

An Application of Differentiated Learning Model to Cognitive Development of Elementary School Students

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ABSTRACT

This research aims to assess differentiated learning on the cognitive development of elementary school students. Because it refers to the child's development in thinking and the ability to provide reason, this research used qualitative methods based on the systematic literature review type. Data was collected through articles in Google Scholar. This literature comes from the results of research around 2020–2023 years. Criteria for the literature review of journals selected using the theme of differentiated learning or differential learning. Based on the systematic literature review results, the application of differentiated learning models improves the cognitive level of elementary school students. Teachers can help each student learn more effectively by using a variety of ideas and methods, help students understand the material better, and perform better in academic assessments. differentiated learning can also help students strengthen critical thinking skills and develop abstract thinking abilities. Thus, differentiated learning can help elementary school students achieve optimal cognitive development, especially in achieving individual learning success. The goal of differentiated learning is to ensure that all students are engaged and have the opportunity to learn well. It is concluded that differentiated learning models can support students' cognitive development, especially in students' learning success.

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INTRODUCTION

Educational success is influenced by internal and external factors such as motivation, readiness, and the learning environment. Each of these factors contributes to the

learning process and academic achievements” (Restiani & Fatonah, 2021). Teachers face challenges in addressing diverse student characteristics in a classroom setting” (Ediyanto, 2022). differentiated learning (DL) models cater to these variations, helping to deliver content, develop knowledge, and adapt assessment strategies (Suwartiningsih, 2021; Herwina, 2021). Differentiated learning is learning that accommodates the needs of learners in learning activities.

Research related to differentiated learning is entitled “Implementation of Independent Curriculum in the Application of Differentiated Learning in PAUD Institutions” (Nafisa & Fitri, 2023). This research aims to examine the preparation of differentiated teaching modules, how differentiated learning is implemented, then how teachers identify children’s learning characteristics. This is because the implementation of differentiated learning has not been optimal. So teachers face challenges in being able to apply this learning. Therefore, the research that will be carried out this time will focus on the influence of differentiated learning models on the cognitive development of all grade elementary school students. Teachers pay attention to the unique characteristics of different learners so that the same treatment cannot be given between one learner and another learner with different characteristics. In implementing differentiated learning, teachers need to provide reasonable actions in responding to differences in learner characteristics.

PROBLEM STATEMENT

Educational success is influenced by internal and external factors such as motivation, readiness, and the learning environment. Teachers face challenges in addressing diverse student characteristics in a classroom setting. Differentiated learning (DL) models cater to these variations, helping to deliver content, develop knowledge, and adapt assessment strategies.

RESEARCH QUESTIONS

1. How can the implementation of differentiated learning affect the cognitive development of elementary school students?
2. What strategies and techniques in differentiated learning are most effective in enhancing cognitive and abstract thinking skills?
3. In what ways can teachers identify and adapt to students’ diverse characteristics and needs to improve their learning outcomes?

This research uses a literature review method. A literature review is an activity that focuses on a particular topic that is interesting for critical analysis of the content being researched (Wahyuni et al., 2022). According to Cooper (1988), the steps in the literature

review are as follows: formulate the problem, collect data, evaluate the eligibility of the data, analyze and interpret relevant data, and organize and present data.

As Tomlinson (2000) outlined, a differentiated learning strategy involves adjusting learning content, processes, and products to cater to students' readiness, interests, and profiles identified through pre-assessments. This approach allows teachers to tailor instruction according to specific student needs and learning styles (Wulandari, 2022), presenting information in various formats suitable for diverse classrooms (Astuti et al., 2021; Pratama, 2022; Suwartiningsih, 2021). By understanding learners' needs, educators can develop effective strategies, create appropriate groups, and improve learning outcomes (Deunk et al., 2018). Differentiation can include customizing materials, providing various instructional methods for different abilities, and allowing students to choose outputs that enhance critical thinking (Desmita, 2013).

According to Piaget, all children progress through four cognitive development stages at different speeds but in the same order (Dahar, 2011). Recognizing the needs of elementary-aged children (7–12 years) is vital since their cognitive development typically falls within the concrete operational stage (Bujuri, 2018). Differentiated learning meets diverse student needs by requiring teachers to consider individual characteristics and tailor responses, aiming to customize learning experiences for improved outcomes through strategies like project-based learning. Tomlinson (2013) emphasizes three key perspectives on learner diversity: readiness, interest, and learning profile, which are essential for tailoring lessons effectively in a supportive classroom environment that fosters acceptance and collaboration (Iskandar, 2021). Teachers should also identify students needing assistance and provide a welcoming learning atmosphere (Faiz et al., 2022). Understanding cognitive development is crucial for designing educational activities that improve students' problem-solving and information-processing skills (Astuti et al., 2021; Bujuri, 2018; Juwantara, 2019). By identifying learners' needs, educators can develop differentiated learning strategies according to their learning needs. Educators can form groups to organize differentiated learning based on characteristics or learning needs of interest or readiness (Smale-Jacobse dkk., 2019). Differentiated learning strategies can have a positive impact if incorporated well into teaching and learning (Deunk dkk., 2018).

Differentiated learning does not mean giving different treatment to each learner or differentiating between smart and less smart learners. (Wahyuningsari dkk., 2022). In other words, differentiated learning is an effort to make customize learning experiences to meet the unique needs of each learner, so that they can achieve better learning outcomes. One of the importance of differentiated learning according to Tucker (Gusteti & Neviyarni, 2022) is to provide opportunities for learners to become peer tutors for other learners. In Tomlinson's (2005) book, *How To Differentiate Instruction In Mixed Ability Classrooms*, it is known that content differentiation is related to what you want to teach or what you want

learners to learn. There are two ways to differentiate content by customizing the material or modifying the way the teacher gives learners access to the material to be learned.

According to Zega and Suprihati (2021), with the stages of cognitive development above, children's cognitive development includes progressive learning processes such as attention, memory and logical thinking. The development of cognitive skills is often attributed to genetic factors, but much of it can actually be learned. The ability to think and learn can be improved with practice or the provision of the right stimulus. A child's brain develops as it gains new experiences, and this is usually reflected in what the child can do now.

CONCLUSION

Differentiated learning enhances the cognitive development of elementary students by providing personalized educational experiences. This model equips teachers with strategies to support varied learning needs, fostering improved academic performance and critical thinking. Future studies should explore practical implementations and the development of supportive teaching materials.

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