

Discuss the four
stages of piagets
cognitive
development



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Jean Piaget was a Swiss National born in 1896 in Neuchatel, western Switzerland. He had a strong interest in biology as a young boy and had even published several scientific articles before he had completed his formal schooling years. His research into the cognitive development of the child was one of the most important contributions in the world of psychology. He had written several key books, namely, *The Child's Conception of the World* (1928), *The Moral Judgment of the Child* (1932), *The Origins of Intelligence in Children* (1953), *Biology and Knowledge* (1971) and *The Grasp of Consciousness* (1977).

Piaget had pursued his studies in Paris with Alfred Binet, who was conducting a research in developing the first intelligence test. Piaget became an assistant to Binet in developing a standardized IQ test for children. From this research, Piaget had observed that there were specific cognitive differentiations that were very apparent in the different age groups among the young children. The table below summarizes the differences in the cognitive development of the children across 4 stages and age groups of these children. It is worth noting that the child is like a continuously learning machine. He is still in infancy in logical thinking, in the ability to tell right

from wrong; and he knows not what fear is. All cognitive development is only starting to be learned along the way.

Stage

Age Range (Years)

Major Characteristics and Achievements

Sensorimotor

0-2

Child's thought is confined to action schemes and sensory experiences. He differentiates self from objects and other people; seeks stimulation and prolongs interesting sights and experiences; develops object concept, including object permanence; achieves basic understanding of causality, time and space; grasps means-end relationships; begins to imitate behaviors previously experienced; engages in imaginative play; and late in the stage, shows the beginnings of symbolic thought.

Preoperational

2-7

Child begins to use symbols to represent objects and experiences and to use language symbolically; shows intuitive problem solving. Her thinking is semilogical, characterized by irreversibility, centration, egocentrism, and animism. She begins to think in terms of classes, see relationships, and grasp concept of conservation of numbers.

Concrete Operations

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7-12

Child is capable of logical reasoning, but this ability is limited to physically real and present objects; he grasps concepts of the conservation of mass, length, weight, and volume; his thinking is now characterized by reversibility, decentration, and the ability to take the role of another; he can organize objects into hierarchical classes (classification) and place objects into ordered series (seriation)

Formal Operations

12 onwards

Child acquires flexibility in thinking as well as the capacities for abstract thinking and mental hypothesis testing; she can consider possible alternatives in complex reasoning and problem solving

Source: ROSS D PARKE & MARY GAUVAIN, 2010

1. Sensorimotor Stage

The development of the child's intellectual capacity is most crucial in the first two years of her life. Within this stage, the child will experience the most prolific cognitive development and changes in her growth from infancy through to late childhood. Piaget had subdivided the growth stage from 0-1 month, 1-4 months, 4-8 months, 8-12 months, 12-18 months and 18 -24 months. The

The following are the elaborations of the various stages of cognitive development in accordance with the months as stated above.

Substage 1: Basic Reflex Activity (0 to 1 Month)

Infants in this stage do not have much control over their motor reflexes e. g. Grasping and groping. Most of the movements of the infant are involuntary. Over the course of the month, her movements will gradually be replaced from one of reflexive movements to one of controlled and deliberate in nature. She will attempt to grab at objects that are directly in front of them. The object concept action would see the infant only looking at objects which are directly in their line of sight.

2. Substage 2: Primary Circular Reactions (1 to 4 Months)

During this stage, the infant will produce actions that, to the infant, would give pleasure. Arising from this, we will see repetitive behavior from the infant. For instance, we would normally see infants sucking on their thumbs very often. This behavior is repeated again and again because it gives them pleasure. In this substage, the infant is only aware of his own body. There is no indication in the behavior of the infant that she is aware of things outside of her body. If an object drops from her grasp, she will look at her hand instead of the object that has dropped.

3. Substage 3: Secondary Circular Reactions (4 to 8 Months)

At about 4 months of age, the infant will only start to be aware of things happening outside of his body. The same schema of self exploration in

Substage 2 is now extended to his immediate surroundings. His coordination
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of his hands and eyes will be developed further. This is the stage where rattle toys that are interesting to him will be played with and explored repetitively. Different sounds and movements will stimulate his interest and he will engage in the activity again and again if the action pleases him. It is also at this stage that the infant will have some awareness of object permanence. If the object of his interest at the moment should drop, he will invariably search for the object where it is expected to appear. Tests have shown that the infant will search for a partially covered object, but will not search for a covered one, even if he watches the object being covered.

4. Substage 4: Coordination of Secondary Circular Reactions (8 to 12 Months)

In progression from Substage 3, the infant will develop more sophisticated combinations of schemas that reflect intentionality, and she will be goal oriented. The infant will also be honing her coordination of her sight with her touch – the hand-eye coordination. The first sign of intelligence will be observable in this stage as she begins to use her hand-eye coordination in addition to her using logic and the means-end relationship to acquire her goal. i. e. She will use the problem-solving approach to attain her goals. E. g pulling a pillow to get at a toy resting on top of it. This is also known as the concept of causality.

5. Substage 5: Tertiary Circular Reactions (12 to 18 Months)

The experimentation stage of toddlers, also referred to as “ little scientists” by Piaget. The behaviors of the toddlers at this stage are rather similar to the behaviors of the preceding stages save for the outcome of their exploration methods. The repetitions of exact behaviors are replaced with the repetition <https://assignbuster.com/discuss-the-four-stages-of-piagets-cognitive-development/>

of similar behaviors. They are no longer satisfied with one repetitive way of exploration but are trying out different ways of play. For example, dropping things from different heights and then see what happens to them. In Piaget's watch experiment with his own son on object permanence, he observed that his son understood the concept of object permanence but not invisible displacement. The child searched for the watch hidden behind a cushion but when he placed the watch in a box and hid it behind a cushion but secretly took it out and placed it behind the cushion. Piaget then handed the box to his son, after opening the box and not finding the watch, he did not search for the watch again.

6. Substage 6: Inventing New Means by Mental Combination (18 to 24 Months)

Symbolic Thought is the cognitive development of this stage. This is where the child will begin to have insight and creativity and will be making the transition to the Preoperational stage. At this stage the child is able to understand symbolic thought e. g. the ability to use language, images and gestures to communicate.

2. Preoperational Stage

The Preconceptual substage (2 to 4 Years)

The child is able to imagine and make up imaginary situations or pretend play. Other examples of mental abilities are language and imaginary play. The toddler shows an improvement from Substage 1 but there are still limitations with regards to egocentrism and animism. Egocentrism is when

the child is not able to make a distinction between their own perspectives from another person's. They are only able to see from their own perspective. Every thing about the child is only about " me, myself and I". For the layman it could signify selfishness, but it is only a natural phase in the process of cognitive development. Piaget had conducted an experiment titled the " Three Mountain Test" to gauge the ability of the child to see things from another person's perspective. But this experiment and his interpretations of the outcome had been disputed and challenged by more recent researchers; which proved that Piaget's interpretations had several shortcomings; firstly, the models had lacked clear features that are distinctive and unique in a way that could be discerned immediately by the child. Secondly, to expect the child to be able to construct or choose the appropriate drawings that represent their views is to ask too much of the young child. He may not be able to comprehend what you expect of him. Third, it does not correspond to their juvenile logic that asking them to choose the correct perspective would make any sense.

The Intuitive Substage (4 to 7 Years)

Children at this stage are very curious and like to ask many questions and this is the stage where they begin to use what can be termed as ' primitive reasoning'. His cognitive ability is in a semi-logical state. The child is very interested in wanting to know why things are the way they are. This is the stage where adults and especially the parents will be deluged with questions that begin with " why".

Conservation and Centration begin to appear in the preoperative stage. The definition of Conservation is “ The understanding that altering an object’s or a substance’s appearance does not change its basic attributes or properties.” (Ross D. Parke and Mary Gauvain, 2010)

Centration means “ Focusing one’s attention on only one dimension or characteristic of an object or situation.” (Ross D. Parke and Mary Gauvain, 2010)

Children in this substage have amassed a vast store of knowledge as well as the ability to employ some mental operations but are unable to fully comprehend and understand the underlying principles behind these operations. They are also more concerned with the end result rather than the means in getting the end. They tend to skip the process in getting to the end result. Piaget conducted a famous experiment using beakers and water to test the child’s understanding of Conservation. In this experiment, two identical glasses containing the same amount of water was presented to the child. When one of the glasses is poured into another taller and thinner glass, the children who are in the intuitive stage answered that the two glasses had now contained a different amount of water. Piaget had concluded that Conservation and Centration are part of the development process during this stage.

3. The Concrete Operational Stage (7 to 11 or 12 Years)

At this stage, children begin to reason logically, and will also begin to organize their thoughts in a coherent manner. However, they can only comprehend actual physical objects, and are not able to execute abstract

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reasoning. They cannot understand verbal information alone. For example, let's suppose that a child is presented with three hippos of varying sizes A, B and C. Now, Hippo A is the biggest of them all followed by B and then C. They are then paired up and presented to the child with Hippo A and Hippo B in the first pair, Hippo B and Hippo C in the second pair.

If the child was presented with a picture of the pairings, they would be able to understand the question posed to them, i. e. which one is bigger? But if they were to be described verbally of the pairings, expecting them to picture the pairings in their mind, they would not be able to answer the question posed to them.

Piaget had found that children in the concrete operational stage were able to use inductive logic. Inductive logic involves going from a specific experience to a general principle. For example, if the child is shown a logic sequence that the sun rises on Monday morning, and the sun rises on Tuesday morning, and the sun rises on Wednesday morning, therefore the child will understand that the sun will rise on every morning of every day. But on the other hand, using deductive logic at this stage will be out of the league of this age group. Deductive principles involve using a general principle to determine the outcome of a specific event. As an example, the child will be given a test which states that the number 5 can be divisible with numbers that end with a 5 and/or a 0. If a child is given a random number that ends with a 5 or a 0, and asked to determine if the number can be divided by 5, it will draw a blank stare from the child because he will not understand the question posed.

The child's ability to understand and put into practice conservation experiments will be also be apparent at this stage, and so does the understanding of the reversibility concept.

Reversibility is awareness that actions can be reversed. For example, a child might be able to recognize that his or her dog is a Pekingese, that a Pekingese is a dog, and that a dog is an animal.

The shift from the Preoperational Stage to the Concrete Stage will be deemed to be successful if the child can overcome the cognitive barriers of Stage 2.

Firstly, the child must override his or her egocentric presumption. As stated earlier in this text, the child is only concerned with the "me, myself and I" attitude. This is to say that the child will have difficulty understanding that other people may see things in a different way and therefore have a different point of view. Piaget's test for egocentrism i. e. the three mountains task; can usually be completed with ease for the children from this stage.

The second barrier to overcome in the concrete operational stage is the centration concept which is closely related to the egocentrism concept. This concept is the barrier that prevented the child in Stage 2 from being able to accept that other people may hold viewpoints that are different from theirs and therefore failing to pass the three mountain task.

The children of this stage will also be practising classification concepts; the child will be able to classify objects according to types and attributes, colours, subclasses etc. Which also includes having an understanding of

class inclusion, e. g. in Piaget's inclusion task, the children were asked to identify, out of a number of brown and white wooden beads, whether the beads of a particular type of colour were more than the other (Piaget, 1965).

Seriation is another ability that is learned during this stage, and refers to the child's ability to sort objects in an order according to size, shape, or any other characteristic. For example, if given a set of sticks that are of differing lengths, the child will be able to sort the sticks in the order of lengths. I. e. from the longest stick to the shortest or vice versa.

Finally, and also following the development of seriation, is transitive inference. This is the name given to a child's ability to compare two objects via an intermediate object. To refer to the earlier example of the Hippo test, one hippo can be judged to be the bigger hippo by comparing both individually to another (third) hippo.

4. The Formal Operational Stage

The Formal Operational stage is the final stage in Piaget's theory. It begins at about 11 to 12 years of age. According to Piaget, Children at this stage are able to hold several possible alternatives or hypotheses in a problem-solving situation. They might not just have one static answer to a question posed to them and in fact might have several plausible answers. The child may use logic to conduct tests and experiments; formulate hypotheses and systematically test them and then to come to a conclusion.

However, there are developmentalist who hold different views from Piaget. Their argument is that not all adults in our society have reached this last

stage. Whether if an individual is able to reach this stage depends very much on the culture the particular individual is raised in. there are various studies carried out by researches on various cultures in the world and there is evidence that this stage of development is not uniform throughout the myriad of research subjects. There are notable research findings by Pierre Dasen (1984), T. G. Bond (1998)

How does this theory give the big impact on child education at school?