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Development of Teaching Module Using the Problem-Based Learning Model Based on *Wadai Banjar* Ethnomathematics in the Topic of Linear Equation

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Abstract

Many students need help to understand linear equation material and obtain low math scores. One of the efforts to overcome this was to research and produce a teaching module using a Problem-Based Learning model based on Wadai Banjar's ethnomathematics material of linear equations that is valid, practical, and effective for the learning. The type of research used is the type of 4-D model development research. The data collection technique used a validation sheet by two validators, a practicality questionnaire filled out by a math teacher and 8 students with various abilities, and a learning achievement test for 27 class VII C students of SMP Negeri 18 Banjarmasin. There are 3 analyses conducted in this study: validity, practicality, and effectiveness test analysis. The results showed an average score of 3,58 was obtained from the validator in the very valid category, an average score from the questionnaire was 3,23 in the practical category, and 66,67% of students obtained an evaluation test score above the average score in the effective category.

Keywords: ethnomathematics; teaching module; problem-based learning

I. Introduction

Mathematics is a universal science that underlies the development of modern technology, has an important role in various disciplines, and advances human thought. To master and create technology in the future requires a strong mastery of mathematics from an early age. Therefore, mathematics as a basic science needs to be well mastered by students since they were in elementary school (Anggraeni et al., 2020).

Learning mathematics is an abstract and concrete science that will be meaningful if it is related to everyday life and will give students mathematical confidence if there is good communication between teachers and students (Retnodari & Elbas, 2020). According to Gusteti & Neviyarni (2022), learning mathematics is an interaction between learning components (teachers and students) that develop students' thinking skills in problem-solving. Based on the experts' opinions above, learning mathematics is an interaction between teachers and students designed to learn mathematics, an abstract and concrete science in developing problem-solving abilities.

Education is one of the important factors in determining human resources and the progress of a nation. According to Rahayu et al. (2022), the correct education policy will be seen in

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implementing the applied curriculum because the curriculum is the heart of education.

In Indonesia, curriculum implementation has undergone various changes and improvements. Curriculum changes were proclaimed to welcome the nation's changes and progress to adapt to changing times (Yamin, 2020). Recently, the government again presented a new Independent Curriculum curriculum. In the Independent Curriculum learning process, student involvement is more emphasized so that students can gain direct experience and train students to find knowledge from the material that has been learned (Marta et al., 2020), following the opinion of Novelita & Darmansyah (2022), which states that through this independent curriculum, students will be directly involved in learning.

Four principles were changed into new policies in the Independent Curriculum; one of them is Lesson Planning or *RPP*. Lesson planning, or *RPP*, in the Independent Curriculum, is a teaching module (Maulida, 2022). According to Setiawan et al. (2022), teaching modules are several tools or media facilities, methods, instructions, and guidelines designed systematically, attractively, and following the needs of students. Teaching modules are learning designs or tools arranged so that learning can be achieved following learning objectives based on competency standards set in the Independent Curriculum.

Teachers need to choose models, methods, and teaching materials that support the learning process in the classroom following the curriculum applied. The learning model is a conceptual framework that describes a systematic procedure for organizing learning experiences to achieve certain learning goals(Harefa et al., 2022)

Among the learning models that refer to the independent curriculum is Problem-Based Learning. According to Susanto (2020), Problem-Based Learning is learning that applies problems that occur in the real world as a context for students to practice how to think critically and gain skills in problem-solving, as well as meaningful learning to gain knowledge as well as important concepts from the material being taught. The ability of teachers who need to be more qualified to present meaningful learning can impact the mathematics learning outcomes that students get (Datreni, 2022). The Problem-Based Learning model emphasizes problem-solving skills and directs students to solve them (Indah & Nuraeni, 2021). According to Husniah & Azka (2022), Problem-Based Learning is a learning model that requires students to be actively involved in solving real-life problems, it trains students to have the skills to solve problems, support critical thinking, and students can gain their knowledge based on what has been learned. That way, learning using the Problem-Based Learning model is expected to present meaningful learning that can increase students' understanding and learning outcomes.

One of the materials taught in phase D in the independent curriculum is a one-variable linear equation. Sulastri & Arhasy (2017) stated that the concept of one-variable linear equations can be used as a solution to solve various problems commonly encountered in everyday life. One variable linear equation material must be learned by SMP/MTs students because this material is needed to learn two-variable linear and quadratic equations (Jumiati & Zanthy, 2020). So the students must understand the material of one-variable linear equations to make it easier to learn the next material.

The mathematics teacher of one of the junior high schools in Banjarmasin said that in conveying teacher learning material, they rarely associate it with life close to students. This impacts students who cannot solve the problems of the questions given if the questions differ from the examples of questions they previously studied. Mathematics is difficult to teach and learn (Aditya, 2018); most students memorize but need help understanding the concept (Susanti & Nurfitriyanti, 2018). Students need help understanding the material being studied. One SMP Negeri 18 Banjarmasin math teacher stated that most students still need help understanding the material of one-variable linear equations. In

proportion to that, the average score of midterm tests obtained by students is still very low, especially in grade VII C. Based on teacher observations, only a small part of students are active in learning. In addition, although junior high schools in the city of Banjarmasin that have implemented an Independent Curriculum use mathematics textbooks that refer to the independent curriculum from the Ministry of Education and Culture, whose contents have linked the material to real-life problems, the problems raised in the book are not following the environment of students in Banjarmasin, so teachers cannot use the context of the problem because it is unknown and difficult for students to imagine. Appropriate teaching materials are needed because teaching materials are one of the facilities students need (Alfiyanti & Erita, 2023).

Mathematics is considered a difficult subject. In learning mathematics, students are usually presented with a series of abstract formulas, as if mathematics were separate from the daily lives of students (Mustika, 2022). Mathematics requires a bridge that connects the material context with real life. Muhtadi et al. (2017) state that mathematical concepts are embedded in cultural practices and recognize that everyone develops a special way of doing a mathematical activity called ethnomathematics. According to Nurliastuti et al. (2018), in order to foster an atmosphere that is close to the lives of students in learning, with the hope of fostering enthusiasm for student learning, one thing that can be done is to involve a culture that is close to students. Learning that links mathematics with local culture is called ethnomathematics (Masrura, 2020). Based on the understanding of the experts above, ethnomathematics is learning mathematics that links mathematics learning materials with cultural contexts that are close to students and as a solution to overcome difficulties and increase students' learning motivation and can present meaningful learning.

Weto et al. (2021) revealed that an approach culture and local wisdom that develops in the community will support learning to be achieved optimally. In the independent curriculum, in addition to teachers having to analyze material and collect various information about teaching modules, another aspect that needs to be contained in the teaching module, namely local wisdom (Maulida, 2022). In other words, mathematics learning in an independent curriculum must be based on ethnomathematics.

Wijayanto's (2017) research results prove that ethnomathematics-based learning tools are effectively used in mathematics learning. In addition, the results of Marinka & Febriani's (2018) research also show that ethnomathematics-based learning is proven to increase students' understanding of mathematics which can be seen from identifying, translating, and interpreting symbols, understanding and applying mathematical ideas and can optimize the learning outcomes that participants get. Learning using teaching modules with a typical *Wadai Banjar*, which is the name of the typical cake of the people of South Kalimantan (Subandi et al., 2022), is expected to make it easier for students to understand the material of one-variable linear equations and be effectively used in the learning process. So far, researchers have not found any development of teaching modules with the syntax of the Problem-Based Learning model based on the ethnomathematics of typical *Wadai Banjar*.

Along with using the Merdeka curriculum in schools, research to develop teaching modules was also carried out. The teaching modules developed are based on selected approaches or models, such as the PMR approach or Problem-Base Learning models, which are valid, valid and practical even valid, practical, and effective (Putri et al., 2020; Ariawan et al., 2022; Kosu et al., 2023). Based on this description, researchers are encouraged to develop teaching modules using a Problem-Based Learning model based on ethnomathematics typical of Banjar linear equation material that is valid, practical, and effective.

II. Research Methods

This type of research uses developmental

research developed by Thiagarajan, Semmel, & Semmel (1974). The 4-D development model (define, design, develop, and disseminate).

1) Define

This stage is done by analyzing and identifying problems and collecting information to develop products.

a. Initial analysis
The initial analysis is the process of identifying the problems encountered when carrying out the learning process.

b. Curriculum analysis
Analyzing the curriculum aims to determine whether the material taught follows the expected competencies.

c. Student analysis
Student analysis is carried out to identify characteristics following the design and development.

d. Concept formulation
The concept formulation is carried out by identifying the things contained in the teaching modules developed concerning the Learning Objectives Flow (ATP) from the Ministry of Education and Culture in the phases taken by students.

e. Objective formulation
The learning objectives are formulated based on the independent curriculum and the Learning Objective Flow (ATP).

2) Design

a. Instrument preparation
The instruments compiled were validation sheets, practicality questionnaires, and evaluation questions.

b. Format selection
Selection of the format for the display of the developed teaching modules.

c. Initial plan
Based on the previous stage, a teaching module will be designed in the form of the draft I.

3) Develop

At this stage, product improvements are made based on suggestions from supervisors and validators to produce products in the form of draft II and draft III. The development stage from draft I to produce a modified final product from the development stages proposed by Thiagarajan, Semmel, & Semmel (1974) can be seen in Figure 1 below.

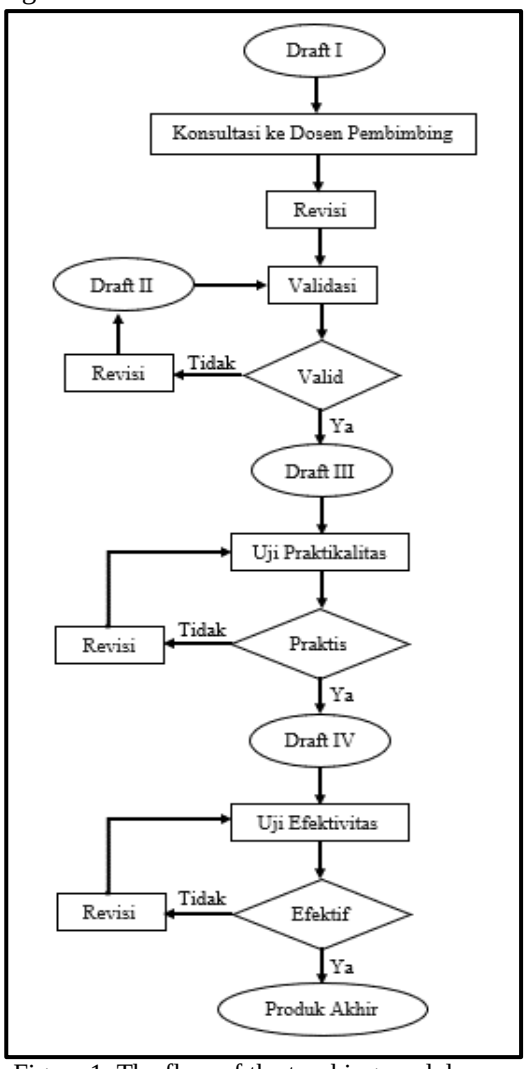


Figure 1. The flow of the teaching module development

Note:

: Development process

: Development flow

: Product criteria

: Development result

The explanation of the develop

(development) stage of the teaching module is as follows.

a. Draft II
   After draft I was corrected based on suggestions and input from the supervisor, draft II was produced.
b. Draft III
   Draft III resulted from an improved product based on the input of two math teachers (validators), and the product met the valid criteria.

4) Disseminate
   In the last stage of development, trials are carried out on the product to prove whether the product meets the practical and effective category. Products revised after practicality tests are draft IV, while the final product is produced after effectiveness tests and meets the effective category.

There are 3 analyses conducted in this study: validity, practicality, and effectiveness test analysis. The criteria for validity and practicality were adapted from Arikunto (2012), and the criteria for effectiveness were adapted from Harahap et al. (2022). The validation sheet is used for validity test analysis by calculating the average score of the validation sheet filled in by the validator ($\overline{T}v$). Product validity categories can be observed in the following table.

Table 1.
Module validity category

Score Interval	Category
$3.25 \leq \overline{T}v < 4$	Very Valid
$2.50 \leq \overline{T}v < 3.25$	Valid
$1.75 \leq \overline{T}v < 2.50$	Less Valid
$1.00 \leq \overline{T}v < 1.75$	Not Valid

Source: Arikunto (2012)

The product developed has to be valid before the next trial. Practicality questionnaires are used for practicality test analysis. The questionnaire was filled out by teachers and 8 students with various abilities. Practicality analysis uses the following formula.

$$\overline{T}p = \frac{\sum_{i=1}^{n} \bar{p}i}{n}$$

Note:
$\overline{T}p$: the average total score of the practicality questionnaire
$\bar{p}i$: the average practicality of the I questionnaire fillers
n: Lots of questionnaire fillers
The product practicality category from the questionnaire score can be observed in Table 2 below.

Table 2.
Module practicality category

Score Interval	Category
$3.25 \leq \overline{T}p < 4$	Very Practical
$2.50 \leq \overline{T}p < 3.25$	Practical
$1.75 \leq \overline{T}p < 2.50$	Less Practical
$1.00 \leq \overline{T}p < 1.75$	Not Practical

Source: Arikunto (2012)

Products can be practical and can be tested further if at least they meet the practical category. The effectiveness test analysis is seen from the percentage of students who get evaluation test scores exceeding the average grade (A). The categories of learning effectiveness can be observed in Table 3 below.

Table 3.
Learning effectiveness category

Score Interval	Category
$A > 80\%$	Very Effective
$60\% < A \leq 80\%$	Effective
$40\% < A \leq 60\%$	Less Effective
$20\% < A \leq 40\%$	Not Practical
$A \leq 20\%$	Very Not Effective

Source: Modification of Harahap et al. (2022)

Based on the effectiveness analysis above, the teaching modules developed are effective if the percentage of students who get scores above the average (A) meets the minimum criteria for being effective.

III. Results and Discussion

Define

The development results show that problems are still encountered in mathematics learning. One of these problems is that teachers need to associate teaching materials with the context of life problems that are close to the

environment of students. Connecting subject matter with real life is a characteristic of learning based on an independent curriculum. In addition, there are still many students who obtain mathematics scores that tend to be low, as seen from the midterm test scores before the research was conducted.

One of the learning materials that must be learned and understood by students in grade VII in the independent curriculum is the material of one-variable linear equations. Students being able to solve problems using one-variable linear equations is one of the Learning Outcomes (CP) in SMP/MTs level learning in the independent curriculum. For this, researchers compile teaching modules that contain sub-materials on the application of one-variable linear equations with the aim that students can solve ethnomathematics-based problems using one-variable linear equations.

Design

At the design stage, research instruments were designed as validation indicator sheets, practicality questionnaire sheets for teachers and students, and evaluation question instruments. In addition, at this stage, an initial product in the form of a draft I am also designed based on the results of the previous development stage with the following format.

1) The font in the teaching module uses Times New Roman size 12, except for the student worksheet, which uses the Reem Kufi typeface of the same size.
2) The margin chosen is narrow.
3) The space between lines is 1.5.
4) A4 paper size.
5) The teaching module's front page and the student worksheet's front are decorated with images of typical *Wadai Banjar* according to the selected ethnomathematics.
6) The student worksheet is specially designed with funny stickers in the form of 'pistol' stickers to add an attractive impression to students.

The teaching module in the form of the draft I comprises a general identity, core competencies, learning activities, assessment, enrichment, remedial, teacher and student reflections, and attachments consisting of student worksheets (LKPD) and assessment attachments. The following shows the front page of the draft I.

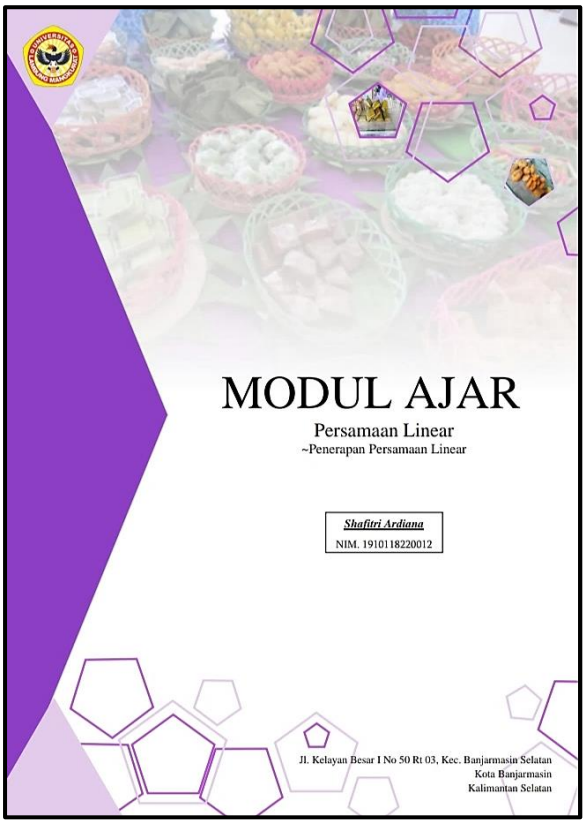
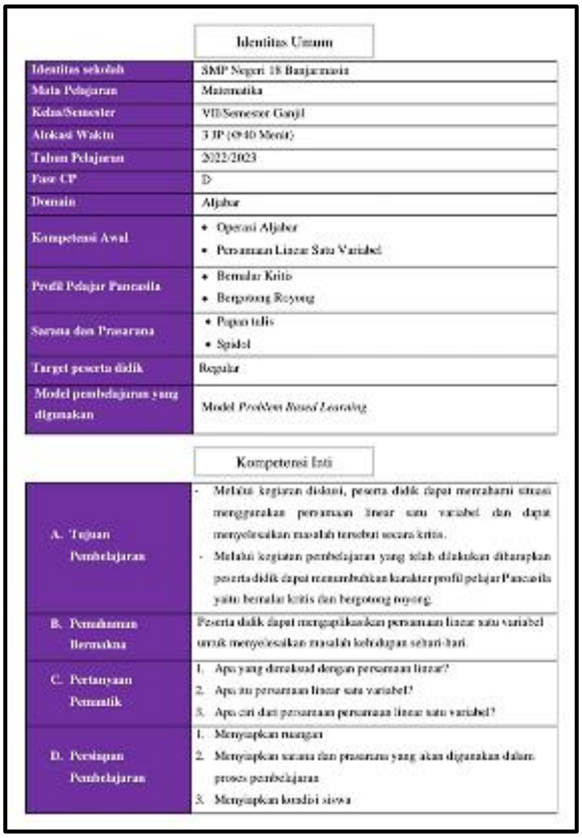


Figure 2. Front page of the draft I

The A4-sized front page has a white base color with purple decorations and a Banjarese Wadi image. This page reads the teaching modules, content, author's name and NIM, and the school's address where the research was conducted in the lower right corner with a choice of black letters and Reem Kufi type. The following shows page 2 of the draft I.



Identitas Umum

Identitas sekolah	SMP Negeri 18 Banjarmasin
Mata Pelajaran	Matematika
Kelas/Semester	VII/Semester Ganjil
Alokasi Waktu	3 JP (9*40 Menit)
Tahun Pelajaran	2022/2023
Fase CP	D
Domain	Aljabar
Kompetensi Awal	• Operasi Aljabar • Persamaan Linear Satu Variabel
Profil Pelajar Pancasila	• Bernalar Kritis • Bergotong Royong
Sarana dan Prasarana	• Papan tulis • Spidol
Target peserta didik	Regular
Model pembelajaran yang digunakan	Model *Problem Based Learning*

Kompetensi Inti

A. Tujuan Pembelajaran	- Melalui kegiatan diskusi, peserta didik dapat memahami situasi menggunakan persamaan linear satu variabel dan dapat menyelesaikan masalah tersebut secara kritis. - Melalui kegiatan pembelajaran yang telah dilakukan diharapkan peserta didik dapat menumbuhkan karakter profil pelajar Pancasila yaitu bernalar kritis dan bergotong royong.
B. Pemahaman Bermakna	Peserta didik dapat mengaplikasikan persamaan linear satu variabel untuk menyelesaikan masalah kehidupan sehari-hari.
C. Pertanyaan Pemantik	1. Apa yang dimaksud dengan persamaan linear? 2. Apa itu persamaan linear satu variabel? 3. Apa ciri dari persamaan persamaan linear satu variabel?
D. Persiapan Pembelajaran	1. Menyiapkan ruangan 2. Menyiapkan sarana dan prasarana yang akan digunakan dalam proses pembelajaran 3. Menyiapkan kondisi siswa

Figure 3. Page 2 draft II

On page 2, the initial draft of the teaching module contains a general identity and core competencies. The general identity section includes school name, subject, class/semester, time allocation, school year, phase, domain, initial competency, Pancasila student profile, facilities and infrastructure, target students, and the learning model used. At the same time, the core competence section consists of learning objectives, meaningful understanding, triggering questions, lesson preparation, learning activities, learning activities, assessment, enrichment, and remedial, as well as student and teacher reflection.

Lampiran

Lembar kerja peserta didik dan Soal Evaluasi	Terlampir
Rubrik Penilaian	Terlampir
Bahan bacaan guru dan peserta didik	- Bahan Bacaan (Terlampir) - Link Youtube [illegible]
Glosarium	- **Persamaan**: suatu pernyataan matematika dalam bentuk simbol yang menyatakan bahwa dua hal adalah persis sama - **Persamaan Linear Satu Variabel**: suatu kalimat terbuka yang menggunakan tanda sama dengan (=) memuat satu variabel dan berpangkat satu
Daftar Pustaka	Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi Republik Indonesia. 2021. *Matematika Sekolah Menengah Pertama Kelas VII*. Jakarta: Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi, Republik Indonesia.

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Figure 4. Attachment page

The attachment page says a list that will be attached on the following page, such as student worksheets (LKPD), evaluation questions, and assessment rubrics. In addition, this page also contains a glossary, bibliography (contains 1 source), and signatures of relevant parties, namely students/researchers, mathematics teachers, and principals of schools where research is conducted.

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Figure 5. Pege 1 LKPD

The front page of the LKPD contains a description of the material, columns for writing class and group members, learning objectives, and activity instructions.

Figure 6. Page 1 LKPD answer keys

As with page 1 of the LKPD, the answer key contains material descriptions, learning objectives, and activity instructions. The only difference is that page 1 of the LKPD answer key has no column to write class and group members.

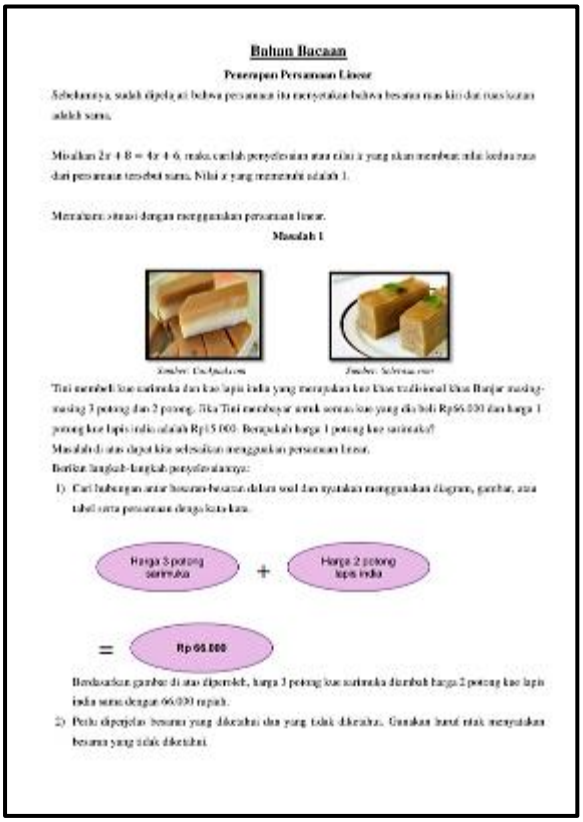

Figure 7. Page 1 reading material

The reading material immediately presents the problem and the steps for solving it.

Develop

a. Draft II

After draft I was corrected based on the suggestions and input of the supervisor, draft II was produced. The following was to improve the teaching module from draft I to draft II.

1) There is an addition to list the learning approach used.
2) Changes in learning objectives to be more detailed and show ethnomathematics in it.
3) Improvement of teaching materials. Add a home page, such as student

worksheets, and explain the ethnomathematics of typical *Wadai Banjar* in the introduction.

4) Increase the reference from 1 to 2 references.

After fixed, the teaching module is further validated by 2 validators. The results of the validator assessment are as follows.

Table 4.
Recapitulation of validation results by experts

No	Indicator	Score	
		Val. I	Val. II
1	Module Format	9	12
2	Module content	58	70
3	Language	15	3.88
Sum		82	97
Average		3.28	3.88
Category		Very Valid	Very Valid

The results of the validator I assessment showed that the teaching module format indicator obtained a score of 9 out of 12, the teaching module content indicator obtained a score of 58 out of 72, and the language indicator obtained a score of 15 out of 16. After being calculated, I obtained a total score of 82 with an average score of 3.28 meets the very valid category.

The results of the validator II assessment showed that the teaching module format indicator obtained a score of 12 out of 12, the teaching module content indicator obtained a score of 70 out of 72, and the language indicator obtained a score of 15 out of 16. After being calculated, I obtained a total score of 97 with an average score of 3.88, which meets the very valid category.

The assessment results of the 2 validators obtained a total score of 179. The average score obtained from the total score is 3.58, and it is concluded that the teaching modules developed are very valid. The results of this research follow the research on the development of learning tools conducted by Isnaini et al. (2022), which obtained an average validator assessment score of 3.61 meets the very valid category.

b. Draft III

Draft III resulted from an improved product based on the input of two math teachers (validators). Based on the advice of the supervisor and suggestions from validators, researchers made improvements to several parts of the Teaching Module, namely:

1) The addition of diagnostic test questions, grids, and scoring guidelines to implement differentiated learning in assessment. Before learning using the Teaching Module, diagnostic tests are needed to classify students with medium (regular) and low ability. At the end of the learning, an evaluation will be carried out with two types of questions, namely medium ability (regular) and low ability, according to the ability of students as seen from the results of diagnostic tests.
2) Create a grid of evaluation questions oriented to learning objectives.
3) Improve evaluation questions according to learning objectives.

After improving the teaching module, a learning trial was carried out using the teaching module on 8 students with various abilities. Mathematics teachers and students are asked to fill out a practicality questionnaire after learning is carried out, where suggestions from mathematics teachers and students will be considered for improving teaching modules before the next test. The following is a recapitulation of the results of filling out the practicality questionnaire.

Table 5.
The result of the teacher's questionnaire

Indicator	Score
Easy to use	9
Attract interest, motivation, and participation	10
Growing critical reasoning character	9
Support discussion learning	7
Supporting differentiation learning	3
Total Score	38
Average	3,17
Category	Practical

The average practicality value filled by the mathematics teacher is 3.17, and it can be concluded that the teaching module is practical.

Table 6.
Recapitulation of student questionnaire results

Student	Total Score	Average	Category
1	39	3,25	Very Practical
2	40	3,33	Very Practical
3	42	3,50	Very Practical
4	40	3,33	Very Practical
5	36	3,00	Practical
6	36	3,00	Practical
7	41	3,42	Very Practical
8	39	3,25	Very Practical

The average result of the 8-student questionnaire score is 3.29. It is concluded that the teaching module developed is very practical.

The results of the practicality test of this teaching module are directly proportional to the results of Wijayanto's (2017) research which also shows that the learning tools that have been developed meet the practical category, with more than 80% of questionnaire fillers giving a good response to all aspects. In addition, the research results by Isnaini et al. (2022) meet the very practical category by obtaining an average score from the poll filler of 3.61.

Disseminate

After the development stage that produces products with valid criteria (draft III), trials will be carried out to produce draft IV to the final product. Trials are carried out to prove the effectiveness of products that have been developed.

Trials of the product were carried out in class VII C SMP Negeri 18 Banjarmasin. The following are the learning steps when product trials are carried out.

1) Teachers open learning by giving greetings, providing motivation and perception, and informing learning objectives, material coverage, learning steps carried out, and assessment techniques to students.
2) The teacher displays a problem related to the context of a typical *Wadai Banjar* on PowerPoint slides (PPT). Students are asked to understand these problems.
3) Students are directed to sit at one table with each group. All groups received student worksheets. Students discuss to find solutions to the problems given. The teacher constantly monitors the course of discussion of each group after finding the solution to the problem; students are also guided to present the solution to the problem by writing it in the answer section in the student worksheet. After that, students are asked to stick a sheet containing answers on cardboard as a presentation medium.
4) The teacher selects some groups to present the results of their respective group discussions in front of the class. Other students who did not make presentations were asked to listen and check whether their friends' answers matched their group's. After the presentation, the teacher guides the class discussion activities and encourages students to ask questions or express their group's opinions on solving problems on student worksheets. Teachers encourage the form of

additional value for students who are active in discussions.

5) After the discussion, the teacher guides the students to conclude the learning jointly. The teacher gives directions to students to reflect on the learning that has been done. Students are asked to write learning reflections on sheet paper.
6) In the final stage, students are asked to complete evaluation test questions before learning is closed. The results of this test are used as an analysis to determine the effectiveness of learning implemented using the developed teaching modules. The teaching module used in this trial is in the form of draft IV.

a. Draft IV

Draft IV results from improvements to the Teaching Module after the previous stage. Here are the improvements before producing draft IV.

1) Adding learning facilities and infrastructure, namely cardboard, to facilitate presentation activities.
2) Improve the presentation activity step in the learning activities section (as a result of improvement number 1).
3) Added help to the problem-solving step in the student worksheet because many students needed clarification in that section during the practicality test.

After the IV draft is produced, a learning test is carried out in one class to determine whether the teaching modules developed are effectively used for learning. After the trial, the percentage of students with evaluation test scores exceeding the average score was 66,67%, or the (A) teaching module is effectively used in learning.

b. Final product

The effectiveness test results are seen from the value of the results of the student evaluation test. The results of the effectiveness test analysis show that the teaching module is effectively used in learning, so the teaching module in the form of draft IV is the final product of this development.

So the teaching modules developed as a whole obtained an average validity value of 3.58, an average practicality value of 3.17, and an average effectiveness value of 66.67%. These results are expected to develop valid, practical, and effective teaching modules (Muhardini et al., 2022; Siloto, 2023; Darniyanti et al., 2023). Using the problem-based learning model in teaching modules allows students to practice solving mathematical problems independently (Nasution & Mujib, 2022). Problem-solving is one of the abilities students must have to answer the challenges of changing times (Sukmawarti et al., 2022).

The use of ethnomathematics as a context makes mathematics look more realistic and makes students more enthusiastic, interested in learning mathematics (Wahyuni & Hasanuddin, 2022) and even their ability to solve mathematical problems has increased (Masruroh et al., 2022; Syafmen et al., 2022).

IV. Conclusion

Based on the average scores obtained during validation tests, practicality tests, and validity tests, it is proven that the teaching module uses a Problem-Based Learning model based on Typical *Wadai Banjar* ethnomathematics; the linear equation material developed in this study is very valid, practical, and effective.

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