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Comparison and Contrast of Piaget and Vygotsky's Theories

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ABSTRACT
Jean Piaget and Lev Vygotsky are the two most influential developmental psychologists. Their contributions to the field of developmental psychology, though different, are still similarly remarkable and unique. In spite of such resemblances, there exists a crucial, and generally unnoticed, the difference between Piaget's and Vygotsky's theories, and that this difference underlies the way each author addresses the concept of cognitive development. In short, which theory is more correct? Throughout this paper, we will discover what informs both psychologists' theories, how they are similar, how they are different, and why they have both remained so prominent throughout educational textbooks. Although never in direct competition with each other, the theories developed by Piaget and Vygotsky are often used in contrast with one another, since both offer learning theories with a significant difference, but still impacting on understanding cognitive development.

Ultimately, discovering that neither Piaget or Vygotsky's theory is actively correct, but both are highly important to be aware of when education early learners.

Keywords: *Jean Piaget, Lev Vygotsky, Cognitive Development, Assimilation, Sociocultural*

1. INTRODUCTION

Cognitive development is a field of study in neuroscience and psychology that focus on how humans think, explore and solve problems. It is the development of knowledge, skills, problem solving and dispositions, which help children to think about and understand the world around them. The methods and approaches to the cognitive-developmental issue in psychology have been greatly influenced by the research of Jean Piaget and Lev Vygotsky. Both researchers have significantly contributed to the field for children's development. The impact of their thoughts on how a person learns led to theories on how a person should be taught. The work of the Swedish scientist Jean Piaget (1896-1980) of genetic epistemology concentrated on the social in learning. While the Russian psychologist Lev Vygotsky's cultural historical theory concentrated on the individual in learning. Piaget and Vygotsky both provided a distinctive yet remarkable similar approaches to cognitive development— bringing us to the crux of this research paper. The development of scientific psychological ideas is determined by the aggregation of many factors, where it has its own logic of development which is expressed in the gradual change of scientific paradigms, approaches, and methods of research into a psychological reality. The topic of "Piaget vs. Vygotsky" could be categorized as "parallel discoveries" when contemporary problems arising from the constant development of psychological knowledge and based on previous discoveries are added simultaneously by scholars representing different scientific schools and traditions, where at times it can be contrasting to each other.

Throughout this article, how both psychologists' theories are similar and different, and why they have both remained so prominent throughout today's educational textbooks will be discovered, in order to answer the question of who's theory is more correct. Although never in direct competition with each other, Piaget and Vygotsky's theories are often used in contrast with one another, since both offer learning theories with a significant difference, however still impacting on understanding cognitive development.

2. ANALYSIS

2.1. Jean Piaget's Cognitive Development Theory

Jean Piaget definition of the cognitive development is dependent on how the child interacts with the environment, in other words, the constructivist approach of the child. Children will actively construct and create schemas (cognitive frameworks that organize and interpret information) which strive in order to make sense of the world around us. As the child goes through its life, it will incorporate the experiences it had encountered into its existing schemas [4]. However, sometimes the new information and experiences do not 'neatly fit' or violate a schema, thus the children must change their way of thinking to accommodate the new knowledge or to make sense of their environment. Disequilibrium occurs when new knowledge does not fit with the children's accumulated knowledge [1]. Therefore, when a child attains assimilation, accommodation, and equilibrium, the child creates a new stage of cognitive development. Humans essentially change their way of thinking to accommodate the new knowledge.

2.1.1. Four Distinct Cognitive Stages: Sensorimotor

Jean Piaget also proposed that the human mind developed through the four distinct universal series of stages from infant to young adult: sensorimotor, preoperational, concrete operations, and formal operations. Between the ages of zero and two years of age, the infant is in the sensorimotor stage. During this stage, babies experience his or her world mostly through sensory impressions and motor activities. Around the age of 8 months old, the child begins to develop a sense of object permanence, which is a realization that objects continue to exist even when the object is not within the field of vision. Moreover, the child begins to develop a goal- directed behavior, where a child essentially begins to understand that his or her actions could cause another action. For example, kicking an object would result in a movement in the object. Children in the sensorimotor stage are able to reverse actions, however, still unable to reverse thinking.

2.1.2. Four Distinct Cognitive Stages: Pre-Operational

A child in the pre-operational stage, between the age of two and seven years old, they will begin to master language, however still unable to perform mental operations; which refers to the irreversibility concept of mentally reversing a sequence of events. Children early in this stage are egocentric, as they view the world through their own viewpoints and are unable to view a situation from another person's point of view. However, Piaget asserted that since a child acts on his own environment for learning, the social interaction will move a child away from egocentrism. While later in this stage, children begin to develop the theory of mind, which is the ability to infer other people's intentions, they can begin to understand why somebody did something, and ho the feelings, perceptions, and thoughts of others may result in another's behavior. This is because they can increasingly understand and formulate expectations about what will happen in a situation.

2.1.3. Four Distinct Cognitive Stages: Concrete Operational

Concrete operational occurs between the ages of seven to twelve years old. Reasoning processes begin to take shape during this stage, as they can think operationally and can understand conservation. However, children in this stage cannot think in abstract, as they are still just concrete thinkers. Take a child learning math, for example, a child here will often use his or her fingers (physical properties or tangible items) to add or subtract, since they struggle to make the jump to an abstract algebraic question. In addition, reasoning processes also begin in the concrete operational stage, as we gain the ability to think about the way we think, or in other words, children begin to develop metacognition. Piaget claims that there are three basic reasoning skills that are acquired during this stage: identity, compensation, and also reversibility. A child will learn that a "person or object remains the same over time" (identity) and one action could cause changes in another (compensation) [7].

2.1.4. Four Distinct Cognitive Stages: Formal Operational

The final stage of Piaget's cognitive development is the formal operational, which occurs between the age of eleven years old to adulthood. This is when an adolescent begins to think in a different manner, as the thinking process starts to change from being confined to the ability to think abstractly. Children in this stage now acquire systematic or logical reasoning abilities. Through hypothetico-deductive reasoning, one has achieved the ability to think scientifically through generating predictions, or hypotheses, about the world to answer questions [4]. Thus, people have the ability of systematic reasoning to conceive the best possible solution to avoid consequences.

2.1.5. The Validity of Piaget's Theory

Research supports Piaget's basic construct of human cognition unfolds basically in the sequence he described. Infants, young children, and older children do use distinct cognitive abilities to construct their understanding of the world. However, Piaget underestimated the cognitive

abilities of infants and young children. At around 8 months old, babies have developed schemas for familiar faces. When given over to someone who does not fit the schema (an unfamiliar person) they often grow upset and reach out to the familiar person, which this concept is known as stranger anxiety. Babies also seem to be aware of numbers. If shown 5 toys, then shown only 4, they seem surprised and shocked. Thus, Piaget underestimated the impact of the social and cultural environment on cognitive development.

2.1.6. Final Thoughts on Piaget's Theory

Conclusively, Jean Piaget's theory of cognitive development essentially suggests that children progress through a series of four distinct stages of cognitive development from an infant to a young adult. Each stage includes certain milestones where the child begins to demonstrate a more sophisticated comprehension of the environment, as well as the children's continuous drive to develop and adapt schemas, or understandings about the world.

2.2. Lev Vygotsky's Cognitive Development Theory

Meanwhile, another psychologist offered his beliefs regarding the cognitive development theory. As an alternative to Piaget's universal stages of cognitive development, Lev Vygotsky proposed the Sociocultural Theory of Development, which became a major influence in the field of psychology. Lev Vygotsky's Sociocultural Theory of Development theory describes student learning as a social process, which facilitates a child's potential for learning through social interactions and their culture [3]. Clearly, Vygotsky's theory is much different compared to Piaget's cognitive development theory— children act on their environment to learn, while Vygotsky emphasizes on how children learn through social interactions and their ability to communicate with their peers to acquire the cultural values in society. While both Piaget and Vygotsky agreed that children actively construct knowledge. Vygotsky claimed that most of what children learn comes from the culture in which they live in. This indicates that language is the primary tool for social mentoring, as it provides the building blocks for thinking and, as the child grows older, it comes to serves as the most important tool of learning.

2.2.1. Impact of "Dialogues"

Through the social interactions of "dialogues", people begin to move toward a more individualized thinking. This learning process involves people interacting with each other during shared activities, usually to resolve a problem; when a child receives help, he or she may be able to utilize the strategy from previous experiences in the future. This social interaction of "dialogues" will lead to internalization, which in turn leads one to independent thinking.

2.2.2. Impact of Scaffolding

Scaffolding is another of Vygotsky's principle of the sociocultural perspective. This education teaching style facilitates the student as he or she learns a new skill or concept, with the ultimate goal of the student becoming self- reliant [8]. Derived from Vygotsky's theories, in practice, it involves teaching material just beyond the level at which the student can learn independently. Thus, scaffolding involves providing the learner with hints or clues, in order to allow the student to better approach the problem. In this case, Piaget would assume that the student does not yet have the mental structures to solve the problem, Vygotsky would rather offer strategies, in the form of scaffolding, for the student to attempt to solve the problem.

2.2.3. Impact of Private Speech

Private speech also provides an aspect of language development [2]. Vygotsky considered private speech as a major transition point between social and inner speech. Private speech is a type of speech addressed to the self (not others) for the purpose of self-regulation. Thus, Vygotsky understood the significance of self-directed speech, while Piaget may view the private speech as egocentric or immature.

2.2.4. Cultural Tools

Vygotsky also recognized the importance of cultural tools in cognition. Cultural tools in cognition can be referred to as any tool that supports communication [9]. For instance, the media or television are just a handful of all the tools that are available for problem solving and learning. Therefore, children can utilize the cultural tools to help support their own learning.

2.2.5. Final Thoughts on Vygotsky's Theory

Vygotsky stated that "learning is a necessary and universal aspect of the process of developing culturally organized, the specifically human psychological function" [5]. This demonstrates that social learning tends to precede cognitive development. Just like Piaget, Vygotsky believed that there were problems regarding children's range of learning. Thus, Vygotsky proposed the principle of the zone of proximal development. In contrast with Piaget, Vygotsky believed that through proper assistance and encouragement, children are able to perform a task that Piaget would consider to be out of the child's mental capabilities. The zone of proximal development refers to what the child can perform when given proper assistance. Therefore, the term "proximal"" indicates those skills that the learner is "close" to

mastering [6]. Vygotsky believed the role of education to provide children with experiences to socially interact with each other will allow the children to acquire the cultural values in society, thereby encouraging their individual learning through his theory of the zone of proximal development.

3. DISCUSSION

Both psychologist, Jean Piaget and Lev Vygotsky offered distinctive approaches to the cognitive-developmental issue in the field of psychology. While Piaget and Vygotsky both agreed that children actively construct knowledge through the acquisition of speech. Vygotsky claimed that most of what the children learn comes from the culture in which they live. The fundamental difference between Piaget and Vygotsky is that Piaget believed in the constructivist approach of children, or in other words, how the child interacts with the environment, whereas Vygotsky stated that learning is taught through socially and culturally. Piaget believed children should be given the ability to understand schemas on their own. While Vygotsky believes that children will be able to reach a higher cognitive level through instruction from a more knowledgeable individual.

In addition, Piaget believed children will only learn when they attain assimilation, accommodation, and equilibrium. For example, when a child encounters a horse, they might assimilate this information and call this animal a dog. The process of accommodation will allow the child to adapt to the existing schema in order to incorporate the knowledge that some four-legged animals are horses. Whereas Vygotsky believed that the development could be taught with correct scaffolding that is within the zone of proximal development. For instance, if students are not at the reading level required to understand a text, the teacher might use scaffolding to incrementally improve the students' reading ability until they are able to read the text independently without assistance.

4. CONCLUSION

Ultimately, both psychologists have significantly contributed to the field for children's cognitive development. Piaget proposed that children progress through a universal stage of cognitive development through maturation, discovery practices, and some social transmissions of assimilation and accommodation. Vygotsky's theory emphasized the importance of culture and language of one's cognitive development. While both Piaget and Vygotsky may provide a distinctive approach to cognitive development theory that differs from each other, both theories offer reasonable approaches on how to teach certain material, concerning the ways in which children's process of thinking develops into adulthood.

When both theories are used in conjunction to one another, there is an endless scope to help children develop critical thinking skills as well as cognitive awareness for a well-rounded method to learn. In the final analysis, it is clear that neither theory is actively correct to answer the question whether Piaget or Vygotsky's theory is correct, however both psychologists are highly critical to the discussion of cognitive development.

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