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Learning Strategies For Gifted And Talented Children In Elementary School

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Abstract

This study aims to explore and analyze effective learning strategies for gifted and talented students in elementary schools. Using a systematic literature review, it identifies the distinctive needs of gifted students and examines appropriate strategies, including curriculum enrichment, curriculum compacting, and acceleration. The findings indicate that gifted students need more challenging and targeted approaches to help them reach their full potential. Dynamic and relevant curriculum development, together with professional teacher training, is essential to creating a supportive and inspiring learning environment. Educational policies should therefore be more responsive to the needs of gifted students.

Keywords Gifted Students; Learning Strategies; Elementary Education; Curriculum Enrichment; Talent Development.

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INTRODUCTION

Gifted and talented students often demonstrate exceptional abilities in several areas, including cognition, creativity, and social skills (Ika Febrian Kristiana, 2021). They can absorb information more quickly and deeply than their peers. In educational contexts, gifted students may demonstrate intelligence above the average level for their age, solve more complex problems, and think more abstractly (Syukri et al., 2024). Their development may also be asynchronous: cognitive abilities can be advanced while emotional and social development may progress at a different pace.

Their learning characteristics include strong curiosity, a desire to understand concepts in depth, and high motivation to explore new ideas (Sari et al., 2021). They are often attracted to challenging topics and can think critically and creatively, generating innovative solutions to problems. They not only understand material well but can also apply it to complex, real-world situations.

Educational planning for gifted students is important because their needs differ from those of other students. They require appropriate challenges to prevent boredom and declining interest in learning (Adolph, 2016). Strategies such as curriculum

enrichment, curriculum compacting, and acceleration can help them explore subjects more intensively and master concepts more quickly and deeply.

The literature reviewed in this article highlights several issues: methods for identifying gifted students, holistic assessment of intelligence and creativity, barriers faced by underrepresented groups, and the value of effective and equitable programming. Research also points to the potential of STEM activities based on the Engineering Design Process (EDP), concept mapping, metacognitive strategies, and locally grounded learning experiences.

Selecting appropriate strategies in elementary school is crucial to ensuring that gifted students receive education suited to their potential (Adolph, 2016). Accurate identification allows schools to tailor services, while professional development enables teachers to create challenging and supportive environments (Khairani et al., 2024). Dynamic, relevant curricula are also necessary because unsuitable curricula may restrict students' development (Yustiasari Liriwati, 2023). Effective planning should support academic achievement, creativity, social-emotional development, and life skills.

METHODS

This study uses a Systematic Literature Review (SLR) to identify, evaluate, and analyze relevant evidence concerning educational planning and programs for gifted and talented students (Faiza et al., 2022). The method is intended to reduce subjective bias and develop a deeper understanding of effective educational practices. The review began by defining the topic and formulating research questions to guide the search for relevant literature.

Literature was searched in academic databases including Scopus, ERIC, ScienceDirect, and Google Scholar. Relevant keywords were used to locate articles directly related to the topic. Articles were then selected according to their relevance, methodological quality, and contribution to educational policy and practice for gifted students.

The analysis used thematic coding to identify recurring themes and patterns. NVivo 12 was used to support the organization and visualization of the analysis. The findings were synthesized into major themes: identifying students' needs, teacher training, curriculum development, and programs focused on specific talents. The review acknowledges possible selection bias and limitations in the available data; a systematic process was used to minimize these limitations.

RESULTS AND DISCUSSION

1. Identifying Gifted and Talented Students

The review indicates that identifying gifted students should not rely solely on cognitive tests or academic achievement. Teacher observations, achievement measures, creativity, leadership, and other relevant dimensions can provide a more comprehensive picture (Shamsudin & Majid, 2018; Rosni, 2021). A multidimensional approach may help schools recognize different forms of ability and ensure that students receive appropriate educational opportunities.

Equity in identification remains a significant challenge. Research has highlighted the underrepresentation of minority students and English learners in gifted programs (Peters & Engerrand, 2016; Castilla et al., 2017). Bias in selection procedures and delayed identification can limit access to services. Schools should therefore use inclusive procedures, identify potential early, and review whether their programs provide fair opportunities to students from different backgrounds.

2. Teacher Training and Professional Development

Teachers play a central role in recognizing giftedness and adapting instruction to students' learning needs. Professional development can help teachers understand gifted students' characteristics and apply strategies that promote deeper learning (Khairani et al., 2024). Teachers need to be able to design challenging activities, provide suitable feedback, and support both academic and social-emotional development.

Discovery-oriented learning can encourage students to explore ideas and learn through direct experimentation. In STEM activities based on the Engineering Design Process, students define problems, design solutions, test ideas, and evaluate outcomes. These activities can strengthen computational thinking, critical thinking, creativity, and problem-solving (Sen et al., 2021).

3. Curriculum Development and Enrichment Strategies

Curriculum enrichment, compacting, and acceleration are important approaches for adapting instruction to gifted learners. Enrichment allows students to explore topics in greater depth, while compacting reduces repetition of material they have already mastered. Acceleration allows students to progress at a pace appropriate to their readiness. These strategies should be selected according to individual needs rather than applied uniformly.

Concept mapping can help students organize information visually and communicate their understanding of scientific concepts. Research on elementary science and sustainability found that concept maps offered students different ways to express their knowledge and supported understanding of ecosystem interactions (Marzetta et al., 2018).

Metacognitive skills are also important, particularly for complex mathematical

problem-solving. Planning, monitoring, and evaluating one's thinking help learners approach tasks systematically. Findings on gifted students' mathematical problem-solving highlight the value of these processes (Sihotang et al., 2020). Teachers can explicitly support students in planning solutions, checking progress, and reflecting on results.

4. STEM Learning and Local Contexts

STEM learning that incorporates local knowledge can make learning more authentic and meaningful. Research in Australia found that integrating rural knowledge into STEM education increased gifted students' engagement and connected classroom learning with their communities (Morris et al., 2021). Connecting academic concepts with students' everyday experiences may strengthen motivation and understanding.

Technology can also support identification and decision-making. Kartal et al. (2020) examined machine-learning methods for nominating gifted students and reported that feature selection and algorithms could reduce the number of questions while maintaining high classification accuracy. Such tools may support efficient decisions, but should complement—not replace—professional judgment and equitable assessment.

5. Equity, Motivation, and Holistic Development

Participation in gifted programs does not automatically guarantee substantial academic gains. Outcomes may vary according to program quality and factors such as gender and socioeconomic status. Therefore, schools should evaluate whether services meet students' needs and whether they provide meaningful opportunities for growth.

A holistic approach recognizes that gifted students need support beyond cognitive development. Creativity, metacognition, social relationships, emotional development, and individual interests should also be considered. Educational services should be sufficiently challenging while remaining supportive and inclusive.

Experiences from Saudi Arabia describe several approaches to gifted education, including acceleration, specialized classes or groups, and enrichment within regular classrooms (Alatawi et al., 2016). These options illustrate the importance of offering a range of services that can be matched to students' needs. Student-centered approaches that integrate religious and rational knowledge can also support more holistic learning for Muslim gifted students (Fazidah et al., 2016).

CONCLUSION

This review emphasizes the importance of appropriate educational planning for gifted students in elementary schools. STEM learning, especially activities organized

around the Engineering Design Process, can provide meaningful challenges that respond to students' curiosity and intrinsic motivation while supporting academic and social-emotional development. Technology-supported learning can stimulate creativity, innovation, and deeper exploration.

Systematically incorporating these strategies into curricula and teacher training can improve student engagement and provide more challenging, relevant learning experiences. Inclusive and responsive educational policies are needed to ensure equitable opportunities and support both strong academic outcomes and balanced social-emotional development.

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