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# Development of Ethnomathematics-Based Digital Flipbooks for Hindu Community Ceremonies in Bali

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**Abstract:** ***This study aims to determine the characteristics of ethnomatematics-based digital flipbook. The teaching materials developed are in the form of student digital flipbook and teacher instruction digital flipbook in an effort to improve students' understanding of the concept of quadrilateral and triangles. The design of the study was development research with Plompmodel. The subjects of this study were VII grade students of SMP Negeri 1 Bangli 2020/2021 academic year. The method used to collect data in this study, namely tests and questionnaires. The instruments used in this study were to measure the validity of teaching materials using validation sheets, measuring the practicality of teaching materials using implementation sheets, teacher and student response questionnaires and to measuring the effectiveness of teaching materials used tests of understanding mathematical concepts. The results of the research are valid, practical, and effective ethnomathematics teaching materials. The learning characteristics obtained from this research are discovery learning assisted by the surrounding culture. The characteristics obtained from the digital flipbook are: (1) Emphasizes learning on the discovery of the concept of squares and triangles by activities carried out by students. (2) Contains problems that are close to student life, namely using the Hindu community ceremony facilities in Bali. (3) Contains Balinese cultural values, namely knowing the names and types of Balinese ceremonies.***

**Keywords:** Ethnomathematics, Understanding of Mathematics Concept, Sarana Upakara, Digital Flipbook

## 1. Introduction

Studying mathematics means creating a continuous description of mathematical concepts, facts, procedures, and mathematical ideas. Introducing students to learning methods and adapting various educational strategies that should make it easier for students to master mathematical concepts. This statement is supported by research by Strong, Thomas, Perini and Silver, (in Mink, 2010) which states that the use of methods and adapting different mathematics learning strategies can accommodate students' learning styles. In the application of education, concept descriptions are often initiated by induction through observation of patterns or phenomena, experiences of real events or through the ability to understand something without thinking or studying. In pursuing mathematical concepts, it can be carried out inductively-deductively, meaning that both inductive and deductive education processes are equally meaningful in mathematics.

Based on the Quality Assurance for Mathematics subject at junior high school level, it is stated that one of the directions for the existence of mathematics subjects is to understand the concept of mathematics, in which the indicators that must be met to achieve this skill are i) being able to restate the concept, ii) classifying objects based on the conditions for forming the concept, iii) examining the nature of operations/concepts, iv) applying the concept logically, v) providing examples that include or not, vi) presenting a concept in various mathematical representations, vii) understanding the necessary and sufficient conditions of the concept being used. studied.

The presentation of students' understanding of mathematical concepts in Indonesia is in the low category. This can be seen from the results of TIMSS international research which shows that the average percentage of Indonesian students who responded correctly to the TIMSS research in 2011 was 31% knowing, 23% applying, and 17% reasoning (Mullis, 2011). The average obtained is still far below the percentage of international correct answers, namely 49% knowing, 39% applying, and 30% reasoning. Concept understanding can be instilled in students through various representations, these various representations can be poured into the form of teaching materials which contain culture (ethnomathematics) in this case the closer the representation given to students will make it easier for students to remember and understand the concepts of the material presented. is being studied.

The learning process using ethnomathematics is an idea for educators so that the ability to understand and see the application of mathematics in life can be more meaningful for students. Of course, in linking mathematics and the culture that surrounds it, educators must package it attractively so that students get their own interest in studying their culture and at the same time studying mathematics related to their culture.

The learning process by linking culture for Setiani et al (2018) is an education that allows teachers and students to actively participate based on a known culture, so that maximum learning outcomes can be obtained. In addition, the presence of concrete objects that students have often encountered will help students in constructing their understanding because students have seen firsthand what is being studied, knowing its benefits can be used in routines carried out by the community.

The ceremonies of the Hindu community in Bali are very diverse, ranging from the BhutaYadnya ceremony (a ceremony intended for God's creatures in the form of bhutakala) to the DewaYadnya ceremony (a ceremony

dedicated to the gods (according to Hindu god). owned by the Hindu community in Bali.In carrying out ceremonies in Bali, they often use various facilities and infrastructure, one of which is jejaitan which is often used as a means to present crops to God.

According to Sukrawati in Hindu Religious Events (2019-63) each means has its own meaning, the reringgitan on the canang describes eternity or sincerity. The shape of the jejaitan of various ceremonial facilities in Bali also has its own meaning, according to Sutara (2016) the triangular shape of the ceremonial means takes on the nature of a flaming fire where the flaming fire will form a triangle which is a symbol of Bhatara's power in its manifestation as Lord Brahma, a rectangular shape like the nature of the Lord Brahma. water that is always flat as a symbol of Bhatara's power in its manifestation as Lord Vishnu and the circular shape which is the nature of air that always fills all corners of space which is a symbol of Bhatara as a manifestation of Lord Shiva.

Various ceremonial facilities in Bali that have long been used by the Hindu community even before they recognized the existence of formal education without realizing it turned out that the Balinese Hindu community was very familiar with mathematics. This can be seen from the form of jejaitan used, calculations in ringgitan, and many others. Various geometric shapes that can be found in jejaitan can certainly be used to bring students closer to geometry material, namely with the help of various ritual facilities that students have often seen around them so that students do not have to imagine abstractly the material being studied. The existence of mathematics applied to the Hindu community in Bali is an example of ethnomathematics. D'Ambrosio was the first to introduce the term ethnomathematics in 1977. Ethnomathematics itself is mathematics that is applied to a particular cultural group. Conducting ethnomatics studies is an activity of studying ethnography or cultural anthropology, modeling in mathematics and mathematics itself.

Ethnomathematics has been done very much by the Hindu community in Bali but has not been studied and directed that the Balinese people in particular have been very often involved with mathematics so far. This is what is very interesting about mathematics which is able to explore growth, without compromising the existence of mathematics. Culture and Mathematics are an interesting combination that can be used to deal with the condition of the existence of a culture whose values are not considered important in social life.

According to (Tandililing, 2012) "Mathematics as human activities" based on this statement mathematics is realized due to human activities. When culture, mathematics and education are collaborated, there will be ethnomathematics. One of the ethnomathematics that can be considered is the geometric shapes that exist in the Balinese Hindu community. Each form certainly has its own philosophy. Examples of ritual facilities for the Hindu community in Bali, Tangkih and Iluk-iluk are facilities that take the basic shape of a burning fire (triangle). In addition, there are many other types of ritual facilities in Bali that can be related to Mathematics, for example canang sari, tamas, tipat, kepetan, taledan, flat, and many more.

Research (Eti, 2011) shows that the learning process of mathematics with the help of deceptive objects has a major impact on improving students' understanding of geometric concepts at the high school, junior high and elementary levels. According to the results of research by Rosita (2007) there are 45.63% of students who are able to reach the level of sorting for solving problems related to flat shapes. The results showed that the achievement of the level of geometric thinking based on Van Hiele for junior high school students was still low. Research on triangles and quadrilaterals by (Linda, 2020) shows that the success of students in solving problems based on the good Van Hiele stages is only able to reach stage 0 (visualization). Students tend to have difficulty in analyzing the properties of quadrilaterals and triangles which causes students to have difficulty solving problems involving finding the perimeter and area of quadrilaterals and triangles.

The use of teaching materials that apply ethnomathematics will cause the learning process to be more meaningful and students can construct their own knowledge, this indirectly helps students during learning which in this realm is specifically for triangle and quadrilateral material which students can see concretely apply to community ceremony facilities. Hindu. This view is in accordance with research conducted by Wiwin et al. (2017) which shows that the use of ethnomathematical-based geometry learning media can help students improve students' mathematical skills and critical thinking. Students' critical thinking skills will be good, of course, starting with a good student's ability to understand a concept and improve their critical thinking skills.

The application of ethnomathematics in learning has a positive impact on students, students will learn as well as feel the benefits of the learning that is being carried out so as to improve students' abilities in mathematics, this statement is in line with the results of research by Aristya (2018) where his research shows the use of ethnomathematics-based teaching materials helps students improve students' ability to solve a problem than the learning process that does not use mathematics teaching materials that include ethnomathematics.

The learning process during the pandemic is something that inspires new determination for educators and students in Indonesia. Learning that almost entirely uses online processes places teachers and students in a new learning style. Educators try to become facilitators with the existing demands so that students are comfortable and understand related to the implementation of the ongoing learning. The learning process mostly uses mobile phones or laptops. Printed books or other printed learning resources are often neglected during the distance learning process because students prefer to access sources that can be obtained via the internet. However, if students access sources that cannot be trusted, it will certainly affect the concepts that will be understood by the students themselves.

During the pandemic, the learning process is usually carried out by sending learning videos about the sub-materials that will be studied by students, if accessing quota learning videos becomes an obstacle for students. Therefore, the presentation of material that is more interesting and closer to students but still minimizes the use of student cellular data is very necessary, an alternative that can be used is the presentation of modules in the form of digital flipbooks.

Flipbook is a form of electronic module. Research by (Ramdania DR, 2007) shows that using flipbook media during the student learning process is able to improve student learning outcomes where an increase in student learning outcomes is obtained because students' interest in flipbooks is easier to access than printed books. According to (Gorghiu, 2011) flipbooks provide a great opportunity for the use of technology in the field of science and the realm of education in the network or distance learning (distance learning).

## 2. Literature Survey

1) Research conducted by Agung Prabowo (2015) with title "Eksistensi Matematika Jawa Sejak Mataram Kuno Hingga NKRI: *Local Genius* yang Terlupakan"
2) Research conducted by Rosa danOrey (2011) with title "*the cultural aspects of mathematics"*
3) SeptiIndriyani (2017) with title "Eksplorasi Etnomatematika Pada Aksara Lampung"
4) Georgius Rocki Agasi (2015) with title "Kajian Etnomatematika: Studi Kasus Penggunaan Bahasa Lokal Untuk Penyajian Dan Penyelesaian Masalah Lokal Matematika"
5) Rahayu Puspadewi (2018) with title "Analisis Etnomatematika Jejahitan Bali dalam Pembelajaran Bangun Datar"
6) Linda Sukmaning Ayu (2016) with title "Pengaruh Pembelajaran Etnomatematika Sunda Terhadap Kemampuan Pemahaman Matematis Siswa Sekolah Dasar"

## 3. Methods / Approach

The type of research conducted is development research, this research focuses on the development of a learning materials. The development of this research refers to the Plomp development model. The product produced in this study is an ethnomathematics-based learning tool in the form of a digital flipbook for teachers and students to improve understanding of mathematical concepts. The quality of the learning tools produced is reviewed from three aspects, namely validity, practicality, and effectiveness.

The research place in question is the place where the learning materials trials that have been developed are carried out. The research time referred to here is the time for the implementation of the learning materials trials that have been developed. The place chosen in this research is SMP Negeri 1 Bangli. The research was carried out in the even semester of the 2020/2021 academic year.

The intended research subjects are people who are involved in obtaining valid, practical, and effective learning tools. The research subjects are validators, students, and teachers. The validator plays a role in obtaining data regarding the validity of the learning materials. The expert (validator) is a lecturer in the Master of Mathematics Education Study Program, Ganesha University of Education and a mathematics teacher at SMP Negeri 1 Bangli. The selection of these experts is based on the expertise possessed by each expert. The second research subject is students. Students play a role in obtaining data about the practicality and effectiveness of learning tools. The students in question are class VII students of SMP Negeri 1 Bangli. Another research subject is the teacher. The teacher in question is a grade VII teacher of SMP Negeri 1 Bangli. Teachers have a role in obtaining data about the practicality of learning materials.

The development of learning materials in this study followed the procedure of learning materials according to Plomp. According to Plomp (2013), the phases of development research consist of 3 phases, namely: 1) Preliminary Research. The activities carried out are as follows: (a) Observing the ongoing learning implementation. (b) Conducting interviews with the seventh grade mathematics teacher at SMP Negeri 1 Bangli regarding the implementation of learning and the obstacles faced. (c) Conducting interviews with students regarding the implementation of learning that has been taking place so far. (d) Conduct an assessment of the learning tools used during learning. 2) Prototyping. The activities carried out were as follows: 1. The instrument which was still in the form of prototype I was tested for validity by two experts (validators), namely from the Lecturer of the Master of Mathematics Education Study Program, Ganesha Education University and the teacher at the school where the research was conducted. The trial was conducted to determine the practicality and the effectiveness of the learning tools developed so that the final prototype is obtained. 3) Assessment. The activities carried out at this stage are as follows: (1) In the assessment phase, field trials II are carried out by involving students in different classes. In the second field trial, observations were made during the learning activities to see the implementation of the use of learning tools by involving teachers, students and researchers. At the end of the meeting in the second field trial, students and teachers filled out a questionnaire related to responses regarding the learning tools developed to determine the level of practicality. To find out the effectiveness of learning tools, at the final stage, students evaluate with a test of understanding mathematical concepts. The results of the assessment are used as revision material, so that the final product is obtained.

The instruments used in this study are: (1) Instruments to determine the validity of the developed learning tools include: student module validation sheets and teacher modules. (2) Instruments to see the practicality of learning tools developed include: observation sheets on the implementation of learning tools, student response questionnaires to student books and teacher response questionnaires to learning tools (student books and teacher books). (3) Instruments to see the effectiveness of learning tools developed include: a test of understanding mathematical concepts to determine the understanding of

students' mathematical concepts after participating in learning using the materials developed in this study.

The resulting learning materials product can be declared to have good quality if it meets three aspects, namely validity, practicality, and effectiveness. To determine the quality of the learning materials in this study, it is necessary to collect data using the following methods. The validity of the learning materials was measured from the content validity and construct validity. Content validity is the accuracy of a product in terms of the content of the product. A product is said to have content validity if the content or material or product material is indeed a representative material for the learning materials provided. That is, the content of the product is in accordance with the applicable curriculum. Meanwhile, construct validity is seen from the linkage, suitability or consistency between the various components in the product being developed. The validation is based on the opinion of two experts, namely a lecturer at the Ganesha University of Education and a teacher at the research school. To test the construct validity, each expert was given a validation sheet, where the validation sheet contained several aspects which included: the content of the learning materials, presentation, and the physical form of the learning materials. In the validation sheet, the validator's opinion is categorized into four rating scales, namely: very good (score 4), good (score 3), less (score 2), very poor (score 1). Each expert then assesses how big the match between the learning tools and the aspects contained in the validation sheet, by checking one of the rating scales listed in the validation sheet column that has been provided.

**Practicality of Learning Materials**

The practicality of the learning materials produced is based on the implementation of the learning materials in the learning process. Data regarding the practicality of learning materials were obtained from observation sheets on the implementation of learning materials, teacher response questionnaires and student response questionnaires to learning materials after participating in learning. Observation of the implementation of learning materials is carried out by observing each aspect contained in the observation sheet at each meeting. In the observation sheet, student response sheet and teacher response sheet, the assessment is categorized into four rating scales, namely: very good (score 4), good (score 3), poor (score 2), very poor (score 1). Where, the assessment of each aspect observed is carried out by ticking one of the rating scales that are available in the column of the sheet. Student response questionnaires and teacher responses were respectively given to students and teachers at the end of the trial activity.

**Effectiveness of Learning Materials**

The test of understanding students' mathematical concepts is used to determine the effectiveness of the learning tools developed. The preparation of test questions for understanding mathematical concepts is made based on competency standards, basic competencies, and indicators to be achieved, then adjusted to the overall content of the learning tools that have been prepared.

Data on students' understanding of mathematical concepts was collected through a mathematical concept understanding test which was carried out at the end of each field trial and assessment stage. The test used is in the form of a description test. The scoring rubric was modified from the indicators of concept understanding which are then presented in Table 1 below.

**Table 1:** Scoring Rubric for Understanding Mathematical Concepts

| Indicator | Score | Category |
|---|---|---|
| Describe concepts in their own words | 0 | Not answering |
| | 1 | Describe concepts in their own words but wrong |
| | 2 | Describe concepts in their own words and true |
| Identify or give examples or non-examples of concepts | 0 | Not answering |
| | 1 | Identify or give examples or non-examples of concepts but wrong |
| | 2 | Identify or give examples or non-examples of concepts and true |
| Use concepts correctly in a variety of situations | 0 | Do not make answers or only repeat information that is known from the question |
| | 1 | Applying concepts in various situations but wrong |
| | 2 | Correctly applies the concept in various situations, but the calculation and final answer is wrong |
| | 3 | Correctly applying the concept in various situations, the calculation is correct but the final answer is wrong |
| | 4 | Correctly apply concepts in various situations, calculations and final answers are correct |

To see the validity of the developed learning tools, the following steps were taken. (1) Determined the average score obtained from each validator. (2) The average scores obtained from each validator are added up, and averaged until an average total score is obtained. (3) The validity of the learning materials is determined by converting the average total score into a qualitative value using the following criteria.

**Table 2:** Criteria for Validity of Learning Materials

| Score | Criteria |
|---|---|
| $3{,}5 \leq Sr \leq 4{,}0$ | Very Valid |
| $2{,}5 \leq Sr < 3{,}5$ | Valid |
| $1{,}5 \leq Sr < 2{,}5$ | Not Valid |
| $1{,}0 \leq Sr < 1{,}5$ | Very not Valid |

Information:
Sr = average score based on validation results
Sr=total score/ (many items)
The learning materials in this study must at least reach the valid category to be used in classroom learning.

**Practicality of Learning Materials**

To see the practicality of the learning tools developed, the following steps were taken. (1) Determine the average score of the student response questionnaire to the developed learning tools and the average teacher response questionnaire score to the developed learning materials. (2) The data obtained is then analyzed and to see the practical

value of the learning tools developed, the average score obtained is converted based on the following criteria (Sadra, 2007).

**Table 3:** Practical Criteria for Learning Materials

| Score | Criteria |
|---|---|
| $3{,}5 \leq Sr \leq 4{,}0$ | Very practical |
| $2{,}5 \leq Sr < 3{,}5$ | Practical |
| $1{,}5 \leq Sr < 2{,}5$ | Not Practical |
| $1{,}0 \leq Sr < 1{,}5$ | Very not Practical |

Sr = average score based on validation results
Sr=total score/(many items)
The learning materials in this study must at least reach the practical category to be used in classroom learning.

**Effectiveness of Learning Materials**
The effectiveness of learning materialss can be seen from the average score of the students' mathematical concept understanding test. The data used to measure the effectiveness of the learning tools is data on students' understanding of mathematical concepts after using the developed learning tools. Student test results were analyzed by determining student learning completeness (individual) based on the standard value of student learning completeness applicable in the school where the research was carried out. The following are the criteria for the complete understanding of mathematical concepts for seventh grade students at SMP Negeri 1 Bangli.

**Table 4:** Criteria for Complete Understanding of Students' Mathematical Concepts

| Student Concept Understanding Score | Category |
|---|---|
| $\mathbf{0 \leq x < 67}$ | Not Thorough |
| $\mathbf{67 \leq x \leq 100}$ | Thorough |

The validity testing mechanism uses a modification of the Gregory mechanism (in Candiasa, 2010a: 23) which develops techniques in testing content validity that have been quantified. To determine the validity of the content of the test designed by the two experts, they provide an assessment of the instrument per item by placing a check mark (√) in the column that has been provided according to the category obtained after the questions have been assessed by the expert. If after the assessment there are questions that are less or irrelevant according to the expert, the questions must be changed. The following is the cross tabulation used along with the criteria

**Table 5:** Cross Tabulation Matrix

| | | Judges 1 | |
|---|---|---|---|
| | | Less Relevant | Very Relevant |
| Judges 2 | Less Relevant | (A) | (B) |
| | Very Relevant | (C) | (D) |

Information:
A: Scores for rater 1 and rater 2 are less relevant
B: Score for rater 1 is very relevant and rater 2 is less relevant
C: Score for rater 1 is less relevant and rater 2 is very relevant
D: Scores for rater 1 and rater 2 are highly relevant

Calculations and determination of validity are carried out as follows.

$$\text{Validitasisi} = \frac{D}{A+B+C+D}$$

With the following criteria.
0.80 -1.00 → very high test validity
0.60 – 0.79 → high test validity
0.40 – 0.59 → moderate test validity
0.20 – 0.39 → low test validity
0.00 – 0.19 → very low test validity

## 4. Results / Discussion

Preliminary research phase, in this phase activities in the form of analysis are carried out initial/problem identification to obtain data regarding field needs in order to improve the quality of mathematics learning in the classroom. In phase in this preliminary research, researchers began to develop teaching materials based on ethnomathematics in the form of student modules and teacher guidance modules. Prototyping phase, at this stage the teaching materials that have been produced in the preliminary research phase (called prototypes) are seen for their quality or feasibility as teaching materials. The resulting prototype is still in the form of prototype I which includes a student module and a teacher guide module which then needs to be tested for validity, practicality, and effectiveness.

The prototype I that had been produced was then validated by several experts in this case one lecturer of the UNDIKSHA Mathematics Education Master's Degree Study Program and one mathematics teacher at SMP Negeri 1 Bangli. Prototype I which has been validated and declared suitable for use is then revised according to the advice of the experts. The result of the revision is referred to as prototype II, which is a prototype that is ready to be tested at the school where the research is located. The first trial is a limited trial. This trial was conducted with several students in class VII G, as many as 30 people. The focus of this trial is to get an overview of the implementation of the teaching materials used. In addition, at the limited trial stage, a response questionnaire was distributed to students and to teachers to determine the practicality of the teaching materials developed. All forms of revisions obtained from this limited trial are used to revise prototype II until the revised results are called prototype III. Furthermore, the prototype III that has been compiled is then retested.

The next trial is called field trial I. The focus of this trial is to improve product quality in terms of effectiveness and practicality. Field trial I was carried out on students of class VII I consisting of 32 people. Observations (observations) and the provision of response questionnaires were carried out to see the implementation and practicality of teaching materials. All the results from the first field trial were used as material to revise the III prototype. The result of the revised prototype III is called prototype IV.

The assessment phase, at this stage a field trial II was carried out using prototype IV by involving students in different classes, namely class VII H students, which consisted of 32 people. Observations (observations) and the provision of

response questionnaires were carried out to see the implementation and practicality of teaching materials. Based on the results of the second field trial, it was found that the teaching materials had met the criteria of practicality and effectiveness so that all forms of improvement were used as revision material and in the end the final product was obtained.

The results of the study in the form of the quality of teaching materials obtained the average score of the validity of teaching materials which include student modules and teacher guidance modules, respectively, is 3.90 and 3.4288. The two scores are in very valid criteria so that the teaching materials developed meet the validity criteria. This teaching material is also said to be practical because the learning implementation sheet shows a score of 2.90 in the limited trial, 3.20 in the field trial I and 3.47 in the field trial II, both of which belong to the practical category. The average score of student responses to the implementation of teaching materials in the limited trial, field trial I and field trial II were 2.70, 3.35 and 3.70, respectively. The three scores are included in the practical category for the limited trial and field test I and very practical in the field trial II.

The average score of the teacher's response to the implementation of teaching materials in the limited trial showed 2.88 and included practical criteria. While the average score of teacher responses to teaching materials in the field trial I and field trial II respectively showed 3.23 which was included in the practical category and 3.90 which was included in the very practical category. Based on the results obtained from the implementation sheet, student response questionnaires and teacher response questionnaires, it was found that the teaching materials developed met the criteria of practicality. This teaching material meets the criteria of effectiveness. This is indicated by the average score of students' understanding of mathematics concepts in class VII I and VII H, respectively, which is 73.82 and 85.78. Both scores meet the established effectiveness criteria, which are above the specified KKM.

This research is motivated by the existence of several problems thatmet by researchers in the learning process in class VII SMP Negeri 1 Bangli. Through observation and interviews, it is known that the learning process has not run optimally. So that researchers offer a solution, namely the need to design teaching materials that are able to demand active student involvement in constructing their own knowledge and mathematical concepts being studied. The teaching material in question is an ethnomathematics-based module used in this case is the culture in Bali, namely the ritual facilities of the Hindu community in Bali. The teaching materials developed are in the form of student modules and teacher guide modules. The development of teaching materials used in this study refers to the development procedure of Plomp, namely through the preliminary research phase, prototyping phase and assessment phase. The measurement of the quality of teaching materials in the development of these teaching materials uses the criteria of validity, practicality, and effectiveness.

## 5. Conclusion

This research has succeeded in developing ethnomathematical-based teaching materials that are valid, practical, and effective and have characteristics that distinguish them from other teaching materials. The characteristics of the teaching materials in this study are: The characteristics of the student module developed in this study are: (1) The student module emphasizes learning on the discovery of quadrilateral and triangle concepts by activities carried out by students. (2) The student module contains problems that are close to students' lives, namely using the Hindu community ritual facilities in Bali. (3) The student module contains Balinese cultural values, namely knowing the names and types of Balinese ceremonial facilities. (4) In the student module, space is given for students to write conclusions such as definitions of quadrilaterals, triangles and special lines in triangles. The characteristics of the teacher guidance module developed in this study are: (1) The teacher guide module facilitates and assists teachers in the learning process in the classroom. (2) The teacher's guide module contains alternative actions and is equipped with alternative answers to make it easier for teachers to direct students to the expected answers if students are not able to understand and do the tasks in the student module. (3) Contains RPP that is in accordance with the learning process, namely in the form of activities that are adapted to the teaching materials developed so that the designed RPP also helps teachers in carrying out learning using student modules and teacher guidance modules.

## 6. Future Scope

Conduct related research on ethnomathematics in culture that is useful for the world of education

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