

The Concrete Operational Period of Development

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Jean Piaget was one of the first psychologists to systematically investigate the cognitive development of children. He believed that intelligence develops as a result of both biological and environmental reactions rather than being an unchangeable, inherited trait. He believed cognition develops in distinct stages from infancy to adulthood, which became the basis of Piaget's Cognitive-Developmental Theory.

Piaget's theory consists of four stages that aim to explain the processes by which children grow into fully rational, reasoning adults. Piaget labeled the first stage of development, in which children begin to form mental representations of the world, as the *sensorimotor stage*. He posited that this stage of development occurs from birth to two years of age. The *preoperational stage*, which occurs between 2-7 years of age, involves thinking symbolically about objects and situations. The focus of this article is Piaget's third, *concrete operational stage*, which emerges around 7-11 years of age. The final period in Piaget's theory is the *formal operational stage*, involving abstract thought, which begins at about age 11 and lasts into adulthood.

While each of these stages are imperative to the development of individuals' cognitive processing, Piaget argues that the concrete operational period marks a significant milestone in a child's development because it symbolizes the beginning of operational thought. Piaget and Inhelder (1958) define operations as any general, reversible, systematic action, and the concrete operational period marks the first time children are able to perform and understand these actions. According to Piaget's Theory, the concrete operational period is also when children begin to understand logical concepts about physical objects and factual relationships. During this stage, children begin to perform and understand operations, but can only understand those that are directly in front of them. This is because they cannot yet comprehend abstract concepts, such as those that are verbally stated but do not contain physical characteristics. Although children cannot yet conceptualize abstract hypotheses in this stage of development, having the ability to interpret concrete relationships allows them to continue to better understand the world around them (Inhelder & Piaget, 1958).

The physical operations that are performed and understood by children in the concrete operational period of development are typically categorized into two groups: class inclusion operations and serial ordering operations (Inhelder & Piaget, 1958). When a child can recognize that an item belonging to a sub-group of a larger category still belongs to the larger category as well, they understand class inclusion operations. Inhelder and Piaget (1958) also explained serial ordering operations, which describes the ability to order objects in a series. Overall, the concrete operations that are performed in this stage of development are those which pertain to groupings and relations.

In addition to the comprehension of concrete operations, other characteristics also distinguish children in the concrete operational stage of development. First, children are able to

understand the concepts of conservation and compensation. By the end of this stage, a child understands that when water is poured from a short, wide beaker into a tall, thin glass, the amount of water is conserved and the height of the second glass is compensating for the width of the first glass (Oakley, 2004). Another characteristic of children in this stage of development is the use of inductive logic. At this stage, Oakley (2004) explains that a child is able to apply knowledge from past experiences to help them better understand current, concrete problems. Finally, during the concrete operational period of development, a child's egocentricity diminishes because he is beginning to understand the viewpoints of others.

In conclusion, the concrete operational period marks a significant point in a child's cognitive development, in which a child can use logical concepts to understand physical/factual relationships. Although they cannot yet apply their reasoning skills to theoretical propositions, a child in this stage can use class inclusion and serial ordering logic to better understand the world around them, thus prompting further development.

Although Piaget's Theory of Cognitive Development is still regarded as one of the most prominent developmental theories of our time, it has been widely criticized for various reasons. Today, his stages are still used for developmental reference but other aspects that were originally neglected, such as social influences and the vast inconsistency in the cognitive development of children, are also evaluated (Barrouillet, 2015).

Further Readings

Barrouillet, P. (2015). Theories of cognitive development: From Piaget to today. *Developmental Review, 38*, 1-12.

Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence*. (A. Parsons & S. Milgram, Trans.) New York: Basic Books.

Oakley, L. (2004). *Cognitive development: Routledge modular psychology*. Psychology Press.