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The influence of cognitive learning theory on the quality of student learning

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Abstract: *This study aims to examine the influence of cognitive learning theory on the quality of student learning. Student learning progress can be measured through indicators of academic improvement, learning independence, metacognitive abilities, and social and communication skills. The application of this theory also encourages students to be more creative and independent in learning. However, the success of this strategy is largely determined by the teacher's understanding of cognitive theory. Teachers who understand cognitive principles will find it easier to design active and meaningful learning, such as through group discussions, peer tutors, concrete media such as "sate pidak", and collaborative learning. Such learning strategies not only increase student involvement but also create a fun and effective learning atmosphere. Therefore, cognitive learning theory is an important basis for creating student-centered education and supporting optimal learning progress. This study concludes that students' cognitive learning theory in the success of student learning quality is not enough only for the will but also encouragement and support and the role of teachers in teaching their students optimally.*

Keywords:*learning theory, cognitive, learning quality.*

INTRODUCTION

Learning is a process of individual change seen from changes in behavior and self-quality, including: knowledge, skills, attitudes, thinking power, understanding and various other abilities that are possessed. This is in accordance with Slameto's opinion that learning is a process carried out by someone in order to change new behavior as a whole, as a result of self-experience when interacting with the environment. While learning is the process of educators in conveying knowledge and skills, as an intermediary in forming attitudes, interests, and talents of students.(Sholihah et al., 2023). The quality of student learning is one of the important indicators in the success of the education process. The quality of learning is not only seen from the results of academic grades alone, but also from understanding, activeness, critical thinking skills, and problem-solving skills. To achieve optimal learning quality, the right learning approach and strategy are needed, one of which is through the application of cognitive learning theory.

Cognitive learning theory views that the learning process involves complex mental activities. Learning is not the result of a direct response to a stimulus, but rather through the process of thinking, understanding, and processing information carried out by individuals. Students are considered active subjects who consciously organize and process knowledge, not just as passive recipients of information, cognitive learning theory schools say that learning does not simply involve the relationship between stimulus and response. If behaviorist learning theory studies the learning process as a stimulus-response relationship, cognitive learning theory is a form of learning theory that is often referred to as a perceptual model. Cognitive learning theory views that a person's behavior is determined by their perception and understanding of the situation related to their learning goals. Learning is a change in perception and understanding that cannot always be seen as visible behavior.(Munawaroh, 2021).

Cognitive theory states that learning carried out by individuals is the result of their mental interaction with the surrounding environment, resulting in changes in knowledge or behavior. In learning in this theory, it is recommended to use concrete media because children cannot think abstractly. Cognitive learning theory places more importance on the learning process than on the learning outcomes themselves. Baharudin explains that this theory pays more attention to internal events. Learning does not simply involve the relationship between stimulus and response as in behaviorism theory, more than that, learning with cognitive theory involves a very complex thinking process.(Nurhadi, 2020). In this theory, the learning process is influenced by internal factors such as perception, attention, memory, and how individuals interpret the information they receive. Figures such as Jean Piaget, Jerome Bruner, and David Ausubel provide a strong basis for this theory. Piaget emphasized the importance of the stages of cognitive development of students, Bruner introduced learning through discovery, and Ausubel emphasized the importance of linking new information to previously existing cognitive structures. According to Khodijah In a cognitive perspective, learning is a change in a person's mental structure that provides the capacity to show behavioral changes. This mental structure includes knowledge, beliefs, skills, expectations and other mechanisms in the learner's head. The focus of cognitive theory is the potential to behave and not on the behavior itself(Anidar, 2017).

With a cognitive approach, teachers act as facilitators who help students find and build their own knowledge. Learning strategies that are in accordance with this theory include the use of visual media, group discussions, problem solving, and project-based learning. This approach is believed to be able to increase students' interest in learning, memory, and ability to understand and apply learning materials. yes. Quality education not only prioritizes aspects of mastery of the material, but also focuses on developing the attitudes and character of students. In this case, teachers as facilitators have a very strategic role in supporting this development. As facilitators, teachers not only function as sources of information, but also as guides who create an active, creative learning environment that supports experience-based learning(Ani et al., 2025).

However, in reality, there are still many teachers who have not applied cognitive learning theory optimally in the teaching and learning process. Learning is still dominated by one-way lecture methods, so that students are less active and only act as listeners. This certainly has an impact on the low quality of student learning. Therefore, it is important to conduct a study on the influence of cognitive learning theory on the quality of student learning. By knowing the extent of its influence, teachers and education practitioners can develop more effective learning strategies to improve the quality of learning as a whole.

METHODS

The method used in this study is the quantitative method of the author's library research (library research, google scholar) and reviewing fustaka where the research is oriented towards manuscripts, documents, books, journals, and theses, all of which will be analyzed and based on their respective classifications and used by the author as a reference to present the object to be studied and the information is relevant to the problem of this study, in accordance with the type of research data processed this study is descriptive analysis, namely a form of research that is intended to describe existing phenomena, both natural phenomena and phenomena created by humans, this phenomenon can be in the form of activities, characteristics, changes, relationships, similarities, one with another.

RESULTS & DISCUSSION

Based on the results of observations and literature reviews conducted on the application of cognitive learning theory in the learning process on student quality, it was found that this approach has a significant influence on student learning progress. In several classes that apply cognitive theory-based learning strategies, there appears to be an increase in aspects of material understanding, activeness in discussions, critical thinking skills, and independence in learning, the application of cognitive learning theory in the learning process has a positive and significant impact on the quality of student learning. Observations and literature reviews show that by using a cognitive approach, students experience improvements in several important aspects, namely material understanding, activeness in discussions, critical thinking skills, and learning independence. This means that learning strategies that emphasize mental processes such as information processing,

memory, and problem solving can facilitate the development of students' cognitive abilities effectively. Learning is the main means for individuals to gain knowledge that can be used to improve themselves and their environment. Through the learning process, a person not only adds information, but also develops intelligence, forms skills, and changes behavior in a more positive direction. In this context, learning is understood as a relatively permanent and positive change in behavior, which occurs as a result of the interaction of students with their environment. This process often involves complex cognitive activities, such as understanding, analysis, and reasoning. Behavioral changes that occur during the learning process can be caused by the individual's conscious effort to learn or because of experiences that provide new understanding. Learning outcomes themselves are a reflection of the student's abilities after going through the learning process, both in terms of knowledge, attitude, and skills. The quality of learning outcomes is greatly influenced by the quality of teaching, in this case concerning the professionalism of the teacher, such as mastery of the material, teaching strategies, and the ability to guide and evaluate students. In addition to teacher factors, learning outcomes are also influenced by various other factors. Internal factors include the psychological condition of students such as motivation, interest, and mental readiness. While external factors can be social factors (such as family and peer support), non-social factors (such as learning environment conditions), and physiological factors (such as the physical health of students). Education has an important role in educating students and forming human character as a whole, especially in making humans who are devoted to God Almighty. Therefore, the development of the education sector must be a top priority, considering that education is the basic foundation for the progress of a nation.All components of education such as teachers, students, teaching and learning processes, educational services, and various other supporting facilities need to be structured and well coordinated so that educational goals can be achieved optimally.(Scientific & Volume, 2024)

Cognitive learning theory places the internal process of thinking at the center of learning, not just a response to external stimuli. Thus, students not only receive information, but also actively process and connect new information with existing knowledge, which improves their memory and critical thinking skills. This approach also encourages learning motivation which is an important intermediary in improving students' cognitive abilities and academic achievement. The higher the level of a person's cognitive development, the higher the ability and skills in processing various information or knowledge received from the environment. Cognitive plays a very important role in the application of practices in Physical Education and Health learning, by providing understanding, applying it in games, so that it becomes automatic. Which starts from cognitive-affective and gives birth to automaticity in movement. In learning activities, active student involvement is very important. To attract interest and increase learning retention, it is necessary to link new knowledge with the cognitive structure that students already have, the description above confirms that cognitive learning theory has a lot of influence on the quality of learning and learning interests of students(Expert, 2026).

Cognitive processes are related to children's ability to remember and master lessons. This process ultimately forms children's cognitive abilities to

understand lessons, form the ability to form relationships with others, emotional changes, and personality changes. All children's cognitive abilities must be different. Children have different abilities to understand and comprehend what is taught by school teachers. LW Anderson and Bloom stated that children's cognitive processes in school depend on their psychological processes. Cognitive processes are related to children's ability to remember and master lessons. This process ultimately forms children's cognitive abilities to understand lessons, form the ability to form relationships with others, emotional changes, and personality changes.(Rizki Pramita Yulianti, Epi Supriyani Siregar, 2022). By using cognitive learning theory, students get learning achievement for students is very important because learning achievement is one of the illustrations of the level of success of activities during the lesson. One of the goals in the learning process is to achieve an achievement in learning. Learning achievement is the learning result obtained by students after following the teaching and learning process carried out by the teacher. The role of parents is very important in guiding their children in motivating them to study hard. In order for their learning achievement to be good, parents need to devote all their guidance to their children(Ivan et al., 2023).

One of the most important implications of his work is that children are not born with the same cognitive processes as adults. Children's cognitive processes have their own characteristics, namely: They can develop over time, They can develop in response to the environment, They are updated with exposure to new information.(Fiska, nd). Jean Piaget proposed four stages of children's cognitive development. First, the sensorimotor stage (age 0–1.5 years), where babies understand the world through sensory activities and motor movements without using language. Children begin to realize the difference between themselves and the objects around them. Second, the preoperational stage (1.5–6 years), characterized by thinking that is still egocentric and focused on visual perception. Children begin to classify objects but are not yet able to understand the concept of conservation, such as distinguishing the volume of liquids in different containers. Third, the concrete operational stage (6–12 years), children begin to be able to think logically about concrete things. They can already understand the concepts of conservation, classification, and simple cause-and-effect relationships, and no longer make logical errors like in the previous stage. Fourth, the formal operational stage (12 years and above), children are able to think abstractly, logically, and systematically. They can formulate hypotheses, consider various alternative solutions, and apply scientific thinking patterns such as deductive and inductive(Anwar, 2023). One of the most important implications of his work is that children are not born with the same cognitive processes as adults. Children's cognitive processes have their own characteristics, namely: They can develop over time, They can develop in response to the environment, They are updated with exposure to new information.(Fiska, nd).

Teachers who understand the basic principles of cognitive theory tend to design more interactive and contextual learning. Students are actively involved in the thinking process, given the opportunity to explore the material, and encouraged to find answers through reflective thinking processes. This is different from conventional learning which is more one-way and teacher-centered.

From interviews with several students, they stated that learning with a cognitive approach made them understand the material better because they did not

only memorize it, but also connected it to their previous experiences or knowledge. This process made it easier for them to remember and apply the material in their daily lives.

B. Discussion. Cognitive learning theory emphasizes that students are mentally active individuals in the learning process. According to Jean Piaget, students' cognitive development occurs in stages, and each stage affects how students understand information. Therefore, teachers must adjust their learning strategies to the level of students' thinking development so that the learning process is effective. The implications of Piaget's theory show that teaching and learning activities for elementary school students are real, not abstract. The learning provided must be connected to everyday life. This can be done by providing direct examples of the learning materials taught and conducting direct practice by involving students. Through knowledge of students' cognitive development, teachers will use learning methods that are appropriate to the stage of students' cognitive development. Of course, the learning provided by the teacher will run effectively and children will get the material optimally.(Wardani, 2022). The strong link between cognitive development and the learning process shows that learning activities cannot be separated from children's mindsets. Theories from Piaget and Vygotsky are an important foundation in designing learning approaches that are appropriate to the age and thinking abilities of students. Adapting teaching methods to children's cognitive styles has been shown to improve understanding of material, learning motivation, and academic achievement. Teachers who recognize students' cognitive characteristics will also find it easier to manage the class and create a fun and meaningful learning atmosphere. Therefore, a learning approach that focuses on understanding cognitive development is a key factor in creating effective and comprehensive education.(Handayani et al., 2025).Piaget's theory of cognitive development is a theory that can reveal how children can adapt and interpret themselves to objects that occur in their surrounding environment.(Ilhami, nd). Various approaches can be used to formulate theories about early childhood cognitive development. These include activities such as playing, singing, storytelling, excursions, experiments, interactive discussions, and role-playing. In addition, there are various forms of media that influence and contribute to improving cognitive development during early childhood.(Ibn Imam Al Ayyubi, Firda Noerzanah, Anna Herlina, Siti Halimah & Sa'adah, 2024).

In the context of student learning progress, cognitive theory is very relevant because it encourages a meaningful learning process. David Ausubel emphasized that information that is understood and associated with previous knowledge will be more easily stored in long-term memory and can be reused when needed. Thus, students who learn with a cognitive approach not only gain knowledge, but also have the ability to develop understanding, think critically, and solve problems. In the context of cognitive learning theory, the approach put forward by Gagne shows that students' internal mental processes greatly determine learning success. Therefore, the influence of cognitive learning theory on the quality of student learning is very significant. This theory emphasizes the importance of information processing, the structure of knowledge stored in long-term memory, and how students understand and organize new information. Thus,

teachers who apply a cognitive approach will focus more on how students actively build understanding, not just passively receive information. This certainly has a positive impact on improving the quality of student learning, both in terms of understanding concepts, critical thinking skills, and long-term memory.(Basyir et al., 2022). The main point of the theory of meaningful learning put forward by Ausubel states that a learning process will be effective and meaningful if the teacher is able to link new material with concepts that students already have in their knowledge structure.(Harefa, 2013).

Student learning progress can be identified through several important indicators. First, there is an increase in academic learning outcomes, which can be seen from better grades in both formative and summative assessments. Second, learning independence begins to appear when students show the initiative to explore subject matter independently outside of class hours. Third, students' metacognitive abilities develop, which is marked by their ability to realize, control, and evaluate their own learning process. Fourth, social and communication skills also show progress, as seen from students' participation in group discussions and their courage in making presentations in front of the class. Student learning development can be recognized through a number of main indicators. First, there is an increase in academic achievement as reflected in higher grades in formative and summative evaluations. Second, the emergence of an independent attitude in learning, when students begin to take the initiative to study the material independently outside of class time. Third, the development of students' metacognitive abilities, as seen from their awareness in managing and evaluating their learning process. Fourth, the ability to communicate and socialize has also increased, as shown by active involvement in group discussions and the courage to appear in presentations. All of these indicators play an important role in assessing and supporting students' learning progress as a whole, not only in terms of academics, but also in terms of thinking skills and social interaction.(Irkham Ulil Albab, Yusuf Hartono, 2014)

The influence of cognitive learning theory is also seen in the way students respond to complex materials. They do not feel burdened, because they are used to analyzing, looking for relationships between concepts, and learning through logical processes. Students who are actively involved in their own cognitive processes will be more responsible for their learning progress. The advantages of cognitive theory make students more creative and independent; helping students understand learning materials more easily.(Nurhadi, 2020)

However, the success of the application of this theory is also influenced by the competence of the teacher. Teachers who do not understand the principles of cognitive theory tend to have difficulty in designing appropriate learning. Therefore, training for teachers on learning strategies based on cognitive theory is very necessary so that the learning process is truly student-centered and encourages optimal learning progress. So in the successful application of teacher learning theoryLearning activities begin with preliminary stages that aim to build a conducive atmosphere and foster students' enthusiasm for learning. First, the teacher invites all students to pray as a form of habituation of spiritual attitudes before starting the lesson. Next, the teacher asks the students how they are and checks attendance, which functions as a personal approach to build a warm

relationship between the teacher and students. The teacher then invites students to do ice breaking in the form of enthusiastic applause and watching brain gymnastics videos to refresh their minds and prepare students to be more focused in following the lesson. After that, the teacher conducts apperception to link the material to be studied with previous knowledge and conveys learning objectives so that students understand the direction of the learning activities to be carried out.

Entering the core activity, the teacher forms small groups of four students to facilitate collaborative learning. The teacher explains how to use the “sate pidak” learning media as an aid in understanding the concept of dividing tens, hundreds, and thousands. If there are students who do not understand the steps of use, the teacher provides an opportunity to ask questions. After that, the group leader is asked to demonstrate how the media works in front of the class, which is then continued with peer tutoring learning, namely the group leader guiding their respective group members. Next, the teacher distributes Student Worksheets (LKPD) as practice materials, and students discuss in groups to complete the available questions. The results of the discussion are then presented by group representatives in front of the class, while the teacher gives appreciation to each group that has submitted their work results, as a form of motivation and positive reinforcement.

In the closing stage, the teacher provides feedback on the learning outcomes, including correcting the understanding of concepts that are not yet correct. The teacher also conveys the benefits of learning division using the "sate pidak" media to help students understand the material in a concrete and enjoyable way. Then, the teacher motivates students to continue to be enthusiastic in learning. Before closing the learning, students are invited to pray together as a form of spiritual reflection, then the teacher ends the activity with a closing greeting as a form of politeness and discipline. This entire series is designed so that learning takes place actively, meaningfully, and enjoyably, and is able to foster optimal student involvement and understanding.(Irianto et al., 2025)

CONCLUSION

Cognitive learning theory emphasizes that students are individuals who are active in their mental processes, so learning must be adjusted to the stage of student thinking development. This approach prioritizes logical thinking processes, conceptual understanding, and active student involvement in building knowledge. In this context, Piaget and Ausubel's theory emphasizes that learning will be effective if the material presented is linked to real experiences and knowledge that students have previously had. This allows students to learn meaningfully, develop critical thinking skills, and remember and use information in the long term.

The influence of cognitive theory on the quality of student learning can be seen from the improvement of various indicators, such as academic results, independence in learning, metacognitive abilities, and social and communication skills. An approach that is in accordance with students' thinking styles and cognitive development has been proven to be able to improve understanding of the material and learning motivation. Students who are invited to actively think, discuss, and solve problems will more easily absorb complex concepts without feeling burdened.

However, the success of implementing this theory is highly dependent on the teacher's understanding of cognitive principles and their ability to design appropriate learning.

The application of cognitive theory-based learning is also reflected in classroom learning practices, such as building a positive atmosphere, conducting apperception, and using concrete learning media such as "sate pidak". This activity encourages collaboration between students, peer tutoring learning, and group discussions that increase understanding. Through this approach, students not only gain knowledge, but also experience active, enjoyable, and meaningful learning. Thus, cognitive learning theory not only improves the quality of student learning, but also forms character and thinking skills needed in everyday life.

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