Analysis Creative Thinking Skills in Science Education: A Case Study of The Program Sekolah Penggerak in West Lombok District

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Abstract: This research aims to analyze the creative thinking skills of junior high school students in the Program Sekolah Penggerak in West Lombok Regency. Using a case study approach with mixed methods, this research involved 126 students and 11 science teachers from three junior high schools. Data were analyzed quantitatively to determine students' level of creative thinking skills, and qualitatively to identify factors influencing their achievement. The results show that the average creative thinking skills of students are at a score of 42.3, which is considered sufficient, but some indicators are still in the poor category. This finding serves as an important evaluation point in efforts to improve students' creative thinking skills, both locally and nationally. This research also contributes to the preservation of local culture in accordance with Article 32 of the 1945 Indonesian Constitution through the application of ethnoscience in education. Globally, the research findings can serve as a reference for the development of contextual science literacy. Recommendations include teacher training, providing interactive learning resources, and integrating science into students' daily lives.
Keywords: Creative thinking, Case studies, Program Sekolah Penggerak, West Lombok, Science integration, Science learning

Introduction

The development of global education currently places creative thinking skills as one of the key competencies of the 21st century that students need to possess (Alghariabeh et al., 2025; Kolesnikova et al., 2022; Marrone et al., 2022; Newton & Newton, 2014). According to Guilford, creative thinking is the ability to respond to various situations or problems by generating new, original, easily developed, flexible, and fluid ideas (Derevyanko et al., 2022; Kolesnikova et al., 2022; Ritter & Mostert, 2017; Skliarenko et al., 2023). In the world of education, these skills not only support academic achievement but also train students to think critically and creatively, which is essential both in the workplace and in

everyday life (Cropley, 2004; Oluwagbohunmi & Alonge, 2023; Ritter & Mostert, 2017). Through Sustainable Development Goal (SDG) number four, UNESCO highlights the importance of providing quality and equitable education and opening up opportunities for lifelong learning for all (UNESCO, 2021; United Nation, 2024). Creative thinking skills are one of the relevant educational targets for supporting the realization of the SDGs, especially in preparing young people to be innovative, productive, and adaptable to change.

The Merdeka Belajar (Freedom to Learn) policy initiated by the Indonesian Ministry of Education, Culture, Research, and Technology is an effort to strengthen the quality of learning by placing students at the center of the process. One concrete implementation of this policy is the Program Sekolah Penggerak, which is designed to encourage school transformation through strengthening leadership, competency-based learning, and character development in students (Kemendikbudristek, 2021).

The Program Sekolah Penggerak has been implemented in various regions of Indonesia, including West Lombok Regency, with the hope of improving the quality of education and encouraging students to develop creative thinking skills. The approach in this program involves more flexible, exploratory, and contextual learning methods so that students can hone their divergent thinking skills and find creative solutions to problems (Trilling & Fadel, 2009). In addition, collaboration between teachers, students, and the surrounding environment is also a supporting factor in creating an innovative learning ecosystem (Robinson, 2011).

Although the Program Sekolah Penggerak has been implemented in various schools, research on its effectiveness in improving students' creative thinking skills in West Lombok is still limited. Previous studies have demonstrated that the implementation of project-based and problem-based learning in PSP can enhance student creativity (Hidayati & Syahrial, 2022).

However, the latest results from the Programme for International Student Assessment (PISA) 2022 reveal that the creative thinking skills of 15-year-old Indonesian students are still below the average of OECD member countries. The average creative thinking score of Indonesian students was 19 out of a total of 60 points, lower than the OECD average of 33 points. Only around 31% of Indonesian students achieved the basic proficiency level (Level 3) in creative thinking, while the OECD average stands at 78%. Additionally, only 5% of Indonesian students fall into the high-performing category (Level 5 or 6), far below the OECD average of 27% (OECD, 2023).

West Lombok Regency is one of the regions in Indonesia that faces significant challenges and has great potential in the development of education. Various policies have been implemented to improve the quality of education, but the level of success in developing students' creative thinking skills has not been optimally measured. Factors such as teaching methods, the quality of educators, and access to modern learning resources remain the main issues affecting the achievement of these skills (Ali, 2018). In addition, limited educational facilities and infrastructure in several areas in West Lombok can be an obstacle in encouraging creative thinking skills among students.

West Lombok Regency faces various challenges in improving the quality of learning to encourage students' creative thinking skills, despite being one of the regions with great potential in education. According to data from the Lombok Barat Regency Education Office, there remains a gap in the implementation of teaching methods that support the development of creative thinking skills in schools, particularly at the primary and secondary education levels. Previous research indicates that teaching methods in many schools still tend to be teacher-centered with a rote learning approach, thereby limiting opportunities for students to develop their creativity (Setyaningsih, 2021; Yusup, 2022). The importance of creative thinking skills has been recognized in various national education policies, such as in the Merdeka Curriculum, which emphasizes the importance of problem-based learning (PBL), inquiry, and project-based learning to encourage students to think critically and creatively (Fauzi, 2022). However, the successful implementation of this curriculum requires a deeper understanding of the creative thinking skills of students in various regions, including West Lombok.

Furthermore, the cultural context and local environment in West Lombok can be factors that influence students' creative thinking patterns. As a region rich in culture and traditions, the potential

for developing creativity through a locally based cultural approach is significant. However, there has been limited research specifically exploring how these local factors influence students' creative thinking skills. Therefore, further research is needed to investigate the relationship between local culture and students' creative thinking abilities, as well as how appropriate learning strategies can be implemented to maximize this potential (Leasa et al., 2021). This study is expected to offer assistance to educators and policymakers in developing more contextual curricula and fostering a learning environment that encourages creativity among students in West Lombok.

The purpose of this study is to examine the creative thinking abilities of students in West Lombok Regency by analyzing various factors that support and hinder their development, as well as to analyze the creative thinking skills of students in West Lombok Regency, with a focus on how teaching methods, school environment, and cultural context influence these abilities. This analysis is important to offer an in-depth look at the extent to which creative thinking skills have developed among students and how relevant they are to achieving SDG goals at the local level (Tandiseru, 2015). This study has implications for government policymaking for programs to improve creative thinking and problem-solving skills at the local, national, and international levels.

METHOD

This study uses a case study approach with mixed methods (Blanchflower, 2018; Leavy, 2017; Sugiyono, 2018) to explore the gap in creative thinking skills among junior high school students in West Lombok Regency. Participants in this study consisted of 126 students from three junior high schools spread across the region, as well as 11 science teachers.

Quantitative data was collected through creative thinking tests and questionnaires. The creative thinking tests used were based on instruments developed by Anikarnisia (2020) with aspects of fluency, flexible thinking, originality, and elaboration. The questionnaire serves to explore various factors that influence creative thinking ability. In addition, qualitative data was collected through in-depth interviews with 11 teachers and 5 students, as well as through a review of learning documents such as syllabi, lesson plans (RPP), and learning outcome reports. To ensure the validity and consistency of the data, triangulation techniques were used (Leavy, 2017; Rukin, 2017; Sugiyono, 2018). The data was analyzed by looking for common themes to determine patterns and needs for improving science literacy and to suggest useful teaching strategies based on the results from creative thinking tests, surveys, and detailed interviews.

Data analysis was performed to obtain a comprehensive understanding of the students' creative thinking capabilities by calculating the mean, percentage, and standard deviation. Table 1 illustrates the categories of assessment for students' creative thinking capabilities (Apsari & Ismono, 2014).

Table 1 Criteria interpretation score students' creative thinking

No	Persentage (%)	Category
1	0-20	Very Not very
2	21-40	Less
3	41-60	Sufficient
4	61-80	Good
5	81-100	Very Good

RESULT AND DISCUSSION

Creative Thinking Skills Results

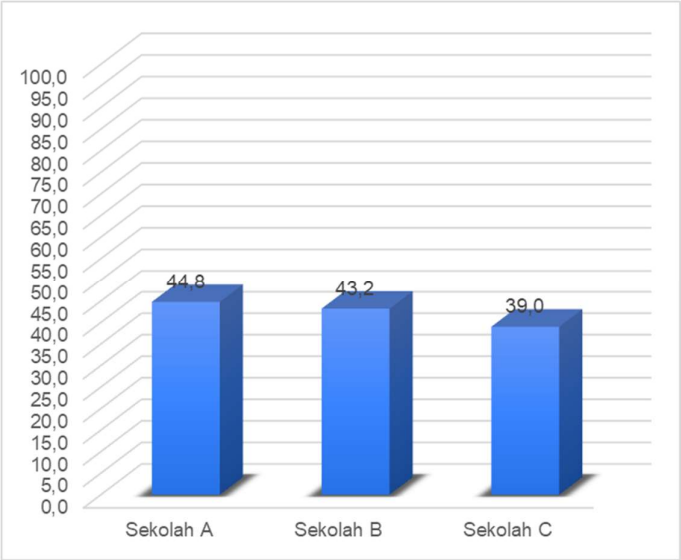

Figure 1. Outcomes of Creative Thinking Skills Assessments for Junior High School Students in West Lombok Regency

Figure 1 illustrates that four dimensions of creative thinking skills fluency, flexibility, originality, and elaboration are crucial for assessing pupils' levels of creativity. The analysis results show that School A achieved a score of 44.8, which is in the sufficient category; School B obtained a score of 43.2, also in the sufficient category; and School C obtained a score of 39.0, which is in the poor category. The average achievement of creative thinking skills in West Lombok is 42.3, which is also in the adequate category. This result highlights the importance of developing creative thinking skills, which can influence academic performance and students' ability to adapt to future challenges (Khalid et al., 2020; Kim, 2011; Lee et al., 2023; Tamirrino et al., 2023). The development of creative thinking skills in these schools needs to be improved through innovative and collaborative learning methods.

Figure 1 shows that students' creative thinking skills are in the competent category, with notable variations across schools A, B, and C. These disparities are presumably affected by various factors, including the quality of the educational process, the learning environment, and pedagogical methods that prioritize the cultivation of creativity. To help students in West Lombok improve their creative thinking skills, it's important to focus on teaching methods that encourage flexible thinking, present challenges, and emphasize originality and detail in assignments (Ernawati et al., 2023; McLure et al., 2024). Therefore, improving the quality of teaching that focuses on developing creative thinking skills is essential to support students' academic success in the future (Adawiyah et al., 2023). Education that supports the development of creative thinking skills must involve active and participatory methods so that students can learn more effectively and enjoyably.

Adawiyah et al., (2023) recommend conducting further studies on more effective teaching strategies to improve creative thinking skills in low-performing schools, such as School C. This is important to provide more comprehensive and inclusive learning that can stimulate students' creative abilities across the region (Nasukha et al., 2022).

Creative thinking skills are a crucial aspect of the learning process. One way to support improved learning outcomes and the development of creative thinking skills in students is through the use of appropriate learning media. The use of interactive and engaging media, such as images that highlight local potential, can be an effective alternative. Media based on local potential not only makes it easier for students to understand the material but also stimulates their creative thinking skills more optimally.

Results per Creative Thinking Skills Indicator

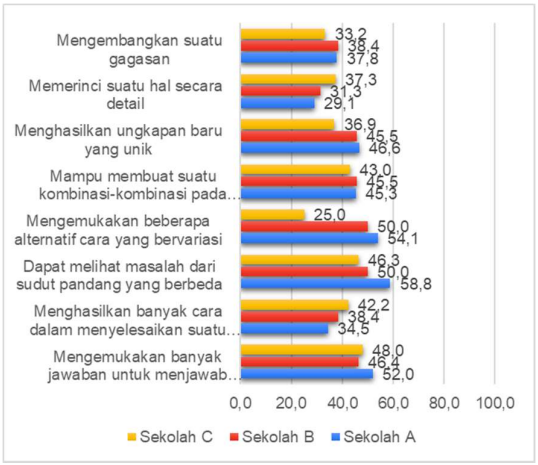

Figure 2. Outcomes of Creative Thinking Skills Assessments for Junior High School Students by Indicator in West Lombok

Figure 2 presents details of the achievements of each creative thinking skill indicator. These indicators include the ability to provide various answers to a problem, identify diverse ways to solve problems, view issues from different perspectives, propose varied alternative solutions, design combinations of solutions to multiple problems, create new and original expressions, describe something in detail, and develop ideas.

In terms of fluency, the indicator of ability to provide many answers to a problem showed the following results: School A scored 52.0 (sufficient category), School B scored 46.4 (sufficient category), and School C scored 48.0 (sufficient category). Meanwhile, the indicator for finding various ways to solve problems shows that School A scored 34.5 (category: below average), School B scored 38.4 (category: below average), and School C scored 42.2 (category: adequate).

Furthermore, in terms of flexibility, the indicator of the ability to see problems from different perspectives shows that School A scored 58.8 (sufficient category), School B 50.0 (sufficient category), and School C 46.3 (sufficient category). For the indicator of proposing diverse alternative solutions, School A scored 54.1 (sufficient category), School B 50.0 (sufficient category), while School C only obtained 25.0 (insufficient category).

In terms of originality, the indicator measuring the combination of solutions to various problems showed relatively similar results: School A scored 45.3 (sufficient category), School B 45.5 (sufficient category), and School C 43.0 (sufficient category). For the indicator of creating new and unique expressions, School A scored 46.6 (sufficient category), School B 45.5 (sufficient category), and School C 36.9 (insufficient category).

Finally, in terms of elaboration, indicators that describe something in detail show that all three schools scored below the adequate category: School A with 29.1, School B with 31.3, and School C with 37.3, all of which are classified as inadequate. The indicator for the ability to develop an idea also shows low scores, with School A scoring 37.8, School B 38.4, and School C 33.2, all falling into the inadequate category.

The analysis results show that the elaboration skill aspect has the lowest score, with most students falling into the poor category and the rest in the fair category. Based on interviews and questionnaires completed by 11 science teachers at junior high schools in West Lombok, it was revealed that science learning management and the development of 21st-century skills, such as creative thinking skills, face challenges in their implementation.

The teacher believes creative thinking skills should be taught in schools, but his school has not made it a priority.

"Creative thinking skills are essential for developing students' problem-solving and innovative thinking abilities, but we are still focused on a large amount of teaching material and the curriculum that must be followed." (CLHW1).

This teacher revealed that, despite awareness of the importance of creativity, learning approaches that emphasize mastery of basic theory and exam preparation tend to limit space for students to hone their creative thinking skills.

"I understand that creative thinking skills are important, especially in helping students identify innovative solutions to various problems. However, in daily classroom practice, I have not integrated them much. Typically, we prioritize solving routine problems and memorizing theories for testing. Perhaps this is because I feel that these skills require a more open and flexible approach" (CLHW1).

"One of the main reasons is limited time. Learning is often driven by the need to complete material and prepare for exams. I don't feel there is enough room to encourage students to think creatively. In addition, we rarely involve new methods in learning, which can actually stimulate students' creativity" (CLHW2).

Teachers CLHW1 and CLHW2 added that although creative thinking can be applied in many aspects of learning, in their schools there is not enough time or space for such exploration. The teachers discussed intriguing aspects of learning that connect to context, culture, or ethnoscience.

"Ethnoscience learning models, which integrate scientific knowledge with local culture, can effectively foster student creativity" (CLHW3).

"The obstacles are more related to the limited teaching materials that support ethnoscience. We also do not have sufficient training to implement it properly. I think that if this model is implemented, I will have to prepare materials that are appropriate to local conditions, which is sometimes more difficult than simply teaching standard scientific theory." (CLHW4).

"I believe that the ethnoscience model can provide significant benefits, particularly in terms of increasing student engagement. Students will be more interested if they can see the relevance of science to their culture and daily lives. The model can also encourage them to think more creatively in finding scientific solutions or explanations based on local knowledge" (CLHW5).

"Of course, there is a connection. If we can link scientific knowledge to students' local culture, they will feel closer to and perceive it easier to understand difficult concepts. Additionally, this approach can foster students' creativity, as they will be encouraged to think openly and seek solutions or explanations rooted in their traditions and environment. This process also gives them the opportunity to develop new ideas based on the knowledge they already possess" (CLHW6).

When teachers were asked what needed to be done to apply creative thinking skills and ethnoscience learning models more widely in schools, some teachers responded that they needed to be provided with understanding, media, and modules.

"Perhaps the first thing that needs to be done is training for teachers to understand how to integrate ethnoscience into learning. Teachers also need to be given an understanding of the importance of creative thinking skills in educating students. If there is more support in the form of teaching materials and training, I think many teachers will be more enthusiastic about implementing these two things in learning" (CLHW7).

Based on the results of the analysis of the creative thinking skills of junior high school students in West Lombok, it can be seen that the achievement of creativity includes several important indicators, such as fluency, flexibility, originality, and elaboration. Most schools showed adequate results in fluency, which is measured by the ability to provide many answers to a problem, although there were differences between schools A, B, and C. However, when it comes to flexibility, which is the ability to look at problems in different ways, and originality, which involves coming up with new ideas and expressions, schools in West Lombok still have relatively low scores, especially in elaboration, where students struggle to explain and develop their ideas in detail. Overall, the lowest aspect of creative thinking skills is in the elaboration indicator, indicating that students in West Lombok face challenges in developing ideas in a deep and detailed manner (Anggrella & Permatasari, 2023).

Anggrella & Permatasari, (2023) convey that creative thinking skills play an important role in helping students develop the ability to solve problems innovatively, a skill that is much needed in facing the challenges of life in the 21st century. Although teachers already recognize the importance of creativity in learning, the main challenge faced is the limited time and space to integrate creativity into everyday learning (Auliandari et al., 2019). The dominant focus of learning on theory and exam preparation tends to limit the space for students to hone their creative thinking skills (Yazar Soyadı, 2015). In addition, the use of contextual and locally based learning models, such as ethnoscience, is considered an effective method for increasing student engagement and stimulating their creativity (Ali et al., 2026; Elvianasti et al., 2023). Teachers also emphasized the importance of further training in creative teaching and the use of teaching materials that support this approach. Thus, to optimize students' creative thinking skills, greater efforts are needed to provide teachers with adequate training and resources (Rahayu et al., 2022). It is hoped that this step will create a conducive learning environment for the growth of student creativity so that they will be better prepared to face various challenges in the future. The development of creative thinking skills in students must be a priority in the education curriculum so that they will be able to compete and adapt to rapid changes in the modern era (Firda et al., 2022). In order to achieve sustainable student creativity development, educators, educational institutions, and the community must work closely together to create a supportive educational ecosystem.

CONCLUSION

The study's results indicate that students' average creative thinking skills fall into the adequate category, with a score of 42.3; however, several indicators, such as elaboration, show lower results compared to other aspects. The gap in creative thinking skills between these indicators indicates that although students have creative potential, the development of their creative thinking skills still requires more attention. Factors influencing the achievement of students' creative thinking skills include a learning approach that tends to focus on theory and exam preparation, limited time for creative exploration, and a lack of integration of local culture or ethnoscience in learning. Therefore, this study suggests several strategic steps to improve the creative thinking skills of junior high school students in West Lombok Regency, such as training for teachers to integrate creativity into learning, providing more interactive and contextual learning resources, and applying an ethnoscience approach that connects scientific knowledge with students' daily lives. The implications of this study are not only important at the local level but can also serve as a reference for developing creative thinking skills at the national and international levels. This study also supports the preservation of local culture relevant to the science education curriculum, in accordance with Article 32 of the 1945 Constitution of the Republic of Indonesia. At the global level, the application of ethnoscience as an approach in science education can be a source of strengthening science literacy for students in this modern era. As a recommendation, educators and schools should pay more attention to the development of creative thinking skills as an integral part of sustainable education at the junior high school level.

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