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DEVELOPMENT OF THE TEACHING MODULE NUMERATION LITERACY ABILITY OF THE CREATIVE PROBLEM SOLVING VII CLASS

Kurnia Sri Hamdayani[1*], Suherman[2], Yerizon[3], Arnelis[4]

[1*,2,3,4] Universitas Negeri Padang, Sumatera Barat, Indonesia.
*Corresponding author. Jln. Prof. Dr. Hamka, Padang, Sumatera Barat (25132) Indonesia.
E-mail: kurniashy@gmail.com [1*)]
Suherman@fmipa.unp.ac.id [2)]
yerizon@fmipa.unp.ac.id [3)]
arnelis_math@fmipa.unp.ac.id [4)]

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Abstract

The study is done because school has not yet had teaching modules that could facilitate numerical literacy ability. The purpose of this study is to produce cps teaching modules that can enhance valid, practical, and effective numerical literacy capabilities in ratio and proportion materials, as well as line and Angle materials. The teaching module can be used at middle school/MTs, researchers can deliver this product to other schools that need it. This research methodology uses development research methods. This study's methodologies included research and development. The educate module is developed utilizing a plomp (preliminary research, development or prototype, and absorbed phases). The preparatory step entails an assessment of needs, curriculum, concepts, and learners. The development stage contains prototypes I, II, III, and IV. The module has been deemed legitimate based on a 3.5 average for materials, language, and humanities. Next, based on the value module evaluations completed by learners and educators, they produce an average of 84.51 and 92.31 with practical criteria. Then the results of the mathematical numerical literacy capability test are obtained by an average of 85% with qualified criteria, this means that the teaching module based creative problems solving are effective to enhance the mathematical numerical literacy ability of learners. The results showed that the teaching module based on creative problems solving to improve mathematical numerical literacy ability is valid, pratis, and effective.

Keywords: Creative Problem Solving; Numerical Literacy; Teaching Module.

Abstrak

Penelitian ini dilakukan karena di sekolah belum memiliki modul ajar yang dapat memfasilitasi kemampuan literasi numerasi matematis. Tujuan dari penelitian ini yaitu menghasilkan modul ajar berbasis CPS yang dapat meningkatkan kemampuan literasi numerasi matematis yang valid, praktis, dan efektif pada materi rasio dan proporsi, serta garis dan sudut. Modul ajar ini bisa digunakan pada sekolah tingkat SMP/MTs, peneliti bisa memberikan produk ini pada sekolah lain yang membutuhkan. Metodologi penelitian ini menggunakan metode penelitian pengembangan. Modul ajar yang dikembangkan dengan menggunakan model plomp (penelitian pendahuluan, pengembangan atau prototipe, dan tahap penyerapan). Tahap persiapan meliputi analisis kebutuhan, kurikulum, konsep, dan peserta didik. Tahap pengembangan berisi prototipe I, II, III, dan IV. Modul ajar telah dianggap sah berdasarkan rata-rata 3,5 untuk materi, bahasa, dan kegrafikan. Selanjutnya, berdasarkan nilai evaluasi modul ajar yang diisi oleh peserta didik dan pendidik menghasilkan rata-rata 84,51 dan 92,31 dengan kriteria praktis. Kemudian dari hasil tes kemampuan literasi numerasi matematis didapatkan rata-rata 85% dengan kriteria cakap, ini berarti modul ajar berbasis Creative Problem Solving *efektif untuk meningkatkan kemampuan literasi numerasi matematis peserta didik. Hasil tersebut menunjukkan bahwa modul ajar berbasis* Creative Problem Solving *untuk meningkatkan kemampuan literasi numerasi matematis sudah valid, pratis, dan efektif.*

Kata Kunci: Creative Problem Solving; *Literasi Numerasi; Modul Ajar*.

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INTRODUCTION

Generally, teacher expected to create a comprehensive teaching module. However, the fact is that many teachers lack the knowledge and skills to effectively collect and construct teaching modules, particularly in the context of a free learning curriculum. Inadequate planning of a dog module might lead to a systematic distribution of materials to students, causing an imbalance in learning between the teacher and the student. Only instructors who are currently teaching are able to perceive the concept of one-way learning, as supported by the studies conducted by Marhayani & Wulandari (2020), Arianti et al. (2019), and Kurnia et al. (2019). In addition, there are several schools that possess educational resources capable of supporting students' learning. Several practical educators have encountered challenges in finding suitable time, indications, and learning approaches that align with the learner's characteristics while repli-cating pre-designed training modules (Mawardi, 2019). The same was true for instructors at SMPN 1 Junjung Sirih Kabupaten Solok. During the interview and observation of the educator who taught the seventh-grade class, it was found that the organization of the teaching modules created by the educator for the free curriculum was not satisfactory. The primary focus of the free curriculum is mostly on developing literacy and numeration ability.

Advanced observations are known that the causes of the poor numerical literacy capability of learners are represented: 1) based on field activity, it is known that only a fraction of those who utilize numerical literacy ability in daily life, 2) numeration ability may be mastered by learners but lack the concepts or resolve problems structured in daily life, and 3) the lack of the teacher's retention of numerical literaturization (Salvia et al., 2022). The description of these factors harmonizes with the results of the joint interview with the teachers in SMPN 1 Junjung Sirih thus boosters that the literias numeration capability of learners is still low. One of the subjects of mathematics in the free curriculum vii is the ratio and proportion and lines and angles.

These two math topics are often held accountable by educators as the result of learning too much below average participants, it also happens to class vii students SMPN 1 Junjung Sirih. According to Argaswari & Usodo (2015), states that students have difficulty studying line and Angle materials. Moreover, (Suryana, 2015) says that line and angle materials learning difficulties cause students' learning results to be less than optimal because students are less attracted to the material delivery given by teachers. While according to Geiger et al. (2017), students' ability to understand line and Angle concepts is not only a prerequisite material to have but it can also help students to improve students' ability to analyze a math problem. While on the topic the ratio and proportion of research conducted by Rahmawati et al. (2016), Utari (2017), Rahmasantika & Prahmana (2019), and Toha et al. (2018) also point out that there are students who have difficulty understanding the concept of ratio comparisons. The difficulties students face in understanding comparative materials are caused by several factors, including ability in low proportionate logic. Students find it difficult in reasoning to use multiplication in solving a mathematical problem of a ratio situation.

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One of the efforts made to address the problem is to apply a creative problem input pickle module to increase student numeration literacy capabilities on topic ratio and proportion and line and Angle topics. According to Novitasari (2015), CPS study can train to communicate ideas, can increase critical thinking when solving problems, can help to think systematically and logically according to facts. Moreover, according to Saltifa (2018), a learning method added with a CPS approach can be an effort to improve numeration literacy ability.

Based on the above description it may be concluded that the purpose of this study is the development of a title-based creative problem of incentives to enhance valid, practical, and effective numerical numerical literacy ability in terms of ratio and proportion and line and angle materials.

RESEARCH METHODS

Tjeerd plomp created the educate module as part of the research process. This development model separates the development step into three phases: basic research analysis, development or prototype, and phase-needed. The model flattened by Tjeerd Plomp was chosen since the phases in the research stage are already methodical and obvious. To be neutralized, the plomp development strategy was combined with creative problem-solving-based teaching module creation to improve numerical literacy capacity for class vii junior class participants.

Preliminary Research Phase

In the preliminary stages there are several activities to identify and analyze the problems found in the mathematical learning process. Some of the analyses conducted at this stage include the needs analysis, curriculum analysis, concept analysis, and characteristic analysis of learners. Implementation at this stage can be done by field observation, interviews with educators and learners, and studying the curriculum that is in force with the school.

Development or Prototype Phase

Results from the initial stage of investigation, are then analyzed and used as the basis for the development or construction of the teaching module that was used in the research to be designed. The taught module developed is adjusted to the CPS approach to enhance the numerical literacy ability of learners. In designing these teaching modules, it must observe the three characteristics of the product: content or material, graphics, and language worthiness. To make sure the product developed is valid, practical, and effective.

Assesment Phase

Their phase assessment of the development of cps-based teaching modules to increase the mathematical numeration literacy ability that is generated will impact the problem addressed. If a assessment is not made, it cannot be determined whether a problem has been satisfactorily resolved. In other words, the purpose of this phase is to know whether the desired situation in the formula of problems has been achieved or not. Having done a revision based on the input of the one-on-one evaluations (one to one group) and small group assessments, a prototype iv is produced and a field test in one class that aims to determine the extent of the practicality and efficacy of CPS based teaching modules to enhance the mathematical numerical literacy capabilities developed in the implementation of mathematical learning.

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Data Analysis Techniques

The data-analysis techniques employed are descriptive and inferential statistics, which assess the validity, efficacy, and efficiency of the CPS-based teaching module creation in enhancing numerical literacy abilities in mathematics that have been correlated. Descriptive statistics are used to examine the numerical literacy skills of learners, as well as the reaction of educators and trainers. A descriptive method is used to analyze interviews and field notes.

Data analysis in a preliminary phase

A descriptive approach is used to describe data from early analysis. The data gathered is derived from needs analysis, curriculum analysis, idea analysis, and interview outcomes. There are three phases to studying this data: data reduction, data display, and making conclusions. Data reduction is the process of choosing, concentrating, and manipulating raw data collected through interviews and observations. The data is then compiled into a concise overview, followed by a deduction.

Validity Data Analysis

The graded validation sheet is presented in the form of a chart by scoring each answer as shown at Table 1.

Table 1. Validation assessment sheet scale

The Alternative Answers	Score
Fully Agreed	4
Agree	3
Disagree	2
Strongly Disagree	1

The validity interpretation of the teach module is defined by criteria at Table 2.

Table 2. criteria the validity of the teach module

Criteria	Interpretation
$3{,}4 \leq R \leq 4$	Very Valid
$2{,}8 \leq R < 3{,}4$	Valid
$2{,}2 \leq R < 2{,}8$	Valid Enough
$1{,}6 \leq R < 2{,}2$	Less Valid
$1 \leq R < 1{,}6$	Invalid

Practical Data Analysis

Educators and learners are very responsive and adaptable. The Likert scale falls under the positive category, where positive comments are scored according to Table 3.

Table 3. Value assessment scales

The Alternative Answers	Score
Fully Agreed	4
Agree	3
Disagree	2
Strongly Disagree	1

The practicality category uses classifications on the Table 4.

Table 4. Practical criteria

Value Of Practic	Category
$85 \leq P \leq 100$	Very Practical
$70 \leq P < 85$	Practical
$55 \leq P < 70$	Quite Practical
$40 \leq P < 55$	Less Practical
$25 \leq P < 40$	Impractical

Data analysis effectiveness

The effectiveness of the teach module can be obtained from data analysis of test results as a field test. The results were analyzed by calculating the numerical literacy ability. Students' learning results are calculated in the following formula 1, with N is the rate of learners.

$$N = \frac{\text{The Value of The Acquisition}}{\text{Maximum Score}} \times 100 \quad ...(1)$$

Once each learner's value is obtained, then the average value is determined. The average value of the

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numerical literacy ability test can be calculated using the formula 2, with $\bar{x}$ is average score, $\int_{i-1}^{n} \chi_i$ is student value amount, and n is number of students.

$$\bar{x} = \frac{\int_{i-1}^{n} \chi_i}{n} \quad ...(2)$$

Further the data of the calculations above is then specified under the terms in Table 5.

Table 5 Kettles criteria

Level of Achievemnt	Criteria
$86 \leq \bar{x} \leq 100$	Skilful
$66 \leq \bar{x} < 85$	Capable
$41 \leq \bar{x} < 65$	Worthy
$0 \leq \bar{x} < 40$	New Developments

Learning and asesmen guide (2022)

RESULTS AND SESSION

The study produced a product of the teach phase d module on the ratio and proportion topic and line and Angle topics for seventh graders vii in improving numerical literacy ability facilitating the phase skills done as follows:

1. Introduction Phase Results

The activity on the preliminary analysis begins with the needs analysis, curriculum analysis, concept analysis, and characteristic analysis of learners.

a. Results of need analysis

Based on the researchers' observations on December 12, 2022 SMPN 1 Junjung Sirih For learning activities carried out by mathematical educators it is learned that learning has not required learners to be actively involved in the learning process and thus learning is less pleasant and less effective. In the performance of the learning process, the educators still do conventional learning, where the educators present learning materials and then the educators give an example of how the materials are taught. Then educators give the same exercise problem as the example, and it could lead to a lack of creativity of learners coming up with ideas for problem solving during the learning process in the class. Then, in the implementation of the study in the student class, the teacher uses only the learning resource from the ministry's book because of the lack of available teaching modules and the free literacy worksheet that facilitates the mathematical numerical literacy of the student.

b. Curriculum Analysis Results

Based on analysis of the curriculum, it is known that the curriculum used in the school is the free curriculum for the vii class, but for the viii and ix classes still uses the 2013 curriculum. On the free curriculum in the draxy-teaching module has three components which are general information components, core components, and attachments.

c. Concept Analysis

Concept analysis is carried out so that students can more easily understand the material being studied. Here's a description of the layout of matter ratio and proportion, and line and Angle materials on the Table 6.

Table 6. The number of meetings and the sequence in the teach module

Topic	Purpose of learning	Encounter
Rasio and Proporsi	B.34 Menjelaskan pengertian rasio dan cara penulisan rasio. B.35 Mengubah rasio ke dalam bentuk yang sederhana. B.36 Menyelesaikan masalah dalam kehidupan sehari-hari yang berhubungan dengan rasio.	Meeting 1

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Topic	Purpose of learning	Encounter
	B.37 Menjelaskan konsep perbandingan senilai.	Meeting 2
	B.38 Menentukan nilai perbandingan senilai.	
	B.39 Menyelesaikan masalah dalam kehidupan sehari-hari yang berkaitan dengan perbandingan senilai.	
	B.40 Menjelaskan konsep perbandingan berbalik nilai.	Meeting 3
	B.41 Menentukan perbandingan berbalik nilai.	
	B.42 Menyelesaikan masalah dalam kehidupan sehari-hari yang berkaitan dengan perbandingan berbalik nilai.	
	B.43 Menjelaskan konsep skala perbandingan.	Meeting 4
	B.44 Menjelaskan konsep skala perbandingan dan hubungannya dengan denah dan peta.	
	B.45 Menentukan skala, jika unsur yang lain diketahui.	
	B.46 Menentukan jarak pada peta atau denah, jika unsur yang lain diketahui.	
	B.47 Menentukan jarak sebenarnya, jika unsur yang lain diketahui.	
	B.48 Menjelaskan pengertian kecepatan.	Meeting 5
	B.49 Menjelaskan pengertian debit.	
	B.50 Menyelesaikan persoalan terkait dengan rasio dan laju perubahan (kecepatan dan debit) dalam masalah kontekstual.	
Lines and angles	G.1 Peserta didik dapat menjelaskan pengertian titik, garis dan bidang.	Meeting 1
	G.2 Peserta didik dapat menentukan hubungan antara titik, garis, dan bidang.	
	G.3 Peserta didik dapat menentukan kedudukan dua garis.	
	G.4 Peserta didik dapat menjelaskan pengertian sudut.	Meeting 2
	G.5 Peserta didik dapat mengidentifikasi jenis sudut berdasarkan besar sudut dan nama sudut.	
	G.6 Peserta didik dapat membedakan sudut komplemen dan sudut suplemen pada perpotongan dua garis atau lebih yang membentuk jumlah sudut siku-siku dan jumlah sudut pelurus.	Meeting 3
	G.7 Peserta didik dapat menggambar dua garis lurus yang sejajar dan berpotongan dengan garis transversal.	Meeting 4
	G.8 Dari hasil gambar, peserta didik dapat mengidentifikasi dan menemukan sudut yang sama besar yang terbentuk dari perpotongan dua garis lurus yang sejajar dengan garis transversal.	
	G.9 Dari hasil gambar, peserta didik dapat menjelaskan hubungan antar sudut pada dua buah garis lurus yang sejajar dan berpotongan dengan garis transversal.	
	G.10 Peserta didik dapat menenentukan nilai sudut jika diketahui salah satu sudutnya pada dua buah garis lurus yang sejajar dan berpotongan garis transversal.	Meeting 5
	G.11 Peserta didik dapat menerapkan hubungan antar sudut pada dua garis lurus yang sejajar dan berpotongan dengan garis transversal dalam menentukan nilai sudut yang tidak diketahui dalam segitiga dan segi-empat.	

d. Results of student analysis

The learning analysis is done by way of interviews with educators and by providing learners. Interviews with educators suggest that learning abilities in a class vary; some learners have high, moderate, and low abilities. Information on the academic abilities of learners can

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be seen from an initial test adjusted to mathematical numeration literacy capability. The test results show that the mathematical numerical literacy ability of the protege is not optimal and still needs to be improved.

At the stage the spread of the protege figures to know the character of the learner. The results of interviews with learners are obtained from the fourth grade to the intermediate level, and many learners are actively assisting with the dominant parent's work so that the teaching module the learner wants according to the everyday condition of the learner. Based on the results of educated participants is obtained that learners need teaching modules to be able to understand math. Learners love interesting, colorful, and insignificant teaching modules. Learners prefer learning in groups to individual groups. Teach modules designed based on real-life context-oriented problems in the student ward. Here is a documented activity of some of the participants in the Figure 1.

Figure 1. Documenting the daily activities of participants

2. Development or Prototyping Phase

a. Prototype Design

On the prototype design describes the characteristics of the teach module numerating literacy designed as a guide in carrying out the learning process in class. In the characteristic portion of the teaching module corresponding to the merdeka curriculum consists of: the cover of the teach module, the preface, the table of contents, general information, the core components, and attachments. Start view teach (cover) modules and student worksheets are presented in Figure 2 and 3.

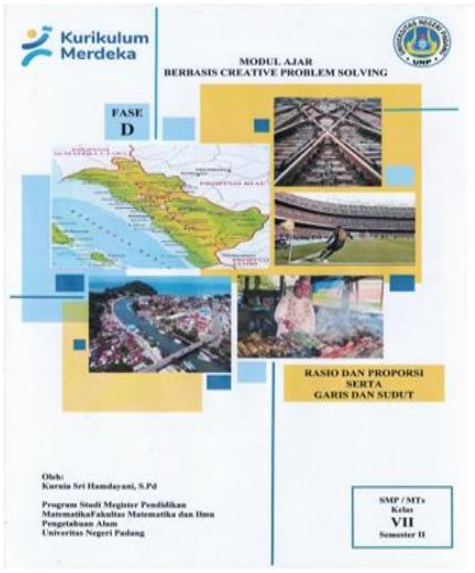

Figure 2. Lesson module cover designs

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Figure 3. Student worksheets designs

b. Validity Of The Teaching Module Numerating Literacy Through The Creative Problem Solving Model

1) Self Evaluation

During the self examination phase, researchers conducted a reexamination of prototype I. Self improvement is done using the self-help guidelines based on the material aspect, grappling, and good language of type-typing errors, the use of the punctuation in sentences, the clarity of the pictures used, the corresponding material in the teaching module, the order of activity, and the corresponding problems listed in the teaching module with the issues listed in the teaching module. Based on the results of self improvement, the following are shown repairs on the teach module can be seen on Table 7.

Table 7. Self evaluations of the teaching module

Before Revision	After Revision
There is still an error in the typing, and a less orderly layout.	The error of engraving was corrected, and the layout was corrected more neatly than ever.

2) Expert Review

At the validation stage of expert review, the teach module reinforcing numerical literacy on the merdeka curriculum through the creative problem solving model is validated by experts by processing it and thereby improving the teaching module that has been compiled. The Suggestions from the validator are used as a basis for revising the designed teaching module. The teaching module reinforcing numerical literacy on the merdeka curriculum through the creative problem solving model is valified by five experts made up of three mathematicians, one Indonesian expert, and one education technologist. The following sets the results of validation of the teaching numeration literacy module on the merdeka curriculum through the creative problem solving model.

Here is the results of the validation of the expert assessment on the design of the teach module the numerating literacy of the merdeka curriculum in Table 8.

Table 8. Validation of the teach module reinforcing numeration literacy through a creative problem solving model

Num	Valued Aspect	Score	Category
1	Validity test of the teaching module by mathematicians	3.61	Very valid
2	Validity test of the teaching module by Indonesian scholars	3.5	Very valid
3	Validity test of the teach module by educational technology experts	3.4	Valid
	Average	**3.5**	**Very valid**

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3) Numeration literacy module reinforcement literacy on the independent curriculum through the creative problem solving model

The learning kit's practical test is done through three stages of a one-to-one sub-level, small group literacy and field test. Each of the stages is revised before continued at the next stage. The stages of an activity activity are described as follows:

a) One to one Evaluation

The one to one level implemented against three class students vii SMPN 1 Junjung Sirih. Three of the trainees were chosen according to their level of mathematical ability, high, medium, and low. This activity takes place after school and an odd-shaped semester break as agreed. Before starting the activity, researchers first describe how the use of the teach module and students is asked to observe and assess the teach module starting from a cover page to the appendix section. Then students may ask if there is a sentence on the clue that cannot be understood. Based on assessment of the cover page to the teach module annex, it concludes that the three learners like the cover page to the better part of the teach module attachment. As for the results one to one in Figures 4-6.

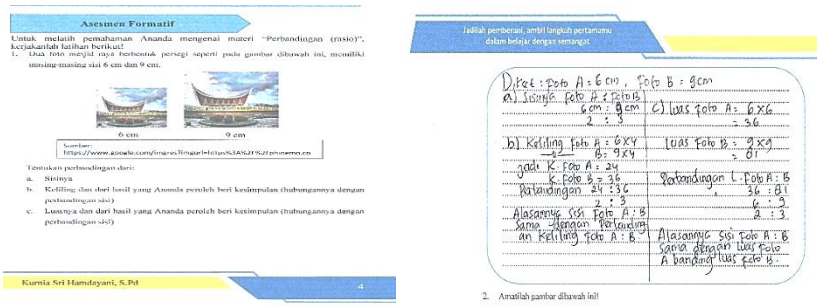

Figure 4. The student's answer to the high-profited access of matter ratio and proportion

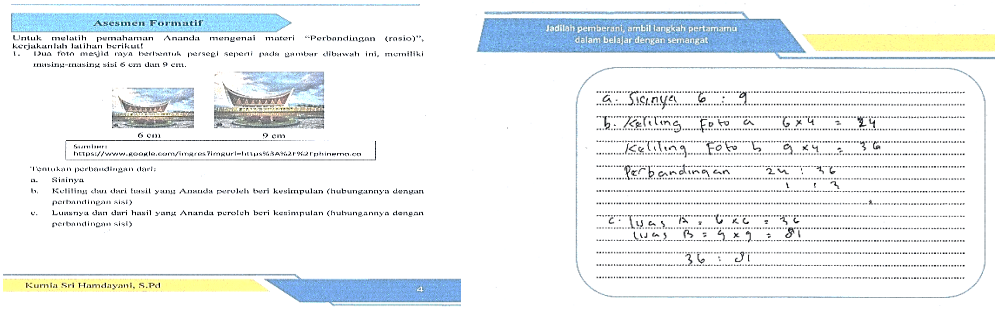

Figure 5. The answer of the gifted student is on a matter of ratio and proportion

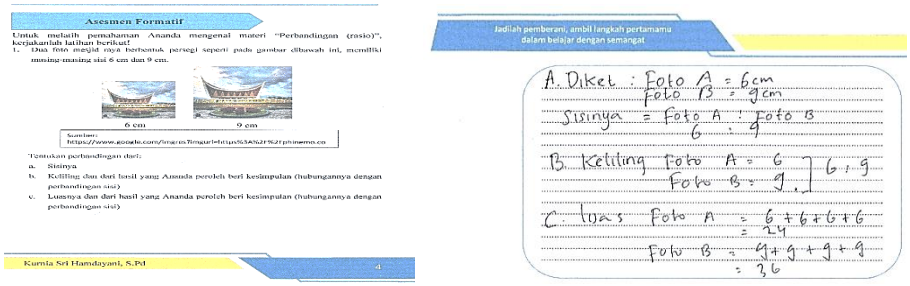

Figure 6. The student's low proficiency reply to a sumative matter of ratio and proportion

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From the analysis of Figures 4, 5, and 6, it is apparent that students with advanced capabilities are capable of accurately and methodically solving five issues. Although the skilled student is lacking in organization and preparation, they can still get satisfactory outcomes if they complete the task correctly. For pupils with lesser ability levels, simply solving the problem is insufficient. They must provide two accurate answers, and properly answer three additional issues.

The summing tasks for line and angle materials comprised six problems with a literacy indication. Additionally, they independently dedicate a total of two hours to the assessment activities without any guidance or discussion from researchers. When it comes to the numbers 1, 3, 4, and 6, the task at hand involves examining the data provided in different formats such as charts, tables, graphs, and diagrams. Matters 2 and 5 involve the utilization of numerical indicators and symbols from fundamental mathematics to solve difficulties in different everyday situations. The illustration displays many samples of students' responses to the summative literacy assign.

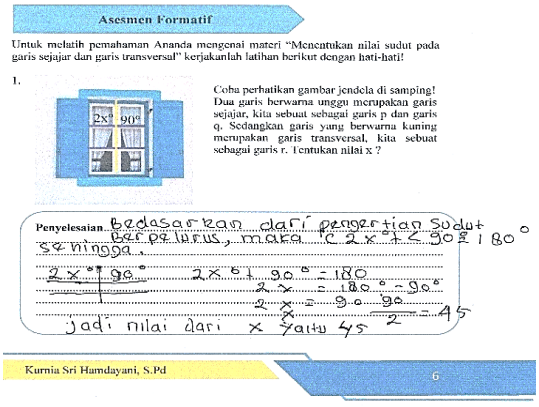

Figure 6. The high-skill student's answer on the formatif matter of line and angle

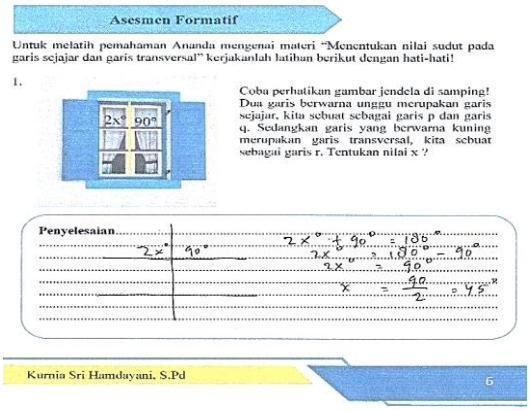

Figure 7. The answer of the capable student is on a formatif matter of line and angle

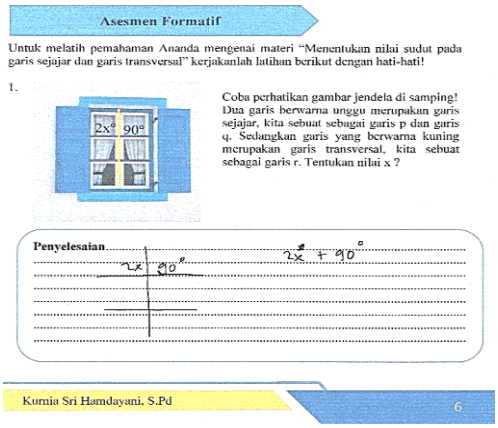

Figure 8. The student's answer to the summing material is line and angle

Based on Figures 6, 7, and 8 for viewing material summing and angles activities, it shows that students with high abilities can solve 5 problems on a systematic and precise excitation activity. While the student with abilities is being left unresolved on the question of 5 the results are being imprecise. Then for lower-skill students it is not yet able to solve problems 2 and problem 5 properly, while for the conclusion of each matter none made by the student.

b) Small Group Evaluation

Following the one to one implementation, the next activity will be of small group workshops. Small group

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workshops conducted with six students. The student selected based on consideration of the teacher with 2 person high performance students, 2 student ability ability, and 2 student low ability student. Students of the small group activities are different from students at stage one to one. Students divide into 2 groups with each group group of 1 person high abilities, 1 person ability ability, and 1 person ability low. Small group group activities will also be conducted from December 30, 2023, January 2023, for monetary ratios, while for line and Angle materials on January 5, 2023, January 9, 2023. Small group conducts after school at the researchers' home.

The educators who teach small group activities are researchers themselves using learning steps designed in the teaching module with a creative problem solving model. During the activities of small group surveys, researchers were assisted by class vii mathematical educators as observers. The observer is charged with observing the learning module of the teach module reinforcing numerical literacy with the creative problem solving model.

c) Assesment Phase

After improvements to the teach and lmodule at the small group evaluation stage, the activity is followed by a field test carried out from January 4 to March 17, 2023. At this stage the products were being used for a class vii SMPN 1 Junjung Sirih of 24 people. The educators who taught the field test activity were the mathematicians who taught the class with the researchers.

Once all the meetings have concluded, researchers evaluate the learners' and educators' reactions to the training module, and then conduct interviews. Angkette impotence is acquired by a rigorous mathematical study that includes the module of numeration reinforcement literacy, using the creative problem solving paradigm. The outcomes of the practice module, which focuses on teaching numeration literacy, may be observed in Table 9. This module is part of the free curriculum and is delivered through the creative problem-solving class VII, specifically in the field exam that collects student responses.

Table 9. Results from the learner's response module

Number	Valued Aspect	Practical Value (%)	Criteria
1	*Usable*	85.96	Very practical
2	*Easy to use*	83.17	Very practical
3	*Appealing*	87.98	Very practical
4	*Cost efefctive*	81.25	Very practical
The Overall Average		**84.51**	**Very practical**

Based on table 9, it appears that the practice of the teach module for each aspect is at a very practical criteria. Overall the value of a cps-based teaching module's ability to improve numeration literacy is 84.51% with very practical criteria. This means the reative problem associated teaching module to increase numeration literation ability can be used by students easily, interestingly, and efficiently on ratio and proportion materials, and line and Angle materials. In addition, efforts on the practice are also given to educators

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after using the numeration literacy module on the free curriculum through the CPS model. Angket analyses of the implantable module teach numeration literacy of the free curriculum through a CPS model (field test-the educator's response) are described in Table 10.

Table 10. Analysis result of an educator's response to the teaching module

Number	Valued Aspect	Value Imlantable Module (%)
1	Reading and material clarity	91.67
2	Dress and ease of use	100
3	Attraction	83.33
4	Appropriations of time	100
The overall average		**92.31**

The results of anger-response analysis at the field test stage a CPS based teaching module's practicality to enhance the ability of nuxia is 84.51% and 92.31% with very practical criteria. This suggests that CPS based modules are easy to use, have an efficient enough time to study them, to be interesting, and to be understood, and to be particularly useful in the mathematical learning process. The issues raised on the student worksheet help and stimulate the learner's understanding of discovering concepts of ratio and proportion and lines and angles.

According to the pre-test and post-test scores of learners, information has been given that there has been an increased ability to assimilate learners. Where numeration literacy ability often average when pre-test results are in order. After being used a cps-based teaching module is done post-test and obtained average numeration literacy ability test results fall within the proper category. This is shown by the couple t test results, $t_{to\ tally}$ = 5.436 > t_{table} = 1.699, it means CPS based teaching modules are effective in boosting student numeration literacy ability. Cps-based teaching module development to improve numeration literacy ability is said to be effective if their value attainment levels are effectiveness > 65 (Gusmania & Pamungkas, 2016). Then it may be concluded that cps-based teaching modules are particularly effective for improving student numeration ability because of student efficiency levels of 85% with worthy criteria. The results showed that the teach module based on creative problems of application to improve mathematical numeration literacy ability is valid, pratis, and effective. This harmonizes with the opinion of Kohler (2023) that good issues are valid, practical, and potential effects. Thus, it can be used as an asesment on learning in the classroom (Purnomo et al., 2022).

The above explanation is enhanced by study conducted by Widodo & Kartikasari (2017), which suggests that the description of the study results in an experiment higher than the control class, based on the study suggests that the experimental group treated with CPS has a higher average score than the control group applying conventional learning. While the problems used in the teach module and the student worksheet correspond to the numeration literacy ability indicator. Numeration literacy ability is a problem in the attractive real-world context and requires the use of real-life data in problem modeling (Putri & Zulkardi, 2020).

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The study can provide positive benefits in teaching activities conducted by teachers and students as innovative teaching modules alternatives to help improve student numeration literacy capabilities. These teach modules are not missing some weaknesses, some of which are these teaching modules can only be used for matter of ratio and proportion and line and Angle.

CONCLUSIONS AND SUGGESTION

Based on the findings and data that have been acquired in this study, it could be concluded that. CPS based teaching modules on ratio and proportion topics and line and Angle topics already valid from the grammatical (presentation), material (content), language, and Grafting (view). CPS based teaching modules on ratio and proportion topics and line and Angle topics already practical in terms of reading and material clarity, dress and ease of use, attraction, and fit of time location. CPS based teaching modules on ratio and proportion topics and line and Angle topics are positive for the development of student numeration literacy ability.

For other researchers it is recommended to develop devices learning based CPS approaches to other materials and trials Is carried out on some topics to improve the product.

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