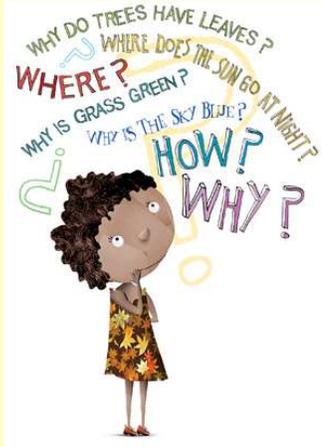


Cognitive Development

FIVE-YEAR-OLD LOGIC



TAKING NOTES Use a graphic organizer like this one to take notes on cognitive development.

Piaget	Kohlberg

PSYCHOLOGY CLOSE UP

Have you ever spent some quality time with a five-year-old? Most five-year-olds are a ton of fun to be around. They're energetic, creative, and inquisitive—boy, are they inquisitive. Sometimes you think the questions will never stop. They also employ a peculiar brand of logic. Order a pizza for two five-year-olds some day, and you'll find out. Sit them at the kitchen table together, and let them watch while you select two identically sized slices of pizza. Cut one slice into bite-sized pieces and leave the other one whole. Give the whole piece to one child and the cut-up piece to the other one. There will certainly be a problem. The child with the whole piece will probably start to gloat: "I got more than you!" The child with the cut-up slice will pout: "Why did you give me less?" They react this way even though they watched you get two identical slices!

The pizza argument is just one example of five-year-old logic. Children's thought processes and how they develop are the subjects of this section.

Piaget's Theory of Cognitive Development

In addition to social development, psychologists are interested in studying cognitive development, or the development of people's thought processes. Jean Piaget (1896–1980) is probably the best-known researcher in the area of children's cognitive development. When Piaget was in his early 20s, he was employed at the Binet Institute in Paris. At the institute he worked on the Binet intelligence test, trying out potential test questions on children.

Before long, Piaget realized that the children he questioned gave certain types of wrong answers and that these wrong answers fit patterns from child to child. Piaget was so interested in these patterns that the study of children's thinking became his life's work.

Assimilation and Accommodation Piaget believed that human beings organize new information in two ways: through assimilation and through accommodation.

Assimilation is the process by which new information is placed into categories that already exist. For example, a little girl might know the word doggie because her family has a pet collie. If she sees a Great Dane on the street and says "doggie," she has assimilated the new information about the Great Dane into the category "dog"—even though the Great Dane looks and may act differently from her collie.

If the same child sees a cat and says "doggie," an adult will most likely correct her. Through such corrections, she will learn that the category "dog" does not apply to cats, and a new category is needed. This adjustment is an example of accommodation—a change brought about because of new information.

Piaget theorized that children's thinking develops in a sequence of stages. Some children are more advanced than others at a given age, but the developmental sequence is the same for everyone. Piaget identified four stages: sensorimotor, preoperational, concrete operational, and formal operational.

Stage	Age	Characteristics
Sensorimotor Stage	0-2	<ul style="list-style-type: none">• Learning to coordinate sensation and perception with motor activity• Development of object permanence
Preoperational Stage	2-7	<ul style="list-style-type: none">• One-dimensional thinking• Displays of egocentrism, artificialism, and animism
Concrete-Operational Stage	7-12	<ul style="list-style-type: none">• Signs of adult thinking about specific objects but not abstract ideas• Reduced egocentrism
Formal-Operational Stage	12+	<ul style="list-style-type: none">• Capable of abstract thinking• Able to deal with hypothetical situations, strategize, and plan ahead to solve problems

The Sensorimotor Stage The behavior of newborns is mainly reflexive. They are capable only of responding to their environment and cannot initiate behavior. Instead of acting, infants react. By about one month of age, however, infants begin to act with purpose. As they coordinate vision with touch, for example, they will look at objects they are holding.

The first stage of cognitive development is characterized mainly by learning to coordinate sensation and perception with motor activity. Infants begin to understand that there is a relationship between their physical movements and the results they sense and perceive. That is why Piaget called this stage the [sensorimotor stage](#).

Infants who are three and four months old are fascinated by their own hands and legs. They are easily amused by watching themselves open and close their fists. If they hear an interesting sound, such as a rattle, they might do something to sustain the sound. By four to eight months, infants are exploring cause-and-effect relationships. They might, for example, hit mobiles that hang over their cribs so that the mobiles will move.

Perhaps you have heard the expression “Out of sight, out of mind.” Before infants are six months old, objects out of their sight are truly out of their minds. The infants do not realize that objects out of sight still exist. They might stare at a rattle, but if you were to put the rattle behind a piece of paper, they would not look or reach to find it. By eight months to a year, however, infants understand that things that have been taken away still exist. A 10-month-old probably would search for a rattle that was hidden behind a screen. Piaget called this **object permanence**—the understanding that objects exist even when they cannot be seen or touched.

According to Piaget’s theory, object permanence occurs because infants are able to hold an idea in mind. For example, they learn that “rattle” is a shiny, noisy object. They can mentally picture a rattle even when it is no longer in view. Therefore, they know to look for it when it is hidden behind a screen.

The Preoperational Stage The sensorimotor stage ends at about the age of two years, when children begin to use words and symbols (language) to represent objects. At this point, children enter the **preoperational stage**.

Preoperational thinking is very different from more mature forms of thinking. Children’s views of the world are different from those of adolescents and adults. Preoperational children think in one dimension—they can see only one aspect of a situation at a time. This is evident in the fact that they do not understand the law of conservation. The law says that key properties of substances, such as their weight, volume, and number, stay the same even if their shape or arrangement are changed. That is, the basic properties are conserved. Children in the preoperational stage cannot comprehend all the aspects at once, so they focus only on the most obvious one—the way a substance looks.

When preoperational children are shown two identical tall, thin glasses of water, each filled to the same level, they know that both glasses hold the same amount of water. However, if water from one of the tall glasses is poured into a short, squat glass, the children say that the other tall glass contains more liquid than the short one. They say this even if they have watched the water being poured. Because they can focus only on what they are seeing at a given moment—and on one dimension at a time—they incorrectly think that the tall glass now contains more water than the short glass. Their thinking is that it looks as if there is less water in the short glass (because the water level is lower) and therefore it must be so. Children in the preoperational stage do not realize that increases in one dimension (such as width) can make up for decreases in another (such as height).

Another characteristic of children in the preoperational stage is egocentrism—the inability to see another person’s point of view. Preoperational children assume that other people see the world just as they do. They cannot imagine that things might happen to others that do not happen to them. They think that the world exists to meet their needs. Egocentrism is a consequence of the preoperational child’s one-dimensional thinking. Egocentrism is not the same as selfishness. When a preschooler sits down in front of the TV blocking everyone else’s view, he or she is not being rude. The child simply thinks you can see exactly what he or she can see.

Preoperational children are also artificialistic and animistic. That is, they think that natural events such as rain and thunder are made by people (artificialism). They also think objects such as the sun and the moon are alive and conscious (animism).

The Concrete-Operational Stage Most children enter the concrete-operational stage at about the age of seven. In this stage, children begin to show signs of adult thinking. Yet they are logical only when they think about specific objects and concrete experiences, not about abstract ideas. This is one reason why many teachers assign them hands-on projects. Seeing, touching, and manipulating objects often help concrete-operational children understand abstract concepts.

Children at the concrete-operational stage can focus on two dimensions of a problem at the same time. For this reason, they understand the laws of conservation. They understand that a short, wide glass might contain the same amount of water as a tall, thin glass. They can therefore recognize that a gain in width compensates for a loss in height.

Concrete-operational children are less egocentric than children in earlier stages. They can see the world from another person’s point of view. They understand that people may see things differently because they have different experiences or are in different situations.

The Formal-Operational Stage The final cognitive stage in Piaget’s theory begins at about age eleven or twelve and continues through adulthood. It is the formal-operational stage, which represents cognitive maturity.

People in the formal-operational stage think abstractly. They realize that ideas can be compared and classified mentally just as objects can. For example, they understand what is meant by the unknown quantity x in algebra. They can work on geometry problems about lines, triangles, and squares without concerning themselves with how the problems relate to the real world. They can also deduce rules of behavior from moral principles. They focus on many aspects of a situation simultaneously when reasoning and solving problems.

During the formal-operational stage, people are capable of dealing with hypothetical situations. They realize that they may be able to control the outcome of a situation in

several different ways. Therefore, if one approach to solving a problem does not work, they will try another. They think ahead, imagining the results of different courses of action before they decide on a particular one.

Criticism of Piaget's Theories A number of psychologists have questioned the accuracy of Piaget's views. Some believe his methods caused him to underestimate the abilities of children. Recent research using different methodology indicates that preschoolers are less egocentric than Piaget's research suggested. Some psychologists also assert that several cognitive skills appear to develop more continuously than Piaget thought. Nonetheless, his theories are still respected.

As a stage theorist, Kohlberg believed that the stages of moral development always follow a specific sequence. Children advance at different rates, however, and not everyone reaches the highest stage. Kohlberg theorized that there are three levels of moral development and two stages within each level.

The Preconventional Level According to Kohlberg, through the age of nine, most children are at the preconventional level of moral development. Children who use preconventional moral reasoning base their judgments on the consequences of behavior.

In stage 1, children believe that what is "good" is what helps one avoid punishment. Therefore, children at stage 1 would argue that Heinz was wrong because he would be caught for stealing and sent to jail.

At stage 2, "good" is what satisfies a person's needs. Stage 2 reasoning holds that Heinz was right to steal the drug because his wife needed it.

The Conventional Level People who are at the level of conventional moral reasoning make judgments in terms of whether an act conforms to conventional standards of right and wrong. These standards derive from the family, religion, and society at large.

At stage 3, "good" is what meets one's needs and the expectations of other people. Moral behavior is what most people would do in a given situation. According to stage 3 reasoning, Heinz should steal the drug because a good and loving husband would do whatever he could to save the life of his wife. But stage 3 reasoning might also maintain that Heinz should not steal the drug because good people do not steal. Both conclusions show conventional thinking. Kohlberg found stage 3 moral judgments most often among 13-year-olds.

Stage 4 moral judgments are based on maintaining the social order. People in this stage have high regard for authority. Stage 4 reasoning might insist that breaking the law for

any reason sets a bad example and undermines the social order. Stage 4 judgments occurred most often among 16-year-olds.

The Postconventional Level Reasoning based on a person's own moral standards of goodness is called postconventional moral reasoning. Here, moral judgments reflect one's personal values, not conventional standards.

Stage 5 reasoning recognizes that laws represent agreed-upon procedures, that laws have value, and that they should not be violated without good reason. But laws cannot bind the individual in exceptional circumstances. Stage 5 reasoning might suggest that it is right for Heinz to steal the drug, even though it is against the law, because the needs of his wife have created an exceptional situation.

Stage 6 reasoning regards acts that support human life, justice, and dignity as moral and good. People at stage 6 rely on their own consciences. They do not necessarily obey laws or agree with other people's opinions. Using stage 6 reasoning, a person might argue that the pharmacist was acting out of greed and that survival is more important than profit.

So Heinz had a moral right to steal the drug to save his wife. Post conventional reasoning rarely occurs in adolescents and is found most often in adults.

Bias in Kohlberg's Theory Some studies have found that according to Kohlberg's stages, boys appear to reason at higher levels of moral development than do girls. Does this mean that boys are morally superior to girls? No. It may mean instead that Kohlberg's stages and scoring system were biased to favor males.

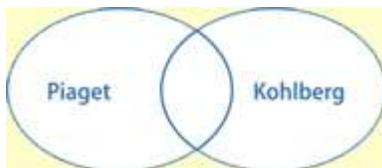
Psychologist Carol Gilligan argues that the differences between boys and girls are created because of what adults teach children about how they should behave as boys or girls. For example, girls are often taught to consider the needs of others over simple right or wrong. Therefore, a girl might worry that both stealing the drug and letting Heinz's wife die are wrong. Such reasoning—involving empathy for others—would be classified as stage 3.

Boys, however, are often taught to argue logically rather than with empathy. Therefore, a boy might set up an equation to prove that life has greater value than property. This would be considered reasoning at stage 5 or even stage 6.

Gilligan suggests, however, that girls' reasoning is at as high a level as that of boys. Girls have, in fact, thought about the same kinds of issues boys considered. In the end, they have chosen to be empathetic, not because their thinking is simpler, but because it is very complex—and because of what they have been taught is appropriate for girls.

Level	Stage	Moral Reasoning Goal	What is Right?
Preconventional	1	Avoiding punishment	Doing what is necessary to avoid punishment
	2	Satisfying needs	Doing what is necessary to satisfy one's needs
Conventional	3	Winning approval	Seeking and maintaining the approval of others using conventional standards of right and wrong
	4	Law and order	Moral judgments based on maintaining social order High regard for authority
Postconventional	5	Social order	Obedience to accepted laws Judgments based on personal values
	6	Universal ethics	Morality of individual conscience, not necessarily in agreement with others

1. **Define** What is object permanence?
2. **Explain** What does a child consider to be “good” in stage 2 of Kohlberg's theory?
3. **Summarize** What is the major case for bias in Kohlberg's theory?
4. **Contrast** Contrast Piaget's ideas of assimilation and accommodation. What makes them different?
5. **Compare and Contrast** Using your notes and a graphic organizer like the one shown, compare and contrast the theories of Piaget and Kohlberg. In what ways are they different, and where do they seem to overlap?



Identity Development

Psychoanalyst Erik Erikson maintained that the journey of life consists of eight stages. At each stage, there is a task that must be mastered for healthy development to continue. Erikson said that young children must deal with issues of trust, autonomy (self-government), and initiative (taking the lead). Once children begin school, their main task becomes the development of competence, which is the sense that they can learn and achieve.

According to Erikson, the main task of the adolescent stage is the search for identity—a sense of who you are and what you stand for. Adolescents seek to identify their beliefs, their values, and their life goals. They also need to identify the areas in which they agree and disagree with parents, teachers, and friends.

Erikson believed that the task of establishing one's identity is accomplished by choosing and developing a commitment to a particular role or occupation in life. Accomplishing this task may also involve developing one's own political and religious beliefs.

To find an identity that is comfortable, adolescents may experiment with different values, beliefs, roles, and relationships. They may try out different “selves” in different situations. For example, the way they behave with their friends may be quite different from the way they behave with their parents. Adolescents who take on these different roles may sometimes wonder which of their selves is the “real” one. Adolescent identity is achieved when different selves are brought together into a unified sense of self.

Erikson thought that teens who do not succeed in forging an identity may become confused about who they really are and what they want to do in life. They may have difficulty making commitments and may drift from situation to situation. Since they do not create a solid sense of self, they may remain overly dependent on the opinions of others.

One key aspect of adolescent identity development is what Erikson called an identity crisis. An **identity crisis** is a turning point in a person's development when the person examines his or her values and makes or changes decisions about life roles. Adolescents can feel overwhelmed by the choices that lie before them and the decisions they must make.

In Piaget's four stages of cognitive development, the final stage is the formal-operational stage. It generally begins at puberty and continues through adulthood. Formal-operational thinking involves abstract thinking, such as hypothetical situations. It enables people to find reasonable solutions to problems and to predict the possible consequences of the decisions. Formal-operational thinking helps adolescents make important life choices. Because their thinking is no longer tied to concrete experience, adolescents can evaluate the options available to them even though they may not have personally experienced them.

Identity Status

According to psychologist James Marcia, the adolescent identity crisis arises as teenagers face decisions about their future work, moral standards, religious commitment, political orientation, or sexual orientation. Marcia studied the different ways that adolescents handle commitment and cope with the adolescent identity crisis. He concluded that there are four categories of adolescent [identity status](#), or reaction patterns and processes. Adolescents do not remain in a single one of these categories throughout their entire adolescence, nor do they proceed through them in a particular order. Rather, they move in and out of the various categories, from one to another. The four categories are identity moratorium, identity foreclosure, identity diffusion, and identity achievement.

Identity Moratorium A moratorium is a "time out" period. Teens experiencing what Marcia termed [identity moratorium](#) delay making commitments about important questions. They are actively exploring various alternatives in an attempt to forge their identity. They may even experiment with different behaviors and personalities. Adolescents experimenting with different ways of life in their search for an identity may adopt distinctive ways of dressing or behaving.

Adolescents who remain in moratorium longer than other teens may become somewhat anxious as they struggle to find anchors in an unstable world.

But they are heading in a general direction even if they do not know where their journey will end. They may end up attending college, joining the armed services, or doing something completely different to reach their final goals.

Identity Foreclosure To avoid an identity crisis, adolescents in the identity [identity foreclosure](#) category make a commitment that forecloses (or shuts out) other possibilities. These adolescents make a definite commitment, but the commitment is based on the suggestions of others rather than on their own choices. They adopt a belief system or a plan of action without closely examining whether it is right for them. They may simply follow the model set by their parents, peers, teachers, or other authority figures in order to avoid uncertainty.

Although following a path recommended by an adult eliminates the need to make some hard choices, some adolescents become foreclosed too early. After they find themselves dissatisfied with the direction of their lives, they may switch to the moratorium category.

Identity Diffusion Adolescents in the category of [identity diffusion](#) seem to be constantly searching for meaning in life and for identity because they have not committed themselves to a set of personal beliefs or an occupational path. They lack goals or interests and seem to live from crisis to crisis.

Identity diffusion typically occurs in middle school and early high school. However, if it continues into the eleventh and twelfth grades, identity diffusion can lead to an “I don’t care” attitude. Some adolescents in this category become angry and rebellious.

Identity Achievement Adolescents in the [identity achievement](#) category have coped with crises and have explored options. They have then committed themselves to occupational directions and have made decisions about important life questions. Although they have experienced an identity crisis, they have emerged from it with solid beliefs or with a plan, for example to pursue a course of study that leads to a particular career. Identity achieved teens have feelings of well-being, self-esteem, and acceptance. They are capable of setting goals and working toward attaining their goals.

Many young people do not reach identity achievement until well after high school. It is normal to change majors in college and to change careers. Such changes, which may be made several times, do not mean that these people are indecisive or that they have made wrong decisions. The changes may simply mean that these individuals are continuing to actively explore their options. College, vocational training, and jobs are broadening experiences that expose people to new ways of life, career possibilities, and belief systems. It is common to adjust one’s personal goals and beliefs as one matures and views the world from a new or broader perspective.

By studying how teenagers handle commitment and cope with the adolescent identity crisis, psychologist James Marcia identified four adolescent identity status categories.

Identity Moratorium

Searching for identity, exploring alternatives, delaying commitments

Identity Foreclosure

Conforming, accepting childhood identity and values, identifying with others, making commitments and plans without self-examination, becoming inflexible

Identity Diffusion

Making no commitment, no soul searching, no goals, angry and rebellious

Identity Achievement

Exploring options, committing to direction in life and occupation, finding own identity