

Example of cognitive development: piagets theory of cognitive development research...

[Technology](#), [Development](#)



Cognitive development is the growth and materialization of the ability of a child to be actively involved in thinking and reason independently. It also involves the emergence of the child's ability to comprehend the events in the surrounding environment (John, 2008). It focuses on the ability to process information, learn a new language, problem solving ability, the process of mental development and the perception the child has towards the world. The study of the process of cognitive thinking has a myriad of applications in the engineering of education systems. Appreciating how a child's brain works helps curriculum engineers to determine the best stages to introduce certain academic principles to the child for optimal comprehension.

A lot of research has been done on cognitive development. The most fundamental outcome of this research is the emergence of a theory that attempts to explain cognitive development known as The Piaget's theory of cognitive development. The theory tries to explain different aspects and facets of the process of human cognitive development (Piaget, 1983). This theory suggests what children can be taught or exposed to. They also offer a suggestion as to which material should be taught when. The main ideology is that children cannot be taught or exposed to certain material if they have not reached a certain level of development (Piaget, 1983). The material they are to be taught depends on the mental ability at a particular age of development. Any attempt to teach a child material which they are not mentally developed to handle will lead to frustration and their mental function will be compromised (John, 2008).

The Piaget's theory of cognitive development approaches the process in four

distinct steps. The theory suggests that human beings progress through the different stages of cognitive development continuously(John, 2008). The transition from one stage of development to another gives an individual the ability to think in a novel and more composite manner. All humans progress through the four stages of cognitive development in an identical order though at different rates. There is no distinct boundary between the stages and the individuals do not abruptly transition from one stage to another. The progression from one stage to another is smooth. During the transition, it is possible that a human being may be in two different stages of cognitive development and different capacities of the respective stages(Piaget, 1983). The first stage of cognitive development is the sensorimotor stage. The stage lasts from birth to the time the child is two years old. During this period, the child discovers the way various objects in the immediate environment relate with him or her (John, 2008). However, the child does not possess the sense of logical thought at this stage. The sensorimotor stage has been divided into six levels dictated by the age of the child. The first level accounts for cognitive development during the period in a child's life between birth and the age of one month. During this level, the children use the inborn reflexes to acquire comprehension about the environment around them(Piaget, 1983). These reflexes include sucking of objects like fingers or breasts during suckling. It also includes the reflex of grasping onto objects with the four fingers. Grasping motor skills do not involve the thumb during the initial level of sensorimotor stage.

The second level is from the first month after birth to the fourth month.

During this level, the child is likely to learn new behaviors and skills when

their reflexes lead them to do something unexpected(Piaget, 1983). The child uses the reflexes that are inborn to come up with schemes. Schemes are analogous reactions and judgments that are used recurrently as the child responds to the immediate environment. For instance, by the use of the grasping and sucking reflex, the child can associate grasping something with putting it into the mouth. When the child uses the inborn reflexes to respond to any new incident in the environment, this is known as assimilation. For instance, when a child at this level is given a toy, they tend to suckle it. Sometimes the child adjusts the current scheme to deal with a new incident. This is known as accommodation (John, 2008).

The third level of the sensorimotor stage is between the age of five months and eight months. During this level the child identifies an activity that they find gratifying. Once they have identified the enjoyable activity, they become attached to it and desire to recreate it over and over. This leads to the child developing habits from the activities that they enjoy(John, 2008). The ability to multitask does not exist at this stage. The child at this stage can only focus on a single chore at a time. The child also develops an analytical nature at this stage(Piaget, 1983). For instance, the child may try to discover new ways of using the same toy to do something that they fancy.

The fourth level in the sensorimotor stage is the period between eight and eighteen months after birth. Unlike in the second level, where the new responses are unexpected and by chance, the responses in the fourth level are from the juvenile reasoning ability of the child(Michael, 2013). The child can now associate specific outcome or reaction with certain activities. In the next level, the actions of the child are premeditated. The actions are also

varied to show graded reactions. The mental development is in its infant stages. This level is between twelve and eighteen months after birth.

The sixth and last level of the sensorimotor stage occurs between eighteen and twenty four months after birth. This is approximately to the age of two years. The imaginative facet of cognitive development starts to reveal in the child. At this stage, the child can use objects in the environment to project realistic events. For instance, the child may use a spoon like it was a drum stick and use it to hit the table rhythmically(Michael, 2013). The reasoning ability is greater compared to the previous levels. When presented with a myriad of choices, the child uses intelligence to make the most feasible choice while at the same time paying attention to lessons from experience(Salkind, 2004). By the end of the sensorimotor stage, the child has knowledge based on the environment that they are exposed to. The child also learns new behaviors though these are restricted to motor reactions to the sensory impetuses.

The second stage of cognitive development according to Piaget's theory is the preoperational stage. This stage occurs between the ages of two and seven years. The child learns language at this stage. They can use organized sounds to make sense of their environment and to express their emotions(Michael, 2013). The children are investigative and adventurous at this stage. They try to test their imagination with real scenarios to understand the different outcomes of their imagination. During this stage, the child pays less attention to what the adults say. They prefer to learn their own way from experimentation. Piaget described this as egocentrism or being self-centered. For instance, when an adult tells the child not to ride a

bicycle too fast, this is likely to fall on deaf ears (Salkind, 2004). It is until such a child falls when riding at a high speed that the child comprehends the meaning of the scenarios that play in their imagination. The child can only form conclusions from experience rather than reasoning and rational thinking.

Role playing is an important milestone in this stage of cognitive development. The children will always incorporate adult roles like mother, father, soldier, teacher and cartoon characters in their playing activities. At advanced stages of this stage, the child can respond to verbal directives and be actively involved in a conversation (Piaget, 1983). At this stage, children also acquire the ability to group objects in classes of similar characteristics. Through this categorisation, the child can also pick sides in some issues like sports. The children also show the attribute of treating inanimate things with compassion and giving them human like qualities. They become attached to their toys and even talk to them. The children tend to be overly inquisitive and ask a lot of questions (Michael, 2013).

The third stage of the cognitive development process is the concrete operational stage. The stage exists between the ages of seven and eleven years (Michael, 2013). During this stage, the children display advanced ability of rational thought and the incorporation of logic in their decisions. Their problem solving ability is enhanced (Piaget, 1983). The mathematical prowess is greater and the classification skills are sharper compared to the previous stage. The individual adopts a logical way of thinking about material events and also develops the ability to understand the reversibility of events.

However, during this stage, the child still has problems with mental logic or arithmetic and deductive thinking. The individual also has a difficulty grasping the concept of abstract thinking at this stage. Hypothetical situations are hard to understand at this stage and the individual does not actively evaluate his or her thinking process. The individual is also less likely to plan the outcome of their actions because they cannot pay reference to the hypothetical conceptual thinking model. It is at this stage that the children are more susceptible to teen depression (Salkind, 2004).

Finally, the last stage in cognitive development is the formal operational stage. It occurs between the ages of eleven and twenty years. The stage progresses from adolescence into adulthood. The individuals acquire abstract thinking skills and the ability to monitor their own thinking process. The problem solving ability is hugely advanced. There is optimal ability for deductive thinking. The individual plans for the outcome of an action and uses hypothetical scenarios to examine the possible outcomes (Wankat, 2012). In addition to this, the individuals at this stage have the ability to multitask to a great extent. They can also solve complex mathematical problems with speed and accuracy by using an organised approach.

In conclusion, the Piaget's theory of cognitive development accounts for the human cognitive development as a continuous step by step process (Michael, 2013). Human beings advance gradually through the four stages of cognitive development and acquire increasing levels of intelligence and cognitive ability. According to Piaget, the progressive growth and development of mental ability is dictated by the environmental experience and the level of biological development of the individual(John, 2008).

References

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