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Unleashing Creative Potential: The Impact of Self-Organized Learning Environments (SOLE) on Fifth Grade Students' Creative Thinking Skills

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ABSTRACT

Education is a process of educating the nation's life and improving the quality in humans for moral improvement and intellectual training. This study aims to determine the effect of self-organized learning environment (SOLE) on the creative thinking ability of fifth grade students. This type of research is a quasi-experimental research with the non-equivalent control group research design. The samples selected were fifth grade students. The research instrument is a test of creative thinking skills and inventory. The data analysis used were normality test, homogeneity test, and hypothesis testing using independent sample t-test and paired sample t-test. The results showed that the level of creative thinking ability of the experimental class was proven through activity through analysis of the paired sample t-test hypothesis test tcount 10,187 > ttable 2,100 which means that SOLE has an effect on the creative thinking. Based on the research results, there are the effect of SOLE on the creative thinking skills of fifth grade students.

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Introduction

Education is a conscious and planned effort to create a learning environment and learning process. Education in schools is certainly inseparable from learning activities that

involve teachers and students in a learning environment. Education plays an important role in national development, so improvement is needed in all aspects and keeping up with the times. The rapid development of the global world demands readiness to shape a young generation as the nation's successors who have high dedication and competitive personalities to improve the quality of life for the nation and a better generation [1]-[3].

In the field of education, there are various abilities and skills such as critical thinking, creative thinking, innovation, problem-solving skills, communication skills, and collaboration [4]. Education is a process of enriching the life of the nation. It aims to improve the quality of human beings for moral improvement and intellectual training. Good education must be well-planned through a directed, structured, and planned system. The process involves all components of education by teachers aimed at achieving educational goals.

In face-to-face learning activities, learning media can be in the form of people, objects, environment, and everything that teachers can use as a medium for conveying learning materials. However, this will be different when learning is conducted online. All media or tools that teachers can present in real life change into visual media due to distance limitations [5]. Online learning can be done by combining several types of learning sources such as documents, images, videos, and audios in learning [6]. Students can utilize these materials by viewing or reading. Learning sources like these are the main assets in developing online learning.

Distance learning can be done anywhere and can also use various applications. One familiar application used is WhatsApp. In WhatsApp, teachers can describe learning activities through collaboration with students' parents to report the results of activities in the WhatsApp group. However, the activity will be less meaningful without appropriate learning strategies and methods. With the right learning strategies and methods, it will stimulate creative thinking skills and improve students' learning achievement. One distance learning method that can be applied is the SOLE model [7]-[9].

The current issue in learning is the decreasing ability of students to think creatively, and many students cannot understand the content of the learning material [10]. The ability of students to think creatively is often diverted by other things such as YouTube media [11], which is more interesting than following distance learning through WhatsApp [12]. Teachers expect parents to accompany their children in the distance learning process. Parents can accompany their children during the distance learning process at home. The involvement of parents is crucial to make students responsible for following the distance learning process.

Teachers must become pioneers in creating a non-monotonous learning process. The method that teachers have been using is just giving assignments to take notes on a specific page and giving a deadline, and at a certain time, the notes are sent to the teacher. Some teachers

only provide a video link for students to watch, and at the end of the video, they usually give assignments to complete. It is reasonable if students feel bored because staying at home already makes them bored, and adding to that, boring learning methods make it worse.

There are various models and methods of learning, but one method that has caught the attention of researchers is whether it can be an effective solution to improve the current boring learning process for students. Ideal learning is centered on the student, and during the pandemic, the appropriate model for online learning is collaboration, innovation, and experimentation. One effective method is the SOLE. However, many students are still not creative, which can be caused by the learning process that does not encourage them to think creatively. Students' creativity levels are still low and they have difficulty using logic and systematic thinking, including intuitive and inductive reasoning based on patterns and regularities that can be used to solve new problems in daily life. Their inability to solve new problems lies in the application of knowledge and skills to solve new situations.

The ineffectiveness of online learning also greatly affects students' creative thinking ability. If students' creative thinking ability is low, the learning objectives will not be optimally achieved. Teachers are required to improve students' creative thinking ability during the pandemic. However, many teachers still dominate classroom activities and do not give students the opportunity to develop their own ideas. Teachers need to create an effective learning environment that guides students optimally and develops their creativity and curiosity. The SOLE stimulates each student's curiosity by providing them with questions to find alternative answers through internet facilities [13].

Based on a preliminary study conducted by researchers through interviews with elementary school teachers, several learning problems were identified in fifth grade students. The issues included infrequent use of innovative learning models, resulting in passive learning. The teacher's delivery of material still emphasized concepts found in textbooks, and students were not actively engaged, leading to unstimulating learning and low levels of critical thinking.

Given these issues, there is a need to implement a more effective and suitable learning model that aligns with the learning objectives. In this research, the SOLE model of learning will be applied as it is well-suited to the characteristics of elementary school students. The aim of this research is to evaluate the effectiveness of the SOLE model in improving learning outcomes and promoting critical thinking skills among fifth-grade elementary school students.

Methods

The type of method used in this study is a quasi-experiment which can be defined as a research method used to find a certain effect on another under controlled conditions. In this study, there are two groups of researchers, the experimental group and the control group. The data collection technique used in this research is a test of creative thinking ability and

inventory. The data analysis technique used in this research is quantitative data analysis. The research data is obtained from each class before and after treatment, which are the control and experimental classes. The data analyzed is the creative thinking ability assessment test data before and after treatment. The data is tested using SPSS 24, using normality tests, homogeneity tests, and hypothesis testing. The experimental group will receive the treatment, which is the implementation of the SOLE learning model, while the control group will continue with the conventional learning model. The objective is to measure the effect of the SOLE model on the creative thinking ability of elementary school students. The results of this study are expected to provide insight into the effectiveness of the SOLE model in improving the creative thinking ability of elementary school students.

Results

The research was conducted in a private elementary school in Indonesia during the 2021/2022 academic year, with the population and sample of the study being all students in 5th grade student devided 19 students as experimental group, which used the SOLE model, and consisting of 19 students as control group, which received conventional learning without treatment.

The data analysis used to answer the hypothesis was the normality test, homogeneity test, and hypothesis test (independent sample t-test and paired sample t-test). The normality test was carried out on the pretest and posttest scores of the experimental and control groups. The homogeneity test was conducted to ensure the data's homogeneity. The results showed that all the data, both pretest and posttest, in the experimental and control groups were normally distributed. The homogeneity test results also showed that the data on the pretest and posttest of the experimental and control groups were homogenous.

Table 1 shoes the result of the independent sample T-Test comparing the treatment and controlled group. Based on the summary table, the Levene's Test for Equality of Variances shows a F value of 0.566 and a p-value of 0.457, indicating that the assumption of equal variances between the experimental and control groups is met. Meanwhile, the t-test for Equality of Means shows a t-value of 5.550 and a p-value of 0.000 (2-tailed), suggesting that there is a significant difference in creative thinking ability between the experimental and control groups.

Table 1. Summary of Independent Sample t-Test Results (Levene's Test for Equality of Variances

		t-test for Equality of Means								
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Kemampuan Berpikir Kreatif	Equal variances assumed	.566	.457	5.550	36	.000	8.263	1.489	5.243	11.283
	Equal variances not assumed			5.550	32.176	.000	8.263	1.489	5.231	11.295

The mean difference between the experimental and control groups is 8.263, with a standard error difference of 1.489. Furthermore, the 95% confidence interval of the difference is from 5.243 to 11.283, which means we can be 95% confident that the true difference between the experimental and control group means lies within this interval. Therefore, we can conclude that there is a significant effect of SOLE on the creative thinking ability of 5th-grade students. The experimental group, which received the SOLE learning model, had a higher mean score in creative thinking ability compared to the control group, which did not receive the SOLE learning method.

Based on the results of the paired sample t-test analysis, the obtained t-value of 10.187 is greater than the t-table value of 2.100 with 18 degrees of freedom at a significance level of 5%. This indicates that there is a significant difference between the pretest and posttest scores of the experimental class in terms of creative thinking ability. Therefore, it can be concluded that the SOLE learning model has a positive effect on improving the creative thinking ability of the students in the experimental class.

Discussion

The research was conducted to determine the effect of applying the SOLE learning model on the creative thinking skills of fifth-grade students using group learning models. To determine the effect of the treatment, pretest and posttest were given to the students. Learning activities should provide meaningful and memorable experiences for students. To have meaningful experiences, students need to learn directly and experience the problems in their environment, especially in mathematics learning. Mathematics is a field of study that trains reasoning to think logically and systematically in solving problems and making decisions. Mathematics is a science that studies how an individual thinks logically, both qualitatively and quantitatively.

Creative thinking plays a very important role in learning. When students have high creative thinking skills, they tend to be confident, willing to take risks, independent, always curious, enthusiastic, and spontaneous [14]. Creative thinking as a mental process that

generates effective new ideas, processes, methods, or products that are imaginative, flexible, successive, and discontinuous, which are useful in various fields for problem-solving [15]. So, creative thinking is part of a teacher's effort to develop learning. The learning process in the classroom that uses the right learning model will increase the high curiosity. One of the appropriate learning models is SOLE learning model.

The SOLE emphasizes independent learning by utilizing media connected to the internet [8]. It can be used by teachers to explore the depth of understanding of the material to students by utilizing the curiosity that students have. This model is designed to help teachers encourage students' inherent curiosity by organizing student-centered learning [16]. The components of student-centered learning are curiosity, cooperative, self-organized, inclusive, social, and facilitated by adult encouragement [17]. Other researcher saind that SOLE is formed to encourage students to work and learn to answer questions that stimulate the passion for learning using the internet. This explains that these parameters are needed to create a flexible learning environment where students can feel free to explore.

Based on the results of research conducted on fifth-grade students, there was a significant difference between the pretest and posttest results in the Experimental class. This difference proves that students' creative thinking skills have increased before and after the application of the SOLE learning model. Students can be directed to truly learn and understand a material independently by being technology literate and ready to communicate it to others.

The SOLE model has a significant effect on improving students' creative thinking skills for several reasons. Firstly, this model emphasizes student-centered learning, where students take charge of their own learning by exploring topics of their interest and working collaboratively in groups. This approach aligns with constructivist learning theory, which suggests that learning occurs through active participation in the learning process and constructing knowledge through experiences and interactions with the environment [18]-[20].

Secondly, this approach encourages students to develop their curiosity, critical thinking, and problem-solving skills by posing open-ended questions and challenging them to explore new and diverse perspectives [21]. This approach aligns with the theory of cognitive development, which suggests that students' thinking and problem-solving abilities develop through exposure to new and challenging experiences [22],[23]. Thirdly, this learning model leverages technology to provide students with access to a wealth of information and resources to aid their learning. This approach aligns with the concept of a digital learning environment, where technology is used to enhance learning by providing access to a range of multimedia resources and tools [24]. Overall, the SOLE approach provides a supportive learning environment where students are encouraged to take ownership of their learning and are

provided with the necessary tools and resources to explore topics of their interest. By doing so, students' creative thinking skills are developed as they are challenged to think critically, problem-solve, and explore new perspectives, leading to a more engaged and meaningful learning experience.

Conclusion

Based on the study conducted on fifth-grade students, the implementation of SOLE model has a significant effect on improving students' creative thinking skills. The use of this approach allows for a student-centered learning environment that encourages curiosity and exploration, and utilizes technology to facilitate independent learning and communication. Creative thinking plays a vital role in learning, as it allows students to approach problems with imagination, flexibility, and innovation. A teacher's use of appropriate teaching models, such as the SOLE model, can help enhance students' creative thinking abilities, and foster a love of learning that will benefit them throughout their lives. In conclusion, the implementation of the this model in the classroom can be an effective strategy to improve students' creative thinking skills. Future research should continue to explore the potential benefits of this approach, and investigate ways to optimize its implementation for different contexts and student populations. Ultimately, the goal should be to provide all students with the tools they need to succeed in a rapidly changing world, and to cultivate a lifelong passion for learning and discovery.

Conflict of Interest

The authors declare that there is no conflict of interest.

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