

COGNITIVE VIEW OF LEARNING

Liqa Fadhila¹, Neviyarni², Herman Nirwana³

^{1,2,3}FIP Guidance and Counseling, Padang State University, Padang, Indonesia

¹*liqafm@gmail.com, neviyarni.suhaili911@gmail.com ,

herman.nirwana@yahoo.com

DOI: <https://doi.org/10.21107/literasinusantara.v2n1.292>

Received: October 11, 2021

Revised: October 16, 2021

Accepted: November 21, 2021

Abstract

Learning is a process that an individual experiences from time to time. During the learning process, students have different characteristics and learning methods. To maximize the learning process, many learning theories that can be applied later to understand and support the student's learning process are created. One of them is Jean Piaget's cognitive learning theory. The cognitive view of learning assumes that the most important thing in learning is not only the result but also the process. . Cognitive learning theory focuses on examining individual differences to assist in the interpretation of learning outcomes. Cognitive psychologists have used a much wider range of research methods to study learning. This includes ways students need to explain their mental processes during learning.

Keywords– Cognitive, Learning, Learning Theory

1. Introduction

Learning is the process by which an individual consciously strives to change from what he does not know to what he knows, from lack of attitude to what is right, and from ignorance to the ability to do something. Learning does not just mean mapping the knowledge and information that is conveyed. However, a method of actively engaging an individual to transform or modify the learning outcomes received by the individual into an experience that is beneficial to them. Learning is a system that helps individuals learn and interact with learning resources and environments. A theory is a set of principles about an event, including ideas, concepts, procedures, and principles that allow you to investigate, analyze, and verify the truth. Therefore, learning theory is a theory that has procedures for applying education and learning activities between teachers and students who develop learning methods that are performed inside and outside the classroom.

Some learning theories explain how an individual learns, whether it is a behavioral, cognitive, or social cognitive approach to learning. This article focuses on cognitive theory. The focus of discussion is the cognitive perspective of learning.

2. Method

The type of study used is library research. literature review is a series of activities related to methods of collecting, reading, and writing library data, and managing research materials. Researchers analyze how the implications of cognitive learning theory in learning. This library research is performed by the researcher between determining the research topic and formulating the problem before going out to the field to collect the required data. According to Sarwono (2006), Knowing the status of the library makes it easy for researchers to find what they need, so they need to feel if they feel strange in the library environment. To obtain information, researchers should source information such as catalog cards, general and specific references, manuals, handbooks, research reports, dissertations, dissertations, journals, encyclopedias, and other specialized

materials. You need to know. In this way, researchers receive the right information and sources in a short amount of time (Nazir, 2003).

3. Result and Discussion

a. Understanding Cognitive Views of Learning

The definition of "cognition" comes from the word "cognition", which is like "knowing" what knowledge means. In a broad sense, cognition / cognition is the acquisition of arrangements, the use of knowledge (Muhibbin, 2005). On the other hand, Santrock (2018) briefly states that cognition is the same as thinking. Therefore, cognition can be interpreted as a skill related to thinking, focusing on the brain. The process of cognitive development is closely related to the process of brain development. Moreno (2010) explains that the cognitive view of learning is characterized by focusing on changes in thinking during learning. This perspective emphasizes the spiritual processes that underlie the processing of new information, such as observing explanations, interpreting graphics, and connecting new concepts with previous knowledge. To this emphasis, cognitive theory defines learning as a relatively permanent change in mental structure that results from interaction with the individual's environment.

In contrast to behavioral theory, which examines the learning process as a relationship between stimuli and responses, cognitive theory argues that human behavior is influenced by the perception and understanding of situations related to learning objectives. Learning is done in your head. Therefore, behavior does not focus on itself, but on inferring how an individual's mental structure has changed. Changing the way students think can lead to behavioral changes, but it is not necessary from a cognitive point of view of learning. Cognitive learning theory focuses on examining individual differences to assist in the interpretation of learning outcomes. Cognitive psychologists have used a much wider range of research methods to study learning. This includes ways students need to explain their mental processes during learning. These methods (introspection, thought logs, etc.)

are not considered scientific by behavioral psychologists, but are important to cognitive psychologists because they focus on changes in individual mental structures.

b. The Information Processing Model

Atkinson (In Moreno, 2010) describes information processing models as classical models used by cognitive psychologists to describe cognition and learning. The information processing model includes:

- 1) **Sensory Memor**, is a store of information that is stored for a short period of time until an external stimulus is processed (Neisser, in Moreno, 2010). This memory is temporary and has a very short duration, and it is considered a filtering site that is transferred to short-term memory. Sensory memory is first associated with the external environment. Any new information received by the sensory organs must be paused for a short time in the sensory registers contained in the memory. The sensory register contains several memory subsystems that have the same number of senses as we do. Visual impressions remain in the subsystem slightly longer than the visual subsystem, which is about 2 seconds (Wade, 2008). This memory system consists of the visual, auditory, tactile, gustatory, and olfactory systems. The function of each touch register is to store external information in "raw" or unprocessed form.
- 2) **Working Memory**, is the second memory system in the information processing model, defined as the place where information is processed for interpretation. Short-term memory, on the other hand, is a memory system that acts as a temporary storage device for processing new information. First, some information stored in sensory registers is transferred to working memory after cognitive processing of attention and perception. The information stored in non-volatile memory is then transferred for further processing. Moreno (2010) explained that at first, theorists understood working memory only as a temporary storage of new information and called it short-term memory. However, modern

theory favors the term "working memory" based on recent research that this memory system has an executive center in addition to storage. A component that "works" with stored information. Because working memory is where thinking processes take place, all cognitive processes occur in working memory. Thus, the hallmark of working memory is that it is a "conscious" part of the information processing system.

- 3) **Long-term Memory**, Longterm memory is a storage system that can accommodate an unlimited amount of information in an unlimited time. According to moreno (2010) there are 3 types of knowledge in longterm memory, namely: (1) Declarative knowledge, is information that is known by someone. declarative knowledge can be defined as "knowing what."; (2) Procedural knowledge is knowledge of how someone does something, how someone carries out the steps in a process. Procedural knowledge is also defined as "skill". (3) Conditionalknowledge, is knowledge concerning when to use a procedure, technique, or strategy, when not to use it, under what conditions a procedure can be used, and why a procedure is better than another.
- 4) **Metacognition, Flavell, Miller, and Miller** (In Moreno, 2010) describe cognition as mental processes and structures involved in thinking and learning. Metacognition adds a prefix to cognition. The prefix "meta" comes from the Greek and means "about". Metacognition is thus a person's knowledge of one's own knowledge or "knowledge of knowledge". Thus, metacognition is a person's awareness and ability to control thought processes. Metacognition is not a component of traditional information processing models but has recently been added. After research has established a fundamental role in the management of all cognitive processes (Boekaerts, Pintrich, & Zeidner, in Moreno, 2010). Components of Metacognition Metacognition includes two components: knowledge of knowledge and control of knowledge. Developmental theory defines metacognition as the strategic application of declarative, procedural, and conditional knowledge to achieve goals

and solve problems (Schunk, 2008). There are three important skills involved in metacognition: planning, regulation, and evaluation (Jacobs & Paris, 1987; Kluwe, 1987). Planning, the first step in metacognition, involves deciding how much time to spend on tasks, what strategies to use, and what resources to gather. Regulation is the process of checking progress towards a goal, such as setting the pace and analyzing and selecting the appropriate strategy when the goal is not achieved. Assessment requires judgment about the learning process and its outcomes.

c. Diversity In Information Processing

Information processing models have been proposed as explanations for universal characteristics of human cognitive structure. However, as a future teacher, you must: Learn how learners differ in many memory systems and cognitive functions.

1) Differences in Sensory Memory, in general everyone has normal sensory registration. However, sometimes people have sensory impairments, such as visual and hearing impairments. Although the degree of disability can vary, an individual is unable to store some visual and auditory information for further processing. Visual impairment can range from blindness to poor vision, and deafness can range from deafness to hearing loss. When a person is unable to fully utilize sensory memory, instructions from a disturbed sensory modality must be supplemented with instructions from a calmer modality.

2) Differences in Working Memory, an important individual difference in working memory is development. Studies show that working memory in children decreases and increases significantly from age 4 through adolescence. It is not yet clear why disability declines at an early age. Young children do not use strategies voluntarily, so they need to improve their memory by teaching them how to practice and learn, how to use visual images, and how to organize information. When young children learn to use strategies effectively, they can manipulate large amounts of

information in their working memory. In general, differences in working memory will be found among older students with higher working memory associated with higher scores on intelligence tests. Students with low working memory are associated with a variety of learning and language disorders. Students with learning disabilities memorize fewer words than their average peers and often have reduced working memory, resulting in reading difficulties, especially in OT (Reiter, Tucha, & Lange, 2001). and writing assignments.

- 3) **Differences in Long-Term Memory**, Differences in a student's prior knowledge are a very important source of individual differences in the classroom. When learners have stronger declarative and procedural knowledge in their environment, they are better able to absorb new information from their environment. When students were taught information about baseball and music, those who had more prior knowledge of baseball than music learned more about baseball and vice versa. Students' cultural and socioeconomic backgrounds will also lead to differences in prior knowledge due to differences in previous academic and non-academic experiences. Because prior knowledge is the learner's lens through which to see the world and the basis for generating new knowledge, teachers must learn about learners' diverse experiences and create meaningful activities that integrate their previous experiences (Nieto, 2004). This is especially important when the cultural level of teachers differs from that of students (Grant & Gomez, 2001).
- 4) **Differences in Metacognition**, most studies of metacognition show significant developmental differences during school days as metacognitive skills develop slowly. In general, by the age of 5 or 6, children learn that familiar things are more easily recognized than unfamiliar things, they are more easily recognized than remembered, and are more likely to be forgotten over time. Author (Lyon & Flavell, Moreno, 2010). On the other hand, young children do not realize that related things are easier to remember than unrelated ones. And memorizing the essence of the story is

easier than memorizing the information verbatim. They are also overly optimistic about their memory. Baker (In Moreno, 2010) describes a study that found that children between kindergarten through sixth grade were unable to precisely control their comprehension and were not aware of their knowledge. The older children get, the better they can judge whether they have understood instructions or have learned enough to remember something. Older students are more aware of the relationship between attention and learning and the need to focus on related material. They also ignored distracting stimuli better than younger students. Metacognitive abilities vary widely even among students of the same age (Washburn, Smith, & Tagliatela, 2005). Metacognitive abilities are not related to other intellectual abilities (Schunk, 2008; Swanson, 1990). Teaching metacognitive skills can be of great help to students who are performing poorly in school, as good metacognitive skills can compensate for poor aptitudes.

4. Conclusion

Based on the research, Cognitive theory defines learning as a relatively permanent change in mental structure that occurs because of an individual's interaction with the environment. Cognitive views of learning typically use information processing models to describe how individuals collect, store, access, and use information. Students need to be careful when putting cognitive learning theory into practical use. It receives important information and builds on what the learner already knows. Teachers need to help students become positive bearers of meaning and encourage them to build information rather than remember it. Students benefit from having teachers who do not cover many materials at once and adopt strategies that reduce learners' cognitive overload and facilitate the development of metacognitive skills.

References

- Corey, Gerald. 2005. *Theory and Practice of Counseling & Psychotherapy. Seventh edition*. USA: Brooks/Cole Thompson
- Gredler, Margaret E. 2008. *Learning and Instruction: Theory into Practice (6th Edition)*. Prentice Hall
- Magda Bhinnety. 2015. Struktur Dan Proses Memori. *Buletin Psikologi, Fakultas Psikologi Universitas Gadjah Mada, Volume 16, No. 2*.
- Nazir, M. 2003. *Metode Penelitian, Ghalia Indonesia, Jakarta*.
- Roxana Moreno. 2010. *Educational Psychology*, mexico: John Wiley & Sons, Inc.
- Santrock, John W. 2018. *Educational Psychology: Theory And Application To Fitness And Performance, Sixth Edition*. Newyork: Hill Company. Inc,
- Sarwono. 2006. *Metode Penelitian Kuantitatif dan Kualitatif*. Yogyakarta. :Graha Ilmu
- Syah, Muhibbin. 2009, *Psikologi Pendidikan dengan Pendekatan Baru*, Bandung: Remaja Rosda Karya
- Wade, C. dan Tavris, C. 2008. Psikologi. Jilid 2. Alih bahasa Benedictine Widyasinta dan Darma Juwono. Jakarta: Erlangga. Alessandro, B. (2018). *Digital Skills and Competence, and Digital and Online Learning*. Turin: European Training Foundation.



© 2021 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution ShareAlike (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).