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Development of Thematic LKPD Model Problem Based Learning Based on Multiple Intelligences to Improve Creative Thinking of Elementary School Students

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ABSTRACT

This research was conducted departing from the results of teacher observations and interviews in teaching and learning activities, many teachers have yet to use teaching materials in the form of Student Worksheets (LKPD). This study aims to develop teaching materials for thematic Student Worksheets (LKPD) using the Multiple Intelligences-based Problem Based Learning (PBL) model for grade V Elementary Schools, to improve the creative thinking skills of elementary school students. The research method used is the research and development (R&D) method with the 4D development model (Define, Design, Develop, and Disseminate). This research was carried out by testing small-scale tests in class VI SDN Sadar Karya with a total of 15 students and large-scale tests in class V SDN Sadar Karya, Musi Rawas Regency, with a total of 30 students. Data and collection techniques in this study include questionnaires and test questions that have been tested for validity, reliability, level of difficulty, and discriminatory power. Based on the study's results, it was shown that students' average creative thinking ability had increased. The results of the analysis of the test questions for each aspect stated that the average thinking ability of students in the fluency aspect obtained a score of 90.00% in the high category. The aspect of flexibility has an average value of 89.58% in the high category. The authenticity aspect gets an average value of 89.17% in the high category. The aspect of detail obtains an average value of 86.67%, belonging to the medium category. The results showed that the thematic Problem Based Learning (PBL) based on Multiple Intelligences-based Student Worksheets (LKPD) was effective in increasing students' creative thinking abilities in class V SD with an N-gain of 0.73 (high category).

Keywords: LKPD, Problem based learning, Multiple intelligences, Creative thinking.

INTRODUCTION

Education has an important role for each individual in character formation to prepare students through teaching guidance and training activities to create creative human beings (Novitasari & Fauziddin, 2022). The efforts to achieve the goals of national educators The Ministry of Education and Culture has developed 4K competencies in education, namely critical thinking, creativity, collaboration, and communication (Rochmawati & Ridlo, 2019). The application of 4K in learning can be carried out in an active, fun, and motivating way for students with the hope that the implementation of the 2013 curriculum can develop 4K to face the demands of the 21st century so that students are more active and

participatory in participating in the learning process.

Following Permendikbud No. 57 of 2014 concerning the 2013 elementary school curriculum, one of the important aspects mandated in the 2013 curriculum is the application of thematic learning. Thematic learning is an approach that integrates various competencies from various subjects into one theme (Perdana & Suswandari, 2021). Thematic learning emphasizes the involvement of students to be actively involved in the learning process. It helps students gain direct experience and are trained to discover for themselves the various knowledge learned (Putra & Desyandri, 2020). Through direct experience, students will understand the concepts studied and relate them to other concepts that have been understood so that in the thematic learning process, students get direct experience and train their creative thinking skills to the fullest. Syaifuddin (2017) states that creative thinking is a means to achieve educational goals so that students can solve problems and find the latest ideas to solve problems (Widia *et al*., 2020 ; Sihaloho *et al*., 2017).

The ability of students to relate the material being studied will bring up various ideas and ways to solve problems. Ideas about how to solve problems are a feature of fluency and ideas based on student findings are a feature of originality, these two ideas are indicators of creative thinking. (Maharani *et al*., 2017 ; Kharismawan *et al*., 2018). According to Wahyudi *et al*., (2021) The ability to think creatively has indicators, namely the ability to think broadly, flexibly, elaboratively and original.

Teachers have an important role in increasing students' creativity, especially during learning activities. Learning activities play an important role in increasing the creativity of students. but in practice, the creativity of students in the learning process needs to be appreciated and paid attention to. The lack of creative thinking ability is due to the lack of active students in the learning process. This is in line with (Suwarno, 2015) stated that during the learning process, students were relatively passive and only received information from the teacher, which resulted in a lack of trained students' critical and creative thinking skills. This happens because the teacher's learning process is very active as a subject of learning (Gulo, 2022).

In the teaching and learning process, a teacher must be careful and consider various things, including the learning strategies used so that students are actively involved. One of them is that the teacher must recognize and understand the intelligence possessed by students because each student has different abilities (Makrufi, 2017). Learning based on Multiple Intelligences is a learning strategy involving students' role actively according to each type of student intelligence. (Wardani & Sumarti, 2017 ; Ratnasari *et al*., 2018). Teachers who apply the theory of Multiple Intelligences in learning activities will present lessons with each student's various bits of intelligence. Teachers can present learning in several ways: using numbers, language, objects in the surrounding environment, sounds, and social skills (Solikhah *et al*., 2015).

Based on the description above, this research is to develop thematic LKPD teaching materials using Problem Based Learning (PBL) models based on Multiple Intelligences to improve thinking skills in fifth-grade elementary schools. The purpose of this research is to improve students' creative thinking skills.

MATERIALS & METHODS

This research uses development research methods by design 4D (Define, Design, Develop, and Disseminate). Thiagarajan, S. *et al* (1974) The first stage, namely, defines and collects data related to the students' initial conditions and the teacher's needs. The second stage designs, after obtaining information about the initial conditions of the school used as the object of research, then designing teaching materials for thematic student worksheets, and problem-based learning models based on multiple intelligences. This planning stage is carried out by adjusting teaching materials according

to KI and KD, selecting learning resources, Learning Implementation Plans (RPP) and how to present material in thematic LKPD problem-based learning models based on multiple intelligences. The third stage is the development stage, by conducting trials of Products that have been produced, aiming to get feedback and can be used as material for product evaluation to achieve the final product. The final stage is the dissemination or publication of the final product.

Data collection techniques in this study include testing and documentation techniques. The test technique is a test item consisting of 8 essay questions used to measure students' creative thinking abilities by using pretest and posttest questions in thematic learning theme 2 subthemes 1. The creative thinking ability test consists of 8 questions with each creative thinking indicator having 2 questions. Documentation techniques are carried out as a source of supporting data to complement the data obtained from problem identification activities, and photos of students' activities when carrying out learning using student worksheets. The value obtained by students is then calculated using the formula:

$N = \frac{R}{S} x\ 100\%$

Description:

N : score

R : students result

S : maximum score

(Purwanto, 2010)

The percentage data obtained is then categorized to determine the level of students' creative thinking ability. categories of creative thinking ability levels can be seen in the following table:

Tabel 1. Creative Thinking Ability Category

Percentage of Achievement of Creative Thinking Indicators	Creative Thinking Level Category
81%-100%	Perfect
61% - 80%	Excellent
41% - 60%	Good
21% - 40%	Bad
0 – 20%	Very bad

(Riduwan, 2010)

The increase in creative thinking ability can be seen after the N-*gain* test is carried out to see the effectiveness of increasing each indicator. Calculations can be started by calculating the average score of the pretest and posttest in each indicator of creative thinking.

Pretest and posttest values are calculated using the N-gain formula*:*

$$\text{N-gain(g)} = \frac{(skor\ posttest - Skor\ Pretest)}{(Skor\ maksimal\ ideal - Skor\ Pretest}$$

The percentage data obtained is then categorized to determine the level of effectiveness can be seen in table 2.

Tabel 2. N-gain effectiveness

Normalitas Gain (g)	Meaning
g ≥ 0,7	great
0,3 ≤ g <0,7	Moderate
g < 0,3	Weak

(Lestari & Mujib, 2018)

RESULT & DISCUSSION

The ability that must be owned by every student is the ability to think creatively. This is intended so that students are able to face the 21st century. A person's ability to think creatively can be measured through indicators of creative thinking ability, namely originality, fluency, flexibility and elaboration. In this study to measure students' creative thinking abilities using essay test questions with a total of 8 questions, on the material theme 2, sub-theme 1 class V of elementary school. After the questions are given and completed by the students, they are then analyzed. The results of the analysis were used to determine the creative thinking skills of fifth grade students at SD Negeri Sadar Karya for the 2022/2023 academic year on theme 2 Clean Air for Health sub-theme 1 How the Body Processes Clean Air. The pretest and posttest results obtained by students are presented in Table 3.

Tabel 3. Results of Pretest and Posttest Data on Creative Thinking Ability

No.	Activity	Average	Percentage	Category	Enhancement
1	Pre-test	59,38	59%	Good	33%
2	Post-test	88,85	89%	Very good	

Based on the results of Table 3 it can be seen that students' creative thinking skills in the pretest obtained an average score of 59.38, a percentage of 59% in the unfavorable category. Then it can be seen in the table that the posttest obtained an average score of 88.85, a percentage of 89% in the very good category. It can be concluded that the ability to think creatively increases because it is influenced by the learning process that uses LKPD teaching materials with a Problem Based Learning model based on multiple intelligences. In line with research Andayani *et al*., (2018) states that LKPD based on multiple intelligences can make it easier for students to understand material according to their intelligence. Learning to use LKPD materials with the PBL learning model can improve students' creative thinking *(*Irfana *et al.*, 2019). in addition to the results of research conducted (Abdurrozak & Jayadinata, 2016) shows that the use of the PBL learning model has a significant effect on improving students' creative thinking abilities.

Data analysis to find out the increase in students' creative thinking skills seen in each indicator, creative thinking indicators are original, fluency, flexibility and elaboration. The results of the analysis on each indicator of creative thinking are presented in Table 4.

Tabel 4. Result analystic indicator of creative thinking

No.	Creative Thinking Indicator	Score		N-Gain	Category
		Pretest	Posttest		
1	Fluency	51,77	90,00	0,79	Advanced
2	Flexibility	56,25	89,58	0,76	Advanced
3	Originality	62,08	89,17	0,71	Advanced
4	Elaboration	59,58	86,67	0,67	Moderate
Average		**57,42**	**88,85**	**0,73**	**Advanced**

Based on the presentation of Table 4 provides information about the highest average creative thinking ability of students in the first indicator of fluency with a value of 90.00 and with high criteria. The two indicators of flexibility earned a score of 89.58 with high criteria. The three indicators of originality scored 89.17 in the high category, and the fourth detail of indicator received the lowest score compared to the other three indicators of creative thinking, namely 86.67 with moderate criteria.

Fluency Indicator

The indicator of fluency is the fluency of students in solving problems by providing various new ideas. Indicators of fluency can be seen from the answers of students in solving problems in the questions given. Then the answers are analyzed according to the rubric that has been determined. Students are expected to have indicators of fluency, namely being able to solve problems with various answers.

Table 4 presents the pretest value on the fluency indicator with a score of 51.77. Then after learning using thematic worksheets, problem based learning models based on multiple intelligences, a posttest was carried out. The posttest value is 90.00 with an N-gain of 0.79 with high criteria. It is evident that during the learning process using thematic LKPD teaching materials, the PBL model is based on multiple intelligences by presenting various problems that exist around it so that students are able to solve problems.

The fluency indicator shows the number of answers that students give in solving problems. If students can give more than one answer to solve the problem correctly, they will get a score of four for the fluency aspect. If the student gives more than one answer and one answer is wrong or inaccurate, the score obtained is 2. But if the student writes down

more than one answer and the answer is wrong, they will get a score of one. Details of students' pretest and posttest answers on fluency indicators can be seen in Figure 1.

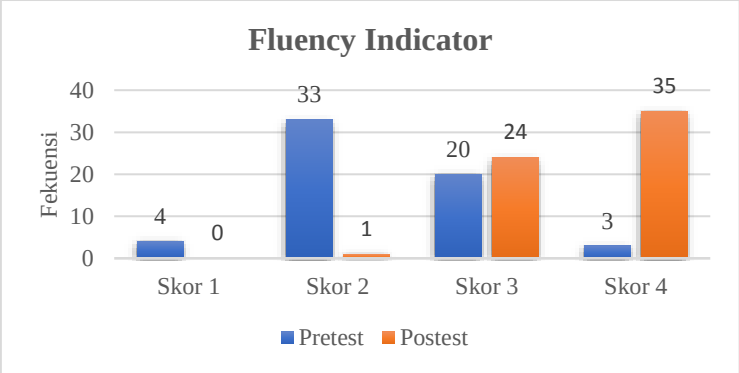

Figure 1. Distribution of Pretest and Posttest Values on Fluency Indicators

Figure 1 shows that the indicators of fluency are found in questions 1 and 3. Most of the students' pretest results obtained a score of two. This shows that when learning has not used thematic LKPD teaching materials, the PBL model based on multiple intelligences, students have not been able to solve problems by providing various new ideas. While in the posttest most of the students got a score of four. This means that after using the thematic LKPD PBL models based on multiple intelligences, the ability to think creatively on indicators of student authenticity increases, marked by students being able to solve problems by providing various kinds of innovative answers.

Flexibility Indicator

The flexibility indicator is an approach used by individuals to provide the right solution. According to Munandar, the indicator of flexibility in students is when they are given a problem, students are able to come up with ideas about various solutions to solve it from several points of view. (Qomariyah & Subekti, 2021).

Based on the presentation of Table 4 it is known that the pretest value of the flexibility indicator obtained a value of 56.25. After the learning activities using thematic LKPD PBL models based on multiple intelligences were post tested to see if there was an increase in creative thinking skills. Posttest value of 89.58, N-gain 0.76 with high criteria.

The indicator of flexibility has little in common with the indicator of fluency, namely if the indicator of fluency students are asked to provide several answers to solve problems. So in this flexibility indicator students are required to write down the reasons for the answers given. If students give two answers to solve the problem and one answer is wrong or inappropriate, then the student gets a score of three. Furthermore, if students give only one answer then the score obtained is two. If students give answers but none are correct then the score obtained is one. The following details the students' pretest and posttest answers on the aspect of flexibility presented in the figure 2.

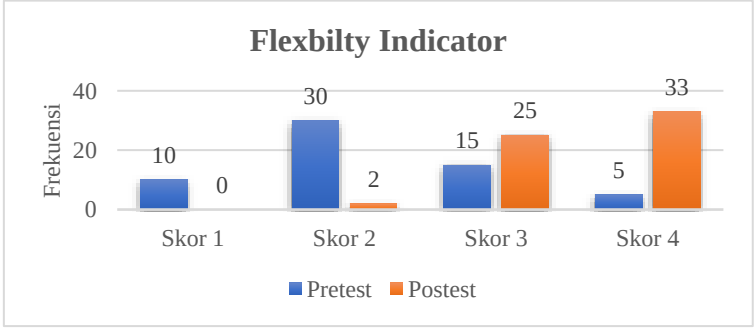

Figure 2. Distribution of Pretest and Posttest Scores on Dexterity Indicators

In Figure 2 it can be seen that many students got a score of two in the pretest. This shows that students are only able to give one reason from one point of view. Usually seen in the answers of student number 2. Students only write answers according to the picture regarding the types of responsibilities but do not explain the differences. Questions that are flexible will encourage students to obtain data, and find new things according to their findings (Candace & Shively, 2011).

Originality Indicator

The indicator of originality is an indicator of novelty. Munandar argued that the aspect of authenticity is that students give different answers from other people or other people do not give the same answer (Qomariyah & Subekti, 2021). Authenticity is producing the right answer. The authenticity indicator can be seen from the students' answers in solving the questions on the creative thinking ability test questions. The ability to think creatively on indicators of authenticity is the ability of students to express ideas that cannot be imitated or different from those in books (Cintia *et al.*, 2018).

The value of the ability to think creatively as an indicator of authenticity based on Table 4 on the pretest score obtained a value of 62.08, then after learning using thematic LKPD models problem based learning based on multiple intelligences a posttest was carried out. The posttest score was 89.17 with an N-gain of 0.71 with high criteria. This proves that students on the indicator of authenticity contained in question number 5 of the social studies subject, Basic Competence (KD) 3.3 the role of the economy in an effort to improve the welfare of people's lives with linguistic intelligence. Problem number 6 SBDP subject, KD 3.2 scales with intrapersonal and musical intelligence. From the results of the analysis of indicators of authenticity with a high category, it means that students are able to provide various answers in solving problems using their own language. This statement is in line with research conducted by (Mursidik *et al.*, 2015) prove that students have the ability to think creatively with high originality indicators, meaning that students can solve problems.

Students are given a problem, then required to be able to solve the problem. The indicator of authenticity in the medium category proves that students are not only able to provide solutions but are able to solve problems by providing new solutions. Giving a score of 0 because the students did not respond. If the student gives the same answer as in the book, a score will be given as one. Whereas students who have the ability to think creatively as indicators of authenticity will give different answers and modify answers from books. So giving a score to students who can give different answers from the book gets a score of four. The distribution of pretest and posttest values for creative thinking skills on originality indicators is presented in figure 3.

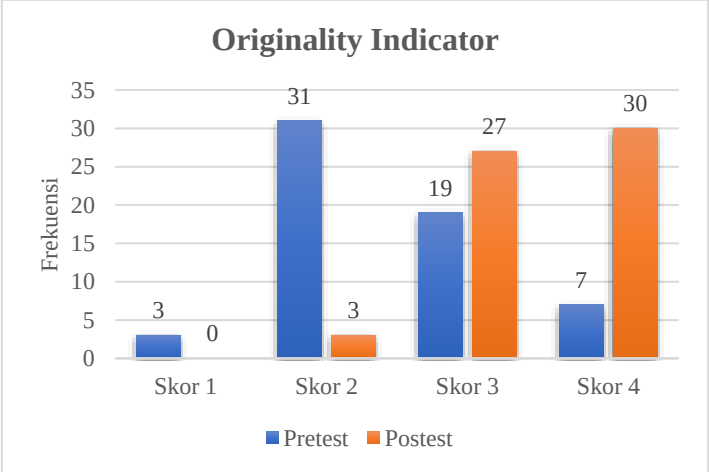

Figure 3. Distribution of Pretest and Posttest Values on Authenticity Indicators

The presentation of Figure 3 shows that questions 5 and 6 in the pretest of the students mostly get a score of two. This shows that when learning has not used thematic LKPD teaching materials, the PBL model based on multiple intelligences, students have not been able to solve problems and many are still the same as the explanations in the book. While in the posttest most of the students got a score of four. This means that after using the thematic LKPD PBL models based on multiple intelligences, the ability to think creatively on the indicator of originality of students increases, marked by students being able to solve problems by providing new ideas, not copying what is in the book.

Elaboration Indicator

The detail indicator (Elaboration) is the ability to explain in detail or in detail the answers to solve problems. Elaboration itself means the ability to explain in detail (detail). The indicator of detail is to develop other people's ideas and develop steps to complete them in detail (Yuliani *et al.*, 2017). This indicator leads to students to provide answers in solving problems.

The results of the research are presented in Table 4. Prior to learning using LKPD, a pretest was carried out first, obtaining a pretest score of 59.58. Then after learning using thematic LKPD PBL models based on multiple intelligences, a posttest was carried out with a score of 86.67, N-gain 0.67 in the medium category. The detail indicator has the same criteria as the authenticity indicator, which is both moderate criteria. The medium criterion on the detail indicator means that students are already able to describe answers, but there are still many students who still need to complete in detailing their answers. This is in line with (Susantini *et al.*, 2016) states that teacher detail indicators have an important role in facilitating students to relate observations to previous knowledge.

In this study, indicators of detail were seen from the answers per student in solving the problems in the questions and then the answers were analyzed according to the assessment rubric. If students write appropriate, detailed and detailed answers, they will get a score of four. Then if students answer questions that are appropriate but still not detailed enough, they will get a score of three. A score of two is obtained if students provide problem solving but lack detail. While giving a score of one if students answer but all wrong. The distribution of pretest and posttest values for creative thinking ability in the detail (Elaboration) indicator is presented in Figure 4.

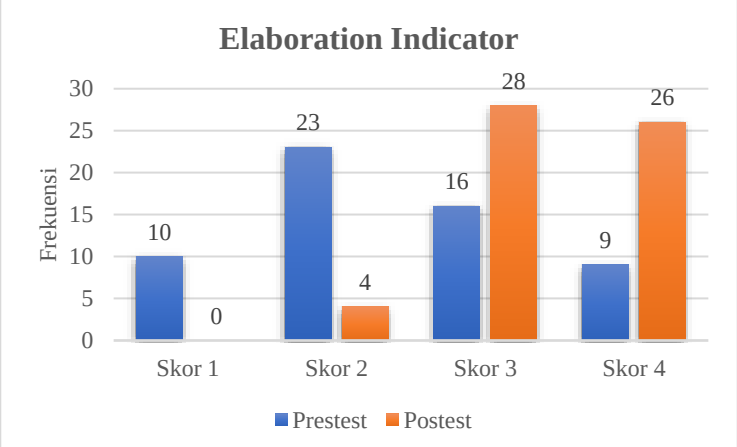

Figure 4. Distribution of Pretest and Posttest Values on Detail Indicators

The presentation of students' scores for the detail indicator shows that during the pretest, many students get a score of two. Students only give short answers without explaining in detail. Then after the treatment was carried out using thematic LKPD teaching materials, the PBL model based on multiple intelligences, there was an increase. It was

seen from the posttest results that most of the students obtained scores of four and two. Where students provide appropriate, detailed and detailed answers. The reason why students give short answers is because students tend to take shortcuts by giving practical but correct answers. This is in line with opinion (Hasanah *et al*., 2021) which states that students have a bad habit of solving problems with convergent thinking so that they only focus on one solution without specifying the answer.

CONCLUSION

Based on the findings of the data and discussion, it can be concluded that. The results of research on students' creative thinking abilities obtained information that there was an increase in the creative thinking abilities of fifth grade students at SD Negeri Sadar Karya for the 2022/2023 academic year. The results of the analysis of each indicator of the ability to think creatively, firstly, fluency, obtained an N-gain value of 0.71, secondly, flexibility received 0.76, thirdly, originality received 0.71 and fourthly, detailism obtained an N-gain value of 0.67. The acquisition of an overall average N-gain of 0.73 with high criteria with the effectiveness of n-gain teaching materials Thematic Student Worksheets Problem Based Learning model based on multiple intelligences is declared effective for use in thematic learning Clean Air for Health, sub theme 1 The Way of the Body Processing Clean Air class V SD.

Declaration by Authors

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