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Concept of Cognitive Development of Children and Jean Piaget

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Abstract

Jean Piaget was a Swiss psychologist who systematically highlighted all aspects of human development which we also know as Piaget theory and Jean Piaget's cognitive development. In his theory, he explained how a child's cognitive development takes place and what are the levels of his development. By cognitive, he means intellectual development. According to Jean Piaget, a child's intellectual development takes place in a systematic manner, like a child cries when he is hungry, that is, he expresses his emotional aspects through various actions, he expresses his emotional aspects through his senses (eyes, ears, nails, tongue, hands etc.), after that he imitates his parents, after that he comes into society and emphasizes on collective activities, which increases his cognitive development.

Key words: Intellectual development, cognitive imbalance, nervous system, preoperational stage, introspective period

Introduction

Jean Piaget has explained the thinking or cognitive development of children by dividing it into four major stages. We see that the human child adapts to overcome the uncertainty of the environment right from birth and tries to develop this ability in a related and coordinated manner. When a child encounters an event that he has never experienced before, it creates a kind of cognitive imbalance in him, which he balances through assimilation and adjustment. The process of equilibrium does not only depend on the past experiences of the child but also on the level of his physical maturity i.e. the development of his nervous system, sensory organs, muscular organs. The effect of equilibrium is that the cognitive structure of children becomes more developed due to which their development is symmetrical in all the four stages of cognitive development. These stages are-

1. Sensory-motor stage

2. Preoperational stage
3. Stage of concrete operations and
4. Stage of formal operations.

1. Sensory-motor stage:

It is from birth to two years. In this stage, apart from other activities, the main activities of the infants are physically moving things around, trying to identify objects, holding something and often studying it by putting it in the mouth. Piaget stated that in this stage, the intellectual development or cognitive development of infants passes through the following six stages-

(i) Stage of reflex actions: It is from birth to 30 days. In this stage, the child only performs reflex actions. Among these reflex actions, the sucking reflex is the strongest.

(ii) Stage of major circular processes: It is from 1 month to 4 months. In this stage, the reflex actions of the infant are changed to some extent by their feelings, are repeated and become more coordinated with each other. These behaviours are called primary because they are the main reflex actions of their body and they are called circular because they are repeated.

(iii) Stage of secondary circular reactions: This is from 4 to 8 months. In this stage, the child pays more attention to turning and touching the objects and not on the reflex actions of his body. Apart from this, he deliberately repeats some such responses which he finds interesting and entertaining to hear or do.

(iv) Secondary schemata: This stage is from 8 months to 12 months. In this period, the child starts differentiating between the objective and the means of reaching it. For example, if a toy is hidden, he continues to search for it by moving objects here and there. In this period, the child also starts imitating the actions done by adults. In this period, the child also starts generalizing the schemas that he learns from one situation to another.

(v) Stage of third circular processes: It lasts from 12 months to 18 months. In this stage, the child tries to learn the properties of objects by trial and error method. In this stage, their interest in their own physical activities decreases and they experiment with some objects themselves. Curiosity motive becomes more dominant in children and they have a greater tendency to study objects by dropping them from top to bottom.

(vi) Stage of discovery of new means through mental combination: This is the last stage which lasts from 18 months to 24 months. This is the stage in which the child starts thinking about objects. In this period, the child starts responding to those objects also which are not directly visible.

This quality is called object permanence. In other words, children at the age of three-four months used to think that when an object is in front of them, it exists but when the object goes away from them, its

existence also ends, but now they start considering it wrong. But now his thinking becomes more realistic and he now thinks that even when the object is not in front of him, it still exists. This is called the property of object permanence.

2. Preoperational stage:

This stage of cognitive development is from 2 years to 7 years. In other words, this is the stage which is of early childhood. Piaget has divided this stage into two parts- preconceptual period and introspective period. Preconceptual period - that period is from 2 years to 4 years. In this stage, children develop indicator. Indicativeness means that children start understanding that objects, words, images and thoughts are used for something. He has emphasized on two types of indicator - sign and symbol. Sign is another name for mental thinking of a concrete object. There is more similarity between a sign and that concrete object. For example, when a child hears his mother's voice, then an image of the mother is formed in his mind which is an example of a sign. There is not much similarity in a sign with the objects which we think about mentally. In a sign, there is an abstract thinking of objects or events.

Words or other aspects of language are the most common examples of a sign. Piaget has considered signs and symbols as important means of preconceptual thinking. In this stage, children have to understand the meaning of these indicators and at the same time they have to learn to use them in their thinking and work. Piaget has called this symbolic work. He also told that symbolic work in children is basically done through two types of activities, i.e. imitation and play. Children learn indicators through the process of imitation. For example, when a child imitates his mother calling 'flower' as flower, he gradually understands flower and its meaning. Through play also, children understand the meaning of indicators and learn to use them correctly in their thinking and actions. Piaget has also told two limitations of preconceptual thinking, which are as follows-

(a) Animism- Animism points towards such a limitation in the thinking of children in which the child considers inanimate objects as living. For example, car, fan, wind, clouds, all are living for him. (b) Egocentrism- In this, the child considers only his own thoughts to be correct. He starts believing that most of the things in the world revolve around him. As he runs fast, the sun also starts moving fast, his doll sees what he is seeing etc. Piaget has also said that as the child's contact with other children and siblings increases, the complaint of egocentrism in his thinking decreases.

Introspective period - This period is from 4 years to 7 years. In this period, the thinking and reasoning of the child become more mature than before, as a result of which he is able to do simple mental processes which are involved in addition, subtraction, multiplication and division etc. But he is unable to understand the rules hidden behind these mental processes. Introspective thinking is such a thinking in which there is no systematic logic. Piaget has also considered introspective thinking as a

flaw and that is that the thinking of children of this age does not have the quality of reflexive thinking. For example, the child understands that 2×2=4 but is unable to understand how 4/2 = 2.

3. Stage of concrete operations:

This stage starts from 7 years and lasts till 12 years. The specialty of this stage is that children can easily solve a problem by performing mental operations on the basis of concrete objects. But if the problem is presented by preparing a verbal statement about it instead of giving those objects, then they are unable to reach a conclusion by performing mental operations on such problems. For example, if they are given three objects A, B C, then after looking at them they will easily say that in this A is bigger than B and B is bigger than C.

Therefore A is the biggest. But if they are told that Anju is bigger than Manju and Manju is bigger than you, then who is the biggest among the three, then they are unable to answer this. The reason for this is that concrete operation is not possible in this problem because the problem has been presented in the form of a verbal statement.

It is also clear from this example that in this stage the thinking and reasoning of children becomes more systematic and logical as compared to the preoperational stage. One of the characteristics of the thinking of this stage is that it acquires a reversible quality. For example, now children start understanding that if 2 × 2 = 4 then 4/2 = 2. In this stage, three important concepts develop in children - conservation, relation and classification. In this stage, children are found solving problems related to conservation of liquid, length, weight and elements.

They are also able to solve problems related to sequential relations. In other words, the ability to arrange the given objects in decreasing or increasing order according to their length or weight develops. This is called aligning. Similarly, in this stage, children also develop the ability to sort objects into one class or sub-class according to their quality. Despite this, two major flaws of concrete operational thinking have been pointed out. The first flaw is that in this stage, the child is able to perform mental operations only when the object is presented in a concrete form. The second flaw is that in this stage, thinking is not completely systematic because the child is not able to think about all the logically possible solutions to the given problem.

4. Formal Operational Stage:

This stage begins from 11 years and continues till adulthood. In this stage, the thinking of adolescents becomes more flexible and effective. There is complete order in their thinking. Now they are able to solve a problem by thinking and contemplating hypothetically. In this stage, it is not necessary for the parts of the problem to be present in front of them in a concrete form for solving the problem. In this way, the role of objectivity and reality increases in the thinking of adolescents. In other words, decentration is fully developed in children. Piaget is of the opinion that the stage of formal operation is more variable than other stages

and it is directly affected by the level of education of adolescents. Formal operational thinking is also very less in children whose level of education is very low. But formal operational thinking is more in children whose level of education is very high. In this way we see that in his four-stage theory, Piaget has emphasized that cognitive development in children takes place in four different stages. This theory of Piaget is a strong theory, yet psychologists have criticized it on the basis of the following factors-

(i) Critics are of the opinion that the method adopted by Piaget to observe the behavior of children is more subjective. In his method, sometimes children have to give such responses, which they are unable to answer despite having cognitive endowments.

(ii) Some critics have criticized the interpretation of the answers given by children, which Piaget has given. According to Piaget, when a child is unable to solve a given problem, it is directly taken to mean that the child lacks cognitive endowment. Critics have criticized this interpretation of Piaget. On the basis of his study, Galeman told that when the children were asked the problem related to conservation in a reformulated and simple language by Piaget, they were able to solve it correctly. This shows that the system made by Piaget was not very reliable.

(iii) Piaget believed that cognitive development is both continuous and discrete. He said that at any one stage, the process of cognitive development is continuous and progressive, but from one stage to another, it is discrete and qualitatively different. Critics are of the opinion that this belief of Piaget was not scientific because whatever cognitive development we see in the second, third or fourth stage is not completely different from the stage or stages just before it. For example, the quality of reversibility does not suddenly come in the thinking of children in the third stage. First, the quality of reversibility develops in the second stage of cognitive development and then due to increase in maturity and experience, the quality of reversibility develops in the next stage. Therefore, it would not be appropriate to consider different stages of cognitive development to be completely independent of each other.

(iv) Although Piaget has considered both biological maturity and experience of children important for cognitive development, he could not tell how much experience is required for the development of a particular cognitive structure. For example, he has not told how much visual stimulation should be given to children in developing the structure of object permanence. Similarly, till what level should adolescents be educated for a satisfactory level of formal operational thinking, etc.

Conclusion:

Despite these criticisms, Piaget's theory of cognitive development has been considered a very important theory. The usefulness of the facts of this theory is said to be very high for children because it explains their intellectual development in a satisfactory manner. Piaget takes a constructivist point of view and believes that learners are not passive

in their knowledge. Piaget's theory suggests that students need a curriculum that supports their cognitive development by learning concepts and logical steps.

He also suggests that children are only capable of learning specific material in specific stages of cognitive development.Piaget emphasizes that learning take place as a result of active engagement of learners is important, so teachers have to see the learners take an active role by participating in whatever is being taught and learned.Piagets theory acknowledges individual difference in cognitive development.teacher should arrage activities that learners intellectual development.Pieget shows thatchild's understanding is restricted by stagesthat he or she has reached and teacher should take this into account as they teach children with different levels of intellectual developments.

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