very much like adults, children's memories are also constructive and reconstructive. The schemas that children have help them in constructing and reconstructing these memories. Testimonies by eyewitness at trials have always been useful in explaining reconstruction and distortion. A study by Pickrell and Loftus (2001) conducted at Disneyland concluded that in children various factors can influence the accuracy of their memory. For instance, preschoolers are more susceptible to suggestions, interviewing technique used; tone can also produce distortions.

Adolescence

Both long term and working memory keep increasing during adolescence. The prefrontal cortex continues to develop through adolescence which is responsible for working memory in adults and also has an important role in executive functions (ability to regulate behavior, attention, cognitive flexibility, and inhibitory control). Finn and colleagues (2010) concluded that younger teens use both prefrontal cortex and hippocampus when working on a memory task whereas teens by the age of 18 start using only prefrontal cortex like adults.

7.6.3 Metacognition

Metacognition is cognition about cognition or "knowing about knowing", that is the process of thinking about and regulating one's own thoughts and cognitive activities (Vrugt & Oort, 2008). It can take various forms such as knowledge about when and where to use particular strategies for learning or problem solving, knowledge about memory (metamemory), and knowledge about one's own memory.

One of the earliest abilities children develop is called *theory of mind*—thoughts about how mental processes work, such as becoming aware that mind exists, understanding cognitive connections to physical world. It is the ability to understand that people (and they themselves) experience and act on mental states such as beliefs, emotions and intentions (Lecce, Demicheli, Zocchi, & Palladino, 2015). By the age of 2-3 years, children only have a minimal understanding of how mental life can be linked to behavior. It is by the age of 4 and 5 years, they begin to understand that mind can represent objects and events either accurately or inaccurately.

The process of developing cognitive skills continue in the middle childhood and later as well. In a study, 3rd and 5th grade children were given some new tasks to learn (Metcalf & Finn, 2013). They reported accurately about the ones they learned and the ones they could not. When they were given a chance to choose to study from the material they were given, 5th grade students chose tasks they could not learn well earlier, whereas 3rd grade students chose randomly. Thus, it was concluded that metacognitive knowledge may have been developing for both but the ability to apply it develops slowly.

Check Your Progress 5

1. What is attention?

.....

.....

.....

2. Adolescents can study efficiently while listening to a TV show because by this age they can split their attention between multiple activities. True or False.

.....

.....

.....

3. People have clear memories of what happened in their lives before the age of 3. True or False.

.....

.....

.....

4. Explain theory of mind and how does it change during preschool years.

.....

.....

.....

7.7 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learnt:

- Piaget believed that children construct their own cognitive worlds and build mental structures to adapt to it. Assimilation occurs as the child incorporates new information into his/her existing schemes. Accommodation is the child's adjustment of schemes to for new information.
- Piaget had proposed four distinct stages of cognitive development- sensorimotor, preoperational, concrete operational and formal operational.
- In sensorimotor stage, the infant organizes and coordinates sensory experiences with his/her physical movements. Preoperational thought involves a transition from usage of symbols from primitive to more sophisticated ones. But the child is still unable to think in an operational way. Concrete operational stage is characterized by logical thought about concrete objects, classification, and establishing relationship among objects. Lastly, formal operational thought is more abstract and logical.

Thus, by now the adolescents start engaging in hypothetico-deductive reasoning.

- Vygotsky was of the opinion that learning begins in the social world and is culturally based and children learn through social collaboration with someone who is more skilled or knowledgeable than them.
- Vygotsky believed that language has an important role to play in cognitive development. With age and experience, children internalize their egocentric speech in the form of inner speech, which actually become their thoughts.
- The information-processing approach makes sense of how individuals manipulate, monitor, and create strategies to handle information. Attention, memory, and thinking are the basic processes involved in it.

7.8 KEYWORDS

Assimilation Using current schemas to interpret the outside world.

Attention Focusing and concentrating mental resources

Concrete Operations Third stage of cognitive development (by Piaget) in which logical thinking starts developing but children still cannot think abstractly.

Conservation Ability to understand that certain physical characteristics of objects remain the same even when their outward appearance changes.

Formal Operations Piaget's fourth stage of cognitive development in which adolescents can think both logically and abstractly.

Hypothetico-deductive reasoning Ability to form hypotheses regarding how the world works and reason logically about these hypotheses.

Infantile amnesia Inability of adults to retrieve episodic memories before the age of three years.

Memory Retention of information over a period of time

Preoperational Stage Piaget's second stage of cognitive development, in which children (2 to 7 years) do not have the logical thought and instead think egocentrically and magically.

Private Speech Talking loudly to oneself in order to guide one's own actions.

Reversibility Ability to reverse mental operations.

Sensorimotor stage Piaget's first stage of cognitive development, in which infants learn through their senses and actions on the world.

Theory of Mind Awareness of one's own and others' mental processes

Zone of Proximal Development It is what a child cannot do on his/her own but can accomplish with a little assistance from someone more knowledgeable.

7.9 REVIEW QUESTIONS

1. Discuss the major advances in each of Piaget's four stages of cognitive development.
2. How does personal fable and imaginary audience affect development during adolescence?
3. What criticisms have been made of Piaget's theory?
4. Explain the premise of the theory of core knowledge.
5. What role does private speech play in children's learning?
6. Explain how theories by Piaget and Vygotsky differ from each other and what are the possible similarities between them?
7. How does attention and memory develop through childhood and adolescence?
8. What is metacognition?

7.10 REFERENCES AND FURTHER READING

- Akers, K. G., Martinez-Canabal, A., Restivo, L., Yiu, A. P., De Cristofaro, A., Hsiang, H., . . . Frankland, P. W. (2014). Hippocampal neurogenesis regulates forgetting during adulthood and infancy. *Science*, 344(6184), 598–602.
- Alloway, T. (2010). Improving working memory: Supporting students' learning. Thousand Oaks, CA: Sage.
- Amos, D., & Johnson, S. P. (2006). Learning by selection: Visual search and object perception in young infants. *Developmental Psychology*, 42, 1236–1245.
- Aro, T., Poikkeus, A., Laakso, M., Tolvanen, A., & Ahonen, T. (2015). Associations between private speech, behavioral self-regulation, and cognitive abilities. *International Journal of Behavioral Development*, 39(6), 508–518.
- Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. In K. W. Spence & J. T. Spence (Eds.), *Advances in the psychology of learning and motivation* (Vol. 2, pp. 90–195). New York: Academic Press.
- Baddeley, A. D. (1990). *Human memory: Theory and practice*. Boston: Allyn & Bacon.
- Baddeley, A. D. (2001). Is working memory still working? Paper presented at the meeting of the American Psychological Association, San Francisco.
- Baillargeon, R. & DeVos, J. (1991). Object permanence in young infants: Further evidence. *Child Development*, 62, 1227–1246.
- Baillargeon, R., Li, J., Ng, W., & Yuan, S. (2009). An account of infants' physical reasoning. In A. Woodward & A. Needham (Eds.), *Learning and the infant mind* (pp. 66–116). New York: Oxford University Press.
- Bauer, P. J. (2007). Recall in infancy: A neurodevelopmental account. *Current Directions in Psychological Science*, 16(3), 142–146.

- Bauer, P. J., & Leventon, J. S. (2013). Memory for one-time experiences in the second year of life: Implications for the status of episodic memory. *Infancy*, 18(5), 755–781.
- Bearce, K., & Rovee-Collier, C. (2006). Repeated priming increases memory accessibility in infants. *Journal of Experimental Child Psychology*, 93(4), 357–376.
- Berk, L. E. (2013). *Child Development* (9th ed.). Pearson.
- Berk, L. E., & Meyers, A. B. (2013). The Role of Make-Believe Play in the Development of Executive Function: Status of Research and Future Directions. *American Journal of Play*, 6(1), 98–110.
- Bjorklund, D. (2005). *Children's thinking* (4th ed.) Belmont, CA: Wadsworth.
- Bremner, J.G. (2010). Cognitive development: Knowledge of the physical world. In J. G. Bremner & T.D. Wachs (Eds.), *Wiley-Blackwell handbook of infant development: vol. 1. Basic research* (2nd ed.) 204–242. Oxford, UK: Wiley
- Byrnes, J. P. (2003). Cognitive development during adolescence. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell handbook of adolescence* (pp. 227–246). Malden, MA: Blackwell.
- Callaghan, T. C. (1999). Early understanding and production of graphic symbols. *Child Development*, 70, 1314–1324.
- Camos, V., & Barrouillet, P. (2011). Developmental change in working memory strategies: From passive maintenance to active refreshing. *Developmental Psychology*, 47(3), 898–904.
- Cole, M. (2006). Culture and cognitive development in phylogenetic, historical, and ontogenetic perspective. In R. M. Lerner (Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 636–685). Hoboken, NJ: Wiley.
- Cole, M., & Cagigas, X. E. (2010). Cognition. In M. H. Bornstein (Ed.), *Handbook of cultural developmental science* (pp. 127–142). New York: Psychology Press.
- Colombo, J., & Mitchell, D. W. (2009). Infant visual habituation. *Neurobiology of Learning and Memory*, 92(2), 225–234.
- Connolly, J. A., & Doyle, A. B. (1984). Relations of social fantasy play to social competence in preschoolers. *Developmental Psychology*, 20, 797–806.
- DeLoache, J. S. (1987). Rapid change in symbolic functioning of very young children. *Science*, 238, 1556–1557.
- DeLoache, J. S. (2011). Early development and use of symbolic artifacts. In U. Goswami (Ed.), *Wiley-Blackwell handbook of childhood cognitive development* (2nd ed.). New York: Wiley-Blackwell.
- DeVries, R. (2001). Constructivist education in preschool and elementary school: The sociomoral atmosphere as the first educational goal. In S. L. Golbeck (Ed.), *Psychological perspectives on early childhood education* (pp. 153–180). Mahwah, NJ: Erlbaum.
- Dilworth-Bart, J. E., Khurshid, A., & Vandell, D. L. (2007). Do maternal stress and home environment mediate the relation between early income-to-need and 54-months attentional abilities? *Infant and Child Development*, 16(5), 525–552.

- Drews, F. A., Yazdani, H., Godfrey, C. N., Cooper, J. M., & Strayer, D. L. (2009). Text messaging during simulated driving. *Human Factors*, 51(5), 762–770.
- Elkind, D. (1976). Child development and education. A Piagetian perspective . New York: Oxford University Press.
- Elkind, D. (1978). Understanding the young adolescent. *Adolescence*, 13, 127–134.
- Elkind, D. (1994). *A sympathetic understanding of the child: Birth to sixteen* (3rd ed.). Boston: Allyn and Bacon.
- Elkind, D., & Bowen, R. (1979). Imaginary audience behavior in children and adolescents. *Developmental Psychology*, 15(1), 38–44.
- Erus, G., Battapady, H., Satterthwaite, T. D., Hakonarson, H., Gur, R. E., Davatzikos, C., & Gur, R. C. (2015). Imaging patterns of brain development and their relationship to cognition. *Cerebral Cortex*, 25(6), 1676–1684.
- Fahrmeier, E. D. (1978). The development of concrete operations among the Hausa. *Journal of Cross-Cultural Psychology*, 9, 23–44.
- Fan, J., Gu, X., Guise, K. G., Liu, X., Fossella, J., Wang, H., & Posner, M. I. (2009). Testing the behavioral interaction and integration of attentional networks. *Brain and Cognition*, 70(2), 209–220.
- Finn, A. S., Sheridan, M. A., Kam, C. L. H., Hinshaw, S., & D’Esposito, M. (2010). Longitudinal evidence for functional specialization of the neural circuit supporting working memory in the human brain. *Journal of Neuroscience*, 30(33), 11062–11067.
- Flavell, J.H., Miller, P.H., & Miller, S.A. (2002). Cognitive development (4th ed.). Upper Saddle River, NJ: Prentice Hall.
- Foerde, K., Knowlton, B. J., & Poldrack, R. A. (2006). Modulation of competing memory systems by distraction. *Proceedings of the National Academy of Sciences*, 103(31), 11778–11783.
- Fogel, A. (2002). *Infancy* (4th ed.). Belmont, CA: Wadsworth.
- Furth, H. G., & Wachs, H. (1975). *Thinking goes to school*. New York: Oxford University Press.
- Galanaki, E. P. (2012). The imaginary audience and the personal fable: A test of Elkind’s theory of adolescent egocentrism. *Psychology*, 3(6), 457–466.
- Gauvain, M., & Parke, R. D. (2010). Socialization. In M. H. Bornstein (Ed.), *Handbook of cultural developmental science* (pp. 239–258). New York: Psychology Press.
- Gelman, R. (1969). Conservation acquisition: A problem of learning to attend to relevant attributes. *Journal of Experimental Child Psychology*, 7, 67–87
- Gelman, S. A., & Kalish, C. W. (2006). Conceptual development. In D. Kuhn & R. Siegler (Eds.), *Handbook of child psychology: Vol. 2. Cognition, perception, and language* (6th ed., pp. 687–733). Hoboken, NJ: Wiley.
- Gelman, S. A., & Opfer, J. E. (2004). Development of the animate-inanimate distinction. In U. Goswami (Ed.), *Blackwell handbook of childhood cognitive development*. Malden, MA: Blackwell.
- Gibson, E.J. (2003). The world is so full of a number of things: On specification and perceptual learning. *Ecological Psychology*, 15, 283–287.

- Gielen, U. P., & Jeshmaridian, S. S. (1999). Lev S. Vygotsky: The man and the era. *International Journal of Group Tensions*, 28(3/4), 273–301.
- Ginsburg, K. R. (2007). The importance of play in promoting healthy child development and maintaining strong parent–child bonds. *Pediatrics*, 119 (1), 182–191.
- Goldstein, J. R. (2011). A secular trend toward earlier male sexual maturity: Evidence from shifting ages of male young adult mortality. *PLoS ONE*, 6(8).
- Gopnik, A., & Meltzoff, A. (1997). *Words, thoughts, and theories*. Cambridge, MA: MIT Press.
- Hayne, H. (2004). Infant memory development: Implications for childhood amnesia. *Developmental Review*, 24(1), 33–73.
- Hespos, S. J., & Baillargeon, R. (2001). Reasoning about containment events in very young infants. *Cognition*, 78, 207–245.
- Hespos, S. J., & vanMarle, K. (2012). Physics for infants: Characterizing the origins of knowledge about objects, substances, and number. Wiley Interdisciplinary Reviews: *Cognitive Science*, 3(1), 19 – 27
- Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence: An essay on the construction of formal operational structures*. New York: Basic Books. (Original work published 1955)
- Kobayashi, T., Hiraki, K., & Hasegawa, T. (2005). Auditory-visual intermodal matching of small numerosities in 6-month-old infants. *Developmental Science*, 8, 409–419.
- Kobayashi, T., Kazuo, H., Ryoko, M., & Hasegawa, T. (2004). Baby arithmetic: One object plus one tone. *Cognition*, 91, B23–B34.
- Kuhn, D. (2008). Formal operations from a twenty-first century perspective. *Human development*, 51(1), 48–55.
- Lamb, M. E., Bornstein, M.H., & Teti, D.M. (2002). Development in infancy (4th ed.). Mahwah, NJ: Erlbaum.
- Lecce, S., Demicheli, P., Zocchi, S., & Palladino, P. (2015). The origins of children’s metamemory: The role of theory of mind. *Journal of Experimental Child Psychology*, 131, 56–72.
- Lehman, D. R., & Nisbett, R. E. (1990). A longitudinal study of the effects of undergraduate training on reasoning. *Developmental Psychology*, 26, 952–960.
- Leslie, A. M. (2004). Who’s for learning? *Developmental Science*, 7, 417–419.
- Light, P., & Perrett-Clermont, A. (1989). Social context effects in learning and testing. In A. R. H. Gellatly, D. Rogers, & J. Sloboda (Eds.), *Cognition and social worlds* (pp. 99–112). Oxford: Clarendon Press.
- Luo, Y., & Baillargeon, R. (2005). When the ordinary seems unexpected: Evidence for incremental physical knowledge in young infants. *Cognition*, 95, 297–328.
- Mandler, J. (2000). Unpublished review of J. W. Santrock’s *Life-Span Development*, 8th ed. (New York: McGraw-Hill).
- Mandler, J. M. (2004). Thought before language. *Trends in Cognitive Sciences*, 8, 508–513.

- McClelland, M. M., Acock, A. C., Piccinin, A., Rhea, S. A., & Stallings, M. C. (2013). Relations between preschool attention span-persistence and age 25 educational outcomes. *Early Childhood Research Quarterly*, 28(2), 314–324.
- McDonough, L. (1999). Early declarative memory for location. *British Journal of Developmental Psychology*, 17, 381–402.
- Metcalf, J., & Finn, B. (2013). Metacognition and control of study choice in children. *Metacognition and Learning*, 8(1), 19–46.
- Metzoff, A.N., & Moore, M.K. (1994). Imitation, memory, and the representation of persons. *Infant Behavior and Development*, 17, 83–99.
- Mooney, C.G. (2006). *Theories of childhood*. Upper Saddle River, NJ: Prentice Hall.
- Nelson, K. (2015). Making sense with private speech. *Cognitive Development*, 36, 171–179.
- Neville, H. J., Stevens, C., Pakulak, E., Bell, T. A., Fanning, J., Klein, S., & Isbella, E. (2013). Family-based training program improves brain function, cognition, and behavior in lower socioeconomic status preschoolers. *Proceedings of the National Academy of Sciences of the United States of America*, 110, 12138–12143.
- Newcombe, N., & Huttenlocher, J. (1992). Children's early ability to solve perspective-taking problems. *Developmental Psychology*, 28, 635–643.
- O'Reilly, A. W. (1995). Using representations: Comprehension and production of actions with imagined objects. *Child Development*, 66, 999–1010.
- Osherson, D. N., & Markman, E. M. (1975). Language and the ability to evaluate contradictions and tautologies. *Cognition*, 2, 213–226.
- Piaget, J. (1952). *The origins of intelligence in children*. New York: International University Press. (Original work published 1936.)
- Piaget, J., Inhelder, B., & Szeminska, A. (1960). *The child's conception of geometry*. New York: Basic Books. (Original work published 1948)
- Pickrell, J., & Loftus, E. F. (2001). Creating false memories. *Paper presented at the American Psychological Society*, Toronto.
- Pool, M. M., Koolstra, C. M., & van der Voort, T. H. A. (2003). Distraction effects of background soap operas on homework performance: An experimental study enriched with observational data. *Educational Psychology*, 23(4), 361–380.
- Rothbart, M. K., & Gartstein, M. A. (2008). Temperament. In M. M. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.
- Rovee-Collier, C. (1999). The development of infant memory. *Current Directions in Psychological Science*, 8(3), 80–85.
- Rowe, S. M., & Wertsch, J. V. (2004). Vygotsky's model of cognitive development. In U. Goswami (Ed.), *Blackwell handbook of childhood cognitive development*. Malden, MA: Blackwell.
- Santrock, J. W. (2011). *Child development*. 13th ed. New York: McGraw Hill.

- Spelke, E. S. (2004). Core knowledge. In N. Kanwisher & J. Duncan (Eds.), *Attention and performance* (Vol. 20, pp. 29–56). Oxford, UK: Oxford University Press.
- Spelke, E. S., & Kinzler, K. D. (2007). Core knowledge. *Developmental Science*, 10, 89–96.
- Takishima-Lacasa, J. Y., Higa-McMillan, C. K., Ebesutani, C., Smith, R. L., & Chorpita, B. F. (2014). Self-consciousness and social anxiety in youth: The Revised Self-Consciousness Scales for Children. *Psychological Assessment*, 26(4), 1292–1306.
- Vrugt, A., & Oort, F. J. (2008). Metacognition, achievement goals, study strategies and academic achievement: Pathways to achievement. *Metacognition and Learning*, 30, 123–146.
- Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes (M. Cole, V. John-Steiner, S. Scribner & E. Souberman., Eds.) (A. R. Luria, M. Lopez-Morillas & M. Cole [with J. V. Wertsch], Trans.) Cambridge, Mass.: Harvard University Press. (Original manuscripts [ca. 1930-1934]) Waddington.
- Wang, S., Baillargeon, R., & Paterson, S. (2005). Detecting continuity violations in infancy: A new account and new evidence from covering and tube events. *Cognition*, 95, 129–173.
- Winsler, A., Carlton, M. P., & Barry, M. J. (2000). Age-related changes in preschool children's systematic use of private speech in a natural setting. *Journal of Child Language*, 27, 665–687.
- Winsler, A., Diaz, R. M., & Montero, I. (1997). The role of private speech in the transition from collaborative to independent task performance in young children. *Early Childhood Research Quarterly*, 12(1), 59-79.
- Woodward, A. L. (2009). Infants' grasp of others' intentions. *Current Directions in Psychological Science*, 18, 53–57.

7.11 ADDITIONAL ONLINE RESOURCES

Piaget's three mountain task by The Wonder Years Project. Copyright 2012. University of Minnesota Extension Children, Youth and Family Consortium:

<https://www.youtube.com/watch?v=v4oYOjVDgo0>

- *A typical child on Piaget's conservation tasks:*

<https://www.youtube.com/watch?v=gnArvcWaH6I&t=29s>

Vygotsky in the Classroom by the Human League:

- <https://www.youtube.com/watch?v=I9CnZoFUIT0&t=96s>

Answers to Check Your Progress

Check Your Progress 2

Q.4: False

Check Your Progress 5

Q.2: False;

Q.3: False

UNIT 8 LANGUAGE DEVELOPMENT⁸

Perspectives On
Human
Development II:
Cognitive
Perspective

Structure

- 8.0 Introduction
- 8.1 Basic Aspects of Language
- 8.2 Language and Brain
- 8.3 Theories of Language Development
 - 8.3.1 Nativism
 - 8.3.2 Behavioral and Social Cognition theory
 - 8.3.3 Interactionism
 - 8.3.4 Cognitive Processing theory
- 8.4 Stages of Language Development
 - 8.4.1 Infancy
 - 8.4.2 Early Childhood
 - 8.4.3 Middle and Late Childhood
 - 8.4.4 Adolescence
- 8.5 Literacy: Reading and Writing
 - 8.5.1 Learning to Read in School
 - 8.5.2 Writing Skill
- 8.6 Bilingualism
- 8.7 Summary
- 8.8 Keywords
- 8.9 Review Questions
- 8.10 References and Further Reading
- 8.11 Additional Online Resources

Learning Objectives

After reading this unit, you will be able to:

- explain different stages of language development;
- describe basic theories about language development, and
- outline how reading and writing skills develop.

8.0 INTRODUCTION

Another universal human achievement is language development. It is interesting and intriguing how fast a child learns language and also acquires a diverse vocabulary at a very young age.

⁸ Vrushali Pathak, Research Scholar, Department of Psychology, Jamia Millia Islamia, New Delhi.

It helps them in communicating their needs to others, conversing with others and experiment with varying social roles. The child as if possesses a natural ability to organize language as per the form and meaning, but the context in which the language is introduced- regarding objects, events and feelings, have an important role to play in language development. Between the age of 8 and 18 months, infants start using words to speak. Its usage and beginning varies from infant to infant.

Language has been defined as a system of symbols that is used to communicate, it could be spoken, written or in the form of signs. It is an integral part of our lives and if we think about it, apart from communicating with others, we use language even to think. Interestingly, the words we use can also influence our thought process and the way in which we make sense of the experiences around us. Every language consists of a set of rules for varying and combining different words, but all human languages also share certain common characteristics. They have infinite generativity, that is, they can produce infinite number of meaningful sentences using a limited (given) number of words and rules. Thus, every language has rule systems and it is quite ordered and organized in nature.

8.1 BASIC ASPECTS OF LANGUAGE

The organization of language involves five basic systems of rules- phonology, morphology, syntax, semantics, and pragmatics.

Phonology is the study of basic sounds of a language. A phoneme is the smallest, basic unit of a language and it is the distinct sound in a language. For example, the word 'check' has three phonemes: *ch*, *e*, and *k* and the word. Interestingly, in English, *k* sound is denoted by the letter 'k' in the word kite and by the letter 'c' in the word camera. Different languages have different types of phonemes. For instance, in Japanese, the length of a vowel may change one word from another. The word 'toko' which means bed, if spoken with a long final 'o' would mean travel (Sato, Sogabe, & Mazuka, 2010).

Morphology is another rule system directing how sounds are used to form words. A morpheme is the basic unit of meaning in a language. For instance, the word 'cats' has two morphemes- cat and s; wherein 'cat' is an animal and 's' adds more number to it, that is it means more than one cat. So, morpheme is a word or a part of word that cannot be broken further into smaller parts with meaning to it. For instance, the word 'helper' also has two morphemes 'help' and 'er' the word help exists on its own as a word and cannot be broken down further into another meaningful unit. Another morpheme here is 'er' which mean "one who" (one who helps- helper). Although it's not a word on its own but has a meaning and cannot be broken down any further.

Syntax is the grammar of a language- putting words in a particular order, combines them to make acceptable and meaningful sentences. For instance, "You didn't stay, did you?" is a grammatical sentence which is acceptable but "You didn't stay, didn't you?" is unacceptable due to its ambiguity (Santrock, 2011). Syntax also determines how and when we change words.

For instance, by changing the word played from play, we can talk about the past.

Semantics denote the meaning of words and sentences. Words have semantic restrictions, in terms of how they can be used in a sentence. For instance, the words boy and man may share a lot of features and characteristics but differ semantically with regard to age and thus are used accordingly in sentences. A sentence might be syntactically correct but semantically incorrect. For instance, the pillar started moving from place x to place b. This sentence is grammatically correct but as per our semantic knowledge, it does not make sense as we know that pillars are objects and cannot move on their own.

Another set of rules that are important in language is *Pragmatics*. It is how we use language in social situations and different contexts. Language is used for different purposes such as requests, information, to question, greetings etc. and we speak differently in different situations and with different people. For instance, using a question to convey authority- “Why is everyone standing here?” or “Is this what you call appropriate arrangement?” we may speak politely with a teacher, “Ma’am may I leave the lecture 5 minutes early for my doctor’s appointment.” Pragmatics is also applied when we share a joke with friends, tell a story to a child or say a convincing lie to save our skin. This is demonstrative of our cultural understanding and thus adjusting our language and its expression according to the culture and context (Siegal & Surian, 2010). Taking turns while communicating also comes under the rules of pragmatics. While growing up, children develop the ability to communicate using language and for that they learn and develop all these five areas.

8.2 LANGUAGE AND BRAIN

Specific parts of the brain have been identified which play an important role in language function. Left hemisphere contains two areas which are essential to language- Broca’s area and Wernicke’s area. Broca’s area is found in the left inferior frontal gyrus and is responsible for speech production. In case of damage to this area, a person will end up using very few words to communicate. For instance, when asked about his weekend plans, a person with damage in Broca’s area responded, “Boston. College. Football. Saturday” (Gleason, 2005, p. 17). On the other hand, Wernicke’s area is responsible for speech comprehension- understanding and creating meaning in speech and is located in the posterior section of the superior temporal gyrus. In case of damage to Wernicke’s area, the individual would be able to produce words easily but will have a difficulty in making sense of the conversation that is going on. Thus, they may end up answering something irrelevant when a question is asked.

These two capabilities do not develop at the same time as we can also see that infants start understanding words before they can say them, therefore it can be said that, comprehension precedes language production. This difference perhaps continues throughout an individual’s life (Celce-Murcia & Olshtain, 2001). For instance, college going youngsters can understand technical and

complex lectures but their own speech and writing is less complex in comparison.

Check Your Progress 1

1. Name five aspects of language that researchers have examined.

.....

.....

.....

2. What are semantics?

.....

.....

.....

3. Differentiate between phoneme and morpheme.

.....

.....

.....

4. Explain the functions of Broca's area and Wernicke's area of the brain.

.....

.....

.....

8.3 THEORIES OF LANGUAGE DEVELOPMENT

Various theories have been offered about how children learn to understand language and talk. No one theory is without its limitations and shortcomings. Although brain development is necessary but it is not the only thing responsible for language development, so in this section, we will look at different theories and how they explain language development.

8.3.1 Nativism

Linguist Noam Chomsky (1968) proposed that the human brain is innately wired to learn language at a certain time in a certain way. This theory is known as nativism. He believed that in order to learn something as complex as a language, it is imperative that a grammatical structure is already hardwired in their brain even before they ever heard any language. This has been called as universal grammar. Nativists such as Chomsky have pointed that the children end up saying things they have never heard such as “Dad eated whole dinner.” The adults around the child would not have said something like “eated” therefore it cannot be just the imitation of what is heard by the child. However, it would be important to note here that the language English uses ‘ed’ as a suffix to refer to past tense but there are

exceptions to that rule (like all other rules). These type of mistakes and grammatical errors are indicative of the fact that the child has learned a pattern but has used it with a word that does not follow this particular pattern.

Chomsky believed that we are born with a language acquisition device (LAD) and due to this we are biologically endowed to detect some features and rules of language. Those who disagree with the concept of LAD (a theoretical construct and not a part of brain) argue that even if something like LAD is present, it does not explain the complete picture of language acquisition in children.

8.3.2 Behavioral and Social Cognitive theory

Behavioral psychologists opposed Chomsky's hypothesis and claimed that language is a complex, learned skill, very much like other skills- cycling, swimming, etc. They argued that language development is like a chain of responses that the child acquires through reinforcement (Skinner, 1957). For instance, when the baby babbles "Pa-pa" or "Ma-ma", the caregiver rewards him/her with smiles, kisses and hugs and this encourages the baby to say the word again and again. Thus, the baby builds up language. Similarly, if the child says "chocolate" and we reward them with the desired chocolate, it would be more likely that the child will use the same word when he/she wants a chocolate next time.

Another important aspect that has a role to play is "imitation". The child learns the language he/she hears, not any other language; therefore, we can conclude that language is learnt through imitation. This also corresponds with Bandura's social cognitive theory. Østvik, Eikeseth, and Klintwall (2012) conducted a study to understand the relative influence of both reinforcement (behavioral principles social cognitive theory) on language and imitation development. Children were shown a picture and an adult described it as, "The elephant is pulled by the mouse." Later, when children were asked about it, they were given a reward if they described the picture as "The mouse pulls the elephant", despite this most of them imitated the adult, even if they saw/knew of being rewarded on saying something else.

A fascinating concept is **child-directed speech**- language spoken in a higher pitch in comparison to the normal one with very simple words and sentences (Clark, 2009). Researches indicate that adults shift to child-directed speech as soon as they start talking to a baby and they may not even do it very consciously. This sort of speech is important as it captures infants' attention and maintains communication as well. Three other strategies used to boost language acquisition in children are as follows:

- **Recasting:** it is rephrasing and restating the words of a child which may let the child indicate their interest and elaborating upon it further. For example, "The car passed away from here". The adult can rephrase and further ask, "When did the car pass from here?"
- **Expanding:** it is restating what the child says properly. For example, the child may say "Cattie sleep" and the parent may reply, "Yes, the cattie is sleeping."

- Labeling: all of us (as adults) keep asking children to identify and name various objects around us. It is believed that most of the child's vocabulary is due to this constant "game" of identifying words associated with different objects.

8.3.3 Interactionism

This approach integrates aspects of both behaviorism and nativism and propagates that a child's biological readiness and experiences with language together are responsible for language development. Both nature and nurture are equally necessary for the child to develop various components of language. Another aspect emphasized by the interactionist approach is that language is socially created. They believe that the interaction between child and adult is of extreme importance. Researchers (for instance, Bohannon & Bonvillian, 2005; Gogate, Maganti, & Bahrick, 2015) have found that parents try to simplify their language (in various cultures) as it helps the child in understanding things better; it's like that they are looking for a good fit between their speech and perceptual and cognitive abilities of the child. As biological endowment is important, so is the opportunity to talk and be talked with. Thus, children who have a rich verbal environment are expected to be benefitted more.

8.3.4 Cognitive Processing Theory

An interesting view has emerged overtime stating that children take in and statistically process language they hear. This process is called as "data crunching" (Hoff & Naigles, 2001). The cognitive processing theory proposed that infants process words even before they can speak, thus, language is mainly learnt and not innate. Social interaction may have a huge role to play in motivating the child to speak and process language, but the actual processing relies on the computational ability of the brain.

They demonstrated this by addressing how infants learn to differentiate words out of various sounds they hear at once. For instance, when we are reading the spaces between the words indicate the starting and ending of a word, which is not very clear during speech. They answered that infants' brains statistically figure out the probability of one sound following the other one to form a word. It is called as transitional probability (Karuza et al., 2013). For instance, the sound 'ele' is mostly followed by "phant", "vator", or "ment". Therefore, there is a high transitional probability between these syllables. The entire word elevator might be followed by various other sounds in the sentence and they may have a low transitional probability of occurring with "ele", thus differentiating the word. Research has indicated that even 8-months-old can use conditional probability to differentiate non-words and words they have had heard in a conversation (Pelucchi, Hay, & Saffran, 2009).

Check Your Progress 2

1. How is nativism different from other theories of language development?
.....
.....
.....
2. According to the behavioral and social cognitive theory, name some of the strategies used to boost language acquisition in children.
.....
.....
.....
3. Explain data crunching and transitional probability.
.....
.....
.....
4. What is the interactionist view of language development?
.....
.....
.....

8.4 STAGES OF LANGUAGE DEVELOPMENT

All of us have been curious about how language develops in children. Questions such as do they follow a particular pattern or stages? Does age play a role in it? Is there a critical period for learning language? are very crucial and the ones which researchers are trying to study. In this section, we try to describe language development and have de-emphasized ages because rate of development differs in children massively. All children pass through stages of language development no matter in what culture they live. Brown (1973) identified the following stages: *cooing*, *babbling*, *one-word speech (holophrastic)*, *telegraphic speech*, and *whole sentences*. To understand language development, we have divided the section into four- infancy, early childhood, middle and late childhood, and adolescence.

8.4.1 Infancy

It has already been demonstrated that language learning begins even before birth. Within the first few days only, they show a preference for the language their mother speaks and if they have heard more than one language regularly, they show their preference for both the languages (Byers-Heinlein, Burns, & Werker, 2010). Infants try to communicate in various ways even before they are able to utter a proper or meaningful word. Some of these ways are as follows:

Crying: Babies cry at birth. Initially it is a reflexive behavior but soon it becomes a way to communicate distress. Soon they learn that it is a signal that brings relief from whatever is bothering them as the adults try to make it stop and meet the infant's demand. Interestingly, babies' cry just communicate the intensity and severity of pain or discomfort they are experiencing; thus, the parents figure out on the basis of their experience why the baby is crying and what it wants- feed, nap etc.

Cooing: Between the age of 2 and 4 months, babies start making pleasant sounds, similar to soft vowel sounds, this has been termed as cooing. By then they also start laughing and some are also seen taking turns in their "prelanguage conversation" with their parents (Tamis-LeMonda, Cristofaro, Rodriguez, & Bornstein, 2006).

Babbling: By the age of 4-6 months, babies start making one-syllable sounds such as ba, da, ma etc. Gradually, they start combining these sounds repetitively, such as bababa, mama, gaga. These initial vocalizations are not very meaningful or intentional, but babies start attaching meaning to it because of the response their parents give them. For instance, mamama is understood as mommy, thus making the mother happy and further encouraging the child to repeat it. An interesting finding suggested that in almost all the different languages across the world, the words for mother and father start with one of the earliest sounds the babies make, such as *abba* (Armanic, Hebrew), *baba* (Persian, Mandarin) etc. In case of deaf children born to deaf parents who use sign language, the infants babble with their fingers and hands at the same age the hearing infants babble vocally (Bloom, 1998).

According to researches, infants till the age of 6 months can distinguish various sounds made and used in different languages, but they lose this ability by 10 months perhaps because they do not get the opportunity to hear all kinds of sounds in their native language (which they hear often) (Best & McRoberts, 2003; Conboy & Kuhl, 2011). For example, Hindi language has two distinct phonemes that sound like 'da' to English speakers (for example, the sound of 'da' is different in the two Hindi words *Dadaji* (grandfather) and *daali* (stalk of a flower or leaf)). It seems that an aspect of learning language depends upon identifying and recognizing specific sounds used in that language. Kuhl and colleagues (2005) concluded that infants who are good at discriminating sounds in their native language by 7 months, demonstrate better language development by the age of 2 years, whereas infants with better ability to discriminate sounds in non-native language (at 7 months), may have a delayed language development in comparison.

First words

Utterance of the first word of an infant is a major milestone of their life. It has been well documented that infant can understand words much before they can speak them (Pan & Uccelli, 2009). One of the major examples of it is the fact that they can recognize their name being called sometimes even as early as 5 months of age, but their first word usually doesnot occur before 10 to 15 months of age. The appearance of first word is a continuation of the

communication process, thus is followed by gestures, babbling, cooing etc. (Berko Gleason, 2009). The first proper word of the baby could be that of an important person (dada, baba), some familiar animal (doggie), toys, food related item (milk), some body part (eye), words that are used daily (bye, wash) etc. Interestingly, one word that the child uses has various intentions and the parent or caregiver tries to make sense of it in the context, for instance, the word “milk” may mean “I want milk” or “This is milk” or “Give her milk”.

An 18-month-old has a vocabulary of 50 words on an average which increases to almost 200 words by the age of 2 years (Fernald, Pinto, Swingley, Weinberg, & McRoberts, 2001). This increase is called as **vocabulary spurt** (like growth spurt) (Bloom, Lifter, & Broughton, 1985). The spurt may vary from child to child and also depends on their first word utterance. Box 8.1 discusses how children develop vocabulary and master their native language quickly. Cross-linguistic differences are also found in word learning as it has been found that because of greater usage of verbs in Asian languages, children in these cultures learn more verbs than children learning other languages.

Two-word utterances

Between the age of 18-24 months, babies also start using two words to convey their messages or converse with others. With their two words, they also rely on gestures, tone and the context to communicate their message. These two-words usually are devoid of other parts of speech and are very brief, but useful in conveying the message; for instance, “Daddy come”, “Baby sleep”, “Where car?”, “More milk”, “My cookie” and many more such utterances. This sort of speech is called as **telegraphic speech**. It is called so because of its usage of short and precise words without any grammatical markers. Although, it is important to note that telegraphic speech in itself is not just limited to two words, thus, “Rahul going school”, “Mom give doggie food” are also examples of telegraphic speech. For some children a particular word becomes central and then they may use it with other words to convey certain meanings, for instance, *allgone*. The child may use it as *allgone cookies* or *allgone nanny*. Table 8.1 shows some of the language milestones in infancy. There may be variations in the language input received by the infant but all of them follow a similar path in learning to speak.

Table 8.1 Language milestones in infancy (Santrock, 2011)

Typical age	Language milestone
Birth	Crying
2 to 4 months	Cooing
5 months	Understands first words
6 months	Babbling begins
7 to 11 months	Change happening from universal linguist to language specific listener (native language)

8 to 12 months	Starts using gestures (pointing), comprehension of basic words
13 months	First words
18 months	Vocabulary spurt
18 to 24 months	Two-word utterances

Role played by adults in fostering language development

The way parents interact with their infants and children both verbally and through gestures have an important role in promoting language development, especially in their early years. Around 6 months, infants start developing interest in events happening around them and the caregivers talk to them about what the infant sees while gazing at the object or event together. When the infants look at something, adults may point it for them and also label what it is (Goldfield & Snow, 2005). Infants start using gestures- pointing, showing, at about 8-12 months of age and may also start waving, nodding etc. to convey certain messages such as, nod to mean “yes” or showing an empty cup to communicate they want more water. Pointing is considered as an important indicator in development of the social aspects of language. It follows a particular sequence from pointing to an object without taking note of the adult gaze to pointing while looking back and forth between an object and the adult (Goldin-Meadow & Iverson, 2010). A study by Rowe and Goldin-Meadow (2009) reported that parents of infants from high socioeconomic status (SES) are found to use more gestures while communicating with their 14-month-old infants. This has also been linked to larger vocabulary at the age of 54 months (in infants) as that word enter the child’ world soon. Some adults fear that their babies will end up relying on these signs and gestures, delaying the development of spoken language; but research has demonstrated that sign language actually promotes healthy development of infants in all areas of growth (Barnes, 2010; Kirk, Howlett, Pine, & Fletcher, 2013).

Just using gestures, without parents naming and labeling it may also boost vocabulary development. Iverson and Goldin-Maedow (2005) concluded that when children use gestures for a particular object, the actual word for it may come up in about 3 months of it. The idea behind this is that the representation of the object/event through gestures may help the child in learning the word meaning and eventually use the word. Culture also plays a role here, for instance, some cultures are known to use more gestures (such as Italians) in comparison to others (for instance, Americans) while speaking.

We already know that child-directed speech is common in many cultures, which is characterized by adults changing the way they speak (using a high-pitched voice, simplifying vocabulary, exaggerating sounds, talking in a song like manner) when talking to infants and children (Weisleder & Fernald, 2013). Many people believe that it can be harmful as it teaches them the wrong way to speak. Others believe that these changes are normal as it helps in holding the child’s attention and also suits their sensory and cognitive abilities at that age and stage. Lebedeva and Kuhl (2010) also concluded that

this musical quality of speech may have a role to play in promoting perception of phonemes and sounds in a language.

Another interesting way used by adults to shape infants' language development is by talking to them as if they understand everything, even when it is clear that they do not make sense of the conversation much. Adults even take turns in conversation with whatever the baby responds (babbling, cooing etc.). Cultures differ widely on the basis of their usage of language, gestures etc. with their babies. Some of these cultures such as Gusii of Kenya do not speak to their infants much, yet their babies become skilled and accomplished in their language later. Thus, there are many ways for language development and we should not apply one standard to all people.

Box 8.1 Growth of Vocabulary

By the age of 2 years, children start realizing that words are like symbols and they represent or stand for objects and events in the world (Preissler & Carey, 2004) and this motivates them to learn and use language. Children usually learn nouns before verbs as they refer to objects that are a part of the child's world and as the child realizes that things have names which help in identification, they learn it earlier (Waxman et al., 2013). It would be important to note here that usage of verb is different in different languages and thus, the ease with which children learn it varies from one language to another.

Another way through which children build vocabulary is by using various assumptions and principles, which are called as constraints. These are assumptions made by children which limit the alternative meanings that they may attribute to new words. Three of these constraints are as follows:

- Whole Object bias: it is the assumption made by the child that a word describes an entire object and not just some part of it (Hollich, Golinkoff, & Hirsh-Pasek, 2007).
- Mutual exclusivity constraint: assumption that there is one and only one name for an object. When they hear a new name or word, they believe that it must describe an object that they do not know (Hansen & Markman, 2009).
- Taxonomic constraint: it is an assumption that two objects which share common features may have a same name (like a category name), but each object may also have its own unique name (Markman, 1990). For instance, both cats and dogs have four legs, two ears and a tail, but they also have certain individual characteristics which give them their individual names as cats and dogs.

There are other mechanisms as well which help in learning new words, such as:

- Syntactic bootstrapping: using syntax (grammar) to learn the meaning of words (semantics) (Gutman et al., 2015)
- Semantic bootstrapping: using word meanings to create grammatical categories (Johnson & de Villiers, 2009).

Basically, children use their knowledge of one domain of language to help them learn or make sense of another domain. We will use certain hypothetical words here to understand this, for example, if there are two new words *pulkfs* and *cafted*, as people who understand English language, we know that *-s* is added to nouns to change them to a plural form and *-ed* is added to a verb to convert it to past tense. Thus, there is a clue here that *pulkfs* could be a noun and *cafted* could be verb.

Also, when a word is used in a sentence, its position and usage, provides a clue to its meaning. For instance, in English, the noun is usually followed by the verb, so if the sentence is “*ghifl fughed the dress*”, the assumption would be made that *ghifl* is a noun and *fughed* is a verb. Ferguson, Graf, & Waxman (2014) elaborated and provided further evidence for syntactic and semantic bootstrapping in 19-month-old children.

Another possible explanation could fast mapping- a process through which children apply constraints and knowledge of grammar to learn new words quickly, usually after a single or limited exposure (Woodward, Markman, & Fitximmons, 1994). Interestingly, it has been concluded that exposure to words on various occasions over several days result in better word learning than the same number of exposures to the word in a single day (Childers & Tomasello, 2002).

8.4.2 Early Childhood

Young children become much more skilled in understanding and producing vocabulary and grammar. By 3 years of age, most of the children start using sentences with more than 2 or 3 words. They also start producing all vowel sounds and some consonant sounds. By this age, they start paying attention to rhymes, poems, and making up names for things. As soon as they move beyond two-word utterances, they begin to add morphemes as well (Tager-Flusberg & Zukowski, 2009). They start using plural forms (adding *-s* to *dog* to make it *dogs*), past tense (by adding *-ed* at the end of the word), prepositions (such as *in* and *on*), and articles (like *a* and *the*). Overgeneralization of these rules is perhaps the best evidence signifying the changes occurring in young children. For instance, they may say, “*I goed to the store*” instead of saying “*I went to the store*”. Interestingly, they may end up using both correct and incorrect version in the same sentence itself, “*I goed to the store and then went to play*”.

Preschoolers also start applying rules of syntax, for instance, they use *wh*-questions (What is Mommy doing?). While asking such a question, it is important for them to understand the difference between a question and an affirmative sentence, that is, a *wh*- word must be added at the beginning to make a question sentence and the rule that the auxiliary verb is inverted. Children take more time to learn this rule, thus a lot of times they may end up saying, “*What Mommy is doing?*” instead of “*What is Mommy doing?*” As we have discussed in Box 8.1, vocabulary development can be very fast and dramatic during early childhood, especially between 18 months and 6 years (Diesendruck, 2010; Gelman & Kalish, 2006).

Changes in pragmatics are also quite evident as young children start engaging in extended discourse (Akhtar & Herold, 2008). A 6-year-old turns out to be a better conversationalist than a 2 or 3-year-old. By this age, they start learning culture specific rules of greeting etc. and start adapting their speech according to their context. With growing age, a preschool child also starts talking about things they may have seen earlier or they wish to do later, that is, their ability to talk about past or future. For instance, what happened at grandma's place yesterday? Or where would they want to go tomorrow? By the age of 4 or 5 years, we can find children changing their speech style and talking differently to a 2-year-old than someone who is their peer. They are seen using short sentences with them but when talking to an adult, they are seen using formal language (Shatz & Gelman, 1973).

Despite increasing language development, preschoolers may show certain limitations. For instance, a child may say, "I went to that place yesterday and played with the round and round." The child may fail to realize that the listener might not have an idea of "that place" they are talking about or what is "round and round". This inability to take the role or perspective of others in their conversation has been termed as **egocentric speech**. With time and experience, children learn to be social, their perspective taking ability develops and with this their language also becomes socialized, making communication more effective.



Figure 8.1 Development of speech as explained by Piaget

Vygotsky (1962) on the other hand had a slightly different idea. He believed that children never have a "presocial" speech and at some point, their speech gets divided into two: speech directed at other people and at oneself (private speech). Younger children are often found talking aloud to themselves (for instance, "I will take blue crayon to color this picture"). Children, slightly older may whisper or mutter to themselves while engaged in a task. Some may not even mutter but their mouth may move silently, again indicating of their silent speech. According to Vygotsky, this becomes internalized with age, eventually gets reduced to a silent speech and finally remains as a thought. It has been found that private speech may not necessarily end with early or middle childhood. When 17-year-olds were given a difficult task, almost one-third of them were found talking either openly or like a whisper to themselves (Winsler & Naglieri, 2003).

8.4.3 Middle and Late Childhood

As children start going to school, they refine and expand their vocabulary, grammar (Vukelich, Christie, & Enz, 2008), start reading and writing and advancing these skills further. In addition to this, they also start learning discourse skills- understanding whether presented information makes logical sense or not. For instance, in the sequence, "On her way she lost her purse,

when she got to the store, she took out her purse and bought her favorite candy” (Language and Reading Research Consortium, 2015, p. 1954). By this age, they also start making inferences from the information they hear. Thus, they are able to relate and make connections between sentences to produce descriptions and narratives that make sense. It is important to note that children must be able to do these things orally before they are expected to encounter such situations while doing their homework or writing assignments.

Another ability that is developed at this age is the understanding that words might not be the same as what they stand for. For instance, they may say that they like a particular word because of how it sounds, even though they may not like that particular toy. This is important to further develop metalinguistic abilities, wherein children start thinking about language and its usage (Pan, 2005). It is like appreciating words as words. Further it also helps them in understanding humor because at times humor requires sophisticated understanding of language (Refer Box 8.2- Children’s humor). During middle and late childhood, children develop the ability to go beyond the literal meaning of a word, therefore using metaphors, for instance, “Time is money”. By the time children enter adolescence, most of them know the culturally appropriate ways- pragmatics or rules for everyday language usage. So, they know the appropriate things to say and inappropriate things to avoid (Bryant, 2009).

Box 8.2 Children’s Humor

Development of metalinguistic abilities allows children to use language in different ways and one such way is the usage and understanding of humor. What children may find funny mainly depends upon their stage of cognitive development. McGhee (1979) suggested stage of development of humor which are as follows:

- Stage 0 Laughter without humor: In this stage, infants are found smiling and laughing but it is not due to any humorous situation rather it could be a response when seeing another baby.
- Stage 1 Laughter at the attachment figure: Slowly children start demonstrating awareness of their interpersonal surrounding and start participating in social humor. For instance, toddlers often laugh while playing peek-a-boo, especially when their face is revealed.
- Stage 2 Treating an object as a different object: For instance, holding a block or a stuffed animal to the ear and talking animatedly as if it is a phone, thus producing “jokes” nonverbally by doing strange or inconsistent actions.
- Stage 3 Misnaming objects or actions: Children sometimes intentionally name objects incorrectly (such as pointing at teeth and calling it eye) and then laughing about it.
- Stage 4 Playing with words: With growing verbal competence, children start experimenting and coming up with rhyming words or making up non-sense words in the process which strikes them as funny.

- Stage 5 Riddles and jokes: The understanding that humor has meaning and it is not something absurd rather makes cognitive sense comes at this stage. The child starts learning riddles and use it with adults and even peers to make them laugh, initiate social interaction, etc.
- Stage 6 Funny stories: Teenagers are found to be using memorized jokes or riddles to make a particular incident witty. They may also be seen pointing out oddities or illogicality of a particular situation in order to bring some humor into it.

8.4.4 Adolescence

Adolescents start sounding more like adults. Their sentences are longer than earlier and the grammar usage also becomes more sophisticated. Due to better abstract thinking abilities, they become much better than children at analyzing the function of a word in a sentence or the context given. With an increase in abstract thinking, adolescents are much better than children at analyzing the function a word performs in a sentence or in a context. They are often seen using slang, especially when talking to peers. For example, “that’s lit!” the word ‘lit’ refers to amazing or exciting. It has been found the swearing or using profanities also reaches a peak in adolescence and is usually done to fit in a group, bond with others or simply for fun (Jay & Janschewitz, 2012). They may develop short cuts, such as *FOMO*, meaning fear of missing out. Interestingly, adolescent slangs sometimes also become a part of the wider society as adults catch up with it and use it (Brenoff, 2016).

Box 8.3 Activity

Make a list of 10 slangs you had used when you were teenagers and the ones that are being used by the teenagers today.

Now, think about the words you would use with your friends and not with adults or older people around you. Think of the possible reasons.

- Do you know about the origin of these words?
- Where did you pick it up from? Can you remember?
- Is the slang belong to your culture or country specifically?

Adolescents’ ability to understand metaphors and satire is much more than children (middle and late childhood). Due to their advanced logical thinking abilities (from about 15 to 20 years of age), they can also understand complex literary work and classics. They can engage in sophisticated and critical discussion with others, especially due to their ability to take and understand other person’s perspective. They are also better writers than children as they can organize their ideas better (like introduction, body and conclusion), can delve into layering while writing, for instance, going from general to specific and stringing their sentences together in a better way.

Check Your Progress 3

1. Explain the role of adults in encouraging language development in infants.
.....
.....
.....
2. A sensitive parent should be able to tell the difference between their baby crying when hungry and when crying because she/he is lonely. True or False.
.....
.....
.....
3. What is telegraphic speech?
.....
.....
.....
4. Explain child-directed speech.
.....
.....
.....
5. Elaborate upon development of speech as discussed by Piaget.
.....
.....
.....

8.5 LITERACY: READING AND WRITING

Until now, the discussion revolved mainly around spoken language. In this section, we will elaborate upon another important dimension of language and that is the ability to understand and write language. Although, school has an important role to play in learning these two skills of reading and writing, but the foundations are definitely laid down in the preschool years itself. For instance, the child learns about reading, writing, and print material through informal ways also. Parents are often seen reading to the child before they start school and while doing that, they may ask them questions about the story or the material they are reading. At times this is also followed by a role reversal, so the child is seen asking questions to the adult, thus actively engaging them in the process. This is called as **dialogic reading** (Lonigan et al., 2013). Perhaps Vygotsky's concept of zone of proximal development can explain the effectiveness of dialogic reading. According to him, children learn when they are exposed to a new idea that is slightly beyond their stage

of development by adults or more skilled peers. Thus, if the adult keeps the dialogue while reading within the child's zone of proximal development, the interaction may help in refining the existing skill and eventually moving to the next level. This builds the groundwork for what is called as **emergent literacy skills**.

Emergent literacy skill are the set of skills that usually develop before the child begins formal schooling. It involves picking up pencils or crayons to scribble on a piece of paper, taking a book in hand and looking at its pictures to "read" a story. These experiences may play a role in development of awareness of print, orienting them towards reading, recognizing letters, becoming aware of sounds and new words.

8.5.1 Learning to Read in School

In order to acquire skills of conventional literacy, children are sent to school. Acquiring reading skills depend upon two basic aspects- decoding written letters and understanding the words and sentences (Lonigan, 2006). As discussed above, phonological awareness is important and in school they learn about the sounds of words through rhymes, playing with words that sound similar, making up words with no apparent meaning. By the time children become 4 or 5 years old, they know that *bat* and *cat* rhyme with each other, but they do not rhyme with the word *ball*. Once their capacity to sound out words develop, they succeed in developing a number of sight words they quickly recognize. This enhances their reading fluency and comprehension. With time and experiences, children successfully learn to read and also find it enjoyable (because it's like an achievement for them), thus do it more often. Those who are not able to learn, may go a downward path and avoid it further.

How children should be taught to read is an area of debate and two of the approaches under consideration are: phonics versus whole language approach. According to phonics approach, early reading instructions should consist of simplified material and focus upon basic rules to translate written symbols into sounds. On the other hand, whole language approach focusses that reading instruction should correspond the child's natural language learning. Children should be provided with material in its complete form, thus making them understand that language is meant for communication and it should always be connected with other skills such as listening and writing. Both the approaches can be beneficial for the child but, according to Tompkins (2011) direct instructions in phonics are necessary especially in kindergarten and first grade.

8.5.2 Writing Skill

The earliest writing skills are very basic, such as understanding that writing moves from left to write or write to left (depending upon the language they are learning) and that it conveys some information. This skill is dependent upon improvement in fine motor skills and with time they begin to master different skills related to writing, such as the ability to write in cursive (generally begins in school). Interestingly, children invent their own spellings

of words in the beginning based on how the words sound and contrary to what some adults think, using made-up spellings does not slow down their speed of conventional spelling learning (Sénéchal, Ouellette, Pagan, & Lever, 2012). We have discussed above how in early elementary classes, children start learning and applying spelling rules (adding 's' or 'ed' as suffix), the ultimate goal is for this process to become automatic, indicating that the retrieval of information on how to spell a word is quick and accurate. Bosse (2015) provided evidence that physical process of writing itself may play a role in helping children memorize the way words are spelled.

Gradually, children step above shaping letters and stringing a few words together to start communicating their ideas through their written piece. For instance, initially when asked to write about a topic, children describe facts without much organization. They just tell others whatever they know about that topic. However, there is a difference between knowledge telling and knowledge transforming (Alamargot & Chanquoy, 2001). Knowledge transforming involves taking information and transforming it into ideas which readers can easily comprehend and learn from it.

8.6 BILINGUALISM

Language learning is a complex cognitive task in itself and learning to speak two different languages is even more complex, therefore parents sometimes deliberate if being bilingual can be too demanding and hurt the overall cognitive development of the child. Growing evidence has indicated that bilingualism does not negatively impact the size of a child's vocabulary (Silvén, Voeten, Kouvo, & Lundén, 2014), it may actually enhance their cognitive abilities, especially if the child learns two languages at the same time at an early age (Bialystok & Viswanathan, 2009). It has also been found that bilingual children reach their language related milestones at a similar age as monolinguals.

Various studies have indicated different advantages of being bilingualism, for instance, learning a second language early makes it more likely that the child will be proficient at using it and will speak it without an obvious accent or effort (Huang, 2014). Bilingual children and adults have also been found to be at an advantage in the area of executive function- such as, inhibiting a response when necessary, shifting focus from one task to another, are better at scientific problem solving, and have better concept formation.

Check Your Progress 4

1. Differentiate between phonic approach and whole language approach to teach reading.

.....
.....

2. Explain dialogic reading.

.....
.....

3. Bilingualism has a negative impact on child's vocabulary and cognitive development. True or False.

.....
.....

8.7 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learnt:

- Language includes five basic aspects: phonology (sounds that make up a language), morphology (how words are formed and relate to other words), syntax (grammar of a language), semantics (meanings of words), and pragmatics (how language is used in a social context).
- Broca's area is responsible for production of speech and Wernicke's area is important for understanding and deriving meaning from speech.
- Nativism emphasizes the role of biology and explains that language development is a result of a universal grammar which gives brain and innate capacity to learn language.
- Behavioral and social cognition theory emphasize the role of reinforcement and imitation respectively, as a way to shape language development in children.
- Interactionism brings ideas of nativism and behavioral theories together and explains that the biological readiness of a child and experiences in the environment together paves way for language development.
- Cognitive processing theory talks about "data crunching" capacity of human brain and suggests that infants statistically analyze the speech they hear to figure out language.
- A fetus can hear and discriminate sounds of language, even before their birth. Initially infants communicate by crying, cooing, babbling, and gesturing. This is followed by using one word at a time (usually noun), then two-word utterances help them in creating very basic sentences.
- Fast mapping allows child to add words rapidly to their vocabulary, often after a single exposure.
- Adolescents' speech is more sophisticated and complex than children in grammar and even in its subject matter. It mainly differs from adult speech in the use of slang.
- Adults use dialogic reading with children to build child's language skills. Phonic approach and whole language approach discuss how to teach a child to read.
- When writing, young children engage in knowledge telling (stringing sentences together and presenting facts, with very little organization) and by adolescence they become capable of knowledge transformation (writing to convey ideas and in-depth understanding of a subject).

8.8 KEYWORDS

Child-directed Speech Speech tailored to fit the sensory and cognitive capabilities of infants and children.

Emergent literacy Set of skills that develop before child begins formal reading instructions (at school), which provides foundation for academic skills later.

Metalinguistic ability Ability to think and talk about language.

Morpheme Smallest unit in a language that has a meaning.

Phoneme The smallest distinct sound of a language.

Pragmatics These are the rules that guide how we use language, especially in social situations.

Semantic Bootstrapping Use of conceptual categories to create grammatical categories.

Syntactic Bootstrapping Use of syntax to learn meaning of new words (semantics).

Syntax It is the grammar of a language.

Vocabulary Burst Rapid growth of a child's vocabulary that usually occurs at the age of 2 years.

8.9 REVIEW QUESTIONS

1. Explain five basic aspects of language.
2. What parts of the brain are specialized for language?
3. What are some of the basic theories regarding how children develop language? How are they different from each other?
4. Elaborate how language develops from birth through adolescence.
5. What are some of the consequences of being a bilingual child?

8.10 REFERENCES AND FURTHER READING

Akhtar, N., & Herold, K. (2008). Pragmatic development. In M. M. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development*. Oxford, UK: Elsevier.

Alamargot, D., & Chanquoy, L. (2001). Development of expertise in writing. In G. Rijlaarsdam (Series Ed.), D. Alamargot & L. Chanquoy, *Studies in writing: Vol 9. Through the models of writing* (pp. 185–218). Norwell, MA: Kluwer Academic.

Barnes, S. K. (2010). Sign language with babies: What difference does it make? *Dimensions of Early Childhood*, 38(1), 21–30.

Berko Gleason, J. (2005). The development of language: An overview and a preview. In J. Berko Gleason (Ed.), *The development of language* (6th ed.). Boston: Allyn & Bacon.

Best, C. C., & McRoberts, G. W. (2003). Infant perception of non-native consonant contrasts that adults assimilate in different ways. *Language and Speech*, 46(2–3), 183–216.

Bialystok, E., & Viswanathan, M. (2009). Components of executive control with advantages for bilingual children in two cultures. *Cognition*, 112(3), 494–500.

Bloom, L. (1998). Language acquisition in its developmental context. In W. Damon (Ed.), *Handbook of child psychology* (5th ed., Vol. 2). New York: Wiley.

Bloom, L., Lifter, K., & Broughton, J. (1985). The convergence of early cognition and language in the second year of life. Problems in conceptualization and measurement. In M. Barrett (Ed.), *Single word speech*. London: Wiley.

Bohannon, J. N., & Bonvillian, J. D. (2005). Theoretical approaches to language acquisition. In J. B. Gleason (Ed.), *The development of language* (6th ed., pp. 230–291). Boston: Pearson.

Bosse, M. L. (2015). Learning to read and spell: How children acquire word orthographic knowledge. *Child development perspectives*, 9(4), 222–226.

Brenoff, A. (2016). 14 teen slang terms decoded for middle-age parents. The Huffington Post. Retrieved from http://www.huffingtonpost.com/entry/14-teen-slang-termsdecoded-for-confused-middle-age-parents_us_56c49aace4b0b40245c88cec

Bryant, J. B. (2009). Language in social contexts: Communication competence in the preschool years. In J. Berko Gleason & N. Ratner (Eds.), *The development of language* (7th ed.). Boston: Allyn & Bacon.

Byers-Heinlein, K., Burns, T. C., & Werker, J. F. (2010). The roots of bilingualism in newborns. *Psychological Science*, 21(3), 343–348.

Celce-Murcia, M., & Olshtain, E. (2001). Discourse and context in language teaching: *A guide for language teachers*. New York: Cambridge University Press.

Childers, J. B., & Tomasello, M. (2002). Two-year-olds learn novel nouns, verbs and conventional actions from massed or distributed exposures. *Developmental Psychology*, 38, 967–978.

Chomsky, N. (1968). *Language and mind*. New York: Harcourt, Brace & World.

Clark, E. V. (2009). What shapes children's language? Child-directed speech and the process of acquisition. In V. C. M. Gathercole (Ed.), *Routes to language: Essays in honor of Melissa Bowerman*. New York: Psychology Press.

- Conboy, B. T., & Kuhl, P. K. (2011). Impact of second-language experience in infancy: Brain measures of first- and second-language speech perception. *Developmental Science*, 14(2), 242–248.
- Diesendruck, G. (2010). Mechanisms of word learning. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (2nd ed.). New York: Wiley.
- Ferguson, B., Graf, E., & Waxman, S. R. (2014). Infants use known verbs to learn novel nouns: Evidence from 15- and 19-month-olds. *Cognition*, 131(1), 139–146. doi:10.1016/j.cognition.2013.12.014
- Fernald, A., Pinto, J. P., Swingley, D., Weinberg, A., & McRoberts, G. W. (2001). Rapid gains in speed of verbal processing by infants in the 2nd year. In M. Tomasello & E. Bates (Eds.), *Language development: The essential readings* (pp. 49–56). Malden, MA: Blackwell.
- Gelman, S. A., & Kalish, C. W. (2006). Conceptual development. In W. Damon & R. Lerner (Eds.), *Handbook of child psychology* (6th ed.). New York: Wiley.
- Gleason, J. B. (2005). The development of language: An overview and a preview. In J. B. Gleason (Ed.), *The development of language* (6th ed., pp. 1–38). Boston: Pearson.
- Gogate, L., Maganti, M., & Bahrick, L. E. (2015). Cross-cultural evidence for multimodal motherese: Asian Indian mothers' adaptive use of synchronous words and gestures. *Journal of Experimental Child Psychology*, 129, 110–126. doi:10.1016/j.jecp.2014.09.002
- Goldfield, B. A., & Snow, C. E. (2005). Individual differences—Implications for the study of language acquisition. In J. B. Gleason (Ed.), *The development of language* (6th ed., pp. 292–323). Boston: Pearson.
- Goldin-Meadow, S., & Iverson, J. (2010, in press). Gesturing across the lifespan. In R. M. Lerner (Ed.), *Handbook of life-span development*. New York: Wiley.
- Gutman, A., Dautriche, I., Crabbé, B., & Christophe, A. (2015). Bootstrapping the syntactic bootstrapper: Probabilistic labeling of prosodic phrases. *Language Acquisition: A Journal of Developmental Linguistics*, 22(3), 285–309. doi:10.1080/10489223.2014.971956
- Hansen, M. B., & Markman, E. M. (2009). Children's use of mutual exclusivity to learn labels for parts of objects. *Developmental Psychology*, 45(2), 592–596.
- Hoff, E., & Naigles, L. (2002). *How children use input to acquire a lexicon*. *Child Development*, 73(2), 418–433.
- Hollich, G., Golinkoff, R. M., & Hirsh-Pasek, K. (2007). Young children associate novel words with complex objects rather than salient parts. *Developmental Psychology*, 43(5), 1051–1061.
- Huang, B. H. (2014). The effects of age on second language grammar and speech production. *Journal of Psycholinguistic Research*, 43(4), 397–420. doi:10.1007/s10936-013-9261-7

- Iverson, J. M., & Goldin-Meadow, S. (2005). Gesture paves the way for language development. *Psychological Science*, 16, 368–371.
- Jay, T., & Janschewitz, K. (2012). The science of swearing. APS Observer, 25(5). Retrieved from <http://www.psychologicalscience.org/index.php/publications/observer/2012/mayjune-12/the-science-of-swearing.html>
- Johnson, V. E., & de Villiers, J. G. (2009). Syntactic frames in fast mapping verbs: Effects of age, dialect, and clinical status. *Journal of Speech, Language, and Hearing Research*, 52(3), 610–622.
- Karuza, E. A., Newport, E. L., Aslin, R. N., Starling, S. J., Tivarus, M. E., & Bavelier, D. (2013). The neural correlates of statistical learning in a word segmentation task: An fMRI study. *Brain and Language*, 127(1), 46–54. doi:10.1016/j.bandl.2012.11.007
- Kirk, E., Howlett, N., Pine, K. J., & Fletcher, B. (2013). To sign or not to sign? The impact of encouraging infants to gesture on infant language and maternal mind mindedness. *Child Development*, 84(2), 574–590. doi:10.1111/j.1467- 8624.2012.01874.x
- Kuhl, P. K., Conboy, B. T., Padden, D., Nelson, T., & Pruitt, J. (2005). Early speech perception and later language development: Implications for the “critical period.” *Language Learning and Development*, 1(3 & 4), 237–264.
- Language and Reading Research Consortium. (2015). The dimensionality of language ability in young children. *Child Development*, 86(6), 1948–1965.
- Lebedeva, G. C., & Kuhl, P. K. (2010). Sing that tune: Infants’ perception of melody and lyrics and the facilitation of phonetic recognition in songs. *Infant Behavior and Development*, 33(4), 419–430.
- Lonigan, C. (2006). Development, assessment, and promotion of preliteracy skills. *Early Education and Development*, 17(1), 91–114.
- Lonigan, C. J., Purpura, D. J., Wilson, S. B., Walker, P. M., & Clancy-Menchetti, J. (2013). Evaluating the components of an emergent literacy intervention for preschool children at risk for reading difficulties. *Journal of Experimental Child Psychology*, 114(1), 111–130.
- Markman, E. M. (1990). Constraints children place on word meanings. *Cognitive Science*, 14(1), 57–77.
- McGhee, P. E. (1979). *Humor: Its origin and development*. San Francisco: Freeman.
- Østvik, L., Eikeseth, S., & Klintwall, L. (2012). Grammatical constructions in typical developing children: Effects of explicit reinforcement, automatic reinforcement and parity. *Analysis of Verbal Behavior*, 28(1), 73–82.
- Pan, B. A. (2005). Semantic development. In J. B. Gleason (Ed.), *The development of language* (6th ed., pp. 112–147). Boston: Pearson.
- Pan, B. A., & Uccelli, P. (2009). Semantic development. In J. Berko Gleason & N. Ratner (Eds.), *The development of language* (7th ed.). Boston: Allyn & Bacon.

- Pelucchi, B., Hay, J. F., & Saffran, J. R. (2009). Statistical learning in a natural language by 8-month-old infants. *Child Development*, 80(3), 674–685.
- Preissler, M. A., & Carey, S. (2004). Do both pictures and words function as symbols for 18- and 24-month-old children? *Journal of Cognition and Development*, 5(2), 185–212.
- Rowe, M. L., & Goldin-Meadow, S. (2009). Differences in early gesture explain SES disparities in child vocabulary size at school entry. *Science*, 323, 951–953.
- Santrock, J.W. (2011). *Child development*. 13th ed. New York: McGraw Hill.
- Sato, Y., Sogabe, Y., & Mazuka, R. (2010). Discrimination of phonemic vowel length by Japanese infants. *Developmental Psychology*, 46(1), 106–119.
- Sénéchal, M., Ouellette, G., Pagan, S., & Lever, R. (2012). The role of invented spelling on learning to read in low-phoneme awareness kindergartners: A randomized-control trial study. *Reading & Writing*, 25(4), 917–934.
- Shatz, M., & Gelman, R. (1973). The development of communication skills: Modifications in the speech of young children as a function of the listener. *Monographs of the Society for Research in Child Development*, 38 (152).
- Siegal, M., & Surian, L. (2010). Conversational understanding in young children. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development*. New York: Wiley.
- Silvén, M., Voeten, M., Kouvo, A., & Lundén, M. (2014). Speech perception and vocabulary growth: A longitudinal study of Finnish-Russian bilinguals and Finnish monolinguals from infancy to three years. *International Journal of Behavioral Development*, 38(4), 323–332. doi:10.1177/0165025414533748
- Skinner, B. F. (1957). *Verbal behavior*. New York: Appleton-Century-Crofts.
- Tager-Flusberg, H., & Zukowski, A. (2009). Putting words together: Morphology and syntax in the preschool years. In J. Berko Gleason & N. B. Ratner (Eds.), *The development of language* (7th ed.). Boston: Allyn & Bacon.
- Tamis-LeMonda, C. S., Cristofaro, T. N., Rodriguez, E. T., & Bornstein, M. H. (2006). Early language development: Social influences in the first years of life. In L. Balter & C. S. Tamis-LeMonda (Eds.), *Child psychology: A handbook of contemporary issues*. (2nd ed., pp. 79–108). New York: Psychology Press.
- Tompkins, G. E. (2011). *Literacy in the early grades*. (3rd ed.). Boston: Allyn & Bacon.
- Vukelich, C., Christie, J., & Enz, B. J. (2008). Helping children learn language and literacy. Boston: Allyn & Bacon.
- Vygotsky, L. S. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Waxman, S., Fu, X., Arunachalam, S., Leddon, E., Geraghty, K., & Song, H. (2013). Are nouns learned before verbs? Infants provide insight into a long-standing debate. *Child Development Perspectives*, 7(3), 155–159. doi:10.1111/cdep.12032

Weisleder, A., & Fernald, A. (2013). Talking to children matters: Early language experience strengthens processing and builds vocabulary. *Psychological Science*, 24(11), 2143–2152. doi:10.1177/0956797613488145

Winsler, A., & Naglieri, J. (2003). Overt and covert verbal problem-solving strategies: Developmental trends in use, awareness, and relations with task performance in children aged 5 to 17. *Child Development*, 74(3), 659–678.

Woodward, A., Markman, E., & Fitzsimmons, C. (1994). Rapid word learning in 13- and 18-month-olds. *Developmental Psychology*, 30, 553–566.

8.11 ADDITIONAL ONLINE RESOURCES

Language acquisition at Macquarie University:

- <https://www.youtube.com/watch?v=ylBQMgkHnFA>

Christopher Lonigan: Implementing Dialogic reading:

- <https://www.youtube.com/watch?v=r2FLrq8YIyY>

How to teach sight words- Science of Reading:

- <https://www.youtube.com/watch?v=dRuuvC-vmU4>

Check Your Progress

Check Your Progress 3

Q.2 True

Check Your Progress 4

Q.3 False.

UNIT 9 DOMAINS OF HUMAN DEVELOPMENT- MORAL AND SOCIAL DEVELOPMENT⁹

Structure

- 9.0 Introduction
- 9.1 Moral Development
- 9.2 Jean Piaget's Theory of Morality
 - 9.2.1 Heteronomous Morality (5 to 9 years)
 - 9.2.2 Autonomous Morality (9 years and above)
 - 9.2.3 Critical Lens
- 9.3 Lawrence Kohlberg's Theory of Moral Reasoning
 - 9.3.1 Levels of Moral Development
 - 9.3.2 Critical Lens
- 9.4 Gilligan's theory of morality of care: The feminist lens
 - 9.4.1 Critical Lens
- 9.5 Social development through the family, school, peers, play, and media
 - 9.5.1 Family: The Surfacing of Attachment
 - 9.5.1.1 Attachment theory: Historical antecedents
 - 9.5.1.2 Bowlby's Attachment theory
 - 9.5.1.3 Attachment and the social world
 - 9.5.1.4 The new age 'parent' - redefining parenthood
 - 9.5.2 School
 - 9.5.3 Peers
 - 9.5.4 Play
 - 9.5.5 Media
- 9.6 Summary
- 9.7 Keywords
- 9.8 Review Questions
- 9.9 References and Further Reading
- 9.10 Additional Online Resources

Learning Objectives

After reading this unit, you will be able to:

- explain the nature of moral development and the cultural embeddedness of the concept;

⁹ Dr Sabeen H. Rizvi, Department of Psychology, Gargi College, University of Delhi & Dr. Monika Misra, Discipline of psychology, IGNOU, New Delhi.

- elucidate Piaget's two-tier theory of morality;
- summarize Kohlberg's theory of Moral reasoning;
- critically compare between the two theories;
- analyse the liberal feminist's lens in Gilligan's morality of care; and
- discuss the changing social world family, peers, play, school, and media

9.0 INTRODUCTION

Until now, you must be well acquainted with the significance of various domains in human development. The focus of the present Unit will be on moral and social development. Moral development is an important part of the socialization process. Simply said, the individual learns to identify between the 'good' and the 'bad' and helps in deciding what is right and what is wrong. The key features of important theories on moral development like Piaget, Kohlberg and Gilligan will be discussed and critically analysed. This will be followed by social development. Social development signifies changes in thought, behaviour and effect during the life course. Early relationships with significant others have a bearing on later life. Agents of socialization like family, school, peers, play, and media will be explained along with the theoretical perspective of Bowlby, Harlow and Ainsworth. Parenting in contemporary times will also be discussed.

9.1 MORAL DEVELOPMENT

When you ask what 'morality' is to people across different developmental trajectory and cultures, the answer will be very diverse. Think about your own growing up years. When you were a toddler, what seemed 'moral' to you? In school, how did this idea change? As you grew up, in college how did you start interpreting your own and people's behaviour as moral or immoral? Is there a universal notion of morality? Do people behave morally because they have to? Do we instinctively do the 'right' thing? What is morality? Philosophers, religious leaders, parents, teachers have struggled with this idea forever. How did you learn to decipher the right from the wrong? Are there any universal ethics?

Different and influential developmental psychologist like Piaget, Kohlberg, Gilligan have comprehensively elaborated upon their own notions of morality by taking different theoretical positions. In order to gain a better understanding and insight into the notions of morality and its development, let us start with understanding some of the most popular theories on moral development.

9.2 JEAN PIAGET'S THEORY OF MORALITY

Jean Piaget though published his work as early as the 1920s but his work only gained prominence in the middle of the twentieth century. He is more famously known for his theory of cognitive development, but he also proposed a theory of moral development for children. He asserted that



Figure 9.1 Jean Piaget (1896-1980)
Source: https://commons.wikimedia.org/wiki/File:Jean_Piaget_in_Ann_Arbor.png

children's moral development is closely tied to their cognitive development. Piaget believed that children's ideas regarding rules, moral judgements and punishment tends to change as they grow older. Differently put, just as there are stages in children's cognitive development, there are also stages in their moral development. Piaget (1932) suggested two major types of moral reasoning or thinking:

- Heteronomous morality (Moral realism stage)
- Autonomous morality (Moral relativism stage)

9.2.1 Heteronomous Morality (5 to 9 years)

This stage is also known as a stage of **moral realism**- i.e., morality is primarily imposed from outside. Children look at morality as something that is rigid and is associated with obeying other people's rules/orders and it cannot be changed per se. They have an acceptance that rules are made by elders or authority figures (God/parents/teachers/social agents) and cannot be broken and if broken can lead to serious and immediate consequences like severe punishment. This ideation is called **immanent justice** in Piaget's theory. The purpose of such punishment is to make the guilty person suffer so that the severity or extent or magnitude of the punishment would be related to the severity or extent or magnitude of wrongdoing. This concept is called **expiatory punishment** in Piaget's model. During this stage, children look at rules with absolutism and these are unchanging. They process these rules as unchanging and timeless. If the consequences of a behaviour lead to punishment, then that behaviour is "bad".

Case Vignette

Anu is 6 years old and goes to work with her mother every day. Her mother works as a house help and finishes her work at three houses and then comes back home to cook for the family. Today, Anu is very hungry while at work with her mother. She finds a loaf of bread in the room. She is sitting and waiting for her mother to finish work. She is very tempted to eat the bread loaf, she has not felt this hungry in a long time! However, she remembers what her mother told her about stealing. She had said- "Anu if you ever lie or steal from another person, God will steal away all your things and people you love from your life!" Anu starts crying with hunger but does not touch the bread loaf.

She is fearful of being punished for this wrongdoing! She is fearful of her mother's reactions and what God will do once she indulges and steals the loaf. She keeps crying and suppresses her hunger.

9.2.2 Autonomous Morality (9 years and above)

This stage of autonomous morality proposed by Piaget, is also known as **moral relativism**, i.e., morality that is shaped and driven by one's own rules. Children develop a fair understanding that there is no absolute 'morality' so to say and morality is driven by intentions rather than consequences. According to Piaget, when children are around 9 to 10 years of age, they

reorganize their ideas around morality. It is no longer an absolute construct, children become mindful that there is no such thing as absolute right or wrong and morality is tied to one's intentions more than the consequences it brings forth. Developmentally speaking, around the age of 9 or 10 years of age, they become less egocentric and develop understanding about other people's point of view as well. The ideas about morality are flexible and there is no out and out way of being moral. He believed that a child who could shift away from his/her/their focal area and take other people's account into consideration will have the capacity to be more independent in moral reasoning and making moral judgements at this stage. This shift in perspective, and moral relativism changes their overall thinking and they become more like adults. They develop the understanding that rules are not arbitrarily decided by some divine source but people from the real world make these rules and people can recalibrate and change these rules. With regard to their own "rules" when playing games or engaging with other children they understand and recognize that rules are required to prevent quarrelling and to warrant a sense of fair play (Piaget,1932).

Case Vignette

Anu is now 10 years old. She is faced with a similar situation again. This time she eats the loaf of bread as it is kept unattended in the room and she is really hungry. She tells herself that the loaf was getting wasted and she used it to fulfill her need. She would have never stolen it and this does not qualify as stealing.

9.2.3 Critical Lens

Piaget's original writings were all in French and he used many complicated terms and explanations so it is possible that some of it may have been lost in translation. Piaget's theory has also been criticized for under-evaluating children. Bussey (1992) in his research demonstrated that children after the age of 3 have the ability to understand and consider other people's purpose and intention.

His research has been criticized for relying too heavily on clinical interviews and stories, given the limited cognitive capacities of children, may have concealed their moral understanding (Chandler, Greenspan, & Barenboim, 1973). Carol Gilligan (1982) criticized Piaget of having an inferior view of feminine morality and the same has been elaborated in discussing her theoretical positioning. Bloom (1959) has criticized Piaget theory as it fails to consider the role of intelligence in the development of moral judgement. Bloom contends that the development of morality and intelligence are interrelated and the developmental trajectories cannot be separated. Bandura and McDonald (1963) argued that children's moral development is not a steady progression of advancing age, rather their morality is malleable and can be manipulated by social learning variables. However, there were ardent believers, like Kohlberg, who took Piaget's theory forward and came up with their own conceptualization.

Check Your Progress 1

1. Define morality.

.....
.....

2. Differentiate between moral realism and moral relativism.

.....
.....

9.3 LAWRENCE KOHLBERG'S THEORY OF MORAL REASONING

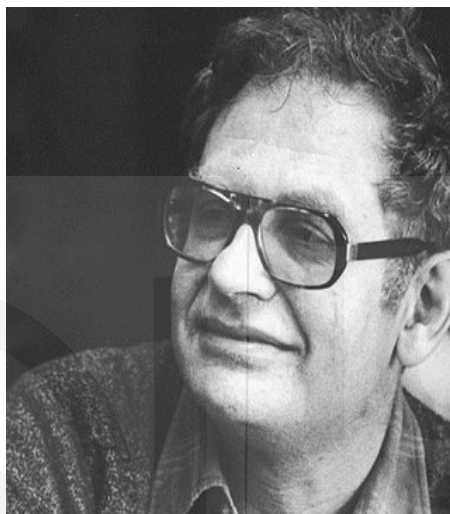


Figure 9.3 Lawrence Kohlberg (1927-1987)

Source: <https://educationaltechnology.net/stages-of-moral-development-lawrence-kohlberg/>

Lawrence Kohlberg worked upon and modified Piaget's theory of morality and explained how moral reasoning is developed in children. His work laid the groundwork for the current debate in the area of moral development within the field of psychology. In cognizance with Piaget, he proposed that children's sense of morality is shaped by their thought processes and interpretation and understanding of moral concepts like equality, fairness, justice and universal welfare. Piaget gave a two-stage theory of moral development and Kohlberg expanded and gave a three-tier theory that has six different levels and asserted

that morality is a lifelong process and is more gradual than as proposed by Piaget. Kohlberg referred to his theoretical approach to morality "cognitive developmental" to describe his contextualization of moral development within social and cognitive development. Morality in this framework basically refers to the moral judgement or rational evaluation of the prescriptive values in the context of what is right or wrong in the given socio-cultural context.

Kohlberg used the **moral judgement interview** to test his theory. Children were presented with stories that involved conflicts between two moral values and had to justify their decisions. Basically, they had to choose between obeying rules or ignoring these rules and instead focusing on the welfare of another person.

Kohlberg used the now classical Heinz's Dilemma to study morality. He presented the participants with an ambiguous situation that involved perspective taking and the scenario was reasonably emotionally provocative. The story elicited moral judgement and explanation for those judgements about the story (Kohlberg, 1973, 1976, 1981). Kohlberg used many such vignettes, but Heinz's Dilemma has remained popular in teaching moral development. The utility lies in helping in applying Kohlberg stages of

morality into concrete examples. In addition, it also demonstrates how research in the area could be design and implemented.

Heinz's Dilemma- Heinz's wife has cancer and her doctors believe that only one drug could save her. A local pharmacist had discovered the drug, a form of radium and was able to make it for \$200 per dose and was selling it for \$2,000 per dose. Heinz, after much difficulty was able to raise only \$1,000 to buy the drug. He tried negotiating with the pharmacist for a cheaper or lower price or requested for a loan that he would repay back later for the drug. The pharmacist however, refused to negotiate or accept partial payment for the drug. Not being able to convince and feeling rejected, Heinz broke into the pharmacy and stole the drug to save his wife's life. Kohlberg asked, "should Heinz have done that?" (Kohlberg, 1963).

9.3.1 Levels of Moral Development

As a theorist and researcher, Kohlberg was not so much interested in the answer as to whether he was right or wrong but the reasoning all participants had for their decision. He used this moral reasoning into stages of his theory of moral development. Each level in Kohlberg's theory represents a vital shift in the social-moral perspective of the individual.

Level 1- Pre-Conventional Morality- At this level, morality is externally controlled. Behaviours are driven by obedience due to fear of punishment and expectation of rewards. It has two stages that define whether behaviour is obedience and fear driven or is shaped by the expectation of rewards.

Stage 1- Obedience and punishment orientation-Behaviour is shaped by the consequences. Children will indulge in behaviours and obey adults in order to avoid punishment. This earliest stage is applicable for children but sometimes adults are also capable of this type of reasoning. Children perceive the given rules as fixed and absolute, and it is important to obey rules because it will help in avoiding punishment. Actions are by and large evaluated by the possibility of a punishment and not in terms of goodness or badness. Obedience to power is the crux at this stage. Wrong or right is shaped by what is punished or not punished. Children obey because adults tell them to obey.

Stage 2- Instrumental personal orientation-Morality at this stage is based on rewards and self-interest. Children and individual are driven by focus on what brings in satisfying rewards. Children interpret and judge actions based on how well they fulfill individual needs. In the classical Heinz dilemma, children expressed that the best solution for Heinz would be the one that best served Heinz's needs. This stage is driven by the instrumental pragmatic notions of an action. The principle of moral reciprocity acquires salience. Moral thinking is based on rewards and self-interest. Children obey when it is in their best interest to obey. What is right is what feels good and what is rewarding. Concern for the needs of others is largely a matter of "You scratch my back, I will scratch yours," not out of loyalty, gratitude or justice. Right and wrong is determined by what is rewarded.

Level 2- Conventional Morality- At this level, adherence or conformity to social rules gains precedence. Self-interest takes a back seat and adherence to social relationships gains focus. Society, parents, teachers and peers their attitude defines this notion of morality. Individuals are most concerned about the opinions of their peers and other significant figures. Norms and adherence to those norms become important at this level as understanding these norms and conventions appear to be important in upholding the needs of a cohesive society. Individuals self-identify with these rules and try upholding them constantly as its then in accordance with the societal notions of right and wrong.

Stage 3- Interpersonal Relationships- This stage focuses on living up to social roles and expectations and often focusses on the development of morality in the context of “good boy” and “good girl” orientation. There is a lot of prominence on conformity to expected social roles and ‘scripts’, being ‘nice’, and attention to how choices impact and influence relationships with prominent figures in the social context of the individual.

Stage 4 - Maintaining Social Order- Society plays an important role at this stage of moral development. People initiate moral decision-making keeping society in mind. The focus is on maintaining law and order by following the rules set by society, dispensing one’s duty and respecting authority.

Level 3- Post Conventional Morality- This final level in Kohlberg’s theory of moral development is characterized by reasoning based on notions and principles of morality which underlie rules and norms but at the same time reject a uniform application of a rule or norm. Morality is judged in terms of abstract notions and principles and not by existing rules that govern the society and social order. This last level entails moral reasoning embedded in the ethical fairness principles. All laws are evaluated in terms of their soundness and alignment with the basic principles of fairness rather than an arbitrary existing social order. There is a deep understanding that elements of morality such as regard for human life and welfare surpasses societal and cultural norms and are upheld irrespective of the conventional or societal obligations. Interestingly, many people may not enter this stage of moral development.

Stage 5- Social Contract and Individual Rights- At this stage, individuals begin to reason for the differing values, beliefs and opinions of other people. Rules of law are important for maintaining a just and fair society, but members of the society should collectively agree upon these standards. The person understands that values and laws are relative for each person and while laws are important but the interpretation in the context of the individual and her/his/their life may be looked at differently. The individual tends to believe that some values like freedom are greater than law. Support and upholding law is based on rational choices and rules are upheld for the greater good based upon democratic agreement.

Stage 6- Universal Principles- Kohlberg’s final stage of moral reasoning is based upon universal ethical principles and abstract reasoning in morality. People follow and express, internalized notions and principles of justice, even

if they are in conflict with laws and rules. The individual develops moral judgements that are based on universal human rights. When faced with a dilemma between law and one's own conscience, the individual makes a choice based on her/his/their conscience. Behaviour is guided by self-driven ethics that mostly tend to be general and universal and a very high value is placed on humanitarian values, justice, equality and dignity of life.

9.3.2 Critical Lens

Kohlberg's stages have been empirically supported by findings from cross cultural and longitudinal research (Power, et al., 1989). However, they have been subjected to criticism as well. Kohlberg's theory has been strongly criticized as androcentric and does not use the female lens at all, in that it expresses a masculine view of morality. Carol Gilligan, a colleague of Kohlberg at Harvard, whose theory we will be discussing in the next section, has made a strong critique against Kohlberg's theory (Gilligan, 1977, 1982, 1987). She made her point very effectively by pointing out that Kohlberg's initial and primary 1958 study on moral reasoning which brought in empirical support for Kohlberg's theory was primarily run exclusively on young American male subjects. Kohlberg then generalized the findings to all human beings across cultures and eras. Gilligan also asserted that Kohlberg's fixation with values like rationalism, liberalism, individualism created a gap between the stages of moral development of adult males and females. Gilligan proposed that in giving such high moral weightage to the value of justice, Kohlberg overlooked the moral worth of other important principles like ethics of care and mercy (Gilligan & Attanucci, 1998).

Sams (1974) criticizes Kohlberg's claims for universality as discriminatory and elitist. She argues that if social reinforcements are pertinent to move across the stages, any person denied those opportunities would never be able to fully develop as proposed by Kohlberg. Flanagan (1982) supports her claim and criticizes Kohlberg's claims regarding universality and generality of his theory as it is based on all-male sample.

Another important criticism of Kohlberg's theory has concentrated on his Moral Maturity Scale that was never standardized. Even after giving in more than 25 years of research, the clarity in terms of procedures of scoring was never evolved. The scale was under constant revision and as a result it became difficult to interpret the different versions (Vitz, 1994).

Additionally, Kohlberg's theory is embedded in the Western ideas of individualism and his theory may not hold true for collectivistic cultures like India. His theory advanced in stages in a way that has a direct Western cultural bias. In Heinz's case, for example in a collectivistic culture like ours—the extended family, community may have tried ensuring the financial help to Heinz as these values are shared by the society and community. However, Vasudev and Hummel (1987) designed a study of moral reasoning to test the generality of Kohlberg's stage sequence in the Indian context across different ages and sexes. They also examined the adult thought and reasoning in India and offer empirical support to Kohlberg's theory.

Kohlberg also gave more importance to rational or cognitive processes than affective processes and that has been criticized by some researchers too. Sometimes we rely on our intuitive judgement and affective processes to make moral judgements (Haidt, 2001).

Kohlberg's theory may be considered as one of the first methodical and empirical theoretical approaches aiming at understanding the developmental stages of moral reasoning, that is derived or based on Piaget's theory of moral development. However, the approach has received considerable criticism in the field and has paved way for some alternate theoretical perspectives like Gilligan's feminine lens of morality (Gilligan, 1977), Haidt's moral foundations theory (Haidt, 2012) and morality as cooperation theory (Curry et.al.2019).

Check Your Progress 2

1. How does Kohlberg define morality?

.....

.....

.....

2. Explain Kohlberg's final level of moral reasoning.

.....

.....

.....

9.4 GILLIGAN'S THEORY OF CARE BASED MORALITY

For the longest time now feminists psychologists have argued and fought the excessive stress laid upon the masculine lens to deduce generalizations for human behavior, thereby sidelining and marginalizing the experiences, values and contributions of the other sex. Historically, psychologists have struggled with ideas of fairness and equality in the field and one such prominent voice of dissent was that of Carol Gilligan (1987,1977). Carol Gilligan studied



literature at Swarthmore College and did her Master's in Psychology from Radcliffe College before joining Harvard as a research scholar in 1964 and worked closely with Erik Erikson and

Lawrence Kohlberg. She became Kohlberg's research assistant and started focusing on moral dilemmas in the reasoning applied by women.

Figure 9.4 Carol Gilligan (b. 1936)
Source:
<https://schoolworkhelper.net/carol-gilligan-feminist-moral-development/>

Gilligan refuted Kohlberg's notion of morality and argued that socialization leads to differences in the way men and women perceive and understand

moral behaviour and reasoning. Therefore, boys and men view morality primarily in terms of expansive principles tied around the ideas of fairness and justice, whereas girls or women's idea of morality is embedded in ethics of care and self-sacrifice. Accordingly, compassion is a central idea in moral development for women than men. Her groundbreaking work in the area of morality, grew out of dissatisfaction with the psychoanalytic and Kohlberg's theory that suggested that women on an average were less advanced than men in moral reasoning. She vehemently argued that this theoretical assumption puts women in an inferior position and proposed that women were in no way inferior to men but through differently when it came to moral judgement and reasoning.

In *A Different Voice* (1982, pg.19), she asserts- *This conception of morality as concerned with the activity of care centers moral development around the understanding of responsibility and relationships, just as the conception of morality as fairness ties moral development to the understanding of rights and rules.*

Her theory asserts that women are more relationship oriented and have greater stakes in caregiving and this results in them developing a **morality of care and responsibility** while males develop a **morality of justice** based on morality ideas related with justice. The morality of care states a tendency to evaluate the effects of actions on the feelings and needs of others, relationships and prevention of harm to fellow human beings. On the other hand, morality of justice refers to the tendency to evaluate whether society's rules have been broken or compromised and thereby evaluating the appropriateness of punishment.

In order to prove her theory, Gilligan conducted a study where she interviewed 29 pregnant women who were all considering terminating their pregnancy as this exemplified a real-life moral dilemma. She was of the view that the interview would bring forth diverse responses that would help her elaborate upon her hypotheses of morality of care. Based on this work, she deduced three different levels of moral development. Level one for Gilligan is driven by self interest where women do what is best for them. In the Gilligan's view, caring "becomes universal in its condemnation of exploitation and hurt" (Gilligan, 1982, p. 74).

Levels	Gilligan's thrust area in morality of care theory	Description of the level
Preconventional	Self-interest	Females who suggested that they would do what was best for their self-interest were assigned this level.
Conventional	Self-sacrifice	Females who suggested that they were willing to put the welfare of other human beings before their

		own were assigned to this level.
Postconventional	Non-violence	Females who emphasized the importance of not hurting others were put in this stage.

Figure 9.1 Gilligan's levels in the development of morality of care

Case Vignette

Sara is a bright student and does well in class. Her friend Mita has been missing her classes as her father was very sick. She could not prepare well for her exams. Sara who otherwise is a very conscientious person, did not hesitate to let her friend copy a few answers at the cost of being caught by the invigilator. According to Gilligan what stage is Sara's example fitting in? Is her behaviour justified? What would you have done?

In Gilligan's model, all these levels are surpassed by changes in the understanding of the 'self', and not mere cognitive advancement or development. Gilligan acknowledges that men and women both may experience care and justice-based morality though women's ethics will be more care based but it will not be exclusively for women (Gilligan, 1977).

In 1982, she published the detailed criticism of Kohlberg's work and her feminist views of women's notion of morality. She vociferously rejected Kohlberg's taxonomy as androcentric. Her views and theories drove her to be at the forefront of the feminist voice in psychology and her theoretical perspective gained her substantial followers who joined in voicing their concern towards women's unequal positioning in terms of fairness, influence and justice. Despite not publishing her work, she was named one of the most influential women of the year by TIME Magazine in 1996.

9.4.1 Critical Lens

While Gilligan has emphasized the importance of the feminist lens, not all feminist writers support her theory of morality of care. Eagly and Diekman (2006) put forth their views that any gender gap in perspective and behaviour may be actually traced to gender division of labour than to the conventional or stereotypical attributions of gender. Jaffee and Hyde (2000) attempted to find out gender differences on moral reasoning. After reviewing many studies, they found that there was a very less tendency for males to show more justice reasoning than females and a slightly larger (but still less) tendency for females to show more caring reasoning than males. Skoe's (1994) research signifies that both the care and justice facets of moral development are related to identity for both male and female students. As predicted by Gilligan, Skoe (1998) found that Canadian and American

women (between the age of 17 to 26 years) showed more complex care-based understanding than men. This difference was not evident in Norway where gender equality is stressed in the society as well as at the workplace.

A lot of studies have focused on the cultural differences between the East and West and one intriguing concept related with ethics of care that has been discussed is the concept of ‘*Guanxi*’ in China. *Guanxi* refers to having a strong relationship with someone that is primarily based on trust and it may involve exchanging favours and moral obligations. It’s a prominent practice in China but often misinterpreted by Western cultures as an unethical practice associated with corruption, however, it is a fundamental practice of doing business in China. This practice reemerged in China after the Cultural Revolution “As the necessary method to obtain information, scarce goods and services” Brunner, Chen, Sun, & Zhou (1989).

Check Your Progress 3

1. Explain the basic premise of Gilligan’s theory on morality.

.....

.....

.....

2. Why did Gilligan criticize Kohlberg’s theory of moral development?

.....

.....

.....

9.5 SOCIAL DEVELOPMENT THROUGH THE FAMILY, SCHOOL, PEERS, PLAY AND MEDIA.

Social development is an important domain in the developmental trajectory. It refers to changes in feelings, thoughts, and behaviours over the lifespan. As a part of developmental research in the 1920s and 1930s, social development occupied an important place and focused on children’s group as an important agent of socialization, thereby developing influential methodologies to study children’s social development. The earlier research work concentrated on individual differences on aggression, peer acceptance, group dynamics and other social skills. With the emergence of cognitive perspective on human development, the research on social development was put to an abrupt stop. However, the role of social development in cognitive development, reemphasized the role of social development. The conclusive results obtained from the studies on the relationship between social development and cognitive development, for instance the substantive role of friendship and peer influence in child’s development, recognized the significance of social domain in human development. Socialization is influenced by forces like family members, peers, siblings and play. The focus on this section, thus, will be on the earliest relationships of the child since it has a profound influence

on the relationships in adult life. Let us examine the role of family, peer group, play, school and media in social development

9.5.1 Family: The surfacing of attachment

Family is the first unit for developing social interactions and exchanges. Parental figures and other forms of primary/ or non-primary care givers in the family help the little infant in interpreting the world around her/him/them. The social exchanges within the familial contexts prepare them for the outer world. Bowlby and other researchers propagated the idea of attachment and its importance in building a secure world for the infant as she/he/they grow up in the realities of the social world.

Some classical researchers emphasized a lot about physical contact between the primary care giver and the infant. Kendell (1976) emphasized that children who are held closely and cuddled by their mothers early in life, typically during the critical period post their birth, create better relationships with their children.

9.1 Activity

To experience 'parentese', identify a mother-infant or parent-infant pair in a public park or anywhere near you. Without disturbing them observe and listen to their conversation and see if you are able to identify some elements of what we have discussed.

Snow & Ferguson (1977) identified characteristic language patterns exemplified by adult care givers when conversing with young children. Some call it 'Motherese', other's 'parentese' or 'care-giverese'. This language pattern as identified is slow, simple, repetitive, high-pitched and mostly like a song (Pennington, McLoughlin, Smithson, Robinson, & Boswell, 2003). This modified language also adds on to a sense of special bond or attachment between the care giver and infant. Psychologists also emphasize upon the role of **reciprocal socialization**-children socialize with their parents as much as parents socialize with their children. Thus, the process of socialization is bidirectional and reciprocal (Santrock, 1997). Stern & others (1977) found that mothers and infants engaged in a variety of behaviours when looking at each other than when looking away. Sometime infants also imitate the facial expressions of the care givers and this has compelled some researchers to believe that infants are innately social beings.

In an old classical study, Melzoff and Moore (1977) investigated imitation of facial expressions in very young infants who were two/three weeks old. They found that infants spontaneously imitate the facial and hand movements of adults. However, it's also important that the adult care-giver is sensitive to the infant's behaviours and needs in order for it to be an enjoyable exchange. Researchers have discussed the idea of **sensitive responsiveness** in the development of successful attachment.

9.5.1.1 Attachment Theory- Historical antecedents

The origin of the very famous attachment theory dates back to the second world war. In London, Anna Freud - daughter of Sigmund Freud and Dorothy Burlingham, both psychotherapists set up shelters for children who had lost their families of parents during the war. The Hampstead Nurseries had given shelter to children between age zero to ten years of age. Freud and Burlingham have vividly spoken about the suffering of these young children who yearned for their families and were grief struck despite receiving the highest quality care at the shelter (Freud & Burlingham, 1974).

9.4.1.2 Bowlby's Attachment Theory



Figure 9.5 John Bowlby (1907-1990)
Source: <https://www.open.edu/openlearn/create/mod/oucontent/view.php?id=130597§ion=1.2.1>

Edward John Mostyn Bowlby (1907-1990), a British child psychiatrist and psychoanalyst was very intrigued by the relational dynamics between young children and the primary care givers and the experience of maternal deprivation in young children. He analysed such cases and came up with his attachment theory. Bowlby discovered three phasic reactions of infants when separated from their care givers. In the initial phase-**protest**-the infant panics and cries strategically in order to undo the breaking of the bond. Any other care givers other than parents are

rejected. In the second phase of **despair**-the infant/child feels fixated at the loss and is mostly passive. After some time passes, the

child moves on to a state of **detachment**, where in the child starts developing some interest in other care givers and the new environment. While there was paucity of a strong evidence base to support Bowlby's claim, he soon came to the conclusion that attachment plays a key role in nurturing and healthy development of young children. His theory gathered some support from ethological studies done with animals. Harlow (1958) conducted important experiments with rhesus monkeys that had been separated from their biological mothers. The young monkeys were provided with 'surrogate' mothers made of wire mesh. Few were covered with a soft cloth and some were just plain wired skeletons of the mesh. The young monkeys were fed by bottles mounted on both the 'surrogate' *mothers*. Harlow did a series of experiments using this design. In one of the experiments, four monkeys were fed by the *wired mother* and four were fed by the *cloth mother*.



Figure 9.6 Harlow and his monkey with the 'surrogate' cloth mother at his Lab

Source: under creative commons license
(<https://liadomney.wordpress.com/knowning/>)

The outcome was measured in the amount of time monkeys spent with the respective mothers.

Both groups spent about 15 hours with the cloth mother and less than two hours with wired mother, irrespective of which mother fed them the milk. Bowlby used these experiments as support for his theory of attachment. We shall discuss the attachment theory in detail when we start discussing emotional development in children in the next Unit.

9.5.1.3 Attachment and the Social World

Mary Dinsmore Ainsworth (1913-1999) an American-Canadian psychologist was another major proponent of the attachment theory. She believed that some infants have a more positive attachment to their mothers as compared to others and that defines their relationships later in life. They develop secure attachment style where they use their primary care given as a secure base from which they explore the rest of the social world. She identified three distinct types of attachment styles: **secure attachment style** (type B), **anxious- avoidant attachment style** (type A), and **anxious-resistant type** (type C). Type B infants use their primary care givers mostly mothers as a secure base and then explore the environment. Type A infants, on the other hand exhibit insecurity by ignoring or avoiding the care giver/mother. Type C infants exhibit insecurity by resisting the care giver/ mother by clinging yet physically fighting her back. According to Ainsworth (1979) mothers of securely attached infants are sensitive to their babies needs and respond timely to their needs and cuddle them to provide a sense of physical proximity and security. Mothers of type A infants are usually insensitive to their needs and rarely provide physical comfort and respond to the infant in an irritable mood. The mothers of type C infants are usually insensitive and difficult in their interactions with their babies. They are not as rejecting as

type A mothers but are low on affection and sensitivity to their baby's needs (Santrock, 1997).



Figure 9.6 Mary Dinsmore Ainsworth- major champion of the attachment theory

Source: <https://jscholarship.library.jhu.edu/handle/1774.2/56113?show=full>

Ainsworth (1967) along with Mary Main and their colleagues developed the **Strange Situation test** to measure attachment. This test is an observational measure (conducted thousands of hours of observation of mother-infant pairs over many years) of the infant's attachment to the mother that involves the infant to pass through a series of stages of introductions, separation, reunion with the primary care giver and a stranger in a predefined order.

9.5.1.4 The new age 'parent'- redefining parenthood

Traditionally speaking, Indian parents give a lot of importance to familial ties and bonds, interdependence, religious beliefs, and academic and career related achievements and successes (Kakar, 1992). Unfortunately, in many parts of our country there is a strong preference for male children to keep the family name going, 'salvation' for parents by performing funeral rites, taking care of the property, and the like. On the other hand, a female child is often seen as a financial liability. This unfair obsession with gender has only added to preferential treatment and increasing gaps in resources and opportunities for the other gender (Issac, Annie & Prashanth, 2014). However, in urban, educated communities, caregivers and parents are increasingly uplifting children to acquire more independent characteristics like self-reliance, resilience to endure the competition of a globalized and technological community (Saraswathi & Pai 1997).

Family structures have undergone a diametrical change in urban areas with nuclear set-ups dominating the family units (Singh, 2010). Legal reforms and awareness, rise of feminist movements advocating for a more equal distribution of domestic labour and a more democratic family set up are making their presence known. Couples are career driven and their professional aspirations impact changing family roles and child rearing

practices. From the traditional heteronormative familial set up to an ambit of diverse family set ups, children can grow up healthily if respected, cared for and loved by the care givers irrespective of their gender or traditional role. Contemporary Indian parents attribute great importance to children's success in personal and professional domains resulting in greater prominence on developing a more friendly approach and relationships with children. Urban families are also challenged by the changing societal norms, and reduced time and extended support from the larger extended family. Many urban middle-class parents in India, aspire to engage in different activities and bring their own specific skills to child-rearing to contribute to child's overall well-being (Datta, 2007; Gore, 2003; Sinha, 2003; Sriram, Karnik, & Ali, 2002).

A progressive notion is to find appropriate ways to involve and encourage fathers to participate in their children's life and become co-contributors to overall wellbeing and gender equity in our country (Asia Pacific Regional Network for Early Childhood, 2012). In a conference organized by UNICEF and the Indian Social Sciences Trust (2009) on the role of 'Gender and Care Regime', it was reiterated that men should be involved as equal partners in parenthood and child welfare.

The conventional role of fathers as the sole bread winner, less involved in caregiving and fulfilling the age-old stereotype has shifted to due to changes in the societal norms, '*stay-at-home*' and '*work from home*' fathers, who are emotionally more available and physically proximate in the role of care giving. Child-rearing practices are also impacted by the environmental context that is mediated by changes in historical and social norms, changes in cultural values and shifts in familial life stressors and social support (LeVine (1988); Xu et al. (2005). In India, the shift and improvement in women's status and changing role of father as a more contributing agency in childcare may be attributed to greater opportunities for employment and education, rise of feminist movement and challenges to the patriarchal world views, technological and economic changes (Suppal & Roopnarine, 1999). A recent study investigating the role of fathers in child rearing concluded that parental involvement in childcare, especially that of father is determined by the discernment of individuals towards fatherhood in general and more specifically towards understanding of gender role expectations, peer group and one's own experiences of 'father-ing' received by the 'fathers' in the process of their growing up (Saraff & Srivastava, 2009).

Researchers over the past decades have started investigating the role of fathers in child rearing practices. Many countries in the Europe have supportive childcare policies offered to either of the parent to help taking the load off. In countries like Sweden, for example, paid maternity or paternity leave upto nine months is offered to mother or father to take care of the child. In India, mothers are given up to two years of childcare leave in the government sector, but fathers can avail for only 15 days. This is an issue of concern as fathers who may want to participate more, may not be able to do so due to lack of support from their workplace. The diversity of our cultural fabric and the amalgamation of different subcultures also influences the process of socialization for the child.

9.5.2 School

School plays a pivotal role after family in making the children feel welcomed and socialize with the external world. The experiences at school go a long way in creating a robust sense of resilience and mental health for the child. In the last few decades, psychologists have started paying attention to acts of bullying at school that its impact on the mental health of children. Schools are supposed to be safe spaces for children to blossom and thrive but acts or experiences of bullying may severely impact their socio-emotional development and mental health. Olweus (1991), a pioneering researcher in the area of bullying, defines it as an act when *–a student is being bullied or victimized when he or she is exposed repeatedly and over time to negative action on the part of one or more other students.* Some researchers have reported that females tend to be bullied more than male students (Barboza & colleagues, 2009; Juvonen & Graham, 2014).

Diversity inclusion, having a safe space, warm teachers and peers may help the child develop confidence in her/his/their abilities to interact with the social world outside. In India the New Education Policy came out in July 2020 and envisaged a series of reforms that would help in better child development practices and supportive education system for the children. Many educators and developmental psychologists in the field of Early Childhood Education (ECE) have embraced the policy as education and schooling have remained neglected in our country. The NEP envisions five stages of foundational education. ECE covers ages three to eight and it promises to strengthen the system of *Aanganwaadis*. The NEP (2020) also envisages that by 2030 all children, irrespective of gender will have access to quality early childhood development and care that prepares them for formal school later.

9.5.3 Peers

Peers play a very important role in the socialization and development of the world view of children. Pioneering developmental psychologists like Erik Erikson, Harry Stack Sullivan, Jean Piaget, Lev Vygotsky, Urie Bronfenbrenner and many social learning theorists have positioned their argument around the developmental idea that peer relationships and interactions provide a distinctive and unique context for social, cognitive and emotional development of children. Modern researchers also resonate similar views exemplifying that social and emotional gains are consolidated by healthy peer interactions (Siegler, 2006). Having a supportive environment and having peers that understand and help in the process of growth, adds on to the wellbeing of children. Children's friendships have multiple functions. They help in developing interactional and cognitive skills, as a way of exchanging knowledge about the social world and people around and also as a way to understand intimacy and relationships (Erwin, 1998).



Figure 9.7 Changing peer relationships due to COVID 19

Source: Ray Billingsley, via King Features Syndicate, Inc. via

<https://www.nytimes.com/2020/04/27/arts/design/comic-strips-coronavirus.html>

Group socialization theory proposed by Judith Harris (1998) suggests that the child learns largely from their peer group(s) rather than from their parents. According to the theory, a child's interaction with the larger peer culture is what explains their socialization. Parents maybe a strong model for socialization for an infant, however *group socialization* (non-shared environmental factors that the child experiences away from parents) has lasting impact on personality and behaviour. The theory was criticized (e.g. Vandell, 2000) and it was stressed that the parent's role is significant in the socialization process. It has been argued that it may also happen that even children from the same family may receive quite different parenting, which can be considered as non-shared influence.

Some researchers have reported that shyness may be associated with more peer difficulties and experiences of loneliness in childhood and adolescence in both Western and non-Western cultures (Prakash and Coplan 2007; Rubin et al. 1995). In a relatively recent study on 194 adolescents from Surat, India, Boker and Raja (2011) reported that avoidant adolescents may be intentionally and actively left out by their peers as they are perceived as anxious and sad and their social withdrawal is interpreted as an intentional and deliberate attempt to escape social interaction. They further argue, that in a country like India where group harmony and cohesiveness are primary cultural expectations, avoidant adolescents' behaviour may be seen as unpleasant and unfriendly and in diametrical contrast to the cultural expectation. Some researchers argue that peers may become successful agents of social change, however, this view has invited criticism. In reviewing a peer education program in the *gender and development* sector in New Delhi India, Gilbertson (2020) elaborates upon the dynamics of the role of a peer educator. She asserts that the peer educators end up benefitting more than the target group in terms of growth and these programs may end up creating binaries within the system where the gaps are further widened and not reduced. The role of peers gets all the more important as the child reaches adolescence.

9.5.4 Play

Play is important for social, cognitive and physical development. Play can be classified into two general categories: *functional play* and *constructive play*. In functional play, the preschool children engage in repetitive activities. For instance, playing with dolls or cars, or repetitive muscular movements like skipping, jumping, etc. The aim of functional play is to be active just for the

sake of it. While as in constructive play, children manipulate objects to build something new. As children get older, constructive play increases and functional play decreases.

In a classic research on social participation, Mildred Parten (1932) conducted observational studies on 40 preschool children during their free-play hour and suggested six different types of play that a preschooler was engaged in. She measured the frequency of each type of play and also how the frequency changed as a function of age. She also observed that different types of play involved differing levels of complexity. Social participation was classified as *cooperative play*, *associative play*, *parallel play*, *onlooker*, *unoccupied play*, *solitary play*. She concluded that social participation is dependent to a large extent upon the age of the child. There is also a slight relationship between the intelligence quotient and degree of social participation.

Table 9.1 Types of Play (Parten, 1932)

Play Type	Description
Cooperative Play	Most complex form of play which is rare before the age of 3 years. It includes playing formal games, social pretend play (where children take on make-believe roles), constructive play (children build things together like Lego blocks)
Associative Play	Most common form of play in 4-year-old children. Occurs when children talk to one another and share or borrow the same material in their play but do not do the same thing within the same imaginary context.
Parallel Play	Most common among 2-year-old children. Children play <i>beside</i> other children and not <i>with</i> the children. They do not interact but use the same toys and material while playing.
Onlooker	When a child watches other children playing but does not engage or joins with them; engage in a passive manner
Unoccupied Play	The child does not play with other children but watches whatever interests them.
Solitary Play	When children play by themselves in a way which is significantly different from others.

Onlooker, unoccupied play, and solitary play categories are non-social and reflect an absence of play (Parten, 1932). According to Vygotsky, pretend play, if it involves social play, helps children in developing cognitive skills. Recent researches have focused on different types of play but the focus has been on *physical* or *locomotor play*, *rough* and *tumble play*, *play with objects*, *pretend play* and *sociodramatic play*. Infants and children are

engaged in physical play in the early years that declines with age. It consists of physical activity where the whole and part body movements are involved in. Rough and tumble play is common during the school years and consists of play fighting and chasing. Play with objects appears around 5 months of age. Initially, infants become interested in exploring toys by feeling them or putting them in their mouth. Gradually, they become interested in the objects and start to bang or shake to make noise. They also start to realize the specific uses of the objects, like throwing of a ball or stacking the blocks. Pretend play emerges around 12 to 15 months of age and develops in three phases (Hughes, 2010). First is *decentration* where the child draws the caregivers or objects like, stuffed toys or dolls into pretend activities. This is followed by *decontextualization*. Here the child uses one object with another, like a stick as a spoon. In the beginning, children rely on realistic substitute or real objects, for e.g., using a cloth as a blanket. By the age 3 years, the child can use objects different from the real objects, like pretending a wooden block to be a piece of cake and pretend to 'eat' it. The final phase is *integration*. It refers to the acts of pretend play becoming 'joined up' into patterns of connected activities (for e.g. making a robot climb up a tower of blocks and jump off). Sociodramatic play is the pretend play with other people that appears around 12 months of age and increases in frequency during the preschool years and school years. Cultural differences are observed in peer interaction in an individualistic society vis-à-vis a collectivistic society. Roopnarine, Johnson, & Hooper (1994) observed that children in India tend to play quite different games that involved cooperation and uniformity as compared to children from the western countries.

9.5.5 Media

Media plays an important role in shaping sensibilities about the world. The influence of all kinds of media on the psychosocial development of children is unfathomable and pervasive. Especially in the current times when electronic media and social media platforms have become a popular means to filling time. On a more positive note, it can be channelized for social change. In an ICMR funded systematic review study, Khateb et al. (2018) found some support for potential promise of electronic media in reducing or preventing substance use. Some researchers also postulate that television as a form of media has the influence to generate both positive and negative impact and some studies have investigated the impact of television viewing on society, particularly on young children and adolescents (Dietz & Strasburger, 1991; Johnson, Cohen, Smailes, Kasen, & Brook, 2002). As part of electronic media, music videos are frequently watched and subscribed by children, pre-teens and adolescents. The kind of music videos shown in popular culture may reinforce false stereotypes. In an elaborate analysis of music videos, Rich & colleagues (1998) raised concerns about its impact on adolescents' socio-cultural and normative expectations about racial attitudes, male-female relationships and conflict resolution. Almost 75% of videos show sexually explicit material and more than half of the videos portray violence that is more often than not, committed with women. Females are frequently portrayed in a condescending manner and that seriously impacts children's attitude and perception about normative sex-roles (American Academy of

Pediatrics, 1996). Children spending excessive amounts of time at a computer screen are more prone to obesity, undeveloped social skills and classic signs of addictive behaviour (Canadian Pediatric Society, 2002). While some video games may help in the development of fine motor skills and coordination, serious concerns have been raised about its impact on the development of children. They have been found to be strongly correlated with inactivity, asocial behaviour and violence. These violent video games have pervasive harmful effects upon children's mental development (Thompson & Haniger, 2001).

Check Your Progress 4

1. How does 'motherese' or 'parentese' language pattern influence socialization?

.....

.....

.....

2. Summarize Parten's study on social participation.

.....

.....

.....

3. What is the role of media in the social development of a child in the present times?

.....

.....

.....

4. Does 'play' have a significant role in one's social development?

.....

.....

.....

9.6 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learnt:

- Moral development is the progressive understanding of 'rightness' and 'wrongness' that is deeply rooted in the cultural context in which the individual grows up from infancy to adulthood.
- Different western theorist like Piaget, Kohlberg and Gilligan have given a stage wise theory of moral development.
- Piaget proposed a two-stage theory of morality; heteronomous morality (moral realism) autonomous morality (moral relativism)

- Kohlberg extended on Piaget's work and proposed a three-stage theory of morality.
- Gilligan opposed both the theories as it seemed biased and failed to explain feminine morality development.
- Family, school, peers, play and media gradually shape the world view and perspective of an individual and help in the development of moral and social values and define her/his/their personhood.
- Bowlby, Ainsworth and some other influential psychologists proposed the idea of attachment styles. Attachment style is acquired early in life, and impact the way individuals would engage in adult relationships.
- Due to advent of modern technology, globalization and rise of feminism, the role of fathers especially in country like India, is witnessing a major shift.

9.7 KEYWORDS

Attachment Durable/enduring ties of affection formed by children with their primary caregiver(s) which becomes the basis for relationship in adult life.

Moral Realism When morality is primarily imposed from outside.

Moral Relativism When morality is shaped and driven by one's own rules.

Reciprocal Socialization Children socialize with their parents as much as parents socialize with their children.

Parentese The characteristic language patterns exhibited by adult care givers when conversing with young children.

9.8 REVIEW QUESTIONS

1. Recall the age when you started thinking about morality. What did it mean to you then? What does morality mean to you now?
2. Critically review Piaget's theory in the light of your cultural background.
3. If you were in Heinz's place, what would you have done and why?
4. Discuss Gilligan's disenchantment with Kohlberg's views on moral development.
5. Do you think family is an agent of social change?
6. What role does school play in the development of the world view of an individual?
7. What are your views on the role of media in developing your sensibilities around your social world in the present times?

9.9 REFERENCES AND FURTHER READING

American Academy of Pediatrics, Committee on Communications(1996). Impact of music lyrics and music videos on children and youth (RE9144). *Pediatrics*;98:1219-21.

Asia-Pacific Regional Network for Early Childhood. (2012, February). Exploring father involvement in the care and development of children in Asia and the Pacific-e discussion. Retrieved from <http://www.arnec.net/cos/o.x?c=/ntuc/pagetree&func=view&rid=1036703>

Bandura, A., & McDonald, F. (1963) The Influence of Social reinforcement and the Behavior of Models in Shaping Children's Moral Judgment. *Journal of Abnormal Social Psychology* 65: 274-231.

Barboza, G.E., Schiamberg, L.B., Oehmke, J., Korzeniewski, S.J., Post, L.A., &Heraux,C.G . (2009). Individual characteristics and the multiple contexts of adolescent bullying: An ecological perspective. *Journal of Youth and Adolescence*. 1;38(1):101-121. DOI: 10.1007/s10964-008-9271-1

Bloom, L. A. (1959) Reappraisal of Piaget's Theory of Moral Judgment. *Journal of Genetic Psychology*, 95: 3-12.

Boker, J.C., &Raja, R. (2011) Social Withdrawal Subtypes during Early Adolescence in India. *J Abnorm Child Psychol* 39:201–212 DOI 10.1007/s10802-010-9461-7

Brunner, J.A., Chen, J., Sun, C., & Zhou, N. (1989), "The Role of Guanxi in Negotiations in the Pacific Basin", *Journal of Global Marketing Vol. 3*(2).

Bussey, K. (1992). Lying and truthfulness: Children's definitions, standards, and evaluative reactions. *Child Development*, 63, 129-137.

Canadian Pediatric Society, Healthy Active Living for Children and Youth Advisory Committee. (2002) Healthy active living for children and youth. *Paediatr Child Health*;7:339-45.

Curry, O. S., Chesters, M. J., & Van Lissa, C. J. (2019). Mapping morality with a compass: Testing the theory of 'morality-as-cooperation' with a new questionnaire. *Journal of Research in Personality*, 78, 106–124.

Datta, D. (2007). *Overstretched dads*. India Today, XXXII(23), 68-72.

Dietz, W.H., &Strasburger, V.C. (1991) Children, adolescents and television. *Curr Probl Pediatr*;21:8-31.

Eagly, A. H. & A. B. Diekman: (2006), 'Examining Gender Gaps in Sociopolitical Attitudes: Its not Mars and Venus', *Feminism and Psychology*,16(1), 26.

Erwin, P. (1998) *Friendships in childhood and adolescence*. Routledge, London.

Flanagan, O. J., Jr. (1982). Virtue, Sex, and Gender: Some Philosophical Reflections on the Moral Psychology Debate. *Ethics*. 92. 499-512.

- Gibbs, J. (2019) *Moral Development and Reality*. 4th Ed. Oxford University Press.
- Gilbertson, A. (2021) The changed and the unchanged: Peer learning for gender and development in Delhi. *Gender, Place & Culture*, 28:2, 176-191, DOI: 10.1080/0966369X.2020.1773412
- Gilligan, C. (1977). In a different voice: Women's conceptions of self and of morality. *Harvard Educational Review*, 47(4), 481–517.
- Gilligan, C. (1982) *In a Different Voice: Psychological Theory and Women's Development* Harvard University Press, Cambridge, MA.
- Gilligan, C. (1987) Moral orientation and moral development. In Kittay, E. & Myers, D. (Eds.) *Women and moral theory* (Totowa, NJ, Rowan & Littlefield).
- Gilligan, C. And Attanucci, J. (1988) Two moral orientations: Gender differences and similarities, *Merrill-Palmer Quarterly*, 34, pp. 223-237.
- Gilligan, C. Biography. (2012). *NYU Law Faculty Profiles*. <http://its.law.nyu.edu/facultyprofiles/profile.cfm?section=bio&personID=19946>
- Gore, M. S. (2003). Keynote address. In Bhatti, R., Varghese, M., Raghuram, A. (Eds.), *Changing marital and family systems; Challenges to conventional models of mental health* (pp. 1-6). Bangalore, India: National Institute of Mental Health and NeuroSciences.
- Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, 108(4), 814.
- Haidt, J. (2012). *The righteous mind: Why good people are divided by politics and religion*. New York: Paragon
- Harris, J.R. (1998). *The Nurture Assumption: Why children turn out the way they do*. New York. Free Press.
- Hughes, F.P. (2010). *Children, Play, and Development* (4th Edition). Thousand Oaks. CA: Sage.
- Isaac, R., Annie, I. K., & Prashanth, H. R. (2014). Parenting in India. In H. Selin (Ed.), *Parenting Across Cultures: Childrearing, Motherhood and Fatherhood in Non-Western Cultures* (pp. 39-45). Dordrecht: Springer Netherlands.
- Johnson, J.G., Cohen, P., Smailes, E.M., Kasen, S., & Brook, J.S. (2002) Television viewing and aggressive behaviour during adolescence and adulthood. *Science*, 295:2468-71.
- Juvonen, J., & Graham, S. (2014). Bullying in schools: The power of bullies and the plight of victims. *Annual Review of Psychology*. 159-185. DOI: 10.1146/annurev-psych-010213-115030
- Kakar, S. (1992). *The inner world*. New Delhi, India: Oxford University Press
- Keenar, T., Evans, Subhadra, & Crowley, Kevin. (2016). *An Introduction to Child Development*. Sage.

Khatib, M.N., Sinha,A., Gaidhane, A.M., Simkhada, P., Behere, P.B., Saxena, D.,Unnikrishnan, B., Khatib, A., Ahmed, M., & Syed, Z.A. (2018). A systematic review on effect of electronic media among children and adolescents on substance abuse.*Indian Journal of Community Medicine, suppl.* Suppl 1; Chandigarh Vol. 43, Iss. 5,: 66-72.DOI:10.4103/ijcm.IJCM_116_18

Kohlberg, L. (1969). Stage and sequence: The cognitive–developmental approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 347–480). Chicago: Rand McNally.

Kohlberg, L. (1971). Stages of moral development as a basis for moral education. In C. M. Beck, B. S. Crittenden, & E. V. Sullivan (Eds.), *Moral education: Interdisciplinary approaches*. Toronto: University of Toronto Press.

Kohlberg, L. (1981). *Essays in moral development: The philosophy of moral development*. New York: Harper Row.

LeVine, R. A. (1988). Human parental care: Universal goals, cultural strategies, and individual behavior. In R. A. LeVine, P. M. Miller, & M. Maxwell (Eds.), *Parental behavior in diverse societies* (pp. 3–12). San Francisco: Jossey-Bass.

Olweus, D.(1994) Bullying at school: Basic facts and effects of a school-based intervention program. *Journal of Child Psychology and Psychiatry*.1;35(7):1171-1190. DOI: 10.1111/j.1469-7610.1994.tb01229.x

Parten, M. B. (1932). Social participation among pre-school children. *The Journal of Abnormal and Social Psychology*, 27(3), 243–269. <https://doi.org/10.1037/h0074524>

Piaget, J. (1932). *The moral judgement of the child*. New York: Harcourt

Prakash, K., & Coplan, R. J. (2007). Socio-emotional characteristics and school adjustment of socially-withdrawn children in India. *International Journal of Behavioural Development*, 31,9 123–132

Rich, M., Woods, E.R., Goodman, E., Emans, J., &DuRant,R.H.(1998) Aggressors or victims: Gender and race in music video violence. *Pediatrics*;101:669-74.

Rubin, K. H., Chen, X., McDougall, P., Bowker, A., & McKinnon, J. (1995). The Waterloo Longitudinal Project: predicting adolescent internalizing and externalizing problems from early and midchildhood. *Development and Psychopathology*, 7, 751–764.

Sams, J. (1975). The Ghetto Child and Moral Development. *Religious Education*. 70(6), 637-648.

Saraff, A., & Srivastava, H.C. (2010) Pattern and Determinants of Paternal Involvement in Childcare: An Empirical Investigation in a Metropolis of India. *Popul Res Policy Rev* 29:249–273 DOI 10.1007/s11113-009-9139-4

Saraswathi, T. S., & Pai, S. (1997).Socialization in the Indian context. In H. S. R. Kao & D. Sinha (Eds.), *Asian perspectives on psychology* (pp. 74-92). Thousand Oaks, CA, US: Sage Publications, Inc

Siegler, R. (2006) *How Children Develop*, Exploring Child Development Student Media Tool Kit + Scientific American Reader to Accompany How Children Develop. New York, NY: Worth Publishers.

Singh, J. P. (2010). India's changing family and state intervention. *The Eastern Anthropologist*, 63, 17-40.

Sinha, D. (2003). Some changes in the Indian family in the context of development and the psychological implications. In Bhatti, R. S., Varghese, M., & Raguram, A. (Eds.), *Changing family and marital systems challenges to conventional models in mental health* (pp. 1-6). Bangalore, India: NIMHANS.

Skoe, E. R. (1994) Ethic of Care, Justice, Identity, and Gender: An Extension and Replication, *Merrill-Palmer Quarterly* 40(2), 272–289.

Sriram, R., & Sandhu, G.K. (2013). Fathering to Ensure Child's Success: What Urban Indian Fathers Do? *Journal of Family Issues*, 34(2):159-181. doi:10.1177/0192513X12461136

Sriram, R., Karnik, R., & Ali, R. (2002). *Social construction of fatherhood and motherhood: A view from within families*. Baroda, India: Maharaja Sayajirao University of Baroda, Women's Studies Research Centre.

Suppal, P. G., & Roopnarine, J. L. (1999). Paternal involvement in child care as a function of maternal employment in nuclear and extended families in India. *Sex Roles*, 40(9–10), 731–744. doi: 10.1023/A:1018808718351.

Thompson, K.M., & Haniger, K. (2001). Violence in video games. *JAMA*, 286:591-8.

United Nations International Children's Education Fund & Indian Social Sciences Trust. (2009, December). *Who cares for the child? Gender and the care regime in India*. Report of the UNICEF-ISST Conference, Surajkund, National Capital Region, India.

Vandell, D.L. (2000). Parents, peer groups, and other socializing influences. *Developmental Psychology*, 26, 699-710.

Vasudev J, Hummel R, C (1987) Moral Stage Sequence and Principled Reasoning in an Indian Sample. *Human Development* 30:105-118. doi: 10.1159/000273170

Vitz, P. (1994). Critiques Of Kohlberg's Model of Moral Development: A Summary. *Revista Española De Pedagogía*, 52(197), 5-35. Retrieved April 15, 2021, from <http://www.jstor.org/stable/23765133>

Xu, Y., Farver, J. M., Zhang, Z., Zeng, Q., Yu, L., & Cai, B. (2005). Mainland Chinese parenting styles and parent-child interaction. *International Journal of Behavioral Development*, 29, 524–531.

9.10 ADDITIONAL ONLINE RESOURCES

- Gilligan and Kohlberg: Implications for Moral Theory Author(s): Lawrence A. Blum

Source: *Ethics*, Vol. 98, No. 3 (Apr., 1988), pp. 472-49. The University of Chicago Press

Gilligan and Kohlberg: Implications for Moral Theory (umb.edu)

**Perspectives On
Human
Development II:
Cognitive
Perspective**

- *Adolescent development and participation:*

Adolescent development and participation | UNICEF

- *Social and Emotional Learning:*

<https://youtu.be/Y-XNp3h3h4A>

- *Video: TED Talk: What Makes a Good Life? Lessons from the Longest Study on Happiness:*

The Family | Noba (nobaproject.com)



ignou
THE PEOPLE'S
UNIVERSITY

UNIT 10 EMOTIONAL DEVELOPMENT AND EMOTIONAL RELATIONSHIPS¹⁰

Structure

- 10.0 Introduction
- 10.1 Dimensions of socio-emotional development
 - 10.1.1 Primary Emotions
 - 10.1.2 Self-conscious Emotions
 - 10.1.3 Social Referencing
 - 10.1.4 Emotional Scripts
 - 10.1.5 Emotional Regulation
 - 10.1.6 Display Rules
 - 10.1.7 Individual Differences in emotionality
 - 10.1.8 Cross-cultural Evidence
- 10.2 Relationships
 - 10.2.1 Historical Background of Attachment Theory
 - 10.2.2 Bowlby's Attachment Theory
 - 10.2.3 Harlow's Experiment on 'Contact Comfort'
 - 10.2.4 Ainsworth's Strange Situation Test: Patterns in Attachment
 - 10.2.5 Separation and Stranger Anxiety
 - 10.2.6 Adult Attachment Styles
 - 10.2.7 Attachment Across Cultures
 - 10.2.8 Attachment Theory: Critical Lens
- 10.3 Temperament
 - 10.3.1 Types of Temperament
- 10.4 Summary
- 10.5 Keywords
- 10.6 Review Questions
- 10.7 References and Further Reading
- 10.8 Additional Online resources

Learning Objectives

After reading this unit, you will be able to:

- explain the nature of emotional development across the lifespan;
- elucidate the dimensions of socio-emotional development;

¹⁰ Dr. Sabeen H. Rizvi, Department of Psychology, Gargi College, University of Delhi, New Delhi

- summarize Bowlby's and Ainsworth theories on attachment;
- identify the cultural differences in emotions; and
- discuss temperamental differences as an important component of emotional development.

10.0 INTRODUCTION

Emotional development is a slow and gradual progression of emotions, that is contextually embedded and is an integrative process. It helps the child in understanding the socio-emotional world around her/him/them and use the information to manage their own emotions for creating sustainable and meaningful relationships with the environment and those that are important to her/him/them. Over the years, the study of emotional development has undergone a paradigm shift in different ways. First, emotions are not tangential components of a child's growth, rather a cardinal aspect of development in infancy and childhood. Secondly, the study of emotional development propositions a distinctively integrative perspective on life span development. It encompasses the synthesis of neurobiological perspective along with the socio-cultural lens. Contemporary developmentalists have started getting intrigued by the developmental psychopathological dynamics'vis-à-vis, emotional development of children. Sometimes, these clinical manifestations are embedded in troubled child-parent relationship, temperamental differences, coping strategies and gene-environment risk factors. Thus, emotional development is a complex phenomenon that influences all domains of human development.

10.1 DIMENSIONS OF SOCIAL-EMOTIONAL DEVELOPMENT

Researchers define a few dimensions of social-emotional development in infants and children:

- 1) Growth of self-awareness that may exhibit in the capacity of a child to recognize and describe one's feelings and motives;
- 2) progressive self-management of emotion in the ability to introspect, reflect and moderate one's emotions;
- 3) recognizing similar emotional reactions in others, becoming socially aware and dealing with other people's emotions and responding appropriately;
- 4) relationship maintenance skills; and
- 5) synthesizing social information and making responsible decisions (Payton et.al.,2008).

Emotions and its development can be complex. When thinking about young toddlers, one is inevitably reminded of a show of tantrum at a shopping mall or a store...throwing a tantrum at the cost of embarrassed or sometimes indifferent parents or caregivers. Those who have 'been there done that' know that it's a passing phase. While looking at newborn babies effortlessly

adds to our happiness, it is difficult to assess these emotions in a sophisticatedly designed research with infants given the ethical constraints. However, there is universality about certain class of emotions across the globe. Infants display similar emotions for basic emotions across different cultures. For example, seeing a primary caregiver is comforting for most infants and they smile, whereas being in a soiled diaper or nappy makes it difficult for any infant and they feel frustrated and may cry. Thus, basic emotions like happiness, sadness and anger are very comparable across and so is nonverbal encoding that is the nonverbal expression is also similar. These basic similarities across tribes, cultures and ethnicity have led researchers in the area of emotions to conclude that humans are born with the capacity to display certain basic emotions (Ackerman & Izard, 2004). While psychologists have defined emotions in different ways, one universal way of differentiating is whether the emotion is positive or negative. Positive affectivity (PA) indicates the positive continuum of emotions like energized, excited, happiness, joy and laughter and negative affectivity (NA) refers to emotions like sadness, anger, guilt and anxiety (Santrock, 1997).

10.1.1 Primary Emotions

The process of emotional development is not linear but cyclical. It starts with the infant starting to understand what emotions are and labeling those emotions. This is followed by becoming aware of the emotions within oneself. Then recognizing the emotions in other people and learning to regulate one's emotional expression. The appropriate and inappropriate ways of expressing one's emotions and finally learning higher ways of coping or developing more sophisticated ways of handling emotions and developing emotional quotient.

The emotions related skills and experiences of young infants happen most often when they are being fed, held, cuddled or comforted by their caregivers. They communicate with using language and their emotions become very pertinent in refining their brain processes. Their emotional development has an enormous impact on their overall development in their life time. As all of us might have observed or experienced, children display positive emotions when their needs are met, they are well fed, soothed, comforted and physically held.

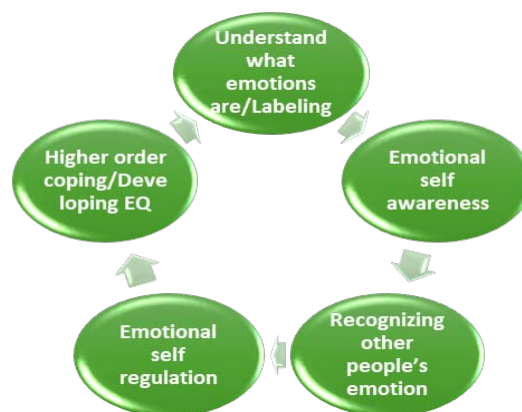


Figure. 10.1 Emotional development cycle

They display negative emotions when they are in distress of any sort, when they are hungry, wet, cold etc. As early as this period, they are not able to manipulate their emotions or regulate about how they may want to express their emotions. Basic emotions are same across cultures. Infants from India, U.K., Australia, Africa all display some basic common emotions. This has led many researchers to conclude that infants across cultures are born with the ability to display basic emotions like contentment, sadness etc. (Sullivan & Lewis, 2003; Ackerman & Izard, 2004; Bornstein, Suwalsky, & Breakstone, 2012). Nonverbal coding of emotions is fairly consistent across cultures, ages and life span.

Carol Izard's work has helped developmental psychologists to understand the development of primary emotions, i.e., the emotions that emerge within the first six month after birth (Lewis, 2008; 2015). Immediately after birth, babies show contentment (by smiling), interest (by inquisitively looking people and objects), and distress (by crying in discomfort or hunger or pain). By the time they are 3 months of age, they show contentment in the form of joy-at the sight of a loved one, interest turns into surprise- as in a game of *peek-a-boo* and distress turns into negative emotions like sadness-when a loved one leaves, and disgust-when experiencing some foul taste. Then comes anger at around 4-6 months of age and fear is the last of all to develop.

Infants of course find it impossible to verbally report their feelings for the obvious lack of verbal skills. Nevertheless, some developmental psychologists believe that their facial expressions may be a reliable indicator of their emotional experience. Carol Izard proposed the differential emotions theory (DET; Izard, 1971, 1990). According to him there are certain discreet emotions like anger, fear, joy, surprise, sadness, and disgust that emerge in infancy and each emotion thereby had a corresponding facial expression. In his research, Izard and his colleagues developed the *Maximally Discriminative Facial Movement Coding System* (MAX) and AFFEX coding systems (Izard, 1995; Izard, Dougherty, & Hembree, 1983) and explained that the facial experiences changes with different emotional experience. However, recent developments in the field have questioned the simplicity of the explanation and propose a more non-linear and complex picture of emotional development.

10.1.2 Self-conscious Emotions

The self-conscious emotions (Lewis, 2015) shape with the exploring of identity and development of self-awareness. These emotions require insight into one's own felt emotions and originate at about one and a half years of age. This is when infants start communicating with the mirror and start using self-related pronouns. When they develop self-awareness, they feel embarrassed when they are asked to perform socially. Later in the second year, when they can compare their performances with others and are able to judge and evaluate, they may display other complex emotions like guilt, shame, pride (Lewis, 2008). They bloat in pride when the teacher praises their work and feel embarrassed when they spill their water or drink.

10.1.3 Social Referencing

Developmental psychologists have proposed the idea of new functionalism in emotional development (Campos, Bertenthal, & Kermoian, 1992) where emotions are relational and not just internally managed or controlled. For example, family interactions lead to reciprocal socialization. Children and caregivers socialize with each other. Social referencing is a process where the infant intentionally searches for other's feeling and emotion when they are faced with ambiguous stimuli. It's a process where in children spontaneously use facial information from caregivers to change or modify their own actions. Like all other people, infants want to understand the meaning of a situation in order to reduce the experienced uncertainty. For instance, when infants see parents or siblings indulge in 'pillow fights', they are startled but when they see them laughing and enjoying the act, they understand that it is family play. Social referencing can actually be used by parents or caregivers to shape desirable behaviours as well.

10.1.4 Emotional Scripts

Between infancy and adolescence, a child's emotional experience undergoes tremendous development. Changes are observed in the meaning of emotion-specific words and the situation that evokes these emotions. This is seen as a child's acquisition of emotion-specific knowledge which takes the form of scripts (Lewis, 1989). This is the knowledge of the kinds of emotions a particular event or situation might arouse. As children mature, their emotional scripts increase in complexity.

10.1.5 Emotional Regulation

As accounted for before, emotional regulation is a major part of the socio-emotional development of a child. As children grow older, they accustom themselves to operate in world that has progressive social restrictions. This can be achieved in two ways. One in which they may try and calibrate the emotional impact of the environmental stimuli in a way that may allow social acceptance. Another way might be to mask the actual less acceptable emotion.

10.1.6 Display Rules

Slowly and steadily as children grow older, they also process that they are certain permissible ways of expressing emotions as per the cultural norms. Emotional display rules specify what emotions are appropriate to express or not to express in the given cultural fabric (Saarni, 1984; Thompson et al., 2011). For example, simple rules such as "don't curiously stare if someone dresses differently", "don't laugh at a funeral", "be pleasant when you have guests at home" are all culture specific display rules. Interestingly, the more children learn about appropriate ways of expressing, the more they cocoon their actual expressions and learn to manipulate their actual feelings. They also become acutely aware of this gap between inner world and outer world. Cole (1986) did an experiment that suggested that even three-year-old can conceal their actual emotions. She gave girl participants a very boring and disappointing gift as a reward for having participated in an experiment. In the

experimenter's presence, they gave 'half-hearted' smile in acknowledgement but in her absence, they clearly manifested their disappointment.

10.1.7 Individual Differences in Emotionality

Individuals differ in terms of how they experience the emotion spectrum. People tend to under-use or over-use different emotions that creates a deviancy. Malatesta & Wilson (1998) have described two different types of biases. A *surfeit bias*, that happens when a certain emotion starts dominating the affective life of an individual and is used rather indiscriminately and a *deficiency bias*, where a particular emotion is absent in the individual's affective repertoire. This may be because of the defense mechanism or may be the individual never developed the capacity of experience the emotion. Other than the above explanation, attachment style and temperament may also lead to relative differences in emotional experiences.

10.1.8 Cross-cultural evidence

While the development of emotions is primarily similar across different cultures, but certain emotions are encouraged, and others are discouraged in different cultures around the world. Children's emotional growth is influenced by the complex nuances of dynamic transactions between nature and nurture and understanding and internalizations of these transactions that are shaped by individual endowment, cultural forces, and the collective genetic pool. Thus, emotional development is not predetermined or linear rather it keeps changing in response to the environmental cues, cultural factors, individual's repository and is continuously evolving and adapting to the demands of the outside world. Providing a rich and supportive cultural environment enhances development and adverse circumstances make it challenging for them to thrive. Some researchers have reported that preventing the negative impact of adversity on children as well as their caregivers is helpful in preventing the intergenerational transmission of adversity and the associated risks to development (Reiss, 2013). On the other hand, building individual and environmental assets, social capital can be helpful in the contribution of intergenerational transmission of adaptive systems for optimal development (Martin et al., 2010; Schofield et al., 2011). Across cultures, children learn the priorities of their culture, including which emotions should be "felt, displayed, or attenuated" (Legare & Harris, 2016).

Research evidence suggests that there are variations and similarities among cultures in the emotional significance given to situations (appraisal), the expression of emotions from one person to another (communication), and the way in which people deal with situation that elicit emotion (coping; Mesquita & Frijda, 1992). In a study from India, young girls were shown to appreciate the distinction between felt and expressed emotion as preschoolers, earlier than Indian boys and British girls and boys. The study suggests that specific cultural ways of socialization impact the age at which understanding emerges (Joshi & MacLean, 1994). In another study from South Asia, young first graders comprehended that one can feel anger but it is not appropriate to communicate or express it on one's face (Cole & Tamang, 1998).

Asian values have often been portrayed as collectivistic, interdependent, or self-accommodating (Markus & Kitayama, 1991; Rothbaum, Pott, Azuma, Miyake, & Weisz, 2000) and value relational harmony, respect for authority, discourage anger expression and value shame as part of the cultural value (Kitayama & Markus, 1995). Primarily, anger is discouraged in our Asian societies as it threatens authority and relational harmony and shame is valued as it involves the self in relation to others (Barrett, 1995; Miller, 1996; Miyake & Yamazaki, 1995). In comparison to Asian cultures, in the United States, emphasis is placed on the development of individuality, autonomy and self-expression (Chao, 1995; Zahn-Waxler, Friedman, Cole, Mizuta, & Hiruma, 1996). Thus as evident, culture plays a pivotal role in the development of emotions across the life span.

Check Your Progress 1

1) What are primary emotions?

.....
.....

2) What is social referencing?

.....
.....

3) What are display rules?

.....
.....

4) What are surfeit and deficiency biases in the development of emotions?

.....
.....
.....

10.2 EMOTIONAL RELATIONSHIPS

Humans are predisposed to be social to understand and interact with the world around them. Relationships are a principal process through which various biological, environmental, and contextual factors mutually effect and strengthen each other. Relationships that are culturally responsive, trustful, reciprocal are a positive developmental influence for the dynamism between the child and their physical and social contexts. Such meaningful and positive relationships establish the optimal idiographic developmental pathways that operate as the underlying foundation for enduring patterns of learning, adaptation, the amalgamation of affective, social and cognitive processes, volition that overtime, shape the genetic make-up of a child (Bornstein & Leventhal, 2015; Bronfenbrenner & Morris, 2006).

Infants are reasonably helpless at birth and this continues for some time after birth. The infant is born with limited sensory abilities and this makes them

vulnerable. Gradually children form relationships, interact with others and are able to understand and manage one's feelings. An important milestone during infancy is forming healthy attachment. Psychologists like, Harlow, Bowlby and Ainsworth were interested in knowing how infants reach this milestone.

10.2.1 Historical Background of Attachment Theory

Attachment has been defined as 'a long enduring, emotionally meaningful tie to a particular individual' (Schaffer, 1996). The attachment theory finds its origin in the aftermath of the second world war when families got disintegrated and children were separated or lost their parent/s. Families were fragmented due to indiscreet bombardment on civilian targets and never-ending ambitions of the forces to recruit more people in order to retain supremacy in the war. Anna Freud along with Dorothy Burlingham set up the Hampstead Nurseries, that were shelters for children who lost their parents to the war. These children were between the ages of zero and ten and pined in grief desperately for their caregivers, even though they received good quality care at the shelters.

Box 10.1 Reflect

Think of a person or an object that you were or are very attached to? What would happen when the person would leave you or the object wouldn't be found? How do you feel about that person or object now? Why did you feel the attachment with the person or the object? How do you feel about this person or object now?

Some researchers have shown a positive association between security of attachment to mothers and security of attachment to teachers. Interestingly, security of attachment to both is related positively to the understanding of emotion and regulating anger (Denham et al, 2003). Many other researchers claim that the nature of our attachment during infancy impacts our abilities to relate to others, throughout our lives (Fraley & Spieker, 2003; Grossmann, Grossman & Waters, 2005; Hofer, 2006).

10.2.2 Bowlby's Attachment Theory

John Bowlby, the British child psychiatrist, and founder of attachment theory described attachment as a 'lasting psychological connectedness between human beings'. Bowlby formulated a theory on relationship (*attachment relationship*) between the caregiver and the infant. The theory majorly relied on the works of psychoanalytic theory, ethological theory and cognitive and developmental psychology. The theory states that infants are programmed to respond to their caregivers and caregivers are also biologically programmed to respond to the cues from an infant. Oxytocin, 'the cuddle hormone' is produced primarily in the hypothalamus that plays a pivotal role in

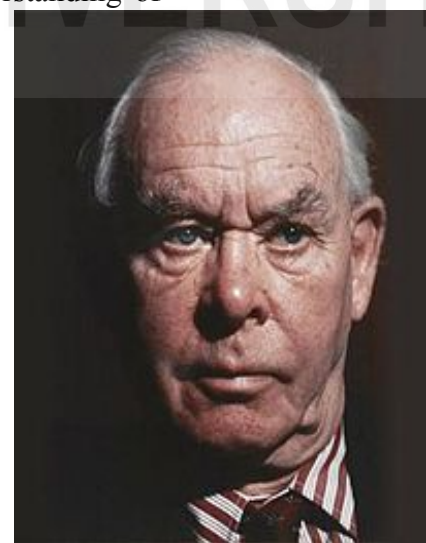


Figure 10.8: John Bowlby (1907-1990)

Source:

https://upload.wikimedia.org/wikipedia/en/thumb/c/cf/John_Bowlby.jpg/200px-John_Bowlby.jpg

facilitating this bond in humans and animals (Feldman, 2016). Bowlby (1958) revealed three phases in the reaction of young children when their bond with their loved one was challenged. In the first phase, the child protests and tries to undo the separation. After this phase, despair sets in where the child is fixated on the absent parent but remains in a passive role. In the third phase, after a couple of weeks or months, the child actively detaches himself/herself/themselves from the missing parent and starts engaging with the new caregiver. In the words of Bowlby, 'you do as you have been done by'.

10.2.3 Harlow's Experiment on 'Contact Comfort'

Harlow and Zimmerman (1959) did a series of experiments with monkeys. Monkey were reared by two surrogate mothers- a *wire mother* and a *cloth mother*. Half of the rhesus monkey were 'fed' by the *wire mother* and other half were fed by the *cloth mother*. Who would you predict the infants were attached with more? Probably the mother who fed them. The answer is no! Irrespective of which mother fed them, the monkey infants kept clinging and cuddling with the cloth mother. The infants would run to the contact mother when they were upset or afraid and demonstrated considerable attachment with the cloth mother. Harlow's work manifested the importance of contact comfort. **Contact comfort** is the comforting tactile sensation provided by the soft and cuddly mother and is a more important contributor towards developing attachment in the rhesus infants than feeding. Similar findings have been reported in humans too.



Figure 10.9 Harlow's contact comfort experiment

Source: <http://mrmcnabb.weebly.com/uploads/2/1/6/0/21609334/1385335613.jpg>

Rahul is 10 months old and is an easy-going child. Today the first time he is to be dropped at the Day Care Centre as his mother has to resume work at her office. Both parents go to drop Rahul at the Day Care Centre. Rahul has been playing and cheerful throughout the drive. He is delighted to be at the Centre, that is full of young kids and colourful walls and other interesting stimuli! His mommy is finding it difficult too, to let go but she kisses him bye with teary eyes. Rahul is suddenly confused...! Where are they going? Why am I being left here? Why are they leaving me behind? Probably these and many other thoughts engulf Rahul and he starts crying inconsolably? What is happening with Rahul? Why can't he enjoy his new surrounding with so many interesting stimuli? Why is he suddenly feeling insecure? Why is he in distress? Do you recall a time from your life where you found yourself in a similar situation? Probably your first day at school or a new home or a new neighbourhood? What was going on with you during that time?

10.2.4 Ainsworth's Strange Situation Test: Patterns in Attachment



Figure 10.4: Mary Ainsworth (1913-1999)

Source: <https://psychology.tcnj.edu/wp-content/uploads/sites/155/2018/10/Ainsworth.jpg>

Developmental psychologist Mary Ainsworth developed on Bowlby's groundwork and provided support for the attachment theory. She conceptualized a widely used experimental design to study attachment patterns (Ainsworth et al., 1978). The Ainsworth Strange Situation test involves a series of acted episodes that manifests the degree of attachment between a child and her/his/their care giver. The "strange situation" has the following components: (1) The infant and the mother enter an unfamiliar room; (2) the mother settles down, giving the room to baby to freely explore; (3) then an adult stranger enters the room and converses first with the mother and then the baby; (4) the

mother now exits the room, leaving the infant with the stranger; (5) the mother then returns, greeting and comforting the baby and the stranger leaves; (6) the mother departs again, leaving the baby alone; (7) stranger reenters; (8) the mother returns and the stranger leaves (Ainsworth et.al., 1978; Pederson et al., 2014).

10.2.5 Separation and Stranger Anxiety

Do you have your own reflections about the questions in the vignette mentioned above? Do these take you back to specific instance. This introduces us to the idea of **stranger and separation anxiety**. These concepts were elaborated by Ainsworth's research (1978). By the time infants are almost a year, they start developing stranger and separation anxiety. **Stranger anxiety** is the alertness, caution and suspiciousness displayed by an infant when they encounter a person they do not seem to know from before. When they are around six months of age, they start making sense of the world around. Differentiating between people they know and trust versus new people they don't know and trust. What is interesting to note is that not all strangers evoke similar anxiety. For instance, children feel less threatened by children who are strangers as compared with adults. They also feel relatively less anxious with female strangers as compared with male strangers (Swingler, Sweet, & Carver, 2007; Murray et al., 2007; Murray et al., 2008). **Separation anxiety** is the display of distress by an infant when a familiar care giver, typically mother, moves away from the scene. It usually starts at around the age of seven or eight months and peaks around the age of 14 months and then gradually declines. Stranger anxiety and separation anxiety are both important social processes. It shows the infant's cognitive development (processing the difference between known person and unknown, understanding presence and absence) as well as emotional maturation of the bond between the infant and the caregiver.



Figure 5 The Ainsworth Strange Situation -Mother leaving the child with the stranger

Source: https://www.open.edu/openlearn/sites/www.open.edu.openlearn/files/imported/o_53107/motherleaves.jpg

Infants' reactions in the *Strange Situation* will considerably depend upon their own attachment with their mothers. Ainsworth's contention is that one year old infants typically show one of the four patterns- secure, avoidant, ambivalent and disorganized-disoriented. *Secure children* use their mother as a home base and are at ease in the situation. They may or may not feel upset when the mother leaves, but they will seek her out when she returns. However, children *avoidant attachment style* may avoid proximity with the mother and do not show much distress when she leaves. They may even avoid her when she returns back. They are seemingly indifferent to her presence. Children who show *ambivalent style* display a combination of

reactions to their mother's absence and presence. They want to keep in close contact with the mother and will avoid exploring the environment. They display great distress when she leaves.

While Ainsworth only elaborated on three types of attachment style, other contemporary psychologists expanded it to a fourth one as well, i.e., *disorganized-disoriented* (Main & Solomon, 1990). Children in this category are confused, contradictory and inconsistent in their behavior. They may avoid the mother when she returns or run to her but not look at her. They may initially seem calm but suddenly may break into inconsolable tears. Their confusion may indicate that they may be least securely attached of all the other children (Mayseless, 1996; Cole, 2005; Bernier & Meins, 2008). In a similar way, children who are securely attached to their caregivers tend to be more socially and emotionally competent later in life. Many researchers have found an association between adult romantic relationships and attachment styles developed in infancy and childhood (Mikulincer & Shaver, 2007; Simpson et al., 2007; Bergman, Blom, & Polyak, 2012). However, an important consideration here is that not all children who have an insecure attachment style will undeviatingly have difficult relationships later in life, nor we can assert that those with a secure attachment style will invariably have good relationships later in life. Many researchers have also shown that children with avoidant and ambivalent attachment also do quite well later in life (Fraley & Spieker, 2003; Alhusen, Hayat, & Gross, 2013).

Table 10.1 Attachment style and behaviour

Attachment Style	Behaviour	Percentage of Children (data from 32 cross-cultural studies, Barnes, 1995)
Secure	Baby finds a secure base in mother's presence and feels distressed when she leaves. Baby calms down when she comes back. Baby is wary of stranger.	65
Anxious avoidant	Baby usually ignores mother and seems indifferent. Is usually easily comforted by stranger and treats mother and stranger the same.	21
Anxious resistant	Usually, such a baby is fussy and cries a lot. Feels distressed when the mother leaves but is not comforted when she returns. Expresses anger and resists stranger.	14

Bowlby's theory essentially proposes the following:

- The child has an innate need to attach itself to an exclusive attachment figure (usually mother). This is the idea of *monotropy*. This monotropic attachment bond becomes most important in the child's growth.

- The child should receive continuous care from this exclusive bond for the first two years of her/his/their life. If the attachment is not provided during this phase, then it leads to long term consequences. This deprivation is what he called *maternal deprivation*.
- There is an *internal working model* proposes that the relationship between the child and mother figure will set the model or pattern for future relationships.
- Maternal deprivation may lead to *affectionless psychopathy*, delinquency, and intellectual deficiencies. Affectionless psychopathy as described by Klein & Mitchell (1987) is 'permanent lack of feelings for others'.

10.2.6 Adult attachment styles

Hazan and Shaver (1987) proposed that the attachment styles elaborated by Ainsworth based on her strange situation experiment are carried through to adult relationships. They described the quality of relationships based on the attachment style. Table 10.2 describes some of the characteristics as displayed by different attachment types.

Table 10.2 Attachment style and adult relationships

<i>Attachment Style</i>	<i>Adult Relationship</i>
Secure	Not worried about being abandoned or afraid of people getting too close, comfortable if others are dependent, is comfortable depending on others and do not find it challenging in getting close to others. Capacity to develop secure relationships
Anxious-avoidant	Finds it difficult to trust others, finds it difficult to becoming close to others, finds it difficult to depend upon others, may feel anxious with intimacy and feels nervous when the partners get too close.
Anxious-ambivalent	Desires intense closeness that may put off the other partner, keeps doubting the commitment of the partner, disappointed with lack of closeness from others/partners.

10.2.7 Attachment Across Cultures

Many theorists believe that there are cross cultural differences in attachment patterns and these are not culturally universal. As an example, in Germany, that is an individualistic culture, parents discourage clingy behaviour, hence German infants are less demanding and are classified as avoidantly attached (Grossmann, Grossmann & Keppler, 2005). In collectivistic cultures like Japan, infants rarely spend without their mothers and are encouraged to be dependent on their mothers, as a result, the Japanese babies are more likely to be classified as resistantly attached (Takahashi, 1990; van IJzendoorn & Sagi, 1999).

10.2.8 Attachment Theory: Critical Lens

In the contemporary world, where women have managed both motherhood and careers, attachment theory has been looked at with a controversial lens (Domenico & Jones, 2006). The issues that became pertinent was whether the absence of mother would have a damaging impact on the children's development. However, Bowlby, since the very beginning has maintained that the attachment figure can be any other caregiver as well. Bowlby's notion of monotropic attachment has also received criticism from Schaffer and Emerson (1964) who demonstrated that children develop more than one strong bond and the figure need not be the mother alone but anyone else who is close and responsive to the child's need.

Attachment theory has also been criticized for only focusing on the Western cultures. However, Ainsworth's work initially focused on children from Uganda. Understanding other collectivistic cultures may help in expanding and enriching the attachment framework. For example, the concept of *amae* (the underlying expectation of benevolence from other community members) may offer a more culturally appropriate framework to understand the social development in children in Japan than attachment (Rothbaum et al., 2001). Feministic oriented theorists and socio-cultural thinkers have also criticized the conceptualization. Burman (2008) has vehemently criticized the 'load' that developmental psychology lays on mothers for ensuring all that is best for children thereby limiting their growth in life. From the same feministic lens, Birns (1999) criticized the theory in saying that 'To believe that being a loving, sensitive mother to an infant can protect a child for life against the adversity of poverty, abuse, poor schools, uncaring neighborhoods and violent television, is both a theoretical and practical mistake' (pg.19).

Another criticism comes from the area of clinical practice with younger children where the evidence based is relatively weak and some theorists have issued caution that 'popularized misconceptions' may have led to inappropriate usage of theory in therapy (Zilberstein, 2014).

To conclude, the attachment theory asserts the following (Seligman & Rider, 2017):

- The ability to foster attachments is part of the evolutionary heritage.
- Attachment starts early in life and is progressively influenced by an interaction of biological and environmental potencies during the sensitive phase of development.
- The quality of early attachment between infants and caregivers, shape later attachments and relationship quality.
- The infant creates internal working models of self and the social world through which early experiences impact later development.

Check Your Progress 2

1) What is attachment?

.....
.....
.....

2) What are different types of attachment styles?

.....
.....
.....

3) What do you understand by separation anxiety?

.....
.....

4) Define stranger anxiety.

.....
.....
.....

10.3 TEMPERAMENT

As mentioned before, it takes a while for the infant to develop some self-awareness, however they have distinctive and enduring patterns of emotionality and arousal from the very first few weeks of birth. Researchers have studied infant personalities and have focused on temperament, that is genetically acquired but is also influenced by environmental factors and shapes the individual's responses in predictable ways that accounts for the basis of personality (Chen & Schmidt, 2015; Rothbart, 2011; Shiner et al., 2012).

Alexander Thomas and Stella Chess along with their other colleagues were the pioneer researchers in studying temperament in infants (Thomas & Chess, 1977). They collated data for about nine dimensions of infant behaviour, including mood, predictability of biological functions (sleeping patterns, feeding), tendency to approach or withdraw from new stimuli, strength of emotional reactions, adaptability, and changes in routine. Primarily their formulation included nine specific dimensions: activity, regularity, adaptability, approach/withdrawal, intensity, mood, persistence, distractibility, and threshold.

10.3.1 Types of temperament

According to Thomas and Chess (1980), based on the amalgamation of these temperamental qualities, most infants could be categorized into one of the following categories:

- **Easy temperament:** Easy going infants are well tempered and are typically content or happy. They have a positive disposition and are open to experiencing new situations and are adaptable. They have regularity in their routine, and they tolerate frustrations and discomforts. This category applied to 40 percent of infants.
- **Difficult temperament:** Difficult temperament infants are irritable, active, and irregular in their habits and routines. They often react strongly and negatively to changes in predictable routines and are very slow in adapting to new people or situation. They are fussy and cry frequently and their patience threshold is very low, and they are high on reactivity. They throw tantrums when they are frustrated. 10 percent babies fall in this category.
- **Slow to warm-up temperament:** Slow to warm up infants take their own time to adapt to a new situation. Such infants are relatively inactive, moody and have a moderately regular schedule in their daily routine. Once they have warmed up to a new situation, event or people, they settle in well and remain calm post it. Approximately 15 percent babies fall in this category.

According to Thomas and Chess (1980) 35 percent of the babies do not fall into any of the above categories as they display mixed traits and cannot be consistently categorized. Thus, temperament covers patterns of arousal and emotionality that are consistent and enduring across the life span (Rothbart, Ahadi, & Evans, 2000; Kochanska, Aksan & Carlson, 2005). Having said that, temperament is not fixed and keeps changing. Childrearing practices can influence temperament. Children may show little consistency in their temperament across different ages (McCrae et al., 2000; Rothbart, Derryberry, & Hershey, 2000; Rothbart & Derryberry, 2002).

As is evident, emotional development being a lifelong and dynamic process is consistently influenced by multiple factors. While advances in research and the field of neuroscience has helped us understand the trajectory of emotional development over the course of life span, a lot continues to intrigue researchers around the world. Cultural factors are as important as all other contributors to the development of emotions in children and adolescents.

Check Your Progress 3

1) What is temperament?

.....

.....

.....

2) Differentiate between easy and slow to warm up temperament.

.....

.....

.....

- 3) Identify your own temperament and discuss with your caregiver how were you as a toddler.

.....

.....

.....

10.4 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learnt:

- Emotional development is a lifelong process that is shaped by individual's traits, temperament, attachment styles, environmental factors and cultural norms.
- Primary emotions are present since the time the infant is born and helps her/him/them survive and create a bond by communicating to the care givers.
- Self-conscious emotions develop with the awareness about self and identity.
- Attachment is a positive bond between the infant and the primary care giver.
- According to Bowlby's theory, securely attached children can cultivate fulfilling relationships later in life.
- Temperament is a major contributor in the emotional development of an individual.
- Temperament defines consistent and stable personality dispositions that help an individual react to situations in the environment based on nine different aspects.
- Culture plays a major role in the development of attachments and relationships.

10.5 KEYWORDS

Primary Emotions Emotions that emerge within the first six month after birth like contentment, interest, and distress.

Emotional Regulation Ability to manage and regulate one's emotions as per the appropriateness of the context and situation.

Display Rules Cultural norms pertaining to the appropriateness and inappropriateness of emotional expression in any given social situation.

Self-conscious Emotions Emotions that shape with the exploring of identity and development of self-awareness.

Social Referencing Emotional meaning making by an infant or child by looking up to his/her family members or caregivers when faced with an ambiguous situation.

Attachment The positive bond between an infant and his/her primary care giver that shapes future relational bonds.

Ainsworth Strange Situation Test A series of acted episodes that demonstrates the strength of attachment between a child and (typically) his or her mother.

Anxious-avoidant An attachment style where the children ignore the mother and seem indifferent.

Anxious-resistant An attachment style where the children are fussy and angry and feel distressed when the mother leaves but are not comforted when she returns.

Secure Attachment An attachment style where the children use their mother as a secure base and feel comfortable when she is present and upset when she leaves. They go to her as soon as she returns.

Disorganized-Disoriented Children with disorganized-disoriented attachment pattern display inconsistent, conflicting, and confused behaviour.

Temperament Consistent and enduring patterns of arousal and emotionality in an individual that is shaped by genes and environment.

10.6 REVIEW QUESTIONS

- 1) Discuss the development of emotions in the light of your own experiences of growing up and research evidence from the field.
- 2) What are primary emotions, self-conscious emotions and display rules? Are these defined by culture?
- 3) How would you define attachment? Critically discuss and evaluate the attachment perspective as proposed by Bowlby and Ainsworth.
- 4) What is temperament? How does it shape one's social development?
- 5) Discuss the role of attachment and temperament in defining relationships later in life.

10.7 REFERENCES AND FURTHER READING

Ackerman, B. P., & Izard, C. E. (2004). Emotion cognition in children and adolescents: Introduction to the special issue. *Journal of Experimental Child Psychology*, 89 [Special issue: Emotional cognition in children], 271–275.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Erlbaum.

Alhusen, J. L., Hayat, M. J., & Gross, D. (2013). A longitudinal study of maternal attachment and infant developmental outcomes. *Archives of Women's Mental Health*, 16, 521–529.

Barnes, P. (1995). *Personal, social, and emotional development of children*. Cambridge, Mass: Blackwell Publishers in association with the Open University

- Barrett, K. C. (1995). A functionalist approach to shame and guilt. In J. P. Tangney & K. W. Filcher (Eds.), *Self-conscious emotions: The psychology of shame, guilt, embarrassment, and pride* (pp. 25–63). New York: Guilford Press.
- Bergman, A., Blom, I., & Polyak, D. (2012). Attachment and separation-individuation: Two ways of looking at the mother/infant relationship. In S. Akhtar (Ed.), *The mother and her child: Clinical aspects of attachment, separation, and loss*. Lanham, MD: Jason Aronson.
- Bernier, A., & Meins, E. (2008). A threshold approach to understanding the
- Birns, B. I. (1999) Attachment Theory Revisited: Challenging Conceptual and Methodological Sacred Cows. *Feminism & Psychology*. 9(1):10-21. doi:10.1177/0959353599009001002
- Bornstein, M. H., & Leventhal, T. (2015). Children in bioecological landscapes of development. In R. M. Lerner (Ed.), *Handbook of child psychology and developmental science: Vol. 4. Ecological settings and processes* (7th ed., pp. 1–5). Hoboken, NJ: Wiley.
- Bornstein, M. H., Suwalsky, J. D., & Breakstone, D. A. (2012). Emotional relationships between mothers and infants: Knowns, unknowns, and unknown unknowns. *Development and Psychopathology*, 24, 113–123.
- Bowlby, J. (1969). *Attachment* (1st ed.). London, UK: Penguin.
- Bowlby, J. (1969). *Attachment and loss*. (OKS Print.) New York: Basic Books.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of child psychology and developmental science: Vol. 1. Theory and method* (7th ed., pp. 793–828). Hoboken, NJ: Wiley.
- Burman, E. (2008). *Deconstructing developmental psychology*. London/New York: Brunner Routledge.
- Campos, J. J., Bertenthal, B. I., & Kermoian, R. (1992). Early experience and emotional development: The emergence of wariness of heights. *Psychological Science*, 3, 61–64.
- Chao, R. K. (1995). Chinese and European American cultural models of the self reflected in mothers' childrearing beliefs. *Ethos*, 23, 328–354.
- Chen, X., & Schmidt, L. A. (2015). Temperament and personality. In M. E. Lamb & R. M. Lerner (Eds.), *Handbook of child psychology and developmental science: Socioemotional processes* (pp. 152–200). John Wiley & Sons, Inc.. <https://doi.org/10.1002/9781118963418.childpsy305>
- Cole, S. A. (2005). Infants in foster care: Relational and environmental factors affecting attachment. *Journal of Reproductive & Infant Psychology*, 23, 43–61.
- Cole, P. M., & Tamang, B. L. (1998). Nepali children's ideas about emotional displays in hypothetical challenges. *Developmental Psychology*, 34, 640–646

Denham, S., Blair, K., DeMulder, E., Levitas, J., Sawyer, K., Auerbach-Major, S., et al. (2003). Preschool emotional competence: Pathway to social competence. *Child Development*, 74, 238-256.

Domenico, D.M., & Jones, K. (2007). Career Aspirations of Women in the 20th Century. *Journal of Career and Technical Education*, 22.

Feldman, R. (2016). The neurobiology of mammalian parenting and the biosocial context of human caregiving. *Hormones and Behavior*, 77, 3–17.

Fraley, R. C., & Spieker, S. J. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of Strange Situation behavior. *Developmental Psychology*, 39, 387–404.

Grossman, K. E., Grossmann, K., & Waters, E. (Eds.). (2005). *Attachment from infancy to adulthood: The major longitudinal studies*. New York: Guilford Press.

Grossmann, K. E., Grossmann, K., & Keppler, A. (2005). Universal and Culture-Specific Aspects of Human Behavior: The Case of Attachment. In W. Friedlmeier, P. Chakkarath, & B. Schwarz (Eds.), *Culture and human development: The importance of cross-cultural research for the social sciences* (pp. 75–97). Psychology Press/Erlbaum (UK) Taylor & Francis.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511–524. <https://doi.org/10.1037/0022-3514.52.3.511>

Hofer, M. A. (2006). Psychobiological roots of early attachment. *Current Directions in Psychological Science*, 15, 84–88.

Izard, C. E. (1991). *The psychology of emotions*. New York, NY: Plenum Press.

Izard, C. E., Hembree, E., Dougherty, L., & Spizzirri, C. (1983). Changes in facial expressions of 2- to 19-month-old infants following acute pain. *Developmental Psychology*, 19, 418–426.

Izard, C. (1997). Emotions and facial expressions: A perspective from differential emotions theory. In J. Russell & J.-M. Fernandez-Dols (Eds.), *The psychology of facial expression* (pp. 57–77). Cambridge, UK: Cambridge University Press.

Izard, C. E. (1971). *The face of emotion*. New York, NY: Appleton-Century-Crofts.

Joshi, M. S., & MacLean, M. (1994). Indian and English children's understanding of distinction between real and apparent emotion. *Child Development*, 65, 1372–1384.

Kitayama, S., & Markus, H. R. (1995). Culture and self: Implications for internal psychology. In N. R. Goldberger & J. B. Veroff (Eds.), *The culture of psychology reader* (pp. 366–383). New York: New York University Press.

Klein, M., & Mitchell, J. (1987). *The selected Melanie Klein*. New York: Free Press.

- Kochanska, G., Aksan, N., & Carlson, J. J. (2005). Temperament, Relationships, and Young Children's Receptive Cooperation With Their Parents. *Developmental Psychology*, 41(4), 648–660.
- Legare, C. H., Harris, P. L. (2016). The ontogeny of cultural learning. *Child Development*, 87, 633–642.
- Lewis, M. (2008). The emergence of human emotions. In M. Lewis, J. M. Haviland-Jones, & L. Feldman Barrett (Eds.), *Handbook of emotions* (3rd ed.). New York, NY: Guilford.
- Lewis, M. (2015). Emotional development and consciousness. In W. F. Overton & P. C. M. Molenaar (Vol. Eds.) & R. M. Lerner (Ed.), *Handbook of child psychology and developmental science: Vol 1. Theory and method* (pp. 407–451). Hoboken, NJ: Wiley.
- Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganised/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 121–160). Chicago, IL: University of Chicago Press.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, motivation, and emotion. *Psychological Review*, 98, 224–253.
- Martin, M. J., Conger, R. D., Schofield, T. J., Dogan, S. J., Widaman, K. F., Donnellan, M. B., & Neppel, T. K. (2010). Evaluation of the interactionist model of socioeconomic status and problem behavior: A developmental cascade across generations. *Development* 30 D. OSHER ET AL. and *Psychopathology*, 22(3), 695–713. doi:10.1017/S0954579410000374
- Mayseless, O. (1996). Attachment patterns and their outcomes. *Human Development*, 39, 206–223.
- McCrae, R., Costa, P., Ostendorf, F., Angleitner, A., Hrebícková, M., Avia, M., Sanz, J., Sánchez-Bernardos, M. L., Kusdil, M., Woodfield, R., Saunders, P., & Smith, P. (2000). Nature over Nurture: Temperament, Personality, and Life Span Development. *Journal of personality and social psychology*. 78. 173–86. 10.1037/0022-3514.78.1.173.
- Mesquita, B., & Frijda, N. H. (1992). Cultural variations in emotions: A review. *Psychological Bulletin*, 112, 179–204.
- Miller, J. G., & Bersoff, D. M. (1992). Culture and moral judgment: How are conflicts between justice and inter-personal responsibilities resolved? *Journal of Personality and Social Psychology*, 62, 541–554.
- Miller, P. J. (1996). Instantiating culture through discourse practices: Some personal reflections on socialization and how to study it. In R. Jessor, A. Colby, & R. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 183–204). Chicago: University of Chicago Press.
- Miyake, K., & Yamazaki, K. (1995). Self-conscious emotions, child rearing, and child psychopathology in Japanese culture. In J. P. Tangney & K. W. Filcher (Eds.), *Self-conscious emotions: The psychology of shame, guilt, embarrassment, and pride* (pp. 25–63). New York: Guilford Press.

- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood. Structure, dynamics, and change*. New York, NY: Guilford.
- Murray, L., Cooper, P., Creswell, C., Schofield, E., & Sack, C. (2007, January). The effects of maternal social phobia on mother–infant interactions and infant social responsiveness. *Journal of Child Psychology and Psychiatry*, 48, 45–52.
- Murray, L., de Rosnay, M., Pearson, J., Bergeron, C., Schofield, E., Royal-Lawson, M., et al. (2008). Intergenerational transmission of social anxiety: The role of social referencing processes in infancy. *Child Development*, 79, 1049–1064.
- Payton, J., Weissberg, R.P., Durlak, J.A., Dymnicki, A.B., Taylor, R.D., Schellinger, K.B., & Pachan, M. (2008). The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning
- Pederson, D. R., Bailey, H. N., Tarabulsky, G. M., Bento, S., & Moran, G. (2014). Understanding sensitivity: Lessons learned from the legacy of Mary Ainsworth. *Attachment & Human Development*, 16, 261–270.
- Reiss, F. (2013). Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Social Science & Medicine*, 90, 24–31. doi:10.1016/j.socscimed.2013.04.026
- Rothbart, M. K. (2011). *Becoming who we are: Temperament and personality in development*. Guilford Press.
- Rothbart, M. K., & Derryberry, D. (2002). Temperament in children. In C. von Hofsten & L. Bäckman (Eds.), *Psychology at the turn of the millennium, Vol. 2. Social, developmental, and clinical perspectives* (pp. 17–35). Taylor & Frances/Routledge.
- Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology*, 78(1), 122–135. <https://doi.org/10.1037/0022-3514.78.1.122>
- Rothbart, M. K., Derryberry, D., & Hershey, K. (2000). Stability of temperament in childhood: Laboratory infant assessment to parent report at seven years. In V. J. Molfese & D. L. Molfese (Eds.), *Temperament and personality development across the life span* (pp. 85–119). Lawrence Erlbaum Associates Publishers.
- Rothbaum, F., Pott, M., Azuma, H., Miyake, K., & Weisz, J. (2000). The development of close relationships in Japan and the United States: Paths of symbiotic harmony and generative tension. *Child Development*, 71, 1121–1142.
- Rothbaum, F., Weisz, J., Pott, M., Miyake, K., & Morelli, G. (2001). Deeper into attachment and culture. *The American psychologist*, 56(10), 827–9.
- Saarni, C. (1984). An observational study of children's attempts to monitor their expressive behavior. *Child Development*, 55, 1504–1513.

- Santrock, J. W. (1997). *Life-span development* (6th ed.). Brown & Benchmark Publishers.
- Schaffer, H., & Emerson, P. (1964). The Development of Social Attachments in Infancy. *Monographs of the Society for Research in Child Development*, 29(3), 1-77. doi:10.2307/1165727
- Schofield, T. J., Martin, M. J., Conger, R. D., Neppl, T. K., Donnellan, M. B., & Conger, K. J. (2011). Intergenerational transmission of adaptive functioning: A test of the interactionist model of SES and human development. *Child Development*, 82(1), 33–47. doi:10.1111/j.1467-8624.2010.01539.x
- Seligman, C. K., & Rider, E. A. (2018). *Life-span human development*. Boston, MA: Cengage.
- Shiner, R.L., Buss, K.A., McClowry, S.G., Putnam, S.P., Saudino, K.J. and Zentner, M. (2012), What Is Temperament Now? Assessing Progress in Temperament Research on the Twenty-Fifth Anniversary of Goldsmith et al. (). *Child Dev Perspect*, 6: 436-444. <https://doi.org/10.1111/j.1750-8606.2012.00254.x>
- Simpson, J. A., Collins, W. A., Tran, S., & Haydon, K. C. (2007). Attachment and the experience and expression of emotions in romantic relationships: A developmental perspective. *Journal of Personality and Social Psychology*, 92, 355–367.
- Sullivan, M., & Lewis, M. (2003). Contextual determinants of anger and other negative expressions in young infants. *Developmental Psychology*, 39, 693–705.
- Swingler, M. M., Sweet, M. A., & Carver, L. J. (2007). Relations between mother- child interaction and the neural correlates of face processing in 6-month-olds. *Infancy*, 11, 63–86.
- Takahashi, K. (1990) Are the Key Assumptions of the ‘Strange Situation’ Procedure Universal? A View from Japanese Research. *Human Development*;33:23-30. doi: 10.1159/000276500
- Thomas, A., & Chess, S. (1977). Temperament and development. New York: Brunner/Mazel.
- van den Boom, D. C., & Hoeksma, J. B. (1994). The effect of infant irritability on mother-infant interaction: A growth-curve analysis. *Developmental Psychology*, 30, 581-590.
- Thompson, R. A., Winer, A. C., & Goodvin, R. (2011). The individual child: Temperament, emotion, self, and personality. In M. E. Lamb & M. H. Bornstein (Eds.), *Social and personality development. An advanced textbook*. New York, NY: Psychology Press.
- van Ijzendoorn, M. H., & Sagi, A. (1999). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 713–734). The Guilford Press.
- Zahn-Waxler, C., Friedman, R. J., Cole, P. M., Mizuta, I., & Hiruma, N. (1996). Japanese and United States preschool children's responses to conflict and distress. *Child Development*, 67, 2462–2477

10.8 ADDITIONAL ONLINE RESOURCES

For more information on emotional development:

- <https://www.child-encyclopedia.com/sites/default/files/textes-experts/en/638/emotional-development-in-childhood.pdf>
- <https://www.ncbi.nlm.nih.gov/books/NBK534819/>
- <https://www.cde.ca.gov/sp/Cd/re/itf09socemodev.asp>

For more information on cross cultural differences in emotional expression:

- https://weiszlab.fas.harvard.edu/files/jweisz/files/rothbaum_et_al_2000_j_ch_fam_studies.pdf
- <https://www.frontiersin.org/articles/10.3389/fpsyg.2015.01501/full>

For more information on neuroscientific advances in child development (India):

- <https://www.unicef.org/india/reports/building-better-brains>

For more information on Hampstead war nurseries:

- <https://www.youtube.com/watch?v=yku-kda1BX4>

For information on Bowlby & Ainsworth:

- http://apps.who.int/iris/bitstream/handle/10665/37819/WHO_PHP_14.pdf;jsessionid=0680AB6A9E1538ED9B145BD8D2D42D60?sequence=1
- https://www.youtube.com/watch?v=Exf_rR1NnNs
- <https://www.youtube.com/watch?v=QTsewNrHUHU>

UNIT 11 DEVELOPMENT OF SELF, IDENTITY AND GENDER¹¹

Structure

- 11.0 Introduction
- 11.1 Identity, Self-concept, Self-esteem
- 11.2 Sex and Gender
- 11.3 Gender Identity
- 11.4 Do gender differences exist: Are we different or similar to one another?
- 11.5 Freud's Conceptualization of Identity
 - 11.5.1 The Topographical Model
 - 11.5.2 Gender Development
- 11.6 Erikson's conceptualization of Identity
 - 11.6.1 Major concepts: Identity Development
 - 11.6.1.1 Ego Identity
 - 11.6.1.2 Identity versus Identity Confusion
 - 11.6.1.3 Identity Formation Process
 - 11.6.1.4 Identity Crisis
 - 11.6.1.5 Psychological moratorium
 - 11.6.1.6 Gender Identify
 - 11.6.2 Empirical support for Erikson's concepts
- 11.7 Marcia's Identity Status Model
 - 11.7.1 Identity Status Model: Critical Lens
- 11.8 Allport's conceptualization of Identity
 - 11.8.1 Characteristics of a Mature Personality
- 11.9 Summary
- 11.10 Keywords
- 11.11 Review Questions
- 11.12 References and Further Reading
- 11.13 Additional Online Resources

LEARNING OBJECTIVES:

After having read this Unit, you will be able to:

- differentiate between sex and gender;
- identify the difference between identity, self-concept and self esteem;
- explain the gender similarities hypothesis;

- discuss Freud's conceptualization of identity;
- critically appraise Erikson's notion of Identity;
- explain James Marcia's theoretical positioning around identity, and
- discuss Allport's views on self and personality

11.0 INTRODUCTION

By now you must be having a fair idea of the different perspectives and domains of human development. In this Unit, we will address another very important area concerning the formation of sense of self, development of one's self-concepts, and gender identity. We will also examine the theoretical position of Freud, Erikson, Marcia and Allport on identity.

11.1 IDENTITY, SELF-CONCEPT AND SELF-ESTEEM

Identity- Who am I?

The answer to this will vary as we move across various age groups from childhood to adulthood. The answer will also vary if we adopt an intersectional lens to answer the same question. Self-related descriptions change considerably between childhood and adolescence (Harter, 2012).

Case Vignette

Sid is an 18-year-old and has recently started college. He feels uneasy in the new set up as he is not able to identify with his batch mates and is not able to make new friends. His school friends were very supportive and helped him in every way. Here he feels, he is not "cool enough"! Going to college is a task for him. His self-esteem is shaky, and he feels less confident every day. He shared his apprehensions and fears with his brother, who encouraged him to engage with his classmates. With much effort he tried hanging out with them. They were very different from him and tried new things for thrill. When Sid could not pretend to be "cool enough" he refused to indulge in the high-risk acts. His 'friends' made immense fun of him. Suhas felt miserable...He was not able to fit in. There was a deep sense of dissonance for him. Sid is not alone, many college going students go through similar phases. Have you or any of your friend experienced anything similar?

Sid is not alone in feeling how he is feeling in above scenario. The question becomes typically pertinent as one enters adolescence. This question starts persisting for most adolescents as they start experiencing themselves in a newer understanding of the social world that is interpreted in the awareness of the knowledge acquired from their friends and peers and a need for a constant sense of validation from these circles. This period is crucial for

many aspects of developing a sense of self and identity, including commitments, personal goals, motivations, and overall psychological wellbeing (Meeus, et. al., 1999; Becht, et al., 2016). During this period, youth seek autonomy and independence particularly from family, along with increased commitments to social aspects of identity and greater needs for connection with peers (Meeus et al., 2005).

Self-concept- What am I like?

The process of self-concept starts with the attainment of self-awareness within the first year of life. The development of self-concept is continuous process which primarily begins at the end of first year and gains substantial salience by the time the individual reaches adolescence. Social practices also lead to the shaping of self-concept early in life. In many Indian communities like the Tamilians from south India, young children are restricted from viewing the mirror as it is believed that looking at one's own reflection generates tremendous fear in children (Chaudhary, 2003).

Self-esteem- What am I worth?

Once children are able to attain an understanding about themselves, they and others around them start evaluating themselves in positive or negative light. The development of self-esteem provides an impetus for person growth and if an individual evaluates herself/himself/themselves favourably, then he/she/they will be motivated to enhance their growth, emotional development, and relationships.

Identity incorporates both self-concept and self-esteem of an individual. The concept of self, esteem and identity together contribute to personal growth of an individual. A very important and indispensable component of identity is gender but we need to also address the difference between sex and gender.

11.2 SEX AND GENDER

Before we start delving into the nuances of gender identity, it is imperative to understand the difference between the concept of sex and gender. While sex refers to your biological attributes that make you male or female, gender is the experience of feeling this 'maleness' or 'femaleness'. Gender is a sociocultural construct of what a person chooses to identify with. As an example, you may have been born a female, but you identify with being a male. The *gender identity spectrum* (LGBTQIA+) is a very important area to understand before you start conceptualizing your social world. The gender identity spectrum envisages gender as a continuum extending from men to women and masculine to feminine. Gender identities are considered to be non-binary.

11.3 GENDER IDENTITY

I am neither male nor female.

I am both male and female.

*I am firm and flexible.
I am aware and I am not.
To appreciate this fluidity of nature,
And the shifting rigidities of culture,
Is to appreciate queerness.*

-Pattanaik (2014, pg. 3)

Box 11.1 Reflect

Think about your own growing up years? Did you know what was appropriate to wear and what was inappropriate? How did you know about your gender identity? How did your family members contribute to the development of this idea? Were you happy and satisfied with how you were treated by others? Did you or anyone you know experience gender-based discrimination? What are your thoughts about your gender identity? Are you aware of the gender spectrum?

Pattanaik's words encourage us to envision the idea of gender beyond the binaries considering the need of our times. Traditionally, developmental psychologists believe that basic categories of self that emerge during childhood are based on gender. Children develop an elementary sense of gender identity by the age of three years as they learn to classify themselves and others as females or males. They also start engaging in traditional activities and roles. Almost all societies expect the two sexes to take on different gender roles, that are the primary patterns of normative behaviour that females and males should adopt in a society. The common characteristics and behaviours viewed as desirable for males and females are identified in gender role norms. Gender role norms are society's expectations or standards with respect to what males and females should be like. Every society's gender-based norms generate **gender-based stereotypes**, that are overgeneralized and largely inaccurate beliefs about the characteristics of all males and all females (Halim & Ruble, 2010).

A related concept is the development of a **gender schema**, that is a cognitive framework that organizes information relevant to gender (Martin & Ruble, 2004; Signorella & Frieze, 2008; Halim et al., 2014). Interestingly, young children who are 3-4 years of age also assume that certain behaviours are appropriate, and others are not based on gender-based stereotypes they acquire through socialization (Karniol & Gal-Disegni, 2009; Halim et al., 2014). They also attain gender constancy, that is a belief that gender remains constant or is a permanent biological attribute of an individual. Functioning in the world based on gender schema, limits the world view of the child. Sandra Bem's (1987) research stressed upon encouraging children to be

androgynous, which is a state where gender roles encompass characteristics of both the genders.

Till about recently, most cultures and society were propagating gender as a dichotomous category which clearly is not the case. In our very own nation, India, we use the term *Hijras* to describe third sex individuals with biologically male or ambiguous genitalia who dress in ways that appear feminine but do not view themselves as male or female. In Sulawesi, Indonesia, as many as five gender categories are recognized to capture the range of this characteristic (Davies, 2007). In India, as mentioned before, people with a range of transgender-identities, cultures or experience coexist peacefully. This includes the *Hijras*, *Aravanis*, *Kothis* and *Jogappas* (Chaudhary & Shukla, 2017). Gender can be looked at with a multidimensional lens to understand the social representations of men and women and ideas of femininity and masculinity in any culture (Kapoor, Nagpal, & Maggu, 2017). For instance, think about the glorification of motherhood in many cultures including ours. Mother have a very special role to play in our country (Chaudhary & Bhargava, 2007) and this gender stereotype is strengthened since childhood for girls. This adds to how their identities will shape up.

11.4 DO GENDER DIFFERENCES EXIST: ARE WE DIFFERENT OR SIMILAR TO ONE ANOTHER?

Kroger (1997) explored gender differences in identity formation and posited three major questions:

- Are there any gender differences in the identity status distributions of adolescents and adults to deal with identity-defining roles and values?
- Are these differences in the identity domains important to self-definition?
- Are there gender differences in the developmental process of identity formation?

She explored studies published between 1966 and 1995 in the Social Science Index and finally examined 56 studies with the variable of interest. Interestingly, very few gender differences appeared in response to the above questions.

Take a moment and think whether it makes more sense to talk about gender differences or gender similarities?

Gender similarities hypothesis

Janet Shibley Hyde, an American psychologist produced the **gender similarities hypothesis** that states that males and females are similar rather than different on most, but not all, psychological variables (Hyde, 2005). Hyde and her team of researchers did extensive meta-analyses. Meta-analysis is a statistical method for aggregating research findings across many studies of the same question (Hedges & Becker, 1986). When these researchers translated the differences to effect sizes, most psychological gender differences are close to zero or very small.



Figure 11.1: Janet Shibley Hyde- Thrashing the gender divide

Source:<https://gws.wisc.edu/wp-content/uploads/sites/249/2017/09/hyde-400x400.jpg>

The cost of inflating these differences directly impacts children as they grow up. One example is the stereotype of boys being better at math than girls (Hyde, Fennema, Ryan, Frost, & Hopp, 1990). Researchers using meta-analyses have found very weak evidence to support this difference (Hedges and Nowell, 1995; Hyde, Fennema, and Lamon, 1990; Leahey & Guo, 2000). Thus, mathematically talented girls may be overlooked by their parents as they are not expected to excel in that field. Parents have reported to have lower expectations for their daughters' math success than their sons' (Lummiss & Stevenson, 1990).

Gender researchers have stressed upon the importance of context in creating, removing, or also reversing gender differences (Bussey & Bandura, 1999; Eagly & Wood, 1999).

Check Your Progress 1

- 1) What is the difference between sex and gender?

.....

.....

.....

- 2) What are gender-based schemas?

.....

.....

- 3) What is the gender similarity hypothesis?

.....

.....

.....

- 4) With an example explain the importance of context in gender development

.....

.....

.....

11.5 FREUD'S CONCEPTUALIZATION OF IDENTITY

Freud has not directly talked about the 'self' in his theory. Freud's theory proposed a double topographical model that constitutes of the *id*, *ego* and the *super ego*, as well as the *conscious*, *subconscious* and *unconscious*. He maintained that as a child develops biologically, the psychic energy of the sex instinct or *libido*, as he referred to it, shifts its focus from one erogenous zone to the next, pursuing to gratify different biological needs.

11.5.1 The Topographical Model

At various developmental stages these states lead to a lot of intra psychic conflict and if the individual can resolve it, it helps him/her/them move on deal with other developmental issues. If not, they may feel fixated at that stage. Freud has, in his own writings, given ample descriptions of what these components mean and how they function together, albeit in conflict sometimes. The experience of identity cultivates in the interaction between the rising impulses and demands of the infants and response of the external world. The id's auto-erotic impulses act as the stimulus for the development of the ego.

Id-The id is not equivalent to 'self' as it can neither know itself nor it can directly communicate. It is dependent on the ego for that. According to Freud (1938)- "*It is accessible even to our knowledge only through medium of another agency*" (pg.136). The id is not rational or capable of reason, nor it has the ability to perceive the external world. The id is unorganized and wants immediate gratification. The id does not think rationally and operates of the unconscious mind.

Ego- Freud wrote, rhetorically about the ego (1917: 142–143): "*You feel sure that you are informed of all that goes on in your mind if it is of any importance at all, because in that case, you believe, your consciousness gives you news of it. And if you have had no information of something in your mind you confidently assume that it does not exist there... Come, let yourself be taught something on this one point! What is in your mind does not coincide with what you are conscious of; whether something is going on in your mind and whether you hear of it, are two different things...*". Thus, self is not equivalent to the ego, as the ego at its best, has intermittent control over the id that keeps driving the individual.

Superego-The super ego strives for perfection and encourages the moral values of the ego and works on managing the impulses of the id. As

Goldhaber (1986), writes- “According to Freud, most of our adult behavior is a reflection of the unmet needs of childhood and dynamic interplay between the impulsive id, the efficient ego, and the sometimes-guilt-ridden superego” (pg.19).

An individual’s life is a dynamic process of managing the conflict between the id, the ego and the superego. Freud and many Neo-Freudians attempted to explain and understand individual differences in personality through analysis of the conflict between the id, ego and super ego.

11.5.2 Gender Development

In psychoanalysis, gender development is the result of identification with the same sex parent, achieved by moving through a series of psychosexual stages of development that are related with gratification of biological urges. Children whose parents encourage heteronormative values are more likely to behave in stereotypically masculine or feminine ways perhaps because they identify with their same sex parents.

Freud also elaborated on the concept of **Oedipal Complex**. The end of the phallic stage marks the start on an important hallmark in the development of gender identity. According to Freud, the start of the Oedipal conflict at around five to six years of age, when the anatomical differences between males and females become specifically evident, is a very significant shift in development. However, horrific it may sound, but boys begin to develop sexual interests in their mothers and look at their fathers as being rivals. They start fantasizing a deep desire to kill their father- similar to how Oedipus killed his father in the Greek tragedy! However, because they also look at their fathers as being all powerful, they also have a strong fear of retaliation that manifests in **castration anxiety**. Hence, they repress their desire and start identifying with their fathers. This is the process of identification where the children attempt to be similar to their same sex parent. Girls on the other hand go through a different process. They start feeling sexually attracted towards their fathers and experience **penis envy**. This view has earned Freud a lot of criticism. Thus, children adopt their parental attitudes, values and thoughts and this is passed on generation by generation.

Other than the psychosexual stages of development (discussed in Unit 2), Freud’s theory can be divided into three primary stages of development that helps in the formation of a sense of identity.

Stages of Development

- Life begins in a state of inner focus where the infant has no sense of an individual self. The individual is driven by the *pleasure principle* and seeks pleasure in all the activities and avoids pain. He/she/they loves significant others who help in satisfying pleasure-seeking tendencies and dislike or hate those who thwart the satisfaction. This is a state of ‘*primary narcissism*’ where ‘id’ (sexual/aggressive instinctual drives) and ‘ego’ (cognitive capacities) are fused together, and life is governed by the *pleasure principle* and the infant seeks immediate gratification.

- As the infant grows up, her/his/their needs are inevitably frustrated by the parents and she/he/they gradually acquire the capacity for delaying gratification. Parents start demanding certain behaviours and children protests as their demands are challenged. This may lead to *temper tantrums* and other ‘*acting out*’ behaviours. As evident, ego becomes differentiated from the id and children start using psychological defenses that help them reach a state where they can strike a balance between the demands of id and the external world. The reality principle starts governing the psyche slowly and steadily leading to delayed gratification.

Table 11.1 Brief description of Freud’s psychosexual stages

Age	Freud’s Stages of Psychosexual Development	Central ideas of Freud’s Stages
Birth to 12–18 months	Oral	Interest in oral gratification from sucking, eating, mouthing, biting
12–18 months to 3 years	Anal	Gratification from expelling and withholding feces; coming to terms with society’s controls relating to toilet training
3 to 5–6 years	Phallic	Interest in the genitals; coming to terms with Oedipal conflict, leading to identification with same-sex parent
5–6 years to adolescence	Latency	Sexual concerns largely unimportant
Adolescence to adulthood	Genital	Reemergence of sexual interests and establishment of mature sexual relationships

- Children as they grow, acquire sophistication in negotiating over their demands and goals and intense mood episodes or outbursts are less likely to happen. They start developing a sense of morality and peer’s engagement and adaptation to the demands of the external world happens inherently. Parental love and affection and moral anchors become internally represented as the ‘super ego’ that provide the child a mental blueprint as to how to behave appropriately. The external conflicts of yester years, slip in as the internal conflicts. Now they strike a balance and function on the basis on the ‘reality principle’ that is governed by the ego and the *super ego*.

Moving through these stages, the child acquires a sense of grounding and functioning that may be referred to as identity. However, Freud in his conceptualization, has not used that term at all and has invited a lot of criticism for his deterministic ideation and sexist stand in terms of gender.

11.6 ERIKSON'S CONCEPTUALIZATION OF IDENTITY

Erikson's theory of psychosocial development adopted a comprehensive approach to understanding identity by describing the interactions between the individual's biological changes, her/his/their thought patterns, emotional development, social recognition, and responses within a socio-historical framework. He found all these elements significant to the development of an individual's identity and he also stressed upon the historical context. According to Erikson (1968), identity formation is one of the significant developmental tasks in adolescence and experiencing identity insecurity is normative in adolescence.

11.6.1 Major concepts: Identity Development

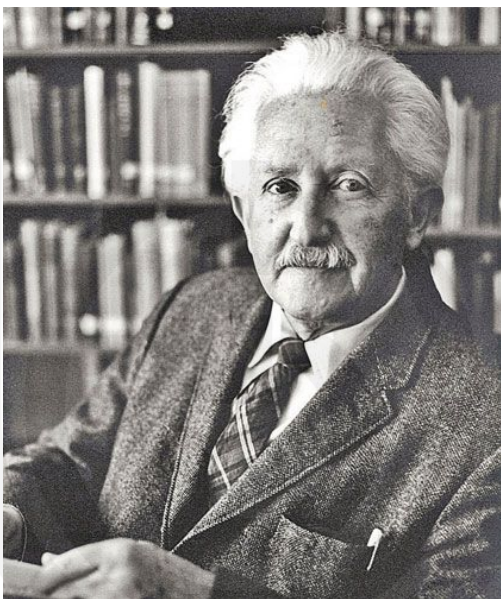


Figure 11.2 Erik Erikson(1902-1994)

Source:

<https://i.pinimg.com/474x/b9/6b/00/b96b00c7a2e368ba262e93b922fd54fe.jpg>

As covered in Unit 2, Erikson's theory explains life span development to be staggered across eight primary stages that involves the individual going through some crisis and appropriate and timely resolution of the same leads to development of a virtue. He also elaborated upon the negative outcome or consequences of these stages. Stage five is where he has elaborated upon the role of identity formation. Stage nine, gerotranscendence, was added later by his wife Joan Erikson. Erikson has elaborated upon many significant concepts in describing the nature of ego identity and its developmental course over the years. Some major concepts are ego

identity, the stage of identity versus role confusion, the process of identity formation, identity crisis and the phenomenon of a psychosocial moratorium.

11.6.1.1 Ego Identity

Erikson (1968) in his acclaimed book, '*Youth, identity and crises*' explains the concept of ego identity as a conscious sense of individual uniqueness as well as an unconscious striving for continuity of experience. In his words-ego identity's "*most obvious concomitants are a feeling of being at home in one's body, a sense of 'knowing where one is going', and an inner assuredness of anticipated recognition from those who count*" (Erikson, 1968, pg. 165). In simple terms, adolescents try to figure out what is unique and distinctive about themselves- something they can do with progressive elegance because of the cognitive milestones reached during this period. He also wrote verbal portraits of Martin Luther King, Mahatma Gandhi, Albert Einstein, using his

knowledge in psychoanalysis and developmental psychology, to explain his ideas around identity development. His ideas portray persuasive representatives of his multifaceted conception of identity. Erikson describes identity as “*a subjective sense of an invigorating sameness and continuity*” (pg.19) that permits one to develop a sound sense of self that is distinct from all the other people. The outcome is the development of fidelity. As per Erikson, “*fidelity is the ability to sustain loyalties freely pledged in spite of the inevitable contradictions of value systems*”(Erikson, Erikson, & Kivnick, 1986,pg. 35).

11.6.1.2 Identity versus Identity Confusion

Erikson (1968) considered adolescence as a critical period in the lifelong process of forming an identity as a person. This is also a period of experiencing psychosocial conflict of identity versus role confusion. Erikson contends that adolescents strive to discover their strengths and weaknesses and the roles they can best play in their future lives. This endeavour typically comprises trying different roles or choices to see they fit an adolescent’s competencies and views about herself/himself/themselves. Through this route, adolescents try to understand who they are by tapering their choices about their personal, vocational, sexual, and socio-political commitments. They will try reducing the gap between their sense of identity and role confusion.

Table 11.2 Erikson’s stages of psychosocial development

Erikson’s Stages	Approximate Age range	Virtue	Positive	Negative	Significant relationship
1.Trust versus Mistrust	Birth–1.5 years	Hope	Feelings of trust from others’ support	Fear and concern regarding others	Mother
2. Autonomy versus Shame and Doubt	1.5–3 years	Will	Self-sufficiency if exploration is encouraged	Doubts about self; lack of independence	Parents
3. Initiative versus Guilt	3–6 years	Purpose	Discovery of ways to initiate actions	Guilt from actions and thoughts	Family
4. Industry versus Inferiority	6–12 years	Competency	Development of sense of	Feelings of inferiority	Family, neighbours,

			competence	; little sense of mastery	teachers
5. Identity versus Identity confusion	Adolescence	Fidelity	Awareness of uniqueness of self; knowledge of roles	Inability to identify appropriate roles in life	Peers, ingroups & outgroups
6. Intimacy versus Isolation	Early adulthood	Love	Development of loving, sexual relationships and close friendships	Fear of relationships with others	Friends, Lovers
7. Generativity versus Stagnation	Middle adulthood	Care	Sense of contribution to continuity of life	Trivialization of one's activities	Spouse, children
8. Ego-integrity versus Despair	Late adulthood	Wisdom	Sense of unity in life's accomplishments	Regret over lost opportunities of life	Spouse, children, grandchildren
9. Gerotranscendence	Very late adulthood	Reflective wisdom			Self

11.6.1.3 Identity Formation Process

In the process of this resolution, the adolescents go through the process of identity-formation. This involves the ego's ability to synthesize and integrate important earlier considerations into a new perspective that is unique to one's own. Erikson also emphasized the important role exercised by the larger community and society in recognizing and being recognized by the adolescent.

11.6.1.4 Identity crisis

According to Erikson (1963) sometimes, when the adolescent is not able to resolve the conflict at this stage, this search for identity unavoidably puts some of them in a state of emotional turmoil and she/he/they go through a phase of identity crisis. Interestingly, crisis does not mean a looming disaster but a critical turning point in the life of the adolescent, in which development can only be progressive by choosing a new trajectory.

11.6.1.5 Psychological Moratorium

The stage of identity versus identity confusion may put a lot of stress on the lives of the adolescents. To escape this pressure, Erikson believed that a lot of adolescents pursue a psychological moratorium, a period during which they may take time off from the responsibilities of upcoming adulthood and explore various other roles and responsibilities. In a country like ours, many adolescents may not be able to explore these choices as they have responsibilities at home. Social structure and role may not allow them to explore this phase, but this does not mean that they will have a fragmented sense of identity.

11.6.1.6 Gender Identity

For Erikson identity was also relational, especially for women. Many theorists have attacked his tone as being sexist in nature. Gilligan (1982) was vehemently critical of the Eriksonian portrayal of women's identity in his psycho-social stages of development. To quote Erikson (1968), "For the female the sequence is a bit different. She holds her identity in abeyance as she prepares to attract the man by whose name she will be known, by whose status she will be defined, the man who will rescue her from emptiness and loneliness by tilling 'the innerspace'" (pg. 12). She criticized him for not paying due importance to women's experience.

Douvan and Adelson (1966) also independently agreed with Gilligan's claim that Erikson's theory did not pay substantial importance to women's experiences. Hodgson and Fischer (1979) criticized Erikson for not paying enough attention to sex differences. According to them, Erikson sees women as more passive, less assertive and independent than men. Morgan and Farber (1982) also criticized Erikson's treatment of women as stating that it is essential to women to have partner to form an identity. They asserted that Erikson claimed that women whose "inner space" remain empty and has no basis to form an identity and hence the intimacy stage is a critical to the development of identity; "the choice of a partner is, for women, the critical element in the identity achievement process" (pg. 202). Thus, we see that most of these authors agree that Erikson's conceptualization does not address the experiences of women adequately and portrays them as dependent and passive.

11.6.2 Empirical support for Erikson's concepts

Kroger (2003) has reviewed the ways in which researchers have tried operationalizing and empirically examining the concepts related with identity development. While some researchers have examined the place that "identity versus role confusion" has in the psychosocial stages of life span development (Rosenthal, Gurney, & Moore, 1981) others have focused on his fifth stage alone and have theorized it in terms of being present (to a certain degree) or absent (Simmons, 1970) and finally some researchers have adopted a generic approach and focused on one or more dimensions of ego identity (Blasi & Milton, 1991).

Culture also plays an important role in the development of identity (Rogers, 2018; Syed & Fish, 2018; Alberts & Durrheim, 2018) and Erikson did focus on such issues, though not much has been written about his contribution in this area. Identity researchers have focused on contemporary contextual and structural issues that may have become more salient in the present context. Cote (2018) has remarked on changing cultural conditions, such as contemporary historical delay in the transition to adulthood magnifies and extends identity crisis for many youths. In the contemporary context, Kay (2018) explored the role of social media, as an exclusively modern context in the development of an individual's identity. Erikson spoke about myriad cultural and sociopolitical issues that may influence the development of identity.

Kerpelman & Pittman (2018) have discussed the relationship between Erikson's theory and attachment theory emphasizing the importance of the interrelatedness between identity and other developmental tasks such as trust versus mistrust and intimacy versus isolation. Schachter (2018) has also highlighted about the correlation between adolescents' identity and adults' generativity.

Hamachek (1990) applauded Erikson in conceptualizing the developmental stages and identity in a unique manner. He emphasized on interpersonal issues like intimacy and isolation. He has focused on the significance of bonding, fusing, togetherness, and intimacy.

Check Your Progress 2

1) What is the role of ego in identity formation?

.....

.....

.....

2) Define oedipal complex.

.....

.....

3) Explain ego identity as per Erikson.

.....

.....

.....

4) What is psychological moratorium?

.....

.....

.....

11.7 MARCIA'S IDENTITY STATUS MODEL

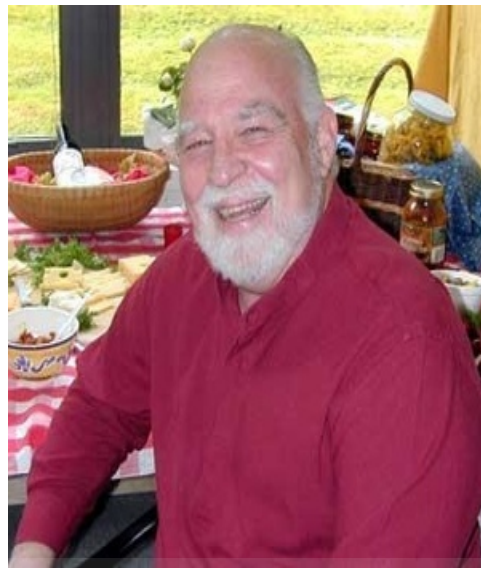


Figure 11.3 James Marcia

Source:

http://socioemotional.weebly.com/uploads/4/9/9/7/49975819/8536492_orig.jpg

James Marcia (1966) elaborated and expanded upon Erikson's theory and stirred an interest in research in the area of identity formation. He classified adolescents into four quadrants of identity statuses. He specifically used the term status and not stages, to classify them into one of the four statuses based on their development towards an identity in one of several domains (political, socio-cultural, religious etc.). On the basis on experience of crisis or commitment the individual is

classified into one of the categories. Table 11.3 exemplifies the four statuses.

James Marcia's research work started as a critique of the identity status hypothesis. Marcia chose two dimensions, exploration (originally called crisis) and a commitment to empirically test the identity process. Exploration as explained, is the period of rethinking and trying out diverse roles and life plans. Commitment on the other hand, is to make a choice and to adhere to one's values, goals or beliefs in a given domain of life and the capacity to make predictions regarding the choice. He explained four identity statuses based on exploration and commitment.

Identity achievement This is when a person has undertaken exploration and is now at a status where he/she/they find themselves as committed. Hence, here exploration is present and commitment is present too.

Moratorium During this phase the individual is in an exploratory period and has not yet committed to any choices. Here, exploration is present, but commitment is absent.

Foreclosure The person in this phase has not explored his/her/their choices but is committed to one or more choices. Here, exploration is absent, but commitment is present.

Identity diffusion In this phase the person is experiencing a phase that is characterized by a lack of both exploration and commitment. Here, exploration is absent, and commitment is absent as well.

Meilman's (1979) research on young adolescents between 12-and 18-year-old boys, 21-year-old college males and 24-year-old young adult males helps us understand the chronology of this phase of identity formation. The 12- and 15-year-old boys were in either identity diffusion status or the identity foreclosure status. Boys progressively started moving towards identity achievement at around the age of 18. Many fall into the moratorium status as

they start exploring an identity issue and finally some of them move to the identity achievement status. In Meilman's study, about 20 % of the 18-year-old and 40 % of the college students, and more than half of the young adults (24-year-old) had achieved a consolidated sense of identity based on assessing the options. While Meilman only studied males, Kroger (2007) reported that females progress toward achieving a sense of identity at about the same age. As evident, identity formation takes a long time. Many young adults do not ask identity related questions or reach the identity achievement status until their early 20s. Many continue to be moratorium status for years, whereas others come back to this quest at a later stage of life (Kroger, 2007). Interestingly, despite that there are four independent categories, adolescents are not inevitably stuck in one of the four categories. Many move back and forth between moratorium and identity achievement. This cycle has been referred to as "MAMA" cycle (moratorium-identity achievement-moratorium-identity achievement). Some may have chosen a path in their younger days without thinking much but later with age and maturity, may again want to explore other choices (Feldman & Babu, 2011). For such individuals, identity formation takes place beyond the formative period of adolescence. However, for most individuals a sense of identity is achieved during late adolescence and early adulthood (Kroger, 2000; Al-Owidha, Green, & Kroger, 2009; Duriez et al., 2012; Mrazek, Harada, & Chiao, 2014)

Table 11.3 Marcia's Four Categories of Adolescent Development

COMMITMENT			
CRISIS/ EXPLORATION		PRESENT	ABSENT
	PRESENT	Identity achievement "I really found myself enjoying my clinical internship at the clinic. I plan to take clinical psychology as my career option."	Moratorium "I will be working as a teacher volunteer for underprivileged kids, till I figure out what I really want to do".
	ABSENT	Identity foreclosure "My friends really think I have a good fashion sense, so I shall go into designing".	Identity diffusion "I am absolutely clueless as to what am I supposed to be doing now!".

11.7.1 Identity Status Model: Critical Lens

Though an extension and improvement upon Erikson's approach, Marcia's theory has been criticized at several levels. Blasi and Glodis (1995) have criticized Marcia's theoretical position of identity-status as failing to address the phenomenological dimensions of identity. In other words, it fails to capture Erikson's conception of identity. Cote and Levine (1988) assert that the identity-status model has ignored the role of developmental contexts and also the interface between the person and the environment. Another line of

criticism has attacked Marcia for ignoring spatial-temporal continuity as it is the core of identity (Hoof, 1999).

Check Your Progress 3

- 1) Explain identity status model.

.....

.....

.....

- 2) What is identity achievement?

.....

.....

.....

.....

- 3) Define identity diffusion.

.....

.....

.....

- 4) What is moratorium?

.....

.....

.....

11.8 ALLPORT'S CONCEPTUALIZATION OF IDENTITY

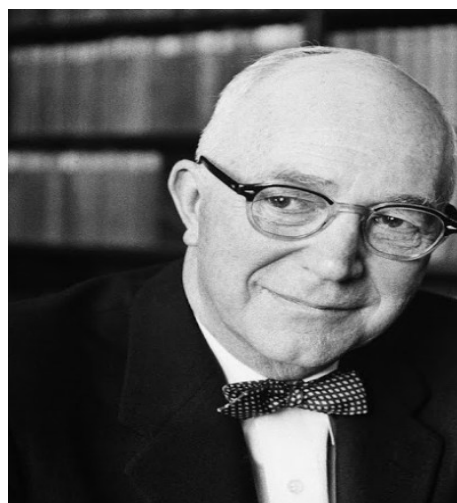


Figure 11.4 Gordon Allport (1897-1967)

Source: <https://i0.wp.com/psynso.com/wp-content/uploads/2017/11/professor-gordon-w-allport-Psynso.jpg?resize=500%2C707&ssl=1>

Gordon Allport was born in Montezuma, Indiana, USA on November 11, 1897. Allport was an influential trait personality theorist, and his work largely focuses on the development of personality. Allport defines personality as *the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment* (Allport, pg.1937). In 1961, Allport replaced the phrase “unique adjustment with environment” with “characteristic behavior and thought”.

He gave a very comprehensive trait theory of personality, but we shall only focus on the identity element as described by him. He talked at length about traits and made distinction between individual and common traits. He emphasized that everyone has a unique personality by addressing personal dispositions. According to him, a personal disposition is based on a complex and unique combination of traits. He revised his theory in 1961, and replaced cardinal, central, and secondary traits with cardinal, central, and secondary dispositions.

A *cardinal disposition* dominates an individual's entire life. That is the first thing that strikes you about an individual. *Central dispositions* are also very common. When describing a good friend or a family member, one is likely to offer a bunch of specific and distinguishable central dispositions. *Secondary dispositions* are those that are not obvious or visible as central dispositions. They show up under specific circumstances and encompass attitudes and preferences.

Identity in Allport's theory is embedded in the personality development of an individual as he has not specifically focused on the development of personality. He specifically uses the term personality in his theory. According to him, an infant has 'no personality' so to say. It is only when they start interacting with the world that they start developing a 'personality'. He elaborated upon *differentiation, integration, maturation* and *learning* as basic aspects of growth. As the infant grows up, their personality organization goes through several stages. A sense of self develops when the individual 'grows' through these stages. He described these stages of selfhood as sense of relevance that we feel towards ourselves. When combined, these stages produce an overall sense of "me" or "I". His theory focuses more on the sense of self than identity per se. Allport called this organization as **proprium**. According to Allport, the **proprium** refers specifically to the self as an object, whereas self as commonly used by other theorists refers both to the object and the "knower." Allport discussed how many psychologists used the word "self or ego" to only refer to a very limited aspect of the self that was not the entire **proprium**. We can be directly aware of the **proprium** in a way that we can never be fully aware of the "knower" (Allport, 1961).

The **proprium** develops when the individual goes through these seven stages:

1. **Sense of body** (first 2 years of life): When an infant is small, he/she/they has no sense of the body as being their own. This is the first aspect of selfhood and develops as the infant continues to receive sensory information from our sense organs and internal organs. These sensations become acute and visible when an infant is hungry, frustrated or hurts herself/himself/themselves. As they mature up these recurrent sensations provide meaningful information that helps in understanding our physical and overall sense of existence. When the body is healthy, we take these sensations for granted but when we are sick, we become acutely aware of our bodies (Allport, 1961). Later, as children move towards puberty they experience newer sensations and newer ways of connecting with their sense of body. Gender identity also plays a significant role here.

2. **Self-identity** (first 2 years of life): This also develops in the early years. We start recognizing in ourselves a sense of continuity. We recognize having a past, present and a future. We are able to see the boundaries between ourselves and others. Allport (1961) describes this experience - "Today I remember some of my thoughts of yesterday; and tomorrow I shall remember some of my thoughts of both yesterday and today; and I am certain that they are the thoughts of the same person—of myself".
3. **Self-esteem** (between 2 to 4 years of age): By the time children reach the age of two, their environment engagement increases, and they can see that others value them and based on the interactions, they also start valuing themselves. They feel a sense of achievement and pride when they are able to master developmental and social tasks and experience a sense of humiliation when they fail at these tasks.
4. **Self-extension** (between 4 to 6 years of age): Self extension or ego extension develops when the child is between 4 to 6 years of age. This involves the growing awareness of additional objects and people in the environment and a sense of identification with the objects or people in the environment. One would frequently hear children, stating, "this is my home", "these are my parents", "my school", my "grandparents", "my city" etc. Some identify with their clan, community or people, for example, the hostilities towards other religious group or minority group can be amplified if one has strong identification with one's own group. Others identify with activities, like, "I am a golfer", "I am a chef", "I am a professor".
5. **Self-image** (between 4 to 6 years of age): Self image is 'how I see and experience my being'. This is the mirror self, the me as I see me, and as others see me. The overall impression I make on others, my physical presence, my social esteem, my gender identity. Self image is based on how children see themselves and how they would like to see themselves. This actual and ideal image of self is originating from home where significant others tell them about their expectations.
6. **Rational coping** (between 6 to 12 years of age): This is when the child moves on towards his/her/their preteen years and manifest a level of maturity in dealing with day to day problems of life and living. Their cognitive abilities become diversified, and they can solve problems by investing in rational choices in life.
7. **Propriate striving** (13 year onwards): As the child crosses the threshold from childhood to a adolescence he/she/they start formulating plans. They start thinking about their subjects and what interests them and start planning about their college and other meaningful pursuits later in life. She/he/they may try to excel at college, be the best in whatever she/he/they choose for themselves.

As the individual moves towards adulthood, she/he/they start integrating the various aspects of the proprium into a unified whole. As Allport observes, "*We (now) not only know things, but we know the empirical features of our own proprium. It is I who have bodily sensations, I who recognize my self*".

identity from day to day; I who note and reflect upon my self assertion, self-extension, my own- rationalizations, as well as upon my interests and strivings. When I thus think about my own propiate functions I am likely to perceive their essential togetherness and feel them intimately bound in some way to the knowing function itself”(Allport, 1955).

11.8.1 Characteristics of a Mature Personality

Allport believed that if the person has a well-developed sense of proprium and adaptive coping mechanisms, he/she/they may develop into a mature personality. He listed several hallmarks of a mature personality.

1. **Extension of the sense of self-** Mature people as per Allport, continually recognize the importance of external objects and continue to identify and engage with external events. They can think beyond their needs and problems and engage with the community at a higher level. As Allport explains, (1961), “Everyone has self-love, but only self-extension is the earmark of maturity”.
2. **Warm relating of self to others-** Mature people have the capacity to respect and love others in a warm manner. They are compassionate towards other people. They are respectful of the differences and understand that others’ needs, hope and desires are equally important.
3. **Emotional security or self acceptance-** Emotionally mature individuals accept themselves for who they are and according to Allport (1961) they possess *emotional poise*. They deal with minor and major hassles as part and parcel of life and are not extremely perturbed by everyday issues and problems.
4. **Realistic perception-**Psychologically mature individuals have a realistic perception of their environment and they do not live in a fantasy world. Their problems, hopes, desires are all tied to the real world.
5. **Insight and humor-** Mature individuals have a deep insight into their own attributes, vulnerabilities and weaknesses and have the ability to look at the lighter side of things. They have a non-hostile sense of humor and possess the ability to laugh at themselves.
6. **A unifying philosophy of life-**Healthy and mature individuals have a clear sense of purpose in life. Allport (1954, 1963), seemed to have believed that a mature religious orientation is a crucial ingredient in the lives of most mature individuals.

Box 11.2

Think of someone you know who has influenced your life or you are impressed with. What are the qualities that this person has? What makes her/him/them stand apart? Do they resonate with Allport’s definition of a mature individual? If so, in what ways?

Allport was an avid researcher and considered the writings of Freud, Erikson, Maslow, Rogers critically and he proposed the above list for mature personality. He considered his list ideal as it acknowledged vulnerabilities and imperfections- “sturdiest of personalities have their foibles and their regressive moments; and to a large extent they depend on environmental supports for their maturity” (Allport, 1961, pg. 282).

Thus, we have covered four major perspectives on self and identity. The theoretical positioning of the arguments raised by the psychologists are deeply rooted in their respective perspectives. Since theories are falsifiable, these are only hypotheses about possible outcomes and behaviors that may occur with a complex interplay of factors that encompass biology, psychology, sociology and other dynamic yet stable factors.

Check Your Progress 4

1. What is the proprium?

.....

.....

.....

.....

2. What is cardinal disposition?

.....

.....

.....

.....

3. Define self-extension.

.....

.....

.....

.....

4. What is a mature personality?

.....

.....

.....

.....

11.9 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learnt:

- The formation of identity is a long and tedious process and involves self-concept, self-esteem and other important physical and psychological attributes that helps the person in feeling sense of being home with one self.

- Gender identity is a very important attribute of the individual's overall identity. Contemporary researchers are stressing upon the gender spectrum and talking more in terms of gender similarities than differences.
- Freud's conceptualization of identity is embedded in his double topographical model and psycho-sexual stages of development. He also talked about the Oedipal complex and penis envy and how these concepts shape the formation of identity.
- Erikson expanded upon Freud's work but gave a psychosocial model of life span development. He elaborated upon the stage of identity versus identity confusion and spoke about psychological moratorium where an adolescent tests out different alternatives before settling in for a more permanent choice.
- James Marcia expanded upon Erikson's idea and gave his identity status theory and explained how negotiating between a crisis or exploration and commitment, the adolescent acquires any one of the four-identity status.
- Allport's work primarily focused on the development of personality but he did explain the development of self and introduced the idea of proprium, a unified sense of self. He also talked about characteristics of emotionally mature individuals and ended up doing a lot of research in the area of personality.

11.10 KEYWORDS

Identity A sense of feeling home with oneself.

Self-concept The idea about who one is.

Self-esteem The evaluation of oneself.

Gender Identity The perception of oneself as being male or female.

Gender Schema A cognitive framework that helps in organizing information relevant to gender.

Gender Similarity Hypothesis Hyde's data-based hypothesis that men and women are more alike than different.

Identity versus Identity-confusion Stage According to Erikson, the period during which adolescents seek to determine what is unique and distinctive about themselves.

Identity Achievement The status where the adolescents commit to a particular identity following a crisis period where they consider several alternatives.

Identity Foreclosure The status of adolescents where they prematurely commit to an identity option without exploring other alternatives.

Moratorium The status of adolescents when they explore different alternatives but take a break and do not commit themselves to any specific long-term alternative.

Identity diffusion The status where adolescents never commit to even consider committing to identity options consciously.

Proprium This incorporates body sense, self-identity, self-esteem, self-extension, rational thinking, self-image, propiate striving, and knowing.

11.11 REVIEW QUESTIONS

1. What do you understand about gender identity with respect to your own experiences?
2. Explain the gender similarities hypotheses with relevant research examples.
3. Compare Freud and Erikson's approach to identity formation.
4. Critically analyze Marcia's approach to understanding the development of identity.
5. Discuss Allport's idea of proprium and mature personality with the help of a case example.

11.12 REFERENCES AND FURTHER READING

Al-Owidha, A., Green, K. E., & Kroger, J. (2009). On the question of an identity status category order: Rasch model step and scale statistics used to identify category order. *International Journal of Behavioral Development*, 33(1), 88–96. <https://doi.org/10.1177/0165025408100110>

Alberts, C., & Durrheim, K. (2018). Future direction of identity research in a context of political struggle: A critical appraisal of Erikson. *Identity: An International Journal of Theory and Research*, 18(4).

Allport, G.W. (1950). *The Individual and His Religion*. New York: MacMillan.

Allport, G.W. (1954). *The Nature of Prejudice*. Cambridge, MA: Addison-Wesley.

Allport, G.W. (1955). *Becoming: Basic Considerations for a Psychology of Personality*. New Haven: Yale University Press.

Allport, G.W. (1961). *Pattern and Growth in Personality*. New York: Holt, Rinehart & Winston.

Allport, G.W. (1937) *Personality: a Psychological Interpretation*. New York: Holt, Rinehart & Winston.

Becht, A.I., Nelemans, S.A, Branje, S.J., Vollebergh, W.A., Koot, H.M., Denissen, J.J., & Meeus, W.H. (2016). The quest for identity in adolescence: Heterogeneity in daily identity formation and psychosocial adjustment across 5 years. *Developmental Psychology*, 52, 2010–2021. 10.1037/dev0000245

Beyers, W., & Çok, F. (2008). Adolescent self and identity development in context. *Journal of Adolescence*, 31(2), 147–150.

Blasi, A., & Glodis, K.A. (1995). The Development of Identity. A Critical Analysis from the Perspective of the Self as Subject. *Developmental Review*, 15, 404-433.

- Blasi, A., & Milton, K. (1991). The development of the sense of self in adolescence. *Journal of Personality*, 59(2), 217–242. <https://doi.org/10.1111/j.1467-6494.1991.tb00774.x>
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review*, 106, 676–713.
- Chaudhary, N. (2003). Speaking the Self into Becoming? *Culture & Psychology*, 9(4), 471–486. <https://doi.org/10.1177/1354067X0394009>
- Chaudhary, N., & Bhargava, P. (2006). Mothers and Others: Kamla's World and Beyond. *Psychology and Developing Societies*, 18(1), 77–94. <https://doi.org/10.1177/097133360501800105>
- Chaudhary, N., & Shukla, S. (2017). The Third Gender and Their Identity in Indian Society. In N. Chaudhary, P. Hviid, G. Marsico, & J. W. Villadsen (Eds.), *Resistance in Everyday Life: Constructing Cultural Experiences* (pp. 35–48). Springer Singapore. https://doi.org/10.1007/978-981-10-3581-4_4
- Cô, J.E., & Levine, C. (1988). On critiquing the identity status paradigm: A rejoinder to Waterman. *Developmental Review*, 8, 209–218.
- Côté, J. (2018). The enduring usefulness of Erikson's concept of the identity crisis in the 21st century: An analysis of student mental health concerns. *Identity: An International Journal of Theory and Research*, 18(4).
- Côté, J.E. (2018): The Enduring usefulness of Erikson's concept of the identity crisis in the 21st century: An analysis of student mental health concerns. *Identity: An international Journal of Theory and Research*. London: Routledge, Taylor & Francis.
- Davies, S. G. (2007). *Challenging gender norms: Five genders among Bugis in Indonesia*. Case studies in cultural anthropology. Belmont, CA: Thomson Wadsworth.
- Douvan, E. A., & Adelson, J. (1966). *The Adolescent Experience*. New York: John Wiley.
- Duriez, B., Luyckx, K., Soenens, B., & Berzonsky, M. (2012). A process-content approach to adolescent identity formation: examining longitudinal associations between identity styles and goal pursuits. *Journal of personality*, 80(1), 135–161. <https://doi.org/10.1111/j.1467-6494.2011.00729.x>
- Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist*, 54, 408 – 423.
- Erikson, E. (1963). *Childhood and society*. New York: Norton.
- Erikson, E. (1968). *Identity: Youth and crisis*. New York: Norton.
- Erikson, E. (1982). *The life cycle completed: A review*. New York: Norton.
- Erikson, E., Erikson, J., & Kivnick, H. (1986). *Vital involvement in old age: The experience of old age in our time*. New York: Norton
- Feldman, R.S., & Babu, N. (2011). *Development Across Lifespan*. New Delhi: Pearson.
- Freud, S. (1917). *A Difficulty in the Path of Psychoanalysis*. SE 17, p. 135–144.

- Freud, S. (1923). *The Ego and the Id*. SE 19.
- Freud, S. (1938) *An Outline of Psychoanalysis*. SE 23, p. 141–207
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University
- Goldhaber, D. (1986). *Life-span human development*. New York: Harcourt Brace Jovanovich.
- Halim, M. L., & Ruble, D. (2010). Gender identity and stereotyping in early and middle childhood. In J. C. Chrisler & D. R. McCreary (Eds.), *Handbook of gender research in psychology, Vol. 1. Gender research in general and experimental psychology* (pp. 495–525). Springer Science + Business Media.
- Halim, M. L., Ruble, D. N., Tamis-LeMonda, C. S., Zosuls, K. M., Lurye, L. E., & Greulich, F. K. (2014). Pink frilly dresses and the avoidance of all things "girly": children's appearance rigidity and cognitive theories of gender development. *Developmental psychology*, 50(4), 1091–1101.
- Hamachek, D. (1990). Evaluating self-concept and ego status in Erikson's last three psychosocial stages. *Journal of Counseling and Development*, 68, 677–683.
- Hedges, L. V., & Becker, B. J. (1986). Statistical methods in the metaanalysis of research on gender differences. In J. S. Hyde & M. C. Linn (Eds.), *The psychology of gender: Advances through meta-analysis* (pp. 14 –50). Baltimore: Johns Hopkins University Press.
- Hedges, L. V., & Nowell, A. (1995, July 7). Sex differences in mental test scores, variability, and numbers of high-scoring individuals. *Science*, 269, 41– 45.
- Hodgson, J.W., & Fischer, J.L. (1979). Sex differences in identity and intimacy development in college youth. *J Youth Adolescence* 8, 37–50.
- Hoof, A.V. (1999). The Identity Status Field Re-reviewed: An Update of Unresolved and Neglected Issues with a View on Some Alternative Approaches. *Developmental Review*, 19, 497–556.
- Hyde, J. S. (1986). Gender differences in aggression. In J. S. Hyde & M. C. Linn (Eds.), *The psychology of gender: Advances through meta-analysis* (pp. 51– 66). Baltimore: Johns Hopkins University Press.
- Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist*, 60(6), 581–592.
- Hyde, J. S., & Frost, L. A. (1993). Meta-analysis in the psychology of women. In F. L. Denmark & M. A. Paludi (Eds.), *Psychology of women: A handbook of issues and theories* (pp. 67–103). Westport, CT: Greenwood Press.
- Hyde, J. S., Fennema, E., & Lamon, S. (1990). Gender differences in mathematics performance: A meta-analysis. *Psychological Bulletin*, 107, 139 –155.
- Hyde, J. S., Fennema, E., Ryan, M., Frost, L. A., & Hopp, C. (1990). Gender comparisons of mathematics attitudes and affect: A meta-analysis. *Psychology of Women Quarterly*, 14, 299 –324.
- Kapoor S., Nagpal V., Maggu P. (2017) Culture, Gender and Resistance: Perspectives from India. In: Chaudhary N., Hviid P., Marsico G., Villadsen J.

- (eds) *Resistance in Everyday Life*. Springer, Singapore.
https://doi.org/10.1007/978-981-10-3581-4_19
- Karniol, R., & Gal-Disegni, M. (2009). The impact of gender-fair versus gender-stereotyped basal readers on 1st-grade children's gender stereotypes: A natural experiment. *Journal of Research in Childhood Education*, 23(4), 411–420.
- Kay, A. (2018). Erikson online: Identity and pseudospeciation in the internet age. *Identity: An International Journal of Theory and Research*, 18(4).
- Kerpelman, J., & Pittman, J. (2018). Erikson and the relational context of identity: Strengthening connections with attachment theory. *Identity: An International Journal of Theory and Research*, 18(4).
- Kroger, J. (1997). Gender and identity: The intersection of structure, content, and context. *Sex Roles*, 36, 747–770.
- Kroger, J. (2000). Ego identity status research in the new millennium. *International Journal of Behavioral Development*, 24(2), 145–148.
<https://doi.org/10.1080/016502500383250>
- Kroger, J. (2003). Identity development during adolescence. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell handbook of adolescence* (pp. 205–226). Blackwell Publishing.
- Kroger, J., & Marcia, J. E. (2011). The identity statuses: Origins, meanings, and interpretations. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 31–53). Springer Science + Business Media. https://doi.org/10.1007/978-1-4419-7988-9_2
- Leahey, E., & Guo, G. (2000). Gender differences in mathematical trajectories. *Social Forces*, 80, 713–732.
- Lummis, M., & Stevenson, H. W. (1990). Gender differences in beliefs and achievement: A cross-cultural study. *Developmental Psychology*, 26, 254 – 263.
- Marcia, J. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, 3, 551–558.
- Marcia, J. (1980). Identity in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology*. New York: Wiley.
- Marcia, J., & Friedman, M. (1970). Ego identity status in college women. *Journal of Personality*, 38, 249–263.
- Martin, C. L., & Ruble, D. (2004). Children's Search for Gender Cues: Cognitive Perspectives on Gender Development. *Current Directions in Psychological Science*, 13(2), 67–70.
- Meeus, W., Iedema, J., Helsen, M., & Vollebergh, W. (1999). Patterns of adolescent identity development: Review of literature and longitudinal analysis. *Developmental Review*, 19, 419–461. 10.1006/drev.1999.0483
- Meeus, W., Iedema, J., Maassen, G., & Engels, R. (2005). Separation-individuation revisited: On the interplay of parent–adolescent relations, identity, and emotional adjustment in adolescence. *Journal of Adolescence*, 28, 89–106. 10.1016/j.adolescence.2004.07.003
- Morgan, E., & Farber, B.A. (1982). Toward a reformulation of the Eriksonian model of female identity development *Adolescence*. 17: 199–211.

- Mrazek, A. J., Harada, T., & Chiao, J. Y. (2015). Cultural neuroscience of identity development. In K. C. McLean & M. Syed (Eds.), *The Oxford handbook of identity development* (pp. 423–436). Oxford University Press.
- Pattanaik, D. (2014). *Shikhandi and other tales they don't tell you*. New Delhi: Penguin.
- Rogers, L. O. (2018). Who am I, who are we? Erikson and a transactional approach to identity research. *Identity: An International Journal of Theory and Research*, 18(4).
- Rosenthal, D. A., Gurney, R. M., & Moore, S. M. (1981). From trust to intimacy: A new inventory for examining Erikson's stages of psychosocial development. *Journal of Youth and Adolescence*, 10(6), 525–537. <https://doi.org/10.1007/BF02087944>
- Schachter, E. P. (2018). Intergenerational, unconscious and embodied: Three underdeveloped aspects of Erikson's theory of identity. *Identity: An International Journal of Theory and Research*, 18(4).
- Schachter, E.P., & Galliher, R.V. (2018). Fifty Years Since “Identity: Youth and Crisis”: A Renewed Look at Erikson's Writings on Identity, Identity, DOI: 10.1080/15283488.2018.1529267
- Signorella, M. L., & Hanson Frieze, I. (2008). Interrelations of gender schemas in children and adolescents: Attitudes, preferences, and self-perceptions. *Social Behavior and Personality: An international journal*, 36(7), 941-954.
- Simmons, D. D. (1970). Development of an objective measure of identity achievement status. *Journal of Projective Techniques & Personality Assessment*, 34(3), 241–244. <https://doi.org/10.1080/0091651X.1970.10380242>
- Syed, M., & Fish, J. (2018). Revisiting Erik Erikson's legacy on culture, race, and ethnicity. *Identity: An International Journal of Theory and Research*, 18(4).
- Watson, A. (2014). "Who Am I? The Self/Subject According to Psychoanalytic Theory." *SAGE Open* 4 (3).

11.12 ADDITIONAL ONLINE RESOURCES

- *For more information on identity formation:*
[https://socialsci.libretexts.org/Bookshelves/Early_Childhood_Education/Book%3A_The_Role_of_Equity_and_Diversity_in_Early_Childhood_Education_\(Esquivel_Elam_Paris_and_Tafoya\)/03%3A_The_Development_of_Identity_in_Children/3.02%3A_How_Children_Develop_Identity](https://socialsci.libretexts.org/Bookshelves/Early_Childhood_Education/Book%3A_The_Role_of_Equity_and_Diversity_in_Early_Childhood_Education_(Esquivel_Elam_Paris_and_Tafoya)/03%3A_The_Development_of_Identity_in_Children/3.02%3A_How_Children_Develop_Identity)
<https://www.britannica.com/topic/gender-identity>
- *For more information on Freud:*
<https://www.freud.org.uk/education/resources/what-is-psychoanalysis-part-1-is-it-weird/>
<https://www.freud.org.uk/education/resources/psychoanalysis-part-2-sexuality/>

<https://www.freud.org.uk/education/resources/what-is-psychoanalysis-part-3-the-oedipus-complex/>

<https://www.freud.org.uk/education/resources/what-is-psychoanalysis-part-4-the-ego-the-id-and-the-superego/>

- *For more information on Erikson's theory:*

<https://epublications.marquette.edu/cgi/viewcontent.cgi?article=1030&context=gjcp>

<http://ww3.haverford.edu/psychology/ddavis/p109g/erikson.identity.html>

- *For more information on Marcia's theory:*

[https://socialsci.libretexts.org/Bookshelves/Early_Childhood_Education/Book%3A_Child_Growth_and_Development_\(Paris_Ricardo_Rymond_and_Johnson\)/15%3A_Adolescence_-_Social_Emotional_Development/15.02%3A_James_Marcia_Theory_of_Identity_Development](https://socialsci.libretexts.org/Bookshelves/Early_Childhood_Education/Book%3A_Child_Growth_and_Development_(Paris_Ricardo_Rymond_and_Johnson)/15%3A_Adolescence_-_Social_Emotional_Development/15.02%3A_James_Marcia_Theory_of_Identity_Development)

https://www.assessmentpsychologyboard.org/edp/pdf/James_Marcia.pdf

- *For more information on Allport:*

[https://socialsci.libretexts.org/Bookshelves/Psychology/Book%3A_Personality_Theory_in_a_Cultural_Context_\(Kelland\)/10%3A_Trait_Theories_of_Personality/10.03%3A_Allport's_Psychology_of_Personality](https://socialsci.libretexts.org/Bookshelves/Psychology/Book%3A_Personality_Theory_in_a_Cultural_Context_(Kelland)/10%3A_Trait_Theories_of_Personality/10.03%3A_Allport's_Psychology_of_Personality)

THE PEOPLE'S
UNIVERSITY