

CHAPTER 11: DEVELOPMENTAL PSYCHOLOGY

IF YOU LEARN ONLY FIVE THINGS IN THIS CHAPTER . . .

1. Cognitive development refers to the ways in which our ability to think and reason change over our life spans.
2. Two theorists important in the area of cognitive development are Jean Piaget and Lev Vygotsky.
3. Social development refers to the changes in our ability to interact with others as we age.
4. Our primary caregiver provides us with our earliest social cues.
5. The stages of prenatal development

INTRODUCTION

Development is the study of how people change over their life span. Typically, psychologists are concerned with three forms of development: physical, social, and cognitive.

Naturally, development occurs throughout the life span, though most psychology texts focus mostly on child development. In this chapter, we will adopt a similar strategy and deal mostly with child development.

PHYSICAL DEVELOPMENT

Children develop according to a fairly well-understood pattern of development. Here is a table that describes a typical pathway of prenatal development.

Major Events of Prenatal Development	
<p>Weeks 1 and 2</p> <p>Fertilization and formation of zygote (30 hours)</p> <p>Formation of blastocyst (day 4)</p> <p>Attachment of blastocyst (5–8 days)</p> <p>Appearance of amniotic cavity (day 8)</p>	<p>Week 3</p> <p>Development of neural tube (day 18)</p> <p>Beginning of blood circulation (day 24)</p> <p>Possible abnormal events:</p> <p>Twins</p> <p>Teratogens (foreign substances that influence the developing fetus) are very damaging from week 3 to week 8</p>
<p>Weeks 4–8</p> <p>Formation of head, tail, and lateral folds</p> <p>Formation of primitive gut</p> <p>Heart moves to normal position</p> <p>Appearances of brain, limbs, ears, eyes, and nose</p> <p>Development of humanlike appearance</p>	<p>Weeks 9–12</p> <p>Fetal head makes up 1/2 of fetal body</p> <p>Eyelids fused</p> <p>Upper limbs develop to normal proportions</p> <p>Male and female genitalia recognizable by 12 weeks</p>
<p>Weeks 13–16</p> <p>Rapid fetal growth</p> <p>Fetus doubles in size</p> <p>Kidneys secrete urine</p> <p>Fetus appears human</p> <p>Placenta is fully formed</p>	<p>Weeks 17–23</p> <p>Fetal growth slows</p> <p>Lower limbs fully formed</p> <p>Fetal movement starts at 20 weeks</p> <p>Fetal heartbeat begins</p>
<p>Weeks 24–27</p> <p>Skin growth is rapid</p> <p>Eyes open</p> <p>Fetus is viable at 27 weeks</p>	<p>Weeks 28–31</p> <p>Weight gain is steady</p> <p>Fetus has a good chance of survival</p>
<p>Weeks 32–36</p> <p>Weight gain is steady</p> <p>Fetus has a good chance of survival</p>	<p>Weeks 37–40</p> <p>Fingernails and toenails grow</p> <p>Skull is fully developed</p> <p>Fetus is ready for birth</p>

Brain development occurs during the entire process. The brain starts to develop early (around four weeks) and continues to develop both neurons and connections for the entire gestation period. However, once birth occurs, neural development slows down (some argue that it stops), and **pruning** occurs. During pruning, connections are made among cells, and connections that are redundant are “trimmed.”

After birth, other major **maturation** milestones include sitting up (by seven months), walking (one year), running (18 months to two years), and fine motor control (2–4 years). There is a great deal of variability in when children reach these milestones, but these are general guidelines.

Physical development continues throughout the life span, but little attention has been paid to development after puberty in the research literature.

SOCIAL DEVELOPMENT

During the formative years, children are learning much about how to navigate the world. How to get along in a social environment is one of the many important issues that children learn.

Attachment theory has been proposed as one way to understand social development.

According to **Bowlby and Ainsworth**, children develop an attachment style to their primary caregiver early in development. Attachment leads to an internal working model for relationships later on. Attachment is an emotional and cognitive set of behaviors that are tested through the strange situation.

In the **strange situation**, a child around age 1 is brought into the laboratory with the primary caregiver. The child is provided with toys and other distractions. After a short time, the experiment starts. The child is left in the room under a variety of conditions. First, the child is alone. Then, the researcher comes in. Finally, the primary caregiver is brought back in. The key to understanding attachment is to examine the **reunion** between the parent and the child.

If the child is upset but can be calmed, the child is said to be securely attached. This suggests that the child uses the parent as a safe base to explore the environment. The child can return if there is trouble or if he is upset. If a child is unable to be comforted or is violent or distant upon return, he may be insecurely attached.

These styles have been shown to be related to later relationships. Children who are insecurely attached have more difficulty trusting others later in life. Securely attached people tend to be more comfortable in relationships.

COGNITIVE DEVELOPMENT

One of the pioneers in developmental psychology is **Jean Piaget**. Piaget noticed that his children were able to handle logical problems differently at different ages. Further, he noticed that as children age, their ability to handle logical problems changes. Piaget then spent years studying how cognitive development occurred on average. From this intensive study, Piaget developed a theory of cognitive development that described how people are able to deal with logical problems differently at different points in their lives.

According to Piaget, the most important issue that children are concerned with is adapting to their environment (a process he calls **adaptation**). To adapt, children use different strategies at different ages. This accommodation process relies on the notion that we develop a series of **schemas** (or schemes or schemata) to ease the adaptation process.

A schema is an organized body of knowledge. It can be knowledge based or action based. Most people have organized schemas for going to a restaurant, for instance. They understand that we enter a restaurant, get seated, order drinks, and so on. This schema allows people to know what to do when they enter that situation.

Schemas are not part of the inborn knowledge structures of children. Schemas need to be developed through experience. The process of developing a new schema is called **accommodation**. Early in life, children spend a great deal of time developing schemas, or accommodating. It is essential that the developmental process of accommodation happen early so that children have appropriate schemas to know appropriate actions.

Once we develop schemas, we spend a lot of time fitting new experiences into existing schemas. That process is called **assimilation**. If we have a schema for going to a restaurant and we enter a new restaurant, we typically know the correct set of behavior or actions. Piaget argues that we both accommodate and assimilate throughout life.

STAGE THEORY

According to Piaget, we go through a variety of stages on our way to cognitive development. All human beings pass the stages in a fixed and invariant way. That is, we all go through the stages in the same order, and we all go through *all* the stages during our life span.

STAGE 1: SENSORIMOTOR

The sensorimotor stage is the first stage in development. Children are typically in this stage from birth to around 18 months (the age can vary, but the order does not). During this stage, a child's responses are entirely sensory and motor. That is, the child will receive information from her senses, and the responses to those stimuli are purely motor. Children seem to operate in the here-and-now and do not seem to plan or think about the consequences of behavior. On average, children

do not seem to engage in internal representation until the end of this stage. In fact, children don't even recognize that an object is still present when the object is no longer in their visual field. Piaget referred to this as a lack of **object permanence**, a concept that would be acquired in Stage 2. This lack, though, is why peekaboo is such a fun game for babies, but is no longer interesting for toddlers.

STAGE 2: PREOPERATIONAL

The preoperational stage lasts from around age 2 to 6. A child goes through a period of rapid intellectual growth. Language is learned, and through that process, many intellectual skills needed later in life are learned as well—internal representation, for instance, is learned, as evidenced by children's ability to engage in creative or imaginative play.

One of the main skills that children in the preoperational stage still lack is a term Piaget called **conservation**, the principle that things stay the same no matter if the form changes. For example, when adults pour liquid from a short, wide glass to a tall, narrow glass, they notice that the height of the liquid is greater in the tall glass, but they also understand that the amount of liquid remained constant, so the volume in each glass is the same. Children in Stage 2 are quite confident in their answer that there is now "more" in the taller glass. This lack of conservation also can be seen in length, mass, and number, as well as volume.

STAGE 3: CONCRETE OPERATIONAL

Concrete operational children, aged 6 to 12, develop quite comprehensive logical skills. They are in school, learning many of the building blocks for higher-level intellectual functioning. Children acquire logical skills, learn how to engage in organized problem solving, and so on.

During this stage, children develop a great number of schemas, and they spend much of the time assimilating into those existing schemas. Children do not have complete, higher-level cognitive structures, but they are far beyond the first two stages.

STAGE 4: FORMAL OPERATIONAL

The formal operational stage of cognitive development is the highest level of cognitive development. According to Piaget, children enter this stage around age 12, and it is at this time that they develop high-level logical skills. They become able to solve problems in a systematic way, use reversibility, etc. This stage is the pinnacle of cognitive development.

Piaget's theory is one of the most well-known theories of cognitive development, but there are critics. For one, some believe that Piaget greatly underestimated children's skills on one end and greatly overestimated their skills at the other end. Several researchers rephrased Piagetian tasks and found that younger children were able to understand the questions and respond appropriately. In addition, the children seemed to have internal representation prior to preoperational ages.

And on the other end, another researcher gave a variety of Piagetian tasks to college freshmen and found that only 40 percent of them displayed characteristics of formal operations. Of course, 100 percent should have been in formal operations, according to Piaget. So perhaps children enter formal operations later in life.

LEV VYGOTSKY

An alternative approach to cognitive development was espoused by Lev Vygotsky. Vygotsky did not agree with Piaget that children moved through stages of cognitive development in an orderly fashion. Rather, he believed that **children learn according to their own schedule**.

Children seem to have a range of abilities under which they are able to operate. By following an adult's example, they eventually develop the ability to do certain tasks alone. The **zone of proximal development (ZPD)** defines the gap (difference) between what a child can do without help and what he can do only with support. We can use a process called **scaffolding** to help children move their ZPD. If children are moving forward in cognitive development, the ZPD needs to change. Scaffolding helps children build higher-level cognitive functioning by isolating the ZPD and providing the assistance to allow children to solve more complex problems.

Although Vygotsky's theory is not as structured as Piaget's, it provides an alternative explanation for cognitive development. Many have argued that Vygotsky's theory provides a better fit for the educational environment because of its focus on individual differences.