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Enhancing Creative Thinking and Global Diversity Through Culturally Responsive Teaching in Primary Schools

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ABSTRACT

This study aims to develop a problem-based learning (PBL) model incorporating a culturally responsive teaching (CRT) approach, with the objective of enhancing creative thinking skills and fostering globally diverse dispositions among primary school students. The research employed a quasi-experimental design, specifically a non-equivalent pretest-posttest control group design. Participants included 26 students from a fifth-grade class at a public primary school in Bogor City, divided into experimental and control groups selected through purposive sampling. The implementation of the learning model was monitored using observation sheets, while the assessment of creative thinking skills was conducted using a descriptive test covering four key indicators: fluency, originality, flexibility, and elaboration. Additionally, global diversity dispositions were measured through questionnaires, and student feedback was gathered using both questionnaires and student-produced magazines. Observations indicated that the PBL-CRT model was implemented with full fidelity, achieving 100% adherence to the planned instructional steps. Analysis of creative thinking outcomes revealed that the experimental group exhibited a high N-Gain score, significantly outperforming the control group, which was categorized in the moderate range. Furthermore, the experimental group demonstrated a superior global diversity disposition, with a difference of 11.34% compared to the control group. Student feedback was overwhelmingly positive, with questionnaire responses falling into the "very good" category, and student magazine content reflecting favorable reactions to the CRT approach.

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1. INTRODUCTION

The objectives of Indonesian education are in line with the direction of educational development in the 21st century, which is to build competencies useful for solving problems through critical, innovative, and creative thinking, for the sake of living together in peace and harmony among the people (Romlah, Muhammad Nur, 2018). The need for knowledge is important to meet the demands of the current era and to prepare for life in the future, one of which is creating innovative things, namely the ability to think

creatively. It is hoped that students will be trained to express many new ideas and concepts in solving problems (Rahayu et al., 2019). Based on the results of interviews with six primary school teachers about students' creative thinking skills, it was concluded that students' creative thinking skills were still low. Students still have difficulty coming up with alternative answers to the problems presented. This cannot be separated from the teacher's ability to implement meaningful and creative learning that is integrated across the cognitive and affective domains.

On the other hand, the rapid flow of globalization and the increasingly rapid growth of technology have not only had positive consequences, but also several negative consequences, one of which is a crisis of identity and character among the young generation of this country (Lestari & Hermawati, 2022) . This is evidenced by recent phenomena related to the rise of youth crime, such as fights, bullying and other intolerant acts. Based on the results of the 2023 education report card for one of the primary schools in Bogor City, the awareness of the importance of Pancasila students' character values is still low (average score 49.42%).

Ramadan (2018) emphasized that character education should begin as early as primary school, as it is essential for the successful development of students' character. Culture-based character education aligns closely with the concept of global cultural diversity, as explained by Patras et al. (2023), and significantly influences children's thinking patterns as learners. A survey conducted with 70 Grade 5 students at a public school in Bogor City revealed that they represented at least five different ethnic groups, including Sundanese, Batak, Betawi, Padang, and Javanese. However, it is concerning that this diversity receives little attention in the educational context. Rahmawati et al. (2020) argue that one way to develop cultural identity and preserve cultural heritage, especially among younger generations, is through education.

Based on the above description, developing creative thinking skills and globally diverse characters is very important for research and development at the primary education level. One approach that requires students to develop 21st-century skills and create meaningful learning that is connected to the student's culture is the Culturally Responsive Teaching (CRT) approach. CRT is a learning approach that responds to the culture of the students in the classroom, creating meaningful and enjoyable learning and a sense of mutual respect for differences. Vavrus (2012) explains that CRT is an expression of multicultural education. A culturally responsive teacher who contributes to paying attention to students' learning needs. Hernandez et al. (2013) explained that there are five steps in implementing CRT, including 1) understanding students' cultural diversity, 2) creating an inclusive classroom environment, 3) connecting learning materials to life of students, 4) using appropriate learning strategies, and 5) honestly assessing student progress. CRT produces good practice as expressed by Akmal (2021) who states that active student involvement in learning will give rise to values instilled through life experience and a sense of empathy for the environment so that teachers can not only convey theory but also convey values of activities.

The theme of flat shapes around the mathematics subject is very close to the efforts to build creative thinking skills and, at the same time, a character with global diversity, if developed based on local cultural values. The PISA 2022 results show that Indonesian children's math literacy scores are still low, especially in their creative thinking competencies. Based on the above explanation, it is very important to choose a learning approach that can improve creative thinking skills and, at the same time, shape globally diverse character for primary school students. Thus, the problem that will be solved is: “How can learning using the CRT approach improve the creative thinking skills and global diversity character of primary school students?

2. METHODS

The study was conducted by developing learning materials that were followed up using a quasi-experiment method with a pretest post-test control group design. The subjects of this study were 5th grade students from one of the public elementary schools in the city of Bogor, a total of 26 students out of a total of 78 5th-grade students. Sampling was done using a non-random technique, namely purposive

sampling. Purposive sampling is a sampling technique based on the researcher's or evaluator's consideration of which sample is most useful and representative. The test subjects are in a classroom with cultural diversity. To see the effectiveness of the development results involving subjects for the control class and the experimental class. The treatment for the control class consisted of learning using the PBL model without CRT, while the experimental class followed CRT-based learning. Classes with a PBL-CRT approach incorporate students' culture into learning, such as problems, teaching materials, and activities related to culture. Meanwhile, the control class only used PBL steps with teaching materials without cultural involvement. The pretest-post-test instrument for creative thinking skills uses a ten-question description test, while the character of global diversity uses a questionnaire, all of which is validated by a team of experts. The pretest activity was conducted before the start of learning, while the post-test was conducted after learning had been conducted for three sessions. To measure the effectiveness of the learning carried out, an n-gain test was conducted for the control and experimental classes based on the results of the creative thinking skills test, while the global diversity character variable was analyzed by calculating the percentage in each class. The study was conducted according to five procedural phases, including: planning, implementation, data processing and analysis, reporting and dissemination of research results.

3. FINDINGS AND DISCUSSION

This research aims to determine the implementation of problem-based learning with a culturally responsive teaching approach (CRT) in learning flat forms, improving students' creative thinking skills, global diversity of character, and students' responses to problem-based learning with a CRT approach. in one of the primary schools in Bogor City. The study was conducted in the even-numbered semester of the 2023/2024 academic year and was divided into a control class in class V-A and an experimental class in class V-B. The data collected in this study is quantitative data in the form of pre-and post-test results and qualitative data in the form of student journals. An overview of the data obtained includes the mean, median, mode, standard deviation, and percentage.

This survey data is supplemented with data from observations of the implementation of problem-based learning using the CRT approach, questionnaires on global diversity characteristics, and student responses to problem-based learning using the CRT approach. Presented below are the results of the calculation of the pre-test (before treatment) and post-test (after treatment) data in the control class and the experimental class.

3.1 Implementation of problem-based learning with the CRT approach on flat building materials

The learning activities were carried out three times each in the control class and the experimental class (three sessions). At each meeting, the teacher is observed by another teacher (observer) to assess the implementation of the planned learning process. The learning implementation is carried out in several steps, including:

3.1.1 Preparation phase

In this phase, the researcher plans learning by creating learning modules. The teaching module consists of learning planning, teaching materials, learning media, student activity sheets, and assessments. The teaching modules are divided based on the learning objectives to be achieved. In addition, the educational modules are structured based on the problem-based learning (PBL) model with a CRT approach. Not only is the learning structured with elements of student culture, but the teaching materials and assessments also incorporate elements of student culture, so that CRT plays a comprehensive role in the educational modules created. The activity sheets for students are prepared by including aspects of creative thinking skills.

3.1.2 Implementation phase

The implementation phase involves carrying out the previously planned learning activities. In this stage, the researcher assumes the role of a teacher, delivering lessons based on the developed teaching module. The implementation process is designed to accommodate students' learning styles by differentiating instruction in terms of content, processes, and outcomes, as recommended by the independent curriculum. The learning activities are spread across three meetings, each focusing on a different sub-topic. In the first meeting, the teacher introduced the concept of calculating the area and perimeter of flat shapes. The second meeting covered the calculation of the combined area of flat shapes. In the final meeting, students applied the concepts of perimeter and combined area through traditional games, such as *sondah* and *margala* (also known as *galaksin*), integrating outdoor learning. The approach actively engaged all students, leading to high participation levels. As Astria and Kusuma (2023) note, fostering creative thinking skills requires attention to student interaction and engagement to enhance their activity in learning.

3.1.3 The evaluation and reflection phase

After the learning activities have been carried out, the teacher will evaluate and reflect on what has been learned. This is done to see the learning performance and find out the strengths and weaknesses of the learning carried out so that notes can then be taken as a follow-up plan for future improvements. Problem-based learning with the CRT approach is only carried out in the experimental classroom. Observation activities were carried out per meeting with a total of 17 observation aspects. The results of observations of the implementation of problem-based learning using the CRT approach are as follows:

Table 1. Results of learning observations using the CRT approach

No.	Activity	1		2		3	
		Yes	No	Yes	No	Yes	No
1.	Introduction	4	0	4	0	4	0
2.	Core	9	0	9	0	9	0
3.	Closing	4	0	4	0	4	0
Amount		17	0	17	0	17	0
Percentage		100%	0%	100%	0%	100%	0%

Based on the above table, the implementation of problem-based learning activities using the CRT approach according to the aspects perceived by the teacher was achieved 100%. Apart from the checklist data, the observer's comments on the implementation of learning are as follows:

- The positive impact of teachers on students is commendable
- Teachers' enthusiasm for teaching contributes to a positive learning atmosphere
- Good at guiding students in providing material
- Teachers create a nurturing atmosphere in which students feel comfortable asking questions
- Good at asking questions related to student culture
- Teachers ensure good assessments through different types of assessments
- Teachers are able to form groups that suit the circumstances of students (heterogeneous groups with different cultures)
- The communication style is clear and attracts the general attention of the students
- I admire and appreciate excellent teaching skills
- The teacher's classroom management strategy is commendable

Learning takes place in groups. Each group solves the problems listed on the student activity sheet. The learning steps using the CRT approach are implemented as follows:

a) Understanding cultural diversity

Understanding students' cultural diversity is achieved through a personalized approach to students by completing surveys. This is done to find out the student's background in terms of culture, values, and customary traditions. Through this activity, data on the diversity of the students in the classroom is obtained, so that it becomes a source of reference when creating teaching modules that are implemented directly with the students. In addition, when learning takes place, students introduce their culture to friends in the classroom. Each student mentioned their cultural or ethnic origin. Demonstrate everyday language use such as counting and other unique things specific to their culture.

Figure 1. Activities to recognize cultural diversity

In the learning process, students are again invited to get acquainted with the different cultures that exist in Indonesia. This activity broadens their understanding that Indonesia is very rich in culture. Even though there are differences, there is still one, namely Indonesia, as Indonesia's motto says: "Unity in Diversity".

b) Create an inclusive classroom environment.

Teachers create a culturally friendly classroom environment. The culture that students bring as an identity is included in learning, so that students feel recognized and valued for their existence. Even though it is a minority culture in the classroom, this culture is still emphasized in learning and becomes a new insight for students towards each other. Every student has the right to introduce his or her culture into the classroom. Activities to introduce culture are carried out at the beginning of the learning process. One of the activities carried out is maintaining attendance in regional languages.

Figure 2. Discussion activities with study groups

Students study in groups, which makes it easier for them to discuss. The grouping is done heterogeneously. that is, one group strives to consist of different cultural resources. Each student discusses to solve problems and introduces their culture. Students discuss based on their learning experiences and habits to enrich each other's knowledge.

c) Linking teaching materials to students' lives

In learning activities, teachers link learning materials that are adapted to the cultural diversity of students. Each student's culture plays a role in learning activities, starting from teaching materials and evaluation questions. The cultures involved in learning activities according to the initial survey results are Sundanese, Batak, Betawi, Padang and Javanese. Not only does the student's culture form the core of the learning content, but other supporting cultures are also used to supplement it. Cultural elements highlighted in the learning activities include regional languages, batik motifs, traditional houses, regional songs, traditional food and local traditional games.

Figure 3. Sondah game

Students learn contextually. The problems presented are relevant to everyday life because they contain cultural elements. The learning process is carried out by involving students' culture, starting from teaching materials, learning media and evaluation questions. Learning activities also include various activities that can increase student activity, including traditional game simulations. Traditional games are a cultural heritage with symbolic meaning. play, play equipment and speech or songs. Traditional games make children physically and spiritually strong, social-emotional, optimistic, curious, experimental and promote leadership. Traditional games can be used to educate generations of Indonesian students in the Pancasila Student Profile program. Therefore, it is important that educational institutions participate in preserving Indonesian culture, which is being displaced by technological advancement (Cahya Saputri & Katoningsih, 2023).

d) Use appropriate strategies

The learning process involves various learning strategies, including group discussions, to solve the problems presented. Presentations are given to convey the results of problem solving. Learning takes place outside the classroom to practice the learning content, namely traditional games.

Figure 4. Margala/galaksin game

Each student has a different profile, one of which is related to learning style. Teachers present learning with differentiated strategies so that students' learning needs can be met. As explained by Nurzaki Alhafiz (2022), each student's diverse learning styles need to be adapted

with different learning. Differentiated learning is a process or philosophy of effective teaching that provides a variety of ways to understand new information for all students in their different classes, including ways to: master the content; process, build or discuss ideas; and developing learning products and assessment measures so that all students from diverse backgrounds in the classroom can learn effectively. Teachers provide education as optimally as possible to meet the learning needs of all students. In this case it concerns kinesthetic, audio or visual learning styles or a combination of both. Learning strategies should take into account students' willingness to learn. An attempt is made to facilitate the development of the right and left brain so that it is balanced, as stated by Adilah & Minsih (2022) that integrating right and left brain processes and building neural structures in a balanced manner, as well as developing future-oriented neural pillars. An active brain is a very good condition for receiving knowledge.

e) Please provide an honest review

Teachers assess student progress with different types of assessments from both cognitive and affective domains. Evaluation takes place during the learning process and afterwards.

Figure 5. problem-solving activities

Assessment takes place as fairly as possible by looking at the capabilities of each student. Involvement in the learning process and the end result complement each other. Each student has different abilities, so the final result of his performance is his own and cannot be compared with others.

Based on the above explanation, the first research question concerns the implementation of problem-based learning with a culturally responsive teaching approach in learning plane figures, which is going very well. Implementing good education will have an impact on students' learning outcomes. Further student learning outcomes related to improving creative thinking skills will therefore be discussed in Part B.

3.2 Students' learning outcomes are related to improving creative thinking skills

Investigating problem-based learning with a culturally responsive teaching approach (CRT) on flat materials to improve fifth-grade students' creative thinking skills and globally diverse dispositions using a quasi-experimental method with a non-equivalent pretest-posttest control group design. This study was conducted in the experimental class and the control class, and different treatments were used. The experimental class uses a PBL learning model with a CRT approach, while the control class only uses a PBL model without a CRT approach.

Before the treatment, students are given a pretest to determine their initial skills. After treatment, students are asked post-test questions to determine improvement in learning outcomes. The pretest and posttest were administered with the same questions in the experimental class and the control class. Descriptive statistics were obtained from the pre-test and post-test results, which are shown in Table 2. below:

Table 2. Comparison of pretest-posttest results

Data	Experimental class		Control class	
	Pretest	*Posttest*	*Pretest*	*Posttest*
min	22	64	20	54
max	56	96	44	92
mean	37.15	81.92	32.23	72.38
median	35	84	31	69
standard deviation	10.869	8.863	6.179	11.427
variance	118.135	78.554	38.185	130.566

Improvement of creative thinking skills in flat-form material for Class five students can be seen as follows based on the results of n-gain test:

Table 3. Results of n-gain test for control class and experimental class

Class	Statistical parameters	N	Value		N-Gain	Category
			Pretest	*Post test*		
Experimental	mean	26	37.15	81.92	0.71233	Tall
Control	mean	26	32.23	72.38	0.59245	

In addition, the data can be read via the following table diagram:

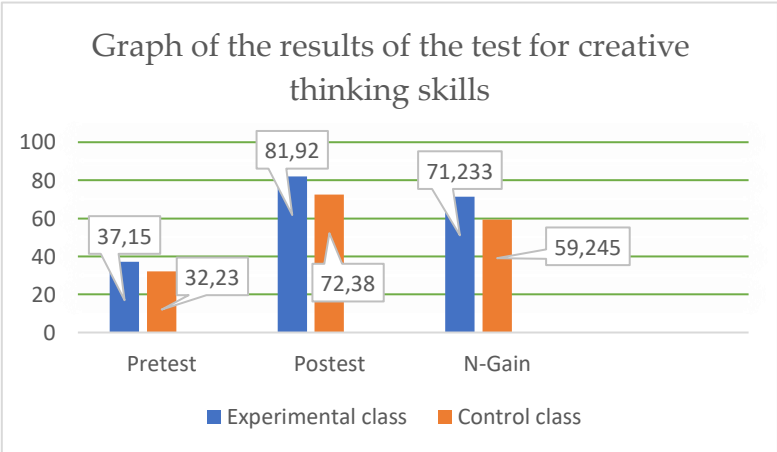

Figure 6. Graph of the results of the test for creative thinking skills

Based on the reinforcement test performed, the experimental group achieved high criteria, while the control class achieved average criteria. From the test results, it can be said that the class that received problem-based learning using the CRT approach experienced greater improvement in creative thinking skills than the class that studied without using the CRT approach.

The effectiveness of using the problem-based learning (PBL) model with the CRT approach in the experimental classroom is quite effective, with an n-gain rate of 71%. On the other hand, the control class using the problem-based learning (PBL) model without CRT achieved an n-gain rate of 59% in the same category, namely quite effective. Even though both meet the same criteria, the experimental class is 12% better in terms of the n-gain percentage obtained. Thus, it can be concluded that classes using the PBL model with the CRT approach are more effective than classes using the PBL model alone.

Based on the results of the analysis for each indicator of creative thinking skills, it can be presented in the following table:

Table 3. Percentage of learning outcomes for each creative thinking indicator

Question number	Indicator	Control class				Experimental class			
		Pre test	Post test	n-gain	Category	Pre test	Post test	N-gain	Category
1a 1b	Fluency	38.46	84.23	0.74	Tall	38.46	85.00	0.76	Tall
2a 2b	Originality	32.31	67.31	0.48	Currently	38.08	69.23	0.50	Currently
3a 3b	Flexibility	34.62	75.00	0.62	Currently	39.62	78.46	0.62	Currently
4a 4b 5a 5b	Elaboration	27.88	67.69	0.57	Currently	34.81	80.96	0.71	Tall

Based on the results of the analysis of learning outcomes on creative thinking skills regarding the perimeter and area of flat shapes, the average result for the fluency indicator for the control class was 84.23% and the experimental class was 85%. The N gains for both classes, compared between the pretest and posttest scores, both meet high criteria. It turned out that students came up with many ideas in a short time. The control and experimental classes were actively involved in communicating ideas orally and in writing during the learning process and at the final test.

The post-test results for creative thinking skills on the fluency indicator (the ability to think fluently) revealed significant differences between the control and experimental classes. In the control class, students provided brief and less detailed answers, whereas students in the experimental class produced more complete and fluent responses, demonstrated by providing relevant and thorough answers. As Nasution and Surya (2017) explain, students who excel in fluency are characterized by their ability to provide relevant answers and exhibit a smooth flow of ideas. Therefore, it can be concluded that the creative thinking skills related to fluency were stronger in the experimental class, which utilized problem-based learning (PBL) combined with the CRT approach.

Indicators of originality or skills to generate unique ideas or ability to generate original ideas in the experimental class are better than the control class. Although both meet the average criteria, the performance rate in the experimental class is slightly higher than in the control class. Skills in generating unique ideas still need to be improved as this is the lowest performance among all indicators with n-gain values of 50% and 52% in the control class and experimental class.

For the second indicator of creative thinking skills, namely originality, it can be seen that students in the control class wrote answers that were still general, while those in the experimental class showed unique ideas. This can be seen in the answer to question 2a. Although the performance rate is not optimal, the experimental class is above the average of the control class. Students in the experimental class wrote answers that were unusual or different from students in the control class.

The indicator of flexibility of thinking (flexibility) in the research results showed that the experimental class was 3.46% superior to the control class. Experimental lessons can yield different answers. During the learning process, students are able to formulate alternative answers or solutions to the problems presented. The flexibility indicators for creative thinking skills for the experimental class look better than those for the control class. This is proven by the answers written by students who can apply the formula correctly and provide alternative answers that are more varied. Meanwhile, the

control class still looks stiff and has not implemented the concept well. Students with good flexibility indicators will provide varied answers (Hidayah et al., 2021).

Creative thinking skills, particularly in the elaboration indicator—where students develop ideas and add details to make an object, idea, or situation more interesting—achieved the highest level of performance across all indicators. The learning outcomes showed a 13.27% improvement in the experimental class compared to the control class, with the n-gain score placing the control class in the medium category and the experimental class in the high category. The final indicator, the development of creative thinking skills, revealed that students in the control class struggled to fully detail, adapt, and use various ideas in the post-test, while the experimental class demonstrated a stronger ability to modify and elaborate on the information provided, resulting in more diverse responses. Nasution and Surya (2017) support this by stating that strong elaboration skills enable students to develop, enrich, and expand ideas. Consequently, the improvement in creative thinking skills was generally better in the experimental class, which used the CRT approach. Furthermore, this learning approach had a positive impact not only on academic outcomes but also on students' character development, particularly in fostering a sense of global diversity.

3.3 Results of the post-learning global diversity character questionnaire

One of the objectives of research regarding the implementation of problem-based learning using the CRT approach is to determine the globally diverse nature of students. The results obtained based on the questionnaire are as follows:

Table 4. Data on the percentage that has achieved the character of global diversity

No.	Element	% Control class	% Experimental class
1.	Getting to know and appreciate the culture	78,46	91,53
2.	Intercultural communication and interaction	85,38	96,92
3.	Reflection and responsibility for the experience of diversity	74,64	91,54
4.	Social justice	90,00	93,85
	Mean (%)	82,12	93,46

Beyond the learning outcomes measured in this study, one of the research questions is about the global diversity of student character after learning with the CRT approach. Based on the results of the data analysis of the global diversity character questionnaire, there are differences in percentages in the control class and the experimental class. Overall, the control class achieved a percentage of 82.12%, while the experimental class achieved 93.46%. Thus, the percentage difference for the control class and the experimental class is 11.34%, which is superior to the experimental class.

Percentage differences occur per element. The elements tested for the character of global diversity consist of the following four elements:

3.3.1 Getting to know and appreciate the culture

This element consists of 5 statements that are tested. The comparison between the control class and the experimental class was made based on the performance percentage. The statement "*I enjoy learning about other regional cultures*" indicated 100% agreement from both classes. Meanwhile, the lowest percentage was found in the statement 'I am more interested in hearing stories about other cultures' (46%) in the control class, in contrast to the experimental class, because the lowest percentage in this element was in the statement 'I enjoy learning'. on other cultural celebrations" at 76.9%. Overall,

the percentage for the control class in the first element averaged 78.46%, while the experimental class was 91.54%, 13.08% better than the control class.

3.3.2 Intercultural communication and interaction

The elements of intercultural communication and interaction consist of five statements. The statement with the highest percentage for the control class was the statement "I like to play with friends from different cultures," while the experimental class received the maximum percentage (100%) for three statements, one of which was the same statement as the control class. class. However, the lowest percentage is in another explanation. The control class got 65,38% disagreeing with the statement "I only want to sit with friends who are from the same region as me", while the experimental class got 88.64% disagreeing with the statement "I feel happy when I see different types of food" to deny. from my own region". Overall, the average percentage for the second element was 85.38%, while the experimental class was 96.92%. This element is the highest performance level for the experimental class, compared to other elements.

3.3.3 Reflection and responsibility for the experience of diversity

The third element tested, which concerns reflection and responsibility for the experience of diversity, achieved an average percentage of 74.62% for the control class and 91.54% for the experimental class. The difference between the two classes is quite high: 16.92% better than the experimental class.

3.3.4 Social justice

The social justice element showed the highest average performance in both the control class (90.4%) and the experimental class (93.85%). However, the lowest-performing statement for both groups was "I believe that not all cultures should be respected." Integrating global diversity into intracurricular education has proven to be an enjoyable and effective way to cultivate this character trait. Involving students' cultural backgrounds helps foster a sense of global diversity among learners. Cahya Saputri and Katoningsih (2023) emphasize that creating engaging and enjoyable learning experiences by involving students in activities can develop diverse global characters. Based on the data, the experimental class demonstrated a higher overall percentage of global diversity character performance, with a difference of 10.8% compared to the control class. This indicates that learning approaches incorporating CRT are more effective in fostering global character diversity. Additionally, students' responses to this method reflect a positive reception, which further supports the improvement in learning outcomes and character development. Future analysis will explore how students respond to problem-based learning with the CRT approach.

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3.4 Student problem-based learning questionnaire results using the CRT to flat-form materials

At the end of the research activities, namely after completing three problem-based learning meetings using the CRT, one of the tests conducted was the distribution of questionnaires on students'

responses to what had been learned. The purpose of distributing the questionnaire was to find out students' reactions to what they had learned. The summary of the questionnaire is shown in diagram 5 below:

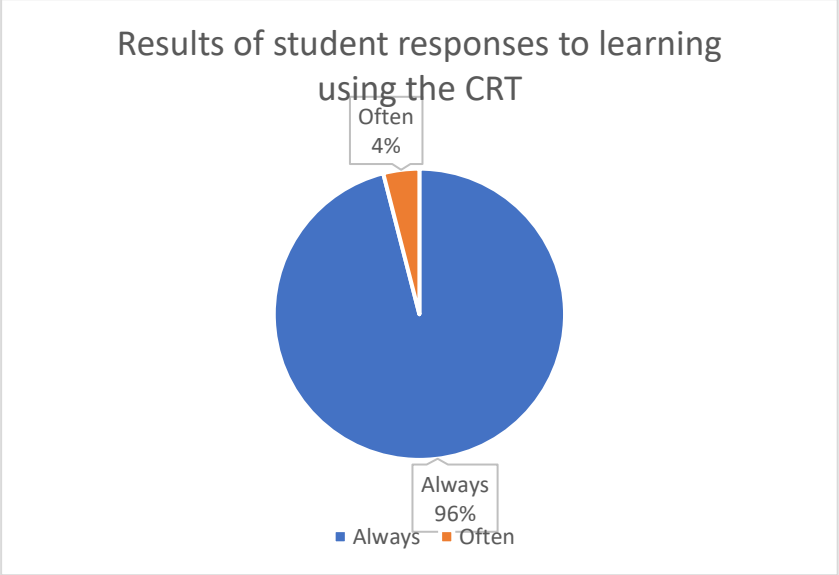

Figure 7. Results of student responses to learning using the CRT

Student reactions played a crucial role in evaluating the effectiveness of the learning process. In this study, researchers distributed questionnaires to assess students' responses to the problem-based learning approach using the CRT method. The data analysis revealed that 96% of students reported that their teachers consistently applied the CRT approach, while 4% indicated that teachers frequently did so. Overall, student responses were overwhelmingly positive, with a total approval rating of 99.04%, demonstrating strong support for the problem-based learning method with CRT integration.

In addition to completing questionnaires, students also kept daily journals documenting their responses to learning with the CRT approach. The first indicator focused on understanding cultural diversity, with teachers introducing and acknowledging the diverse cultures represented in the classroom. This was achieved by first mapping the cultural diversity among students, allowing the teacher to integrate different cultural perspectives into the learning content. By involving all cultures, students felt that their backgrounds were recognized, fostering a sense of inclusion. This also encouraged students to learn about each other's cultures, leading to greater harmony and mutual respect. As Muñiz (2019) noted, CRT serves as a "window" into the cultural heritage and experiences of others, which is increasingly important in diverse societies where all students benefit from respecting their own and others' cultural heritage.

The second CRT indicator is the creation of an inclusive classroom environment. Inclusivity in this context means ensuring that all students feel accepted, valued, and culturally supported. According to Abacioglu et al. (2020), when teachers are responsive to students' cultural needs, students feel more engaged with both the learning material and their environment. This fosters a positive atmosphere where no student feels left out or favored, as Rhodes (2017) explains that CRT practices build mutual respect and collaboration. Through fair treatment and inclusive norms, students develop positive attitudes toward learning, which are grounded in their personal experiences and empowerment during the learning process.

Teachers also incorporated cultural activities, such as traditional games, into the learning process. These games—*gobak sodor* (or *galaksin*), *galah*, *margala*, and *sondah*—were selected based on the cultural backgrounds of the students, allowing them to share and learn about one another's traditions. The games aligned with the learning material while highlighting the value of cultural

diversity, as each game is known by different names in various regions, emphasizing the richness of Indonesian culture.

The third CRT indicator is the use of appropriate teaching strategies. Teachers selected strategies that best accommodated the cultural diversity of the classroom, ensuring all students were actively engaged. According to student journals, the teacher varied the learning materials and incorporated differentiated content, allowing every student to feel included. Furthermore, learning activities extended beyond the classroom to include outdoor experiences, preventing boredom and enhancing engagement. This approach made learning more comfortable and enjoyable, helping students absorb the material more effectively. By experiencing the richness of Indonesian culture through these activities, students felt a sense of pride. As Khaulani et al. (2020) suggest, primary school students are in the concrete operational stage of cognitive development, meaning they learn best through tangible, hands-on activities. Engaging students in fun and concrete learning experiences stimulates their joy and excitement, which, in turn, facilitates the acquisition of new knowledge.

The final indicator focuses on providing fair and honest assessments. Teachers aim to treat all students equitably, as reflected in student diaries, where one student noted, "my teacher treats all students fairly." This fairness is evident not only in assessments but also in the inclusion of all students, considering their individual abilities, in every learning activity. Teachers use a variety of assessment techniques, including both written and performance-based evaluations, and they are quick to acknowledge each student's achievements, whether through verbal praise, gestures, or even tangible rewards.

The research results indicate that students taught using the PBL-CRT (Problem-Based Learning with Culturally Responsive Teaching) approach demonstrate stronger creative thinking skills and a more developed sense of global diversity compared to those taught with PBL alone. This improvement is largely attributed to the integration of student culture into the learning process, allowing students to engage in contextual and meaningful learning experiences. Observational data from the learning process supports this, showing that students were actively engaged and enjoyed the learning experience. Student journals also reflect this positive impact. In conclusion, the use of PBL combined with the CRT approach in teaching flat-shape concepts has proven effective in enhancing both the creative thinking skills and the global diversity character of fifth-grade students.

4. CONCLUSION

Based on the research conducted on the application of problem-based learning (PBL) with a culturally responsive teaching (CRT) approach for teaching flat shapes to fifth-grade students, several key findings were observed. First, the implementation of PBL with the CRT approach was executed effectively, with 100% adherence to the instructional process, as evidenced by observational data showing strong student engagement and the successful integration of student culture into teaching materials, learning activities, and assessments. Second, students' creative thinking skills improved significantly in the experimental group, with an n-gain score of 0.7123, indicating a high level of progress. Fluency was the creative thinking indicator that showed the greatest improvement. Third, the global diversity character of students also improved, with the experimental class outperforming the control class by 11.34%, particularly in intercultural communication, which achieved a 96.92% success rate. Additionally, student responses to this approach were overwhelmingly positive, as reflected by the questionnaire results, where 96% of students responded very well and 4% responded well. Students' diaries also expressed positive sentiments, highlighting their enjoyment, comfort, and cultural involvement. However, the study was limited to one specific context and age group, which may restrict generalizability. Future research should explore the long-term effects of CRT-based learning across different subjects and grade levels, and consider a more diverse sample to better understand its broader applicability.

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