

Jean Piaget's Theory of Cognitive Development

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Jean Piaget's theory of cognitive development (1935) explains how a child constructs a mental model of the world. He disagreed with the idea that intelligence was a fixed trait, and regarded cognitive development as a process which occurs due to biological maturation and interaction with the environment.

Jean Piaget's [\(buy his books from Amazon\)](#) take on learning, viewed as a modification in the state of knowledge, coherently integrates itself in the group of piagetian research on the subject of intelligence development.

👉 | It is with children that we have the best chance of studying the development of logical knowledge, mathematical knowledge, physical knowledge, and so forth. Jean Piaget

Piaget's Intentions

What Piaget wanted to do was not to measure how well children could count, spell or solve problems as a way of grading their I.Q. What he was more interested in was the way in which fundamental concepts like the very idea of number, time, quantity, causality, justice and so on emerged.

Before Piaget's work, the common assumption in psychology was that children are merely less competent thinkers than adults. Piaget showed that young children think in strikingly different ways compared to adults.

According to Piaget, children are born with a very basic mental structure (genetically inherited and evolved) on which all subsequent learning and knowledge are based.

The Cognitive Theory

There are three basic components to Piaget's cognitive theory:

1. **Schemas** – Building blocks of knowledge
2. **Adaptation processes** that enable the transition from one stage to another:
 - **Equilibrium**
 - **Assimilation**
 - **Accomodation**
3. **Stages of Cognitive Development:**
 - **Sensorimotor**

- **Preoperational**
- **Concrete operational**
- **Formal operational**

|| Childish egocentrism is, in its essence, an inability to differentiate between the ego and the social environment.

Schemas

Imagine what it would be like if you did not have a **mental model of your world**. It would mean that you would not be able to make so much use of information from your past experience or to plan future actions.

Schemas are the basic building blocks of such cognitive models, and enable us to form a mental representation of the world. Piaget (1952) defined a schema as:

|| A schema is a cohesive, repeatable action sequence possessing component actions that are tightly interconnected and governed by a core meaning. Jean Piaget

In more simple terms Piaget called the schema the basic building block of intelligent behavior – a way of organizing knowledge. Indeed, it is useful to think of schemas as “units” of knowledge, each relating to one aspect of the world, including objects, actions, and abstract (i.e., theoretical) concepts.

Wadsworth (2004) suggests that schemata (the plural of schema) be thought of as ‘index cards’ filed in the brain, each one telling an individual how to react to incoming stimuli or information.

When Piaget ([buy his books from Amazon](#)) talked about the development of a person’s mental processes, he was referring to increases in the number and complexity of the schemata that a person had learned.

Adaptation Processes

Intelligence means adaptation, in Piaget’s view. The ontogenetic evolution of intelligence is seen as a pregressive construction which depends on both internal factors (the specific capabilities of the individual) and external factors (the characteristics of the environment in which the human being progresses).

Jean Piaget (1952) viewed intellectual growth as a process of adaptation (adjustment) to the world. This happens through:

Assimilation

Defined by using an existing schema to deal with a new object or situation.

Accomodation

This happens when the existing schema (knowledge) does not work, and needs to be

changed to deal with a new object or situation.

Equilibration

This is the force which moves development along. Piaget believed that cognitive development did not progress at a steady rate, but rather in leaps and bounds.

Equilibrium occurs when a child's schemas can deal with most new information through assimilation. However, an unpleasant state of disequilibrium occurs when new information cannot be fitted into existing schemas (assimilation).

Equilibration is the force which drives the learning process as we do not like to be frustrated and will seek to restore balance by mastering the new challenge (accommodation). Once the new information is acquired the process of assimilation with the new schema will continue until the next time we need to make an adjustment to it.

|| Intelligence is what you use when you don't know what to do: when neither innateness nor learning has prepared you for the particular situation. Jean Piaget

Stages of Cognitive Development

The Sensorimotor stage

Period: 0/18 months – 2 years old

The child's intelligence is rooted in action and perception. He is absorbing all the information through sensing. In the course of this period decentering occurs. The main acquisition of the child is object permanence – the child's capacity of representing objects even in their absence.

The Preoperational stage

Period: 2 – 7/8 years old

- **Substage of symbolic and preconceptual thinking**
- **Substage of intuitive thinking**

In the substage of **symbolic and preconceptual thinking** a fundamental function is installed, which consists of the possibility to represent a "significant" using a symbol.

In the substage of **intuitive thinking** we can observe a progressive coordination of representational links. The level of conceptualisation constantly grows. The main limitations of thinking specific to the preoperational period are:

- **Egocentrism** – prisoner of his own perspective
- **Centering** – orienting to a single characteristics and ignoring the others
- The mixing of **reality with imaginary fantasies**
- **Irreversibility** – the inability to reverse mental operations

Reversibility is considered by Piaget to be the main characteristic of human thought and expresses the capacity of mentally executing an action in both ways.

The Concrete Operational stage

Period: 7/8 – 11/12 years old

The child gradually observes the conservation of substance, weight and volume. Operational groupings are illustrated by logical-mathematical equations, of classifications, constructing numbers, all of them being named concrete operations.

The Formal Operational stage

Period: 11/12 – 15/16 years old

In this period, the thinking of the child will liberate itself of the concrete. Formal thinking is a hypothetical-deductive reasoning which allows for the examination of consequences which derive from:

- liberating relations from order and series;
- liberating classifications of their concrete, intuitive links.

The operational structures develop, becoming more mobile and more flexible. The substitution of real of imagined manipulation of objects with their verbal enunciations means superpositioning a new logic, the logic of sentences, over the ones of classes and relations. This determines a growth in the number of possible operations.

Conclusion

The great merit of the Piagetian theory is that it showed the way in which intelligence develops and the fact that it has its origin in the sensorimotor interactions with the environment even before language acquisition. The operational structures of intelligence are not inborn, they are being elaborated until approximately the end of the first two decades of life.

The theory is both constructivist and genetical, dealing with the steps required for intelligence to develop and, also, explaining the genesis and evolution of the cognitive processes.