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Science Literacy Aspects of Environmental Awareness of Fifth-Grade Students Influenced by The Creative Problem-Solving (CPS) Learning Model

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ABSTRAK

Kondisi literasi Indonesia sangat lemah yang ditandai dengan rendahnya literasi sains siswa. Penelitian ini dilakukan untuk mencari tahu pengaruh model pembelajaran Creative Problem Solving *(CPS) terhadap literasi sains aspek kesadaran lingkungan siswa kelas V sekolah dasar. Penelitian ini berjenis eksperimen semu yang menggunakan rancangan posttest* only control group design*. Sebanyak 171 siswa yang menjadi populasi penelitian yang berasal dari siswa kelas V sekolah dasar. Sebanyak 47 siswa yang dipilih menjadi sampel melalui teknik* random sampling*. Dalam memperoleh data penelitian, digunakan metode* non-tes *berupa angket untuk mengukur literasi sains aspek kesadaran lingkungan. Analisis data diperoleh melalui analisis uji-t atau* independent sample t-test*. Penelitian ini menunjukkan hasil yaitu terdapat pengaruh model* Creative Problem Solving *(CPS) terhadap literasi sains aspek kesadaran lingkungan siswa kelas V sekolah dasar (t sama dengan 10,198, p kurang dari 0,05) dengan* effect size *yang tergolong tinggi (ES 1,48). Jadi, disimpulkan bahwa model* Creative Problem Solving *(CPS) berpengaruh positif terhadap literasi sains aspek kesadaran lingkungan siswa kelas V sekolah dasar. Implikasi penelitian ini dapat mengembangkan kreatifitas siswa dalam berbagai kemasan pembelajaran.*

ABSTRACT

Indonesia's literacy condition is fragile, which is indicated by the low scientific literacy of students. This study was conducted to determine the effect of the Creative Problem Solving (CPS) learning model on scientific literacy in the environmental awareness aspect of fifth-grade elementary school students. This study is a quasi-experimental type using a posttest-only control group design. A total of 171 students comprised the research population, from fifth-grade elementary school students. A total of 47 students were selected as samples through random sampling techniques. In obtaining research data, a non-test method was used in the form of a questionnaire to measure scientific literacy in terms of environmental awareness. Data analysis was obtained through t-test analysis or independent sample t-test. This study shows the results that there is an effect of the Creative Problem Solving (CPS) model on scientific literacy in the environmental awareness aspect of fifth-grade elementary school students (t equals 10.198, p less than 0.05) with a relatively high effect size (ES 1.48). So, it is concluded that the Creative Problem Solving (CPS) model positively affects scientific literacy in the environmental awareness aspect of fifth-grade elementary school students. The implications of this study can develop student creativity in various learning packages.

1. INTRODUCTION

The interaction carried out by students with educators, students with students, and students with their learning resources is known as learning. The learning process exists at every level of education, including elementary school. Learning is carried out systematically, interactively, and communicatively between students, teachers, the environment, and learning resources to create a more enjoyable learning condition. Learning is the interaction process between students and educators and learning resources in a learning environment (Deviana & Kusumaningtyas, 2019; Suardi et al., 2018). Learning in the 2013 Curriculum era and entering the independent curriculum focuses more on students. The 2013 curriculum directs the learning center to students, and teachers occupy a position as intermediaries so that active

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student activities occur and learning is no longer one-way with the hope of improving the quality of education (Deviana & Kusumaningtyas, 2019; Putri & Suyadi, 2021). In addition, one way to boost the quality of education is to improve it. With the independent curriculum program designed by the government, there is an emphasis on six basic literacies for students, one of which is science literacy, to support students' literacy needs.

The government has made efforts to improve the quality of education in Indonesia by creating programs that are expected to improve the competitiveness and quality of students. One of the efforts made is to improve literacy in every learning process. Of the several types of literacy, one of the vital literacy applications is science literacy. Science literacy is a person's ability to understand, use, and apply knowledge about science in everyday life. This involves reading, interpreting, and evaluating scientific information and thinking critically about scientific problems (Dewantari & Singgih, 2020; Muniroh et al., 2022). In addition, scientific literacy can also be interpreted as a person's ability to understand science, communicate science, apply scientific knowledge to solve problems, and have a high attitude and sensitivity towards themselves and their environment when making decisions (Andika & Yudiana, 2022; Wulandari & Wulandari, 2016).

Furthermore, scientific literacy is the ability to understand scientific concepts and processes and use science to solve problems in everyday life (Sutrisna, 2021). A person can make more informed decisions and actively participate in developing science and technology through scientific literacy (Pratiwi et al., 2019; Thahir et al., 2021). In simpler terms, scientific literacy is the ability to "understand and use science" in life. This means that students can read and understand scientific information and have the skills to think logically and analyze scientific problems (Thahir et al., 2021). So, with scientific literacy, we can make better decisions based on scientific evidence and facts and follow new developments and discoveries in the field of science.

Science literacy can help students become more informed and skilled in understanding their environment. Many aspects of science literacy play an important role in life, one of which is the aspect of environmental awareness. Science literacy in environmental awareness is the ability to understand and use scientific knowledge about the environment to maintain and protect nature (Dewantari & Singgih, 2020; Suhirman, 2020). Students can understand how human activities, such as air pollution, global warming, or biodiversity loss, can affect the environment. With scientific literacy focusing on environmental awareness, students can take responsible actions to preserve the environment, such as reducing single-use plastics, recycling, using renewable energy sources, and supporting nature conservation (Asyhari, 2017; Pratiwi et al., 2019). With this aspect, students can understand the importance of preserving the environment, reducing pollution, utilizing natural resources sustainably, and supporting environmentally friendly practices. Science literacy in this aspect helps students become more aware of the importance of preserving the natural environment and acting as responsible citizens of the earth (Riyanto, 2020). This makes it possible to make better decisions in everyday life, such as efficient energy use, good waste management, and supporting policies and efforts that contribute to environmental sustainability.

The current literacy condition in Indonesia needs to improve. This is supported by a study that measures the literacy index in each country. According to Visa's Global Financial Literacy Survey 2016 results, the Indonesian Literacy Index is low. The Indonesian Literacy Index in that year reached 29 points, placing it in 23rd place out of 28 countries that were survey subjects. The low number in the Indonesian Literacy Index indicates a challenge in increasing public awareness and understanding of finance. Lack of financial literacy can affect an individual's ability to manage their finances well, make smart spending decisions, and prepare for their future financially (Kasendah & Wijayangka, 2019). Thus, the government is trying to improve literacy activities for students, especially elementary school students. Most teachers in rural schools generally still use the lecture method when learning. This method makes the learning process boring for students, and developing a more creative learning process is necessary. Creative learning is learning that has innovations and is not monotonous. One component that can be an innovation in the learning process is the learning model used.

However, teachers often apply inappropriate and varied learning models in science subjects, especially to improve science literacy. In the process, there are still inaccuracies in choosing learning models, even using only lectures, which causes students to be less enthusiastic about teaching and learning activities (D. Lestari, 2019). The application of inappropriate learning models will foster boredom in students while learning, so students will not have the passion and will not be interested in participating in learning activities if only monotonous learning models are applied. If left unchecked, it will have a major impact on the scientific literacy that students will obtain. The problems described above were also found in Elementary School Cluster I, Kintamani District. When observations and interviews were conducted with teachers at Elementary School Cluster I, Kintamani District, it was found that scientific literacy was still relatively low. This is caused by several factors, such as students having difficulty understanding learning materials, students being passive in the learning process, lack of interest in learning by students, smarter

students not wanting to be tutors for their friends with lower abilities, and the rare use of effective and innovative learning models and media by teachers in the learning process in the classroom. Therefore, it is necessary to implement a learning model that can improve students' scientific literacy. One model that can affect scientific literacy is the creative problem-solving (CPS) learning model.

Solutions in the learning process: the role of teachers is very important in choosing a strategy so that the desired goals can be achieved. One step for this strategy is that a teacher must master various techniques in delivering material and use learning methods and models appropriately. A teacher's use of methods and models is expected to provide pleasure and satisfaction to students to achieve their goals of mastering learning. One of the learning models that can create a pleasant atmosphere is the creative problem-solving (CPS) learning model. The CPS learning model is a learning model that focuses on teaching and skills in problem-solving followed by strengthening skills. When faced with a question, students can use problem-solving skills to choose and develop their responses (Fahrisa & Parmin, 2022). Problem-solving skills expand the thinking process not only by memorizing without thinking. The CPS model is a systematic learning model for solving problems creatively or with strategies. The CPS learning model can develop students' thinking progress to solve problems faced by students and can improve creative thinking and acting in students (Artini et al., 2023; van Hooijdonk et al., 2020). The CPS model is based on creativity, problem-solving, and problem-solving. The CPS model facilitates time for students to try to find out about a fact. Students' curiosity can be increased by stimulating students to use a challenging event. Students try to find out a problem contained in the event presented. Teaching and learning activities with the CPS model require students to apply several stages of problem-solving before deciding on the right solution. Students consider various facts and data obtained to propose a solution to the problem.

Previous research findings stated that the Creative Problem Solving (CPS) model can improve student learning outcomes (Paramitha et al., 2023). Applying the Creative Problem Solving (CPS) model significantly affects the learning achievement of third-grade students in Elementary School with the theme Praja Muda Karana (Artini et al., 2023). Applying the CPS learning model has also improved the creative thinking skills of fourth-grade students at SDIT Cendekia (Prawiyogi et al., 2019). Then, the creative problem-solving learning model is applied to students' mathematical literacy skills at SMA Negeri 6 Prabumulih (Rohana et al., 2021). More specifically, there was a finding that the Creative Problem Solving (CPS) model influenced scientific literacy in terms of context and knowledge (Subaidah et al., 2019). The average value of scientific literacy in environmental awareness is already very positive (Masfufah & Ellianawati, 2020). Previous studies involved students from different grade levels and schools. It is assumed that differences in learning subjects will affect the desired research results. The research location also introduces different research samples from previous studies. Previous studies should have included details of elements of scientific literacy in the environmental awareness aspect because there was a different research basis.

Meanwhile, this study will analyze scientific literacy regarding environmental awareness in more depth and detail. This is certainly different from previous studies because the focus is only on environmental awareness. One aspect is measured because it focuses research on emerging problems and makes the assessment more efficient. In its implementation, increasing environmental awareness requires a stimulus in treatment. This study uses the Creative Problem Solving (CPS) learning model, which other researchers have never used, to analyze its influence on environmental awareness. Of course, this is what distinguishes this study from previous studies. This study aims to analyze the creative problem-solving (CPS) learning model on the environmental awareness aspect of fifth-grade elementary school students in Gugus I, Kintamani District.

2. METHOD

This research is experimental with an experimental method that examines causal relationships by manipulating variables in the experimental group and comparing the results with the control group that did not experience manipulation (Dewi et al., 2023). This study uses a quantitative research design of the quasi-experimental type because considering all variables (symptoms that appear) and experimental conditions can be tightly regulated and controlled. So, the research design is a non-equivalent post-test-only control group design. The data comes from the SD Gugus I Kintamani population, which was tested for equivalence using ANOVA analysis. The equivalence test uses one-way ANOVA assisted by the IBM SPSS 26.00 for Windows program, with a significance of 5%. Based on the results of the equivalence test through ANOVA, Based on the results of the analysis, a significance level of 0.131 was obtained. These results indicate a significance level greater than 0.05. So, the value of student science literacy between population members has no significant influence, meaning that the population is equivalent. Thus, the data for this study comes from an equivalent population, so the sample of this study is class VB SD N 2 Kintamani as the experimental

class and class VA SD N 1 Kintamani. The data collected in this study are about environmental awareness in students' science literacy in fifth-grade science at Gugus I, Kintamani District. The method of obtaining data used in the research is by providing a questionnaire in the field. The questionnaire method is one of the methods used in collecting research data. A questionnaire is a questionnaire or a list of written questions that are systematically arranged to collect information from respondents. This method allows for efficient data collection from many respondents relatively quickly. The grid of the environmental awareness aspect of the scientific literacy assessment instrument is presented in Table 1.

Table 1. Grid of Science Literacy Questionnaire for Environmental Awareness Aspect

No.	Aspect	Indicator	Total Statement		
			Positive	Negative	Total
1	Understanding environmental concepts	Attitudes toward the importance of maintaining a clean environment	1	2	2
2	Introduction to environmental issues	Attitudes towards environmental issues and mass media science	3, 18	4	3
3	Participation in environmental conservation efforts	Attitudes toward participation in environmental protection activities	5	6	2
		Attitudes towards the importance of recycling	7, 17	8	3
		Attitudes towards saving water and energy at home and school	9, 19	10	3
4	Awareness of individual responsibility	Attitudes toward maintaining a clean environment together	11	12	2
		Attitudes toward awareness of human influence on the environment	13	14	2
		Attitudes towards biodiversity in the environment	15, 20	16	3
Jumlah			**12**	**8**	**20**

The questionnaire used to measure the environmental awareness aspect of students' scientific literacy in science subjects was designed by analyzing the Basic Competencies and dimensions of the environmental awareness aspect of science literacy. The dimensions of environmental awareness in science literacy are understanding environmental concepts, recognizing environmental issues, participating in environmental conservation efforts, and awareness of individual responsibility. These dimensions were then developed into several indicators associated with the material according to the Basic Competencies in Science and would be derived into statement items answered by the respondents. In this study, the answers on the Likert scale used the categories Strongly Agree (SS), Agree (S), Less Agree (KS), Disagree (ST), and Strongly Disagree (STS). Before measuring, the environmental awareness assessment instrument in students' scientific literacy in science subjects would be tested for validity and reliability. The validity test was analyzed using the Gregory formula and product-moment correlations, while the reliability test was analyzed using Alpha-Cronbach. Based on the analysis, the environmental awareness instrument on students' scientific literacy in science subjects was declared valid and reliable so that it can be used to measure environmental awareness on students' scientific literacy in science subjects of fifth-grade elementary school students in Cluster I, Kintamani District.

In this study, data on fifth-grade science literacy scores were taken, and an analysis was carried out using descriptive and inferential statistics. In this research, descriptive statistics in the form of (mean), standard deviation (SD), and variance, equipped with inferential statistics, are used to generalize the research results. The type of inferential statistics used in this study is parametric analysis. The analysis of this study is classified as parametric analysis. Parametric analysis is an analysis that requires an assumption test in its application. This study will use t-test analysis to test the hypothesis. The assumption tests must be met before the hypothesis test are the data distribution normality and variance homogeneity tests. The assumption and hypothesis tests were analyzed with the help of IBM SPSS 26.00 for Windows. In making decisions, it is carried out with the criteria if the t-count price <t-table, then Ho is accepted and Ha is rejected, and if the t-count ≥ t-table, then Ho is rejected, and Ha is accepted. The test was carried out at a significance level of 5%. In this study, an effect size calculation was carried out to determine the effect of the CPS model on students' scientific literacy. Then, the effect size value category was found.

3. RESULT AND DISCUSSION

Result

Descriptive and inferential statistical analysis was conducted based on the environmental awareness score data on students' scientific literacy obtained from the post-test data. First, the data will be analyzed descriptively to determine the mean, median, mode, standard deviation, variance, and others from the post-test score data in the experimental and control groups. Furthermore, the data will be analyzed through prerequisite tests, and if they meet the requirements, the data will be continued for the hypothesis test. A summary of the results of the descriptive statistical data analysis of the post-test in the experimental group is presented in Table 2.

Table 2. Recapitulation of Calculation Results on Scientific Attitude and Self-esteem in Experimental and Control Classes

Description	A1Y1	A2Y1
	22	25
Mean	83.63	68.44
Median	84.00	68.00
Variance	10.53	39.51
Std. Deviation	3.24	6.28
Minimum	78.00	55.00
Maximum	89.00	80.00
Range	11.00	25.00
Interquartile Range	5.50	6.00
Skewness	0.010	-0.234
Kurtosis	-1.074	0.268

Description:
A1Y1 = Description of student science literacy data with the application of the CPS learning model
A2Y1 = Description of scientific literacy data of students who follow conventional learning

Based on the data collected, the distribution of science literacy score data achieved by students who participated in learning with the CPS model can be described in the data bar diagram graph in Figure 1.

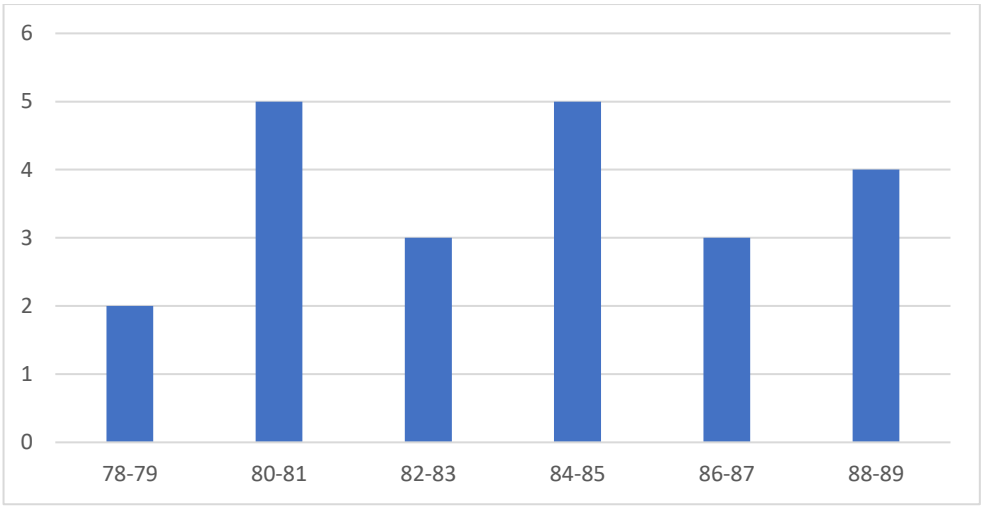

Figure 1. Science Literacy Scores of Students in the Experimental Class

Meanwhile, the data bar diagram graph in Figure 2 visualizes the distribution of science literacy score data achieved by students who participated in learning with the Conventional model.

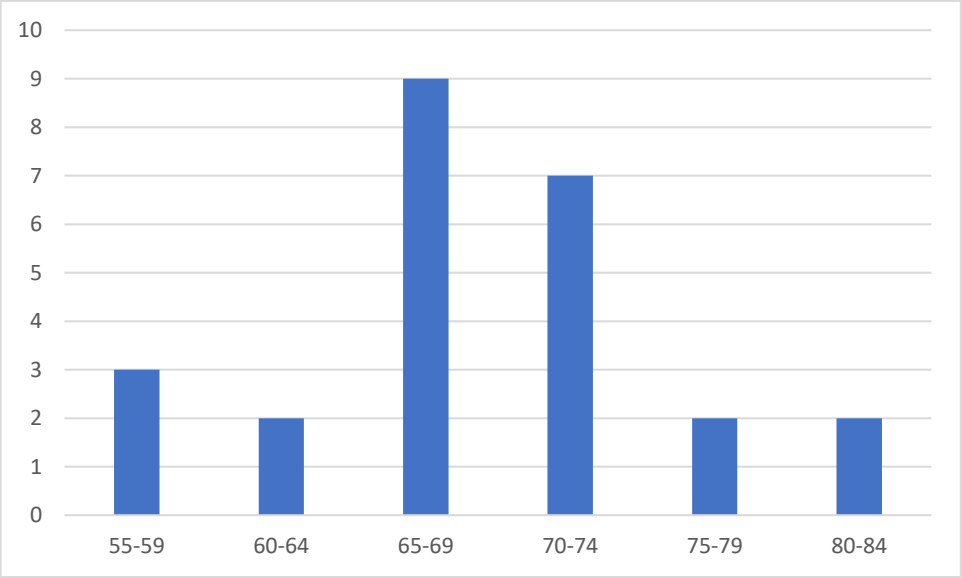

Figure 2. Science Literacy Scores of Students in the Control Class

Next, the environmental awareness score data on science literacy in the experimental and control classes will be categorized using the five PAIT scales. Table 3 presents the five PAIT scale categories for the experimental class.

Table 3. Environmental Awareness Score Categories in Science Literacy in the Experimental Class

No.	Criteria	Classification
1	$86.25 \leq M \leq 88.99$	Very High
2	$84.42 \leq M < 86.25$	High
3	$82.58 \leq M < 84.42$	Medium
4	$80.75 \leq M < 82.58$	Low
5	$78.01 \leq M < 80.75$	Very Low

The average score of environmental awareness in scientific literacy in the experimental class was 83.63 in the interval $84.42 \leq M < 86.25$. Based on the classification, it can be concluded that the data on environmental awareness scores in scientific literacy in the experimental class are in the "High" category. At the same time, the five PAIT scale categories of the control class are presented in Table 4.

Table 4. Environmental Awareness Score Categories in Science Literacy in Control Class

No.	Criteria	Classification
1	$73.75 \leq M \leq 79.98$	Very High
2	$69.58 \leq M < 73.75$	High
3	$65.42 \leq M < 69.58$	Medium
4	$61.26 \leq M < 65.42$	Low
5	$55.02 \leq M < 61.26$	Very Low

The average score of environmental awareness in science literacy in the control class was 68.44 in the interval $65.42 \leq M < 69.58$. Based on the classification, it can be concluded that the data on environmental awareness scores in science literacy in the experimental class are in the "Moderate" category. Furthermore, the data on environmental awareness scores in students' science literacy will be continued in the prerequisite analysis test, including the normality test of data distribution and the homogeneity test of variance. The prerequisite test was analyzed with the help of IBM SPSS 26.00 for Windows. The normality test of data distribution was carried out using Kolmogorov-Smirnov and Shapiro-Wilk analysis, and the homogeneity test was performed using Levene's analysis. The following are the results of the analysis of the prerequisite test for normality of data distribution in Table 5.

Table 5. Results of Data Distribution Normality Test Analysis

	Class	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Science Literacy	Experimental Class	0.110	22	0.200	0.956	22	0.409
	Control Class	0.152	25	0.139	0.958	25	0.379

Based on the results of the analysis above, when viewed from both the Kolmogorov-Smirnov and Shapiro-Wilk tests, both produce a significance value higher than 0.05 (Sig. > 0.05). This means that the distribution of student science literacy data in the experimental and control classes is Sig. > 0.05. Thus, all data are declared normally distributed. So that the data is worthy of being continued in the next analysis, namely the homogeneity of variance test. The results of the homogeneity of variance test analysis are presented in Table 6.

Table 6. Results of the Analysis of Homogeneity of Variance Test

		Levene Statistic	df1	df2	Sig.
Science Literacy	Based on Mean	3.692	1	45	0.061
	Based on Median	3.640	1	45	0.063
	Based on the Median and with adjusted df	3.640	1	31.409	0.066
	Based on trimmed mean	3.714	1	45	0.060

Based on the analysis above, the significance value obtained is higher than 0.05 (Sig. > 0.05). This means that the variance-covariance matrix of student science literacy data in the experimental class and the control class meets the requirements of the homogeneity of variance test. Thus, the entire data is homogeneously distributed. So that the data is worthy of being continued for the next analysis, namely the hypothesis test. The hypothesis test was analyzed using the independent sample t-test with the help of IBM SPSS 26.00 for Windows. Before making a decision, the hypothesis of this study is H0: There is no significant effect of the CPS model on the scientific literacy of the environmental care aspect of the fifth grade of Cluster I, Kintamani District. H1: The CPS model significantly affects the scientific literacy of the environmental care aspect of the fifth grade of Elementary School Cluster I, Kintamani District. Based on the analysis of the independent sample t-test with the help of IBM SPSS 26.00 for Windows, the calculated t> t table (10.198> 1.679) was obtained. In addition, a significance value of less than 0.05 (0.000 <0.05) was also obtained, so H0 was rejected, and H1 was accepted. Thus, the CPS model significantly influences scientific literacy in the environmental care aspect of the fifth grade of Elementary School Cluster I, Kintamani District. When viewed from the average, the experimental class is higher than the control class, so using the CPS model affects the average value of students. To see how much difference in scientific literacy due to the influence of the CPS model can be calculated using the effect size formula. Based on the effect size calculation results, the result is 1.48, so if converted into the predetermined criteria, ES> 0.8 is obtained. Thus, the purity of effectiveness is quite high. So, the CPS model greatly influences students' scientific literacy.

Discussion

Data analysis concluded that the CPS model significantly influenced the scientific literacy of the environmental care aspect of the fifth grade of Elementary School Cluster I, Kintamani District. The magnitude of the effect of providing the CPS model reached 1.48, which means that the CPS model had a very high influence on students' scientific literacy. Based on observations during the ongoing experimental process, the CPS model did seem convincing in influencing students' scientific literacy. Seen from how students understand and take action during the learning process. Scientific literacy is a person's ability to understand, use, and apply knowledge about science in everyday life. This involves reading, interpreting, and evaluating scientific information and thinking critically about scientific problems (Dewantari & Singgih, 2020; Rusdawati & Eliza, 2022). In addition, experimental students can understand and apply scientific concepts and processes to their problems. Students tend to be critical and skeptical of something. This usually happens if students have scientific literacy skills. Students with scientific literacy skills can understand science, communicate science, and apply scientific knowledge to solve problems by utilizing science to have a high attitude and sensitivity toward themselves and their environment in making decisions (Ayub et al., 2022; Sutrisna, 2021). A person can make more informed decisions and actively participate in developing science and technology through scientific literacy (Pratiwi et al., 2019). In simpler terms, scientific literacy is the ability to "understand and use science" in life. This means that students can

read and understand scientific information and have the skills to think logically and analyze scientific problems (Thahir et al., 2021).

The emergence of environmental awareness aspects in students is not only to create scientific literacy skills but also to make students understand the importance of preserving the environment, reducing pollution, utilizing natural resources sustainably, and supporting environmentally friendly practices. Scientific literacy in this aspect helps students become more aware of the importance of preserving the natural environment and acting as responsible citizens of the earth (Pratiwi et al., 2019; Riyanto, 2020). This allows for better decisions in everyday life, such as efficient energy use, good waste management, and supporting policies and efforts that contribute to environmental sustainability. This study examines the emergence of environmental awareness aspects as an output of experiments with the CPS model. The explanation above strongly supports the assumption of this study by using the CPS model as a trigger. The CPS model teaches students to increase creativity in the learning process, and in the learning process, they are taught to solve problems through creative techniques to solve a problem that is obtained (Harefa et al., 2020; Paramitha et al., 2023). The concept of active, innovative, creative, and collaborative learning must help students meet the needs of the times, especially in the current era. Teachers must also be facilitators to shape the character of students who think critically, creatively, and innovatively, are skilled in communicating and collaborating, and have character (Indarta et al., 2022; Van Hooijdonk et al., 2022). Learning models have an important role that can be used as a framework to describe the gradual stages of managing learning experiences to meet the targets of learning activities. In teaching and learning activities, the learning model applied by educators also affects the level of success in learning. One of the fun learning models that can be applied in mathematics lessons is the creative problem-solving learning model (Prawiyogi et al., 2019). The CPS model is classified as a positive model.

The CPS learning model is a systematization in organizing and processing various information and thoughts that allows understanding and problem-solving to be done creatively to make the right decision. The CPS model can solve problems that emphasize discovering various thinking options to solve problems with the best solutions using a comprehensive and widespread way of thinking (Chen et al., 2021; van Hooijdonk et al., 2020). This model can address problems viewed as mental activities involving complex thinking skills (Probowati et al., 2020). Based on the above explanation, the CPS model is seen as a model that emphasizes problem-solving that focuses on creative problem-solving, skills, and teaching to find the most efficient solution.

During the experiment, students showed an attitude of environmental awareness, starting with caring for the environment. This concern arises because students understand science well. Maintaining and paying attention to the environment is part of science. In the experimental material on the water cycle, in addition to understanding the concept and process, students know that maintaining water and using it according to needs is important. Environmental awareness is one aspect of scientific literacy. Some examples of environmental problems that students associate with the water cycle material. Students realize that existing pollution is part of the water cycle problem. This is because water is cleaner for the biosphere layer, so pollution is difficult to reduce with the lack of water falling as rain. Students realize that the drought that occurs in the dry season is the impact of a defective water cycle because water that is used wastefully can reduce the water content in the soil. Students realize that flooding is caused by the water cycle not running smoothly. They found this because the water catchment area has decreased due to the development of water catchment areas.

Students realize that landslides are the effect of a bad water cycle because the soil is loose and lacks water as an adhesive to each other. Students are sensitive to environmental issues related to the water cycle, indicating they have the scientific literacy skills to understand and find problems. Students also show their concern by handling problems encountered and preventing them. The aspect of students' environmental awareness is the ability to understand the environment and an attitude of caring for the environment, which is shown by the desire to provide solutions and become a generation that prevents environmental problems. Scientific literacy in environmental awareness is the ability to understand and use scientific knowledge about the environment to maintain and protect nature (Suhirman, 2020). Students can understand how human activities, such as air pollution, global warming, or biodiversity loss, can affect the environment. With scientific literacy focusing on environmental awareness, students can take responsible actions to preserve the environment, such as reducing single-use plastics, recycling, using renewable energy sources, and supporting nature conservation (Asyhari, 2017).

Some aspects related to environmental awareness in scientific literacy that emerged during the experiment include understanding the concept of the environment. Students understand the relationship between humans, living things, and the physical environment. Introduction to environmental issues: in this case, individuals who are scientifically literate and environmentally aware can identify relevant environmental issues. Students are also aware of the long-term consequences of these issues on human life

and the planet. Awareness of individual responsibility. Students realize that their actions and decisions can impact the environment and strive to act responsibly. Participation in environmental conservation efforts: Individuals who are scientifically literate and environmentally aware participate in environmental conservation efforts. Students are involved in activities such as recycling, reforestation, environmental awareness campaigns, or supporting sustainable environmental policies. Scientific literacy is necessary for everyone; citizens from various levels of education must have knowledge, understanding, and abilities in scientific literacy. Student performance is largely determined by the skills and professionalism of teachers, comfortable classrooms, effective learning time, and learning resources around them (Siregar et al., 2020). Scientific literacy is understanding concepts, principles, and ways of thinking scientifically to use and apply knowledge and contribute to maintaining the balance of nature (Nofiana, 2017; Rizal et al., 2020). Environmental awareness or care is an important aspect of scientific literacy. In fact, in PISA 2015, the characteristics of scientific literacy that appear in the questions include environmental quality, global or local hazards, borders, health and disease, and natural resources, as well as collaborative problem-solving and scientific phenomena in nature and the environment (Ayub et al., 2022). The average value of scientific literacy in environmental awareness is positive (Masfufah & Ellianawati, 2020).

Based on the research and discussion results, it can be used as a new theory that the CPS learning model can be used to create or improve students' scientific literacy skills, especially in environmental awareness. The implications of scientific literacy have a major impact on environmental awareness, which is significant in environmental conservation and sustainable development. Scientific literacy allows individuals to access, understand, and use scientific information related to environmental issues. With good scientific literacy, individuals can recognize and appreciate the importance of maintaining environmental sustainability, as well as identify steps that can be taken to reduce negative impacts on the ecosystem (Awad, M., 2021). This scientific literacy implies that individuals can act as responsible citizens and actively participate in environmental conservation efforts. The benefits of scientific literacy are increasing environmental awareness and promoting real actions to maintain environmental sustainability (Doran, P. M., 2022). Science literacy enables individuals to understand complex environmental issues from a scientific perspective. With the knowledge gained through science literacy, individuals can strengthen attitudes and values that care about the environment. In addition, science literacy also provides individuals with critical skills in evaluating scientific claims related to environmental issues so that they can make evidence-based and sustainable decisions. The benefits of science literacy in environmental awareness are that individuals can actively contribute to environmental conservation efforts through real actions such as saving energy, reducing waste, and supporting pro-environmental policies. There was an improvement in the achievement of science literacy in the experimental class due to implementing a problem-based learning model connected to everyday life (Subaidah et al., 2019).

The CPS learning model influences scientific literacy regarding environmental awareness for several reasons. The Creative Problem Solving (CPS) learning model focuses on learning and problem-solving skills and provides skill reinforcement. The difference between CPS and other models is that the CPS model requires students to creatively solve problems given by educators (Prawiyogi et al., 2019; Wansaubun, 2020). The CPS model refers to learning that systematically organizes creative ideas to solve problems (Supriyadi et al., 2020). When faced with a problem, students can use problem-solving skills to select and develop responses. The Creative Problem-solving (CPS) model is a learning model where the ongoing teaching and learning process emphasizes group work that focuses on learning and problem-solving skills followed by strengthening skills (I. Lestari et al., 2021). The ability of students to solve environmental problems is a result of the CPS model because the CPS model has a positive influence on students' critical thinking skills (Maheva et al., 2023). The specialty of the creative problem-solving learning model is that it places students in real situations because the problems presented are complex and meaningful types of problems with creative solutions from students (Harefa et al., 2020). The CPS (Creative Problem Solving) learning model consists of problem clarification, opinion expression, evaluation and selection, and implementation. Getting students used to using creative steps in solving problems is expected to help them overcome difficulties in learning (Parwata, 2021). Based on the explanation above, the implications of this research through the implementation of the CPS learning model can be used to create or improve students' scientific literacy skills, especially in the aspect of environmental awareness, which can contribute to the smallest environment around students and the largest universe. The advantage of this research is that it helps build students' environmental awareness in the era of modern technology. Usually, students are bound by the rapid development of technology, but they can still keep up with technology by being sensitive to their surroundings.

This finding is reinforced by previous research findings that the creative problem-solving (CPS) model can improve student learning outcomes (Paramitha et al., 2023). Applying the creative problem-solving (CPS) model significantly affects the learning achievement of third-grade students in Elementary

School with the theme Praja Muda Karana (Artini et al., 2023). Applying the CPS learning model has also improved the creative thinking skills of fourth-grade students at SDIT Cendekia (Prawiyogi et al., 2019). Then, the creative problem-solving learning model on students' mathematical literacy skills at SMA Negeri 6 Prabumulih (Rohana et al., 2021). More specifically, there was a finding that the creative problem-solving (CPS) model influenced scientific literacy in terms of context and knowledge (Subaidah et al., 2019). The average value of scientific literacy in environmental awareness is already very positive (Masfufah & Ellianawati, 2020). The results of this study are also used as a reference by teachers in the teaching and learning process to raise students' enthusiasm, especially in the fifth grade, where the characteristics of students who still tend to like to play and learn with concrete things so that teachers must be able to control the class more so that learning conditions remain conducive. Teachers can use the CPS model to develop student creativity in various learning packages. This model encourages creativity in solving student problems. This study certainly has limitations, namely that it only looks at the effect of the CPS model on scientific literacy in environmental awareness, even though it has many aspects. It is hoped that further research will improve the results of this study.

4. CONCLUSION

The study results showed that the Creative Problem Solving (CPS) model significantly influenced the environmental awareness aspect of science literacy in fifth-grade Elementary School Cluster I, Kintamani District students. Teachers are advised to apply the CPS model in fifth grade to foster environmental awareness aspects of science literacy skills in other materials besides those taught during the study. In addition, teachers can also use other learning models with innovations that are developed over time. There are many variations of innovative learning models that teachers can use, as well as good strategies such as PBL, STEAM, REACT, RADEC, and others so that teachers can innovate according to the needs of their students. Finally, it is important to foster environmental awareness in science literacy because it is one of the factors that influence students' academic success. Teachers can develop similar instruments or other variables that are considered important to develop today for students.

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