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THE ETHNO MATHEMATICS INTEGRATED TEACHING MODULE TO INCREASE THE MATHEMATICAL PROBLEM SOLVING SKILLS

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Abstract

A teaching module equipped with *LKPD* can actualize a more effective and fun learning process, also can increase the mathematical problem solving skills that should mastered by the students. However, from the data acquisition results there are still many students who have difficulties in solving and resolving the mathematical problems given. So, there need innovation in using teaching module equipped with ethno mathematic integrated *LKPD* which can assist to increase the mathematical problem solving skills of the students. This research aims to comparing the mathematical problem solving ability of VII grade junior high school students taught with ethno mathematic integrated teaching modules with students taught with conventional methods. This research is a *quasy experiment* and research design uses is *randomized control group only design.* The research population are whole grade seventh students of *Al Madinah Islamic Boarding School* which amounts are 115 people. The instrument uses is mathematical problem solving skills test. Based on the research results, the average score for experimental class students was 78,33 and the average score for control class students was 70,14. After testing the hypothesis with the t test, it is found that the ability to solve mathematical problems skills of those learning through teaching modules equipped with ethno mathematics integrated *LKPD* with problem based learning model are higher than the mathematical problem solving skills of those learning through conventional learning model.

Keywords: Ethno mathematic; mathematical problem solving skill; problem based learning model; teaching module.

Abstrak

Modul ajar yang dilengkapi dengan LKPD dapat mewujudkan proses pembelajaran yang lebih efektif dan menyenangkan, serta dapat meningkatkan kemampuan pemecahan masalah matematis peserta didik yang harus dikuasai oleh peserta didik. Namun, dari hasil perolehan data yang didapatkan masih banyak peserta didik yang kesulitan dalam memecahkan dan menyelesaikan persoalan matematika yang diberikan. Sehingga, perlu adanya inovasi dalam penggunaan modul ajar disertai LKPD terintegrasi etnomatematika yang dapat membantu meningkatkan kemampuan pemecahan masalah peserta didik. Penelitian ini bertujuan untuk membandingkan kemampuan pemecahan masalah matematis peserta didik kelas VII SMP/MTs yang diajar dengan modul ajar terintegrasi etnomatematika dengan peserta didik yang diajar dengan metode konvensional. Penelitian ini merupakan penelitian quasy experiment dan rancangan penelitian yang digunakan adalah randomized control group only design. Populasi penelitian ini adalah seluruh peserta didik kelas VII SMP Al Madinah Islamic Boarding School yang berjumlah 115 orang. Instrumen yang digunakan berupa tes kemampuan pemecahan masalah matematis. Berdasarkan hasil penelitian diperoleh nilai rata-rata peserta didik kelas eksperimen 78,33 *dan nilai rata-rata peserta didik kelas kontrol* 70,14*. Setelah dilakukan uji hipotesis dengan uji t diperoleh bahwa kemampuan pemecahan masalah matematis yang belajar menggunakan modul ajar dilengkapi LKPD terintegrasi etnomatematika dengan model pembelajaran* problem based learning *lebih tinggi dari pada kemampuan pemecahan masalah matematis yang belajar menggunakan modul ajar dengan model pembelajaran konvensional.*

***Kata kunci**: Etnomatematika; kemampuan pemecahan masalah matematis; model pembelajaran* problem based learning*; modul ajar.*

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INTRODUCTION

According to the explanation of *National Council Teachers Of Mathematics,* Mundy, (2000) there are 5 basic abilities which constitute the standard of mathematical skill, the first is problem solving. So it can be concluded that the urgency of mathematic learning is because of there are problem solving skill formed to the students in the learning process, and it must mastered by the students to ease in solving the mathematical problems.

In terms of research result by Putra et al., (2018), Asih and Ramdhani (2019), concludes that problem solving skill is the heart of mathematics. Furthermore, problem solving skill can be define as an attempt to find a solution of a problem to achieve the expected goal (Ansori and Herdiman ,2019). So that, the problem solving skill is the heart of mathematics, due to in problem solving skill, a high level thinking process occurs to find a solution to a problem to be solves.

Yet, if look at the evaluation result of *PISA 2018* in the mathematics field, it get the average point of 396, it indicates an increase of 3 point from the evaluation result of PISA 2000, but the result obtained are still relatively low. It can be seen from the analysis result of OECD which concludes that the PISA has been done, there are around 71 % students does not reach the minimum level of competence in mathematics. The contributing factor is the low mastery of reasoning skills along with problem solving skills in students.

Subsequently, obtained from the results of interviews with mathematics educators, the teacher has already endeavored to make students more active in the learning process. Still the learning process that carried out did not make the students active and focus in the learning process yet. Thus making the learning goals not achieved by the students. Due to the students always have difficulty in solving and elaborating solutions to the exercises or mathematical problems been given.

Then, from the content of the teaching modules used by the teacher, it obtained that the learning process cannot meet the needs of students to be actively involved in the learning process. The content of teaching module in the learning process contains a learning model that does not provide a link between the subject matter and the student's daily lives. As well as the learning model still not apply the action or learning activity that can develop student's mathematical problem solving skill. Therefore, the teaching module used by the teacher should be in accordance with the contents of the Kurikulum Merdeka guidelines that direct to the learning utilize student's real world or students' cultural environment as the learning resource.

The learning process in *Kurikulum Merdeka* has close relation with the student's cultural environment experiences. The learning process utilizes the student's experience in *Kurikulum Merdeka* define as a differentiated learning. Maulinda, (2022), who said that the differentiated learning is a learning that accommodates the student's learning needs and it is identical to student-center learning utilizing student's experience from their nearest environment.

Further, observed from the research result by Sapoetra & Hardini, (2020) conclude that one of factors which cause the low of student's problem solving skill is the learning still dominated by the teacher, it is because the implementation of the learning model used is not effective yet. Sari,

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Juandi, Tamur, & Adem, (2021) in their research said that another factor causing the low of student's problem solving skill is the subject material that is difficult to understand, due to the implementation of the learning model applied does not work to create a meaningful and fun learning atmosphere. Whether the learning implemented is effective or not, it is not only due to the mastery of the learning model use but also caused by the inappropriate use of the learning model during the learning process.

The selection of model that can be uses to make learning runs more effectively, actively and innovatively is through the using of *problem-based learning*. This aligns with the findings of Putri & Rosyana, (2024), who explained that a learning model is a conceptual framework that outlines a systematic process for organizing learning activities to accomplish specific educational objectives. An effective learning model is one that can provide authentic learning experiences by presenting problems related to learners' daily or cultural environment. The problem-based learning model is very suitable for this approach, because it allows teachers to utilize the cultural context as a learning resource. As stated by Bishop (1994), mathematics is a form of culture that is embedded in various aspects of life, making it ideal to be taught through context-rich problem scenarios.

The approach used to integrate culture with mathematics named the ethno mathematics approach. The ethno mathematics approach is a teaching method used to explain the reality of the relationship between student's cultural environment and their mathematics learning experience. In accordance with Sunzuma and Maharaj, (2020) the ethno mathematics approach build the knowledge and early experience of students, the background, the play environment which is the culture. Therefore, integrating the ethno mathematics approach with the problem based learning model through presenting contextual problems or student's cultural environment is very suitable to support the creation of more effective learning.

The student's cultural environment comes from West Sumatera, the area known as Minangkabau. The area that has cultural and tradition diversities still exist until now. One of the varieties of Minangkabau culture is *Rumah gadang*. *Rumah gadang* is a cultural local wisdom of Minangkabau society. According to Canrath, Widyarko, & Salsabila, (2022) *Rumah gadang* building is in the form of a large stilt house with a *gonjong* roof that become the characteristic of the Minangkabau traditional architecture. One of *Rumah gadang* that the researcher spotlighted is the *Rumah gadang* of the Chaniago tribe, located in Jorong Koto Gaek Nagari Guguek Kecamatan Gunung Talang Kabupaten Solok.

Rumah gadang from the Chaniago tribe, also called rumah bagonjong or rumah baanjung, is a traditional Minangkabau house with architectural characteristics such as a gonjong roof, a central room, and a trapezoidal shape. These elements are closely related to mathematical concepts, so rumah gadang can be used as an ideal cultural context for learning. By integrating this context into the teaching module and LKPD, teachers can create an active, innovative and meaningful learning environment. As explained in the Kemendikbud Nomor 7 Tahun 2022 (RI, 2022), teachers have the flexibility to design teaching materials to develop students' competencies, and Wibowo &

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Ardiansyah, (2023) also revealed that teaching modules rooted in students' cultural environment can support more effective learning.

Based on observations from previous studies, researchers are interested in further studying this topic with the title "Effectiveness of Mathematics Learning through Teaching Modules Integrated with Ethnomathematics to Improve Problem Solving Ability of Grade VII Junior High School Students ". This research is important to provide learning that is relevant to students' cultural context in order to develop their mathematical problem solving skills".

METHODS

This research is *quasi experiment design*. The research design use is *randomized control group only design*. In this design, a sample group take from the certain population is group randomly into two classes, the experiment and control class. Both classes assume equal in all relevant aspects, but differ in treatment. The experiment class given treatment using teaching modules equipped with ethno mathematics integrated LKPD problem based learning model, while the control class use teaching modules equipped with LKPD conventional learning model. The design form can be seen in Table 1.

Table. 1 Research design

Class	Treatment	Test
Experiment	X	T
Control	O	T

Annotation:

X : The learning uses teaching module equipped with ethno mathematics integrated LKPD with an ethno mathematics problem based learning model.

O : The learning uses teaching module equipped with with a conventional learning model LKPD.

T : The final test for the experiment and control class.

The population in this research is all seventh grade students of junior high school Al Madinah *Islamic Boarding School* year 2023/2024 contains of 5 classes. The sampling techniques are by use normality test, homogeneity test, average similarity test and then *random sampling*. While the chosen sample is VII.A class as the experiment class and VII.B as the control class.

The research procedure included three stages: (1) preparation stage, which includes module and LKPD development, instrument validation, and teacher training; (2) implementation stage, which begins with giving pretest, followed by learning for nine meetings (2 × 40 minutes each) according to the treatment, and closed with posttest; and (3) evaluation stage.

The instrument in this research is arranges the mathematical problem solving skill test and validate it. Then carry out trials of test questions to analyze it before the final test is given.

The data analysis technique use for the final test of student learning outcomes is t test with $H_0: \mu_1 = \mu_2$ *or* $H_1: \mu_1 \neq \mu_2$. The t test is use to find out whether the learning outcomes of students in experiment class is different from the students learning outcomes in the control class. The *t* test formulated in equations (1) and (2):

$$t = \frac{x_1 - x_2}{S\sqrt{\frac{1}{n_1+n_2}}} \quad \ldots (1)$$

With:

$$S = \sqrt{\frac{(n_1-1)S_1^2+(n_2-1)S_2^2}{n_1+n_2-2}} \quad \ldots (2)$$

Annotation :

x_1 : Average score of the experiment class

x_2 : Average score of the control class

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n_1 : Average score of the control and experiment class
S_1^2 : Standard deviation of the experiment class
S_2^2 : Standard deviation of the control class

RESULTS AND DISCUSSION

The research was conducted in five meetings namely *pre-test*, treatment in four meetings, and one meeting for the *post-test.* The learning outcomes on *pre-test* dan *post-test* described in the Table 2.

Table 2. Final test description results

No.	Interval Score	Mathematical Problem Solving Skills	
		Experiment Class (VII.A)	Control Class (VII.B)
1.	≤ 61	1	7
2.	$62-71$	5	4
3.	$72-81$	6	5
4.	$82-91$	6	4
5	$92-100$	3	1
N		21	21
x_{max}		95	92
x_{min}		60	48
Percentage of Completion		Complete (71,42%)	Complete (47,61%)
		Incomplete (28,58%)	Incomplete (52,39%)
$\bar{x}$		78,33	70,14
s^2		113,43	183,12
S		10,65	13,53

Based on the research conducted on April 23rd to Mei 10th in the VII. A class as the experiment class and VII. B as the control class, then data result obtained on the students mathematical problem solving skills on flat shape material. The experiment class obtained the highest score on the mathematical problem solving skills is 95 while the control class obtained the highest score is 89. Based on the score obtained with the criteria for achieving the learning objectives set by the school is 75, seems like the ratio of students who completed and those who not completed in sequent was 10 students and 6 students. While in the control class seems that the ratio of students who completed and those who not completed in sequent was 10 students and 11 students with the same number of the experiment and control class students which was 21 students. The average final test score of the students mathematical problem solving skills in the experiment and control class in sequent were 78,33 and 70,14. This means that the final test score of the student mathematical problem solving skills in the experiment class is higher than in the control class.

The deviation standard of the control class is higher than the experiment class. It means that from the diversity of data for each class, the student mathematical problem solving skills in the experiment class is equal to the control class.

Forward, from the data regarding the student mathematical problem solving skills obtained from the final test of student mathematical problem solving skills. The mathematical problem solving skills test given to the students consist of five questions

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created based on five indicators of mathematical problem solving skills. As seen in detail from each average score and the percentage of each mathematical problem solving skills indicators in the Table 3.

Table 3. Percentage of indicator achievement of mathematical problem solving skills

No.	Indicator	Class	
		Experiment	Control
1.	Mastering and presenting	92,76%	89,33%
2.	Choosing or describing the solution	87,42%	80,76%
3.	Applying the plan	91,61%	72,09%
4.	Evaluating the result and drawing the conclusion	79,47%	70,14%
Average Percentage		**87,81**	**78,08**

The Table 3 describes the achievement score of each indicators of the students mathematical problem solving skills indicators is diverse. The first indicator mastering and presenting obtained the percentage score in the experiment class as 92,76% and in the control class as 89,33%. The second indicator choosing or describing the solution obtained the percentage score in the experiment class as 87,42% and in the control class as 80,76%. The third indicator applying the plan obtained the percentage score in the experiment class as 91,61% and in the control class as 72,09%. The fourth indicator evaluating the result and drawing the conclusion obtained the percentage score in the experiment class as 79,47% and in the control class as 70,14%. Then, the average achievement of the percentage of mathematical problem solving skills in the experiment class $>$ the control class $87{,}81 > 78{,}08$.

Based on the analysis of the table above can be seen that generally the student's average score on each mathematical problem solving skills questions test in the experiment class is higher than the control class. Therefore it can be concludes that the students mathematical problem solving skills in the experiment class is higher than the control class. It is prove that the mathematical problem solving skills of students who learn using the teaching module equipped with the integrated ethno mathematics LKPD with problem based learning model is higher than students who learn using teaching module equipped with LKPD with conventional learning model.

Furthermore, from the normality test result done using *liliefors* test. With the criteria of the *liliefors* test is H_0 will be accepted if $L_0 < L_{tabel}$. Based on the steps of *liliefors* test then the normality test calculation result are obtained as in the Table 4.

Table 4. Results of the normality test calculation on sample using *Liliefors* test

No	Class	L_0	L_{table}	Conclusion	Annotation
1.	Experiment (VII. A)	0,08	0,19	$L_0 < L_t$	Data Normal
2.	Control (VII. B)	0,10	0,19	$L_0 < L_t$	Data Normal

Table 4 shows that the sample class is distribute normally, in conduc-ing the normality test, the researcher used SPSS 22 (*statistical product and service solution*) software.

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Furthermore, the homogeneity test conducted after the normality test done, the homogeneity test of variance final test using *bartlett* test as can be seen in the Table 5.

Tabel 5. *Bartlett* test

Class	$n-1$	S_i	S_i^2	$Log\ S_i^2$	$(n-1)S_i^2$	$(n-1)log\ S_i^2$
VII.A	20	10,65	113,43	2,05	2268,66	41,09
VII.B	20	13,53	183,12	2,26	3662,57	45,25
$\sum$	**40**	**24, 18**	**296, 56**	**4, 31**	**5931, 23**	**86, 34**

The test criteria are, accept H_0 if $\chi^2_{hitung} < \chi^2_{tabel}$ with $\alpha = 0{,}05$. Based on the calculation done obtained $\chi^2_{hitung} < \chi^2_{tabel}$ with $1{,}1362 < 10{,}851$ therefore it can be concludes that the sample has homogeneity of variance at a confidence level as 95%.

Next, after the normality and homogeneity test done, then the hypothesis test carried out to determine whether the mathematics problem solving skills of students in the experiment class more improved than those in the control class using t test. With $\alpha = 0.05$ and the acceptance level is 95%. Based on the results of the t test formula, obtained $s = 12{,}17$ and $t = 2{,}1$.

Furthermore, find t_{tabel} with $\alpha = 0.05$ and df = 10 obtained $t_{tabel} = 1{,}725$. Based on the comparison obtained $t_{hitung} > t_{tabel}$ $(2{,}18 > 1{,}725)$. It means H_0 unaccepted or the mathematics problem solving skills of the sudents grade VII Junior High School Al Madinah *Islamic Boarding School* year 2023/2024 who learn using ethno mathematics integrated teaching module equipped with LKPD with problem based learning model is higher than those who learn using teaching module equipped with LKPD with conventional learning model.

Based on the description and data analysis result obtains that both of the learning model provide different mathematical problem solving skills result. The difference of mathematical problem solving skills result in the experiment class is higher than the control class. It is because the experiment class learned using ethno mathematics integrated teaching module equipped with LKPD with problem based learning model and the control class learned using teaching module equipped with LKPD with conventional learning model.

Judging from the learning process in the classroom, the activeness of students is more enthusiastic about the experimental class than the control class students. This is because the presentation of material feels so interesting for students with the link between learning and their environmental culture. Learning that was initially inactive and less interesting for students, can become interesting for students. So this can be a new finding to develop the learning process to be even more interesting with integrated ethno mathematics.

Putri & Rosyana (2024) said that the effectiveness of a learning model is a learning model with a series of systematic learning activities and can provide real learning experiences to students. It can increase the students interest to learn and can build an active learning atmosphere. Add with the learning process that closely related to the student's live environment from the cultural realm. Due to culture is one of

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elements in student's live environment that has become local wisdom such as habits and traditions. Therefore, in the learning process the students indirectly have already familiar with the learning material in relation to their playing environment.

Zakaria, et al, (2019), Sarwastuti & Purnomo, (2023) said in the research that the learning process using problem based learning model, where teacher only act as a facilitator and can provide an active and creative learning process, it because in the learning process the student can exchange ideas with each other in the process of solving contextual problems. The real problem students find in daily life is from the culture realm. Indirectly in the daily live there has been learning with cultural nuances which is ethno mathematics learning.

While the results of cultural element review related to the mathematics learning on flat shape material seen in the Figure 1.

Figure 1. Examples of *Rumah Gadang* part contains fat shape concept

The Figure 1 is a part of *rumah gadang* that has mathematical concepts from flat shape material. The first Figure from right is window or *tingkok rumah gadang* that has squares and rectangles concepts and their elements. The second Figure from right is *gonjong rumah gadang* that has triangle concept. The third Figure is one of the carving motifs on the *rumah gadang* wall, the carving motifs appear to have rhombuses and kites motifs. The fourth Figure is a *Rumah Gadang* moneybox that usually uses at the wedding party or *baralek* in Minangkabau tribe. The *rumah gadang* moneybox has many flat shape material and geometry concepts. Therefore, it seen that there is a close relation and connection between the cultural elements that exist in the student's environment and the flat shape learning material. Accordingly, through the implementation of the teaching module equipped with ethno mathematics integrated LKPD with problem based learning model, can make elements of *Rumah Gadang* culture become an important point in the learning process through presenting contextual problems. Thus, the learning implemented becomes the using of ethno mathematics integrated teaching module equipped with LKPD with problem based learning model.

Based on the steps in the problem based learning model (experiment class) according to (Muhammad, 2016), in the beginning of learning process start with the teacher tell a glimpse of the culture in the student's live environment as motivation in the learning. Then teacher distribute ethno mathematics integrated student worksheets (LKPD) with problem based learning model to each small groups.

The learning activity in LKPD is a learning activity that must be completed by the students. The activity

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learning in LKPD seen from the instruction "Let's Practice While Playing" that contains of 5 sequenced activity phases. On overview of the learning activities content seen in the Figure 2.

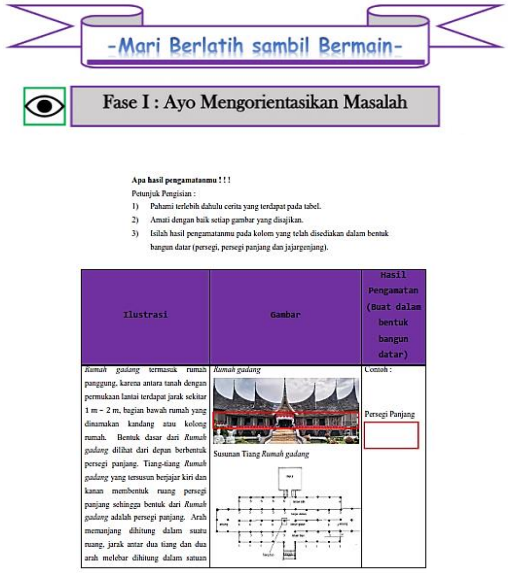

Figure 2. Phase I part of LKPD

Based on the Figure 2 it is the activity of LKPD "Let's Practice While Playing". In the Phase I present the student activities to do observations and write down the results in the table provided.

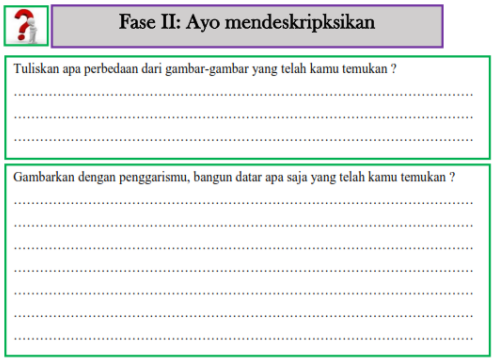

Figure 3. Phase II part of LKPD

Based on the Figure 3, it is the phase II activity, which is student answer the question in the provided area according to result obtained in Phase I.

Figure 4. Phase III part of LKPD

Based on the Figure 4, it is phase III that presents activity where the students does reasoning activity to find the perimeter and wide of square, by filling questions on each phases presented in LKPD. Then, Figure 5 shows the phase IV and based on it, the students does presentation in front classroom according to the teacher's instruction.

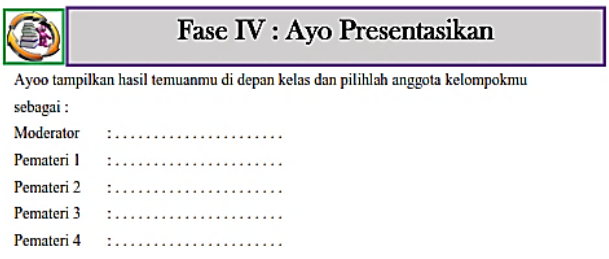

Figure 5. Phase IV part of LKPD

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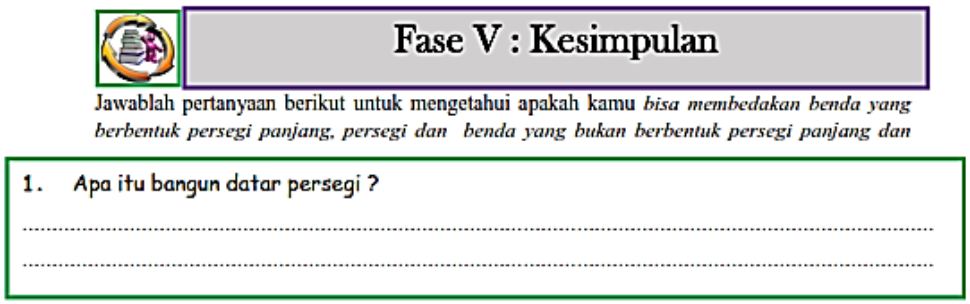

Figure 6. Phase V part of LKPD

Figure 6 shows phase V as the ending part of the ethno mathematics integrated LKPD work. Phase V fills after group presentation done and then the students completing the Phase V on their LKPD worksheet. The phases in the conventional learning model (control class) are teacher provides the learning material taught at that time, asking students to comprehend and completing the solving problems contains in the student's LKPD.

According to the final test result based on the student's mathematics problem solving skills, it found that the average score of the experiment class is higher than the control class (78,33 > 70,14). Based on the student's achievement results in the experiment class who have reached the minimum completion criteria (KKM) as 15 students or 71,42 %, while the students who have score below the minimum completion criteria as 6 students or 28,58%. Meanwhile in the control class the students who have reached the KKTP as 10 students or 47,61%, while the students who have score below the KKTP as 11 students or 52,39%. Therefore it can be concludes that the mathematics problem solving skills of students in the experiment class is higher than the control class.

Furthermore, from another side of this research, there is uniqueness in the mathematics learning using teaching module equipped with ethno mathematics integrated LKPD. The uniqueness found by the researcher in the learning process contains in the learning activities or student's activity. The students are very enthusiastic and vibrant during the learning occurs. It because the ethno mathematics integrated learning make the learning becomes more effective by presenting problem that attracts student's attention. The students focus on the learning presented from the student's cultural environment. It makes the students want to increase their understanding about their cultural environment. Then support by the innovation in problem based learning model integrated with ethno mathematics that make the learning student-centered.

Based on the results of this study, it can be concluded that students successfully achieved good learning outcomes both individually and collectively, demonstrated active participation, and responded positively to the use of integrated ethnomathematics teaching modules combined with problem-based learning models. These findings align with the results of studies by Safitri and Endarini, (2020), Ati and Setiawan , (2020), Wahyuddin and Yusuf , (2020), Radiah, Murtafiah, & Herna, (2024) who found that problem-based learning becomes more effective when the context of the problems is linked to students' daily lives or culture. These studies also emphasize that this

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approach not only enhances students' problem-solving abilities but also develops critical thinking skills, active participation, and a deeper understanding of mathematical concepts. Conversely, these findings contradict the results of Roberts, Nganga, & James, (2022), Issn, Portuna, Widiati, & Indriati, (2025) research, which states that integrating cultural contexts into mathematics learning does not significantly improve students' problem-solving abilities. However, this study confirms that the implementation of ethnomathematics-integrated teaching modules can create more effective and meaningful learning experiences and address the gaps in research findings. Thus, this approach not only reinforces findings from previous studies but also emphasizes its value and relevance in fostering students' critical thinking, collaboration, and communication skills, making it a promising model for future mathematics education

So, the existence of teaching modules equipped with LKPD integrated with ethnomathematics with a problem-based learning model can provide something new in the learning process and can improve students' mathematical problem solving skills. Judging from the advantages of this teaching module, there are also disadvantages, namely time consuming in the learning process. So, hopefully, ethnomathematics-integrated learning can be further developed by considering the shortcomings in this study.

CONCLUSION AND SUGGESTION

The mathematics problem solving skills of the students who learn using the teaching module equipped with the ethno mathematics integrated LKPD with problem based learning model is higher than the teaching module equipped with LKPD with conventional learning model with the average score in sequent 78,33 and 70,14. Thus, based on the research findings, the objectives of this study have been achieved, namely that the mathematical problem-solving abilities of students who learned through teaching modules equipped with integrated ethnomathematics worksheets using the problem-based learning model were higher than those of students who learned through the conventional learning model. Furthermore, it also can be seen in the results of similar studies that have been conducted that learning through teaching modules equipped with ethnomathematics-integrated worksheets using problem-based learning model can provide better learning outcomes for students

Based on the conclusion of research above, the researcher suggests several things. 1) Teacher should use the teaching module equipped with the ethno mathematics integrated LKPD with problem based learning model in the flat shape material. It because the teacher has no difficulty finding references to increase the student's mathematics problem solving skills. 2)Teacher should implement the teaching module equipped with the ethno mathematics integrated LKPD with problem based learning model so the time runs effectively, such as by not prolonging the story or problems related to the learning too much. 3) The material delivers by teacher in implementing the teaching module equipped with the ethno mathematics integrated LKPD with problem based learning model can be models in a story form.

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