

JEAN PIAGET COGNITIVE LEARNING THEORY AND STUDENT TEACHING STRATEGIES WITH SPECIAL EDUCATION NEEDS

Ahmad Radenan Mohd Shukri*¹, Hasnah Toran¹

¹Faculty of Education, Universiti Kebangsaan Malaysia,
43600 UKM Bangi, Selangor Darul Ehsan, Malaysia.

*Corresponding author: Ahmad Radenan Mohd Shukri (p144691@siswa.ukm.edu.my)

ABSTRACT

The field of education is an important area of producing useful human capital in the future. Thus, the Special Education Division does not miss the various alternatives or methods for producing students with special education (MBPK) who are capable of adapting to their daily lives. This study aims to study the application of Jean Piaget's cognitive learning theory in formulating appropriate teaching strategies for Pupils with special education. The main issue raised is the challenge in adjusting the teaching approach to the level of cognitive development of students with different special needs. This study uses a qualitative approach by involving observation and interviews of special education teachers in several schools. The findings show that the application of piaget principles such as learning through experience, cognitive adaptation (accommodation), and active interaction can enhance the understanding and skills of special needs students. Studies have also found that the use of strategies such as student-centered learning, the use of appropriate teaching aids, and hands-on activities are more effective in supporting their cognitive development. The implications of this study suggest that teaching tailored to the level of cognitive development of students, based on Piaget's theory, can enhance the effectiveness of learning among students with special education needs, thus helping them achieve the best potential in education.

Keywords: Teaching strategies, Piaget theory, Cognitive learning, Students with special education

1. INTRODUCTION

"Today's educational development requires teachers to apply cognitive theory in learning. Research shows that this theory has a positive impact on students in terms of cognitive development. According to Marinda (2020), development refers to the changes in a person's life to understand information, analyze, and solve problems. Teachers must find alternatives to ensure more effective teaching during lessons in the classroom. The application of cognitive theory is highly suitable for teachers in the classroom because one of the aspects is providing students with the opportunity to explore learning independently."

"The implementation of cognitive theory for Special Education Needs (SEN) students is very suitable because this theory has stages of teaching that can be applied in learning. For example, in Piaget's cognitive theory, there are several stages such as the sensorimotor stage (18-24 months), preoperational stage (2-7 years), concrete operational stage (7-11 years), and formal operational

stage (12 years and above). In terms of implementation in teaching, teachers can emphasize the preoperational stage (2-7 years) for SEN students in Special Education Integration Preschools, where students will begin learning symbols found in their environment. In this situation, the teacher plays a role in explaining the symbols that the students see and explore to make the learning experience more meaningful."

Teaching strategies for Special Education Needs (SEN) students vary according to the capabilities of the students. The teaching approach based on Piaget's cognitive theory can help teachers build lessons based on the cognitive development stages of the students. For example, when teaching SEN students aged 7 to 11 years, teachers can refer to the concrete operational stage as a guide in their teaching. At this stage, teaching involves the use of tangible or real materials. The use of tangible materials helps students build a deeper understanding and more meaningful knowledge. Ying Leh Ling et al. (2020), in their study, found that teaching aids and feedback environments had a strong and significant relationship with the quality of students' learning. The use of tangible materials helps students better understand and apply concepts, as well as improve the overall quality of learning."

The purpose of writing this article on cognitive learning theory in relation to teaching Special Education Needs (SEN) students is to find methods or strategies that can help teachers teach SEN students effectively, taking into account various aspects before the teaching and learning activities are carried out. This article is hoped to assist teachers in finding solutions to teach SEN students in their respective schools. The application of teaching strategies based on Jean Piaget's cognitive theory will provide guidance to teachers, especially special education teachers, in imparting knowledge to SEN students in schools.

In addition, the application of Jean Piaget's cognitive theory in teaching strategies will have a positive impact on both teachers and students. The implications that can be observed from using this theory include teaching and learning based on the cognitive development stage. This will make it easier for teachers to assess student progress during lessons in the classroom. Through this article, teachers will also be able to identify appropriate teaching methods such as discovery, experience, teacher-centered, and others."

2. PROBLEM STATEMENT

One of the main challenges in special education is adapting teaching approaches to the varying cognitive development levels of students. Each special education student has unique individual needs that influence how they think, learn, and develop. Students with intellectual disabilities, autism, or other learning disabilities often show cognitive development that lags behind their peers. Therefore, a standard teaching approach may not be effective, as it does not account for the significant differences in students' levels of understanding and cognitive skills. This can create difficulties in ensuring that students reach their full potential and limit their opportunities to learn optimally.

In this context, Jean Piaget's Cognitive Learning Theory, which emphasizes cognitive development through active processes like assimilation and accommodation, provides guidance

for adapting teaching approaches to students' developmental stages. However, even though Piaget's theory provides a strong foundation, its application in special education requires careful consideration of each student's individual developmental stage.

The purpose of reviewing this article is to provide a deeper understanding of how Piaget's developmental theory can be applied in the context of special education, as well as to identify the challenges and opportunities that exist in the process. By analyzing various studies and teaching approaches that have been implemented, this article can help educators and special education practitioners formulate more suitable and effective strategies. Furthermore, this study can provide guidance to education authorities to develop policies and training programs that support the application of cognitive theory in special education classrooms, thus improving the quality of education for students with special needs.

3. LITERATURE REVIEW

3.1. Introduction to Cognitive Theory

In this study, the researcher outlines Cognitive Learning Theory in an effort to expose this learning theory within the education system at schools. This cognitive theory was founded by Jean Piaget, who was born in Neuchatel in the Swiss Canton. He was a Swiss psychologist who introduced the stages of cognitive development. Jean Piaget emphasized how thinking develops in children from birth until they become young adults. To understand this development, Piaget closely observed the behavior of his three children. He used a method where he presented problems to them, observed their responses shortly after the situation, and then re-observed their responses. Piaget referred to this method as "clinical interview" to explore development.

In terms of education, cognitive theory is defined as a theory within learning theories that understands learning as the organization of cognitive aspects and perceptions to acquire understanding. In cognitive theory, an individual's behavior is determined by their perceptions and understanding of situations related to goals. Changes in behavior are greatly influenced by the internal thinking and learning processes that occur during the learning process.

Cognitive learning theory is a learning theory that emphasizes the learning process rather than the learning outcome. This cognitive theory was initially proposed by Dewey and later continued by Jean Piaget, Kohlberg, Damon, Mosher, Perry, and others. This theory explains cognitive development in relation to learning. The theory was further developed by Jerome Bruner, David Ausubel, Chr. Von Ehrenfels Koffka, Kohler, Wertheimer, and others. Cognitive learning theory not only involves relationships but also includes stimuli and responses.

Furthermore, recent studies show that the application of Piaget's theory in special education has yielded positive results in enhancing students' understanding and cognitive skills. For example, a study by Oliveira and Ferreira (2021) showed that activities focused on hands-on experiences and interactions with the environment can help students with learning disabilities develop critical thinking and problem-solving skills. In addition, a study by Smith (2023) emphasized the importance of adapting teaching strategies based on the individual's developmental stage, which

aligns with Piaget's theory. The implications of Piaget's theory in special education urge educators to design more flexible approaches, paying attention to the cognitive and social needs of special education students to ensure they reach their maximum potential in learning.

3.2. Cognitive Development Theory

Jean Piaget's cognitive theory emphasizes that an individual's cognitive development occurs in stages and is structured, with each stage representing a different way of thinking. Piaget proposed four main stages of cognitive development: the sensorimotor stage (0-2 years), the preoperational stage (2-7 years), the concrete operational stage (7-11 years), and the formal operational stage (11 years and above). Each of these stages is closely related to a child's ability to understand the world, solve problems, and think logically. Piaget also introduced important concepts such as "schemas," which are mental structures used to understand and process information, as well as two key processes in cognitive development: assimilation (using existing schemas to process new information) and accommodation (adjusting schemas to incorporate new information) (Piaget, 1970).

Furthermore, Piaget emphasized that cognitive development occurs through active interaction with the environment, where children build their knowledge based on direct experience. This process is called "constructivism," where children do not just receive information, but actively build their understanding of the world. Piaget's theory places great importance on the role of sensory and motor experiences in the early formation of thought, as well as the development of the ability to think logically in more complex situations as age and experience increase. Concepts such as conservation (the understanding that the quantity of an object does not change even if its shape changes) and logical operations in the concrete operational stage demonstrate children's ability to think more rationally and systematically.

One of the recent researchers who applied Piaget's cognitive theory in the development of cognitive theory is Oliveira and Ferreira (2021). In their study, they explored the application of Piaget's principles in special education, focusing on how learning activities involving direct experience and interaction with the environment can support the cognitive development of special education students.

3.3. Application of Piaget's Cognitive Theory in Education

Piaget's cognitive theory provides important guidance in the field of education, especially in planning teaching strategies that align with the cognitive development stages of students. Recent studies have shown that applying Piaget's theory in education can enhance learning by tailoring the approach according to students' intellectual development stages. For example, a study by Hadi et al. (2022) found that the use of activities supporting Piaget's constructivist principles, such as project-based learning and practical activities, can stimulate students' critical thinking and improve their understanding of abstract concepts. Additionally, a study by Abdullah and Zulkifli (2023) demonstrated that applying Piaget's theory in special education classrooms helps students with learning disabilities develop cognitive skills through active interaction with their environment, in line with the principles of assimilation and accommodation. Therefore, Piaget's theory is not only

relevant for understanding cognitive development but also provides a solid foundation for designing more effective teaching and supporting students' academic achievement.

Additionally, a study by Ahmad and Nurul (2023) emphasizes that applying Piaget's theory in special education helps identify individual students' needs based on their cognitive development stages. In their study, they found that students who used teaching strategies aligned with their cognitive development stages were better able to master fundamental concepts such as self-management and decision-making. For example, in classes for students with intellectual disabilities, an approach that prioritizes activities that foster logical and analytical thinking skills according to their abilities led to improvements in academic achievement. The implications of this study suggest that applying Piaget's theory in special education not only enhances academic achievement but also supports the holistic development of students' social and emotional skills.

4. ARTICLE REVIEW ON THE USE OF JEAN PIAGET'S COGNITIVE THEORY

The article *Piaget's Cognitive Development Theory in Special Education: A Malaysian Perspective* by Leong and Lee (2021) discusses the application of Piaget's Cognitive Learning Theory in the context of special education in Malaysia. The study explains the importance of understanding the cognitive development stages of special needs students to design appropriate and effective teaching approaches. By utilizing Piaget's basic principles such as assimilation and accommodation, this article demonstrates that learning activities prioritizing direct experience and active interaction can help students better understand new concepts, especially in subjects like mathematics and language. Additionally, the study emphasizes that student-centered teaching, tailored to their cognitive development stage, can improve problem-solving skills and have a positive impact on students' motivation and academic achievement. Overall, this article provides useful insights for designing more effective special education teaching strategies, highlighting the importance of adapting to individual students' cognitive developmental stages in line with Piaget's theory.

Furthermore, the article *Applying Piaget's Theory in Inclusive Special Education Settings: Enhancing Cognitive Development in Children with Autism* by O'Brien and Johnson (2022) discusses the application of Piaget's Cognitive Learning Theory in the context of inclusive education for children with autism. This study shows that Piaget's approach, which emphasizes learning through direct experience and active interaction with the environment, can help improve the cognitive development of children with autism, particularly in understanding abstract concepts and building social skills. The article highlights the importance of adjusting teaching methods according to the individual cognitive development stages, focusing on project-based learning activities and student-centered teaching techniques. The findings suggest that applying Piaget's principles such as assimilation and accommodation in inclusive classrooms can enhance logical thinking, emotional management, and communication skills in children with autism. Overall, this article provides a deep understanding of how Piaget's theory can be applied to support the cognitive and social development of children with autism in inclusive education.

Furthermore, the article *Enhancing Critical Thinking in Special Education: A Longitudinal Study of Piaget's Cognitive Theory Application* by Kim et al. (2024) examines the impact of applying

Piaget's Cognitive Theory in enhancing critical thinking skills among special needs students through a longitudinal study. The study found that activities involving experiential learning and active interaction, tailored to the students' cognitive development stages, can improve problem-solving skills and logical thinking, especially among students with intellectual disabilities. Emphasizing Piaget's principles such as assimilation and accommodation allows students to adjust their mental schemas and enrich their understanding of academic and social concepts. The study also indicates that with a flexible approach tailored to individual needs, special needs students are more likely to show positive cognitive development and improvement in decision-making. Overall, this article highlights the importance of applying Piaget's theory in fostering critical and creative thinking in special education, which has a significant impact on students' academic and social achievement.

In connection with this, the article *Application of Jean Piaget Cognitive Development Task on Students with Special Education Needs* by Milen Z. Zamfirov (2019) explains Piaget's cognitive development in special education to help students with special educational needs understand more complex concepts. The study shows that tasks based on Piaget's cognitive tasks, such as learning through experimentation and problem-solving, provide students with the opportunity to interact with their environment and build a deeper understanding. The study's findings suggest that this approach improves students' abilities in self-management, social skills, and cognitive development, especially in subjects like mathematics and science. Additionally, the study emphasizes the importance of adjusting tasks and activities according to students' developmental stages, in line with Piaget's principles of assimilation and accommodation, to achieve more effective learning outcomes. Overall, this article suggests that cognitive tasks adapted to Piaget's theory can positively impact the cognitive and social skills of special needs students in education.

The article *Cognitive Accessibility and Support in Special Education* (2021) discusses the importance of cognitive accessibility and appropriate support in special education to ensure that students with special needs can learn effectively. The study emphasizes that the application of cognitive principles, as outlined in Piaget's theory, is crucial in designing teaching that aligns with the developmental stages of students. This article highlights that the support provided needs to be tailored to individual needs, such as the use of appropriate teaching aids and experiential learning activities, to facilitate the processes of assimilation and accommodation. The findings of the study suggest that an approach focusing on cognitive accessibility, such as customized teaching techniques and the use of educational technology, can improve academic achievement and social skills among students with special needs. Overall, the article underscores that the right and tailored support based on students' cognitive development can enhance the effectiveness of learning in special education.

5. TEACHING STRATEGIES FOR SPECIAL EDUCATION STUDENTS WITH THE APPLICATION OF JEAN PIAGET'S COGNITIVE THEORY

Teaching strategies for special education students based on the application of Jean Piaget's Cognitive Theory emphasize a student-centered approach that is adapted according to their cognitive development stages. Piaget stressed that learning occurs through active experience, where students interact with their environment to build new knowledge. Research by Oliveira and

Ferreira (2021) shows that learning activities involving object manipulation, games, and project-based learning provide students with special needs the opportunity to assimilate and accommodate new information more effectively. This approach also enhances logical thinking and problem-solving skills among students with learning disabilities. Additionally, a study by Leong and Lee (2021) found that teaching tailored to Piaget's cognitive development stages helps students better understand mathematical and language concepts, especially in special education, where the use of experience-based activities has a more positive impact.

Furthermore, studies by O'Brien and Johnson (2022) and Abdullah and Zulkifli (2023) highlight that the application of Piaget's principles, such as assimilation and accommodation, in special education teaching can improve the understanding of more abstract concepts among special needs students, such as children with autism or intellectual disabilities. In the study by Smith et al. (2022), it is shown that the use of game-based activities that stimulate social interaction can also improve communication skills and emotional development in special needs children. A study by Kim et al. (2024) confirms that teaching strategies based on direct experience, such as using models or manipulative materials, help students understand cause-and-effect relationships and logical concepts. This flexible approach, which takes into account individual cognitive development stages, is key to enhancing teaching effectiveness and providing opportunities for special needs students to reach their full potential in learning. The findings from these studies suggest that student-centered teaching, adapted to their cognitive development stages, is the most effective strategy in special education.

6. CHALLENGES IN APPLYING JEAN PIAGET'S COGNITIVE THEORY IN TEACHING SPECIAL EDUCATION STUDENTS

In the article *The Impact of Piaget's Cognitive Development Theory on Special Education: A Case Study* by Oliveira and Ferreira (2021), one of the main challenges faced in applying Piaget's Cognitive Development Theory in special education is the difficulty in adjusting teaching approaches to the varying cognitive development levels of students. Each student with special needs may be at different developmental stages, even though they may have the same chronological age, making it challenging for teachers to choose the appropriate methods to develop their cognitive skills. Furthermore, although Piaget's principles, such as assimilation and accommodation, are fundamental in building knowledge, there are challenges in ensuring that students with special needs can adapt and apply more complex abstract concepts. The study also highlights that resource constraints, such as a lack of suitable teaching aids and limitations in providing more hands-on activities, further restrict the effectiveness of Piaget's approach in special education.

In the article *Formation of Cognitive Interests of Children with Special Education Needs through Eidetics* (2022), the main challenge discussed is the difficulty in applying Eidetic techniques to form the cognitive interests of children with special educational needs. Eidetic techniques, which focus on the use of mental images and deep observation, require a highly individualized approach based on the cognitive development level of each child. This may be difficult to implement among students with various cognitive impairments. The study found that not all children with special needs are able to process and retain the complex mental images required in Eidetics, particularly

those with visual processing disorders or limitations in working memory. Additionally, the lack of technical support and learning resources that can support this approach, such as appropriate visual aids, further exacerbates the challenges in adapting this technique in special education classrooms. Therefore, teaching that involves Eidetics requires more careful adjustments and specific training for teachers to optimize the potential of students in developing their cognitive interests and skills. According to Ufuk Ozkubat, Apaslan Karabulut, and Emine Ruya Ozmen (2020), in the article *Mathematical Problem-Solving Processes of Students with Special Needs: A Cognitive Strategy Instruction Model 'Solve It!'*, the main challenge discussed is the difficulty in implementing a cognitive strategy instruction model in solving mathematical problems for students with special needs. While the 'Solve It!' model aims to improve mathematical problem-solving skills by focusing on the use of structured cognitive strategies, the study shows that many students with special needs struggle to understand and apply the steps required in solving more complex problems. One of the main challenges is the students' inability to maintain focus and organize information effectively, which is the foundation of the cognitive strategies in this model. The lack of resources and appropriate teaching aids to align cognitive strategies with the individual developmental levels of students can hinder the effectiveness of this model. Although this instructional model promises improvement, its success depends on providing more specific support and deeper adaptations to meet the individual needs of students in education.

7. IMPLICATIONS OF APPLYING JEAN PIAGET'S COGNITIVE THEORY IN TEACHING STUDENTS WITH SPECIAL EDUCATIONAL NEEDS

The use of cognitive theory has a significant impact on teaching strategies for students with special needs by adapting learning experiences according to the individual's cognitive development stage. Piaget emphasized that children build knowledge through direct experiences and interactions with their environment via assimilation and accommodation. In special education, this theory helps teachers design activities such as hands-on experiences, manipulative materials, and project-based learning to stimulate logical thinking and the understanding of abstract concepts. Teaching strategies need to be flexible and responsive to ensure that students reach their full potential in academic, social, and emotional aspects.

One example is the article "Application of Piaget's Cognitive Development Theory in Project-Based Learning" by Hadi, M., Rahman, N., & Ismail, R. (2022), which shows that the application of Piaget's cognitive development theory in project-based learning can have a positive impact on the cognitive development of students, particularly those with special needs. The main implication of this article is that project-based learning, tailored to the cognitive development stage of the student as suggested by Piaget's theory, can improve critical thinking, problem-solving, and creativity skills. Through this approach, students not only learn through direct experiences but also assimilate new knowledge by connecting the concepts they learn to real-world experiences.

The findings from this article highlight the importance of planning challenging yet developmentally appropriate activities to build holistic understanding. Project-based learning allows for flexible and responsive teaching that caters to individual needs, enhancing academic achievement as well as the social-emotional development of students. Overall, the combination of

Piaget's theory and project-based learning enriches the learning experience and creates a more inclusive and effective special education environment.

8. SUGGESTIONS FOR FUTURE RESEARCH

Recent studies (2018-2024) propose further research to enhance the effectiveness of teaching strategies in special education. Oliveira & Ferreira (2021) emphasize the need for long-term studies on the application of Piaget's theory in understanding mathematics and language, while Kim et al. (2024) suggest exploring educational technologies aligned with Piaget's principles to foster critical thinking in special needs students. This research recommends more experimental interventions that apply technology and project-based learning to evaluate their effectiveness in the special education context more broadly.

Smith et al. (2022) propose studies on the adaptation of Piaget's strategies in inclusive classrooms to assess their impact on the social and cognitive development of students with autism and other learning disabilities. O'Brien & Johnson (2022) highlight the need for in-depth research into the challenges and effectiveness of Piaget's teaching model, as well as the importance of teacher professional development to enhance its implementation.

9. CONCLUSION

In conclusion, Jean Piaget's Cognitive Theory has a significant impact on teaching strategies for special education students by emphasizing the importance of understanding an individual's cognitive development stage. Learning occurs through direct experiences and interactions with the environment, enabling students to assimilate and accommodate knowledge effectively. Student-centered approaches, such as hands-on activities and project-based learning, help them build conceptual understanding through practical experience. Furthermore, the application of this theory highlights the adaptation of teaching based on the principles of assimilation and accommodation, ensuring that students with varying cognitive disabilities can learn according to their abilities. Therefore, flexible teaching strategies, effective teaching aids, and a staged approach are crucial in special education. Overall, Piaget's theory provides a solid framework for inclusive and effective teaching, optimizing both the academic and social achievements of students with special needs.

REFERENCE

- Farida Hanum Pakpahan & Marice Saragih. (2022). Theory Of Cognitive Development By Jean Piaget. *Journal of Applied Linguistics*. Vol. 2(1)
- Fletcher, J. M., & Reschly, A. L. (2021). Special education research: Theoretical and practical perspectives. In J. M. Fletcher (Ed.), *Handbook of special education*.
- Fuchs, D., & Fuchs, L. S. (2022). Responsive instruction: Strategies for teaching students with special needs. *Learning Disabilities Research & Practice*.
- Garnett, K. 2020. Cognitive development and special education: Insights from Piaget's theory. *Journal of Special Education*.

- Jawaher Fahad Alghofaili. (2021). Critical analysis of Piaget's Theory and educational implication with special references to language Development .*American Journal of educationand learning*.Vol 6 (1): 76-8
- Miller, P. H., & L. K. (2018). Understanding Piaget: Cognitive development in the classroom.*Educational Psychology Review*.
- Olexandra Kuzenko,Ludmila Matsuk & Maria Adamiv.2022.Formation of Cognitive Interestof Children with Special Educatuional Needs Through Eidetics. *Journal of Vasyl StefanykPrecarpathian National University*.Vol. 9(1) :196-202
- Smith, M. K., & S. A. (2024). Teaching strategies for students with special educational needs:A cognitive approach. *Journal of Learning Disabilities*.*Special Education*. *Journal ofCognitive Development*, 44(1) : 115-132.
- Sullivan, A., & T. M. (2023). Integrating Piaget's theory in special education settings: Apractical guide. *International Journal of Inclusive Education*.