

## Ethnomathematics Concept for Learning at High School in Bali

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**Abstract.** This community service program is focused on improving the quality of mathematics learning at SMA Negeri 2 South Kuta, especially in terms of variety and alternative learning resources. The main issues faced are the lack of varied learning resources and the lack of optimal scanning of innovations in learning to other teachers. The purpose of this service is to increase the understanding of the concept of Ethnomathematics and encourage its application as an alternative learning resource for mathematics teachers at SMA Negeri 2 South Kuta. The method used is mentoring with two sub-topics, namely providing an understanding of the concept of Ethnomathematics, the relationship between culture and mathematics, cultural approaches in learning, and the benefits of Ethnomathematics, and emphasizing the importance of understanding the social context in learning, inclusive learning, and connecting mathematics with the context of students' lives. Mentoring is carried out in four stages including planning, preparation, implementation, and evaluation. Pre-test and post-test are used to measure the initial understanding and improvement of teachers' understanding related to Ethnomathematics. The mentoring succeeded in increasing teachers' understanding of Ethnomathematics. There was an increase in the average pre-test and post-test scores of 15.69%. Six teachers managed to achieve the maximum score on the post-test, while the other five teachers showed a significant increase in comprehension. These results show that mentoring has succeeded in making a positive contribution in improving teachers' understanding of Ethnomathematics.

**Kata kunci:** sosialisasi;  
etnomatematika;  
pembelajaran.

**Abstrak.** Program pengabdian masyarakat ini difokuskan pada peningkatan kualitas pembelajaran matematika di SMA Negeri 2 South Kuta, khususnya dalam hal variasi dan alternatif sumber belajar. Isu utama yang dihadapi adalah kurangnya sumber belajar yang bervariasi dan kurang maksimalnya pengimbasan inovasi dalam pembelajaran kepada guru-guru lain. Tujuan pengabdian ini adalah untuk meningkatkan pemahaman konsep Etnomatematika dan mendorong

penerapannya sebagai alternatif sumber belajar bagi guru matematika di SMA Negeri 2 South Kuta. Metode yang digunakan adalah sosialisasi dengan dua sub topik, yaitu memberikan pemahaman tentang konsep Etnomatematika, keterkaitan budaya dengan matematika, pendekatan budaya dalam pembelajaran, dan manfaat Etnomatematika, dan menekankan pentingnya memahami konteks sosial dalam pembelajaran, pembelajaran inklusif, dan menghubungkan matematika dengan konteks kehidupan siswa. Sosialisasi dilakukan dalam empat tahapan yang meliputi perencanaan, persiapan, pelaksanaan, dan evaluasi. Pre-test dan post-test digunakan untuk mengukur pemahaman awal dan peningkatan pemahaman guru terkait Etnomatematika. Sosialisasi berhasil meningkatkan pemahaman guru tentang Etnomatematika. Terdapat peningkatan rata-rata skor pre-test dan post-test sebesar 15,69%. Enam guru berhasil mencapai skor maksimal pada post-test, sementara lima guru lainnya menunjukkan peningkatan pemahaman yang signifikan. Hasil ini menunjukkan bahwa sosialisasi telah berhasil memberikan kontribusi positif dalam meningkatkan pemahaman para guru tentang Etnomatematika.

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## 1 Introduction

Variety and alternatives in math learning resources are essential to make learning more engaging and effective (Laurens dkk. 2018). One way to apply it is by utilizing various types of learning resources, such as textbooks, learning videos, math games, math applications, and so on. By taking advantage of a variety of learning resources, students can find the learning method that best suits their individual learning style (Radović dkk. 2020). For example, some students may understand math concepts better through interactive learning videos, while others prefer to learn through exciting math games. In addition, a variety of learning resources can also help increase student engagement in math learning (Murtado dkk. 2023). In this way, learning is not only limited to text and writing on the board, but also through hands-on experience and interaction with various learning media. By implementing variations and alternative mathematics learning resources, teachers can create a more dynamic, creative, and engaging learning environment for students. This can help increase students' understanding and interest in mathematics.

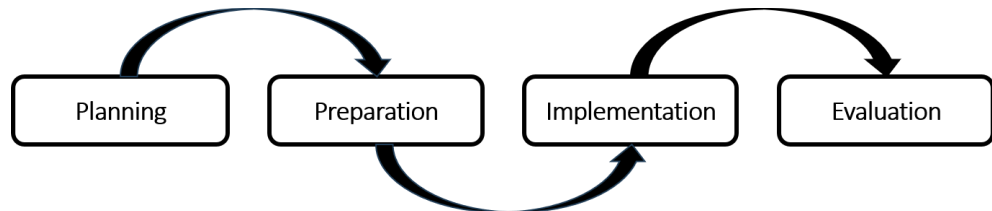
Although the variety and alternative sources of mathematics learning have many benefits, there are several obstacles that may be faced in their application (Taban 2021). A major challenge is the uneven distribution of diverse math learning resources. Many schools and teachers lack access

to a variety of materials like digital textbooks, instructional videos, and interactive software. The lack of diverse learning resources in mathematics restricts the options available for students, hindering their learning potential. Furthermore, the significant time and effort needed to develop or locate these resources present an additional barrier (Ferri, Grifoni, dan Guzzo 2020). Teachers need to spend extra time designing or looking for alternative learning resources that suit the needs of students. This can be a challenge for teachers who have tight schedules. Technology and infrastructure limitations pose a challenge for schools. Not all schools are equipped with adequate technology facilities to support the use of digital or interactive learning resources. This can hinder the application of a variety of mathematics learning resources that require advanced technology. While there are hurdles to overcome, working together, teachers, schools, and other involved parties can find solutions (Le, Janssen, dan Wubbels 2018). By providing support and dedication to enhancing mathematics education, we can conquer these challenges, enabling the successful implementation of diverse and innovative learning resources.

Based on the observations that have been made, SMA Negeri 2 South Kuta is one of the driving schools in its fifth year of establishment. In order to prepare superior human resources (Principals and Teachers), there are several aspects that are still not optimal. As one of the driving schools in Badung Regency, there is still a lack of driving teachers in this school, namely 1 person, which results in less than optimal scanning of innovation in learning to other teachers. In improving the competence of teachers towards professional teachers, it can also be seen that there is still a lack of research conducted in the past, in this case, namely Classroom Action Research (PTK) which then the results of this research can be published in seminars and in scientific journals. In learning, more variations or alternative learning resources are also needed that are able to support learning and enrich innovation in learning. Through interviews and discussions with the Principal of SMA Negeri 2 South Kuta, the results of identifying the real problems faced by SMA Negeri 2 South Kuta were obtained with one of the priorities being the need for more variety of learning resources in learning. From the problems owned by the partners above, the solution to the problems related to the variety of learning resources in learning by carrying out the Mentoring of the Role of Ethnomathematics in Learning which consists of Sub Topics – 1: Strengthening Understanding of Ethnomathematics Concepts and Sub Topics – 2: The Use of Ethnomathematics as an Alternative Learning Source.

## 2 Method

The method used in the Community Service program at SMA Negeri 2 South Kuta consists of four stages, namely: (1) Planning; (2) Preparation; (3) Implementation; and (4) Evaluation, as contained in the following image:



**Figure 1. The Method used in the Community Service Program**

In the first stage, the planning was carried out with observation of PkM partners, namely SMA Negeri 2 South Kuta, as well as the formation of the PkM Team by the Study Program by appointing several lecturers as chairmen and members in accordance with the PkM roadmap of the Mathematics Education Study Program. Observations are carried out to understand the needs and potential of PkM partners, while the formation of the PkM Team aims to design and implement PkM activities effectively in accordance with the plan that has been prepared. By involving lecturers as leaders and team members, it is hoped that the PkM program can run well and provide optimal benefits for all parties involved.

In the second stage, namely preparation, the design of activities is carried out as a solution to the problems faced by partners. In this process, there was a discussion between the partner schools and the PkM team using WA (WhatsApp) to discuss various related matters, such as the date of the implementation of the activity, implementation techniques, and other necessary details. Through this discussion, both parties can formulate a mature plan to solve existing problems in an effective and efficient way. The use of WA as a medium of communication also facilitates coordination between the school and the PkM team, thus ensuring that the implementation of PkM activities runs smoothly and in accordance with the expectations of all parties involved.

In the third stage, namely implementation, the entire implementation team is actively involved in carrying out their duties in each PkM implementation group with all team members. In the implementation of this activity, mentoring was carried out with two sub-topics, namely Strengthening Understanding of Ethnomathematics Concepts and the Use

of Ethnomathematics as an Alternative Learning Source. Before the mentoring, teachers are first given a pre-test, to find out the teacher's initial knowledge and understanding related to ethnomathematics.

Meanwhile, in the fourth stage, namely evaluation, the PkM implementation team involves itself in the mentoring and evaluation process related to the obstacles faced by partners. This evaluation seeks to assess the success of the implemented activities and pinpoint any ongoing challenges faced by collaborating partners. In addition, the team will also involve partners in the evaluation process by providing post tests to teachers through Google Form media. The results of the post test are then compared with the results of the pre-test, so that the level of teachers' understanding of the material that has been delivered in the mentoring activity is obtained.

### 3 Result

The Mentoring of Ethnomathematics concept for learning was carried out for 1 day, namely on Wednesday, June 12, 2024. The service team consisted of 2 lecturers and 2 students from the Mathematics Education Study Program. Partners who participated in this service were 20 mathematics teachers out of a total of 63 teachers who taught at SMAN 2 South Kuta. The target of this service is to strengthen the understanding of ethnomathematical concepts and teachers' efforts in using ethnomathematics as an alternative learning source. In this service program, Pre-Test and Post-Test were carried out, where out of 20 teachers involved, only 12 teachers filled out the pre-test and post-test, while there were 5 teachers who only filled out the pre-test and 3 teachers only filled out the post-test. Based on these conditions, the teachers used as a comparison of data for pre-test and post-test evaluations were 12 teachers, with the following results.

#### Implementation of Pre-Test

Before entering the first session, teachers are first asked to fill out a pre-test. From filling out the pre-test, an average score of 8.5 was obtained with the following complete results:

Table 1. Pre-Test Results

Sequence Number	Name	Score
1	Participants 1	8

2	Participants 2	10
3	Participants 3	10
4	Participants 4	9
5	Participants 5	9
6	Participants 6	10
7	Participants 7	10
8	Participants 8	10
9	Participants 9	10
10	Participants 10	7
11	Participants 11	6
12	Participants 12	3

The table above shows the results of the pre-test scores obtained by teachers of SMA Negeri 2 South Kuta as participants in Community Service activities. Pre-Test is given to find out the initial knowledge possessed by teachers related to ethnomathematical concepts.

### **Presentation of Sub-Topic 1 Material: Strengthening Understanding of Ethnomathematical Concepts**

In the first session, material was presented on Strengthening Understanding of Ethnomathematical Concepts. The documentation of the activity is contained in the following figure.



**Figure 2. Presentation of Sub-Topic-1 Material**

In the picture, the material delivered by Putu Suarniti Noviantari, S.Pd., M.Pd. In this material, it was explained about the relationship between culture and mathematics, cultural approaches in mathematics learning, universal mathematical concepts, and the benefits of ethnomathematics.

### Presentation of Sub-Topic 2 Material: The Use of Ethnomathematics as an Alternative Learning Source

In the second session, material was presented on the Use of Ethnomathematics as an Alternative Learning Source. The documentation of the activity is contained in the following figure.



Figure 3. Presentation of Sub-Topic-2 Material

In the picture, the material was delivered again by Putu Suarniti Noviantari, S.Pd., M.Pd. In this material, it was explained about the understanding of the social context in mathematics, inclusive learning, the relationship between mathematics and the context of students' lives, and efforts to improve students' understanding of mathematical concepts through ethnomathematics as a learning resource.

### Post-Test Implementation

After the second session ended, the teachers were asked to return to fill out the post-test. From filling out the post-test, an average score of 9.83 was obtained with the following complete results:

Table 2. Post-Test Results

Sequence Number	Name	Score
1	Participants 1	10
2	Participants 2	9
3	Participants 3	10
4	Participants 4	10
5	Participants 5	10
6	Participants 6	10
7	Participants 7	10

8	Participants 8	10
9	Participants 9	10
10	Participants 10	10
11	Participants 11	10
12	Participants 12	9

The table above shows the results of the post-test scores obtained by teachers of SMA Negeri 2 South Kuta as participants in Community Service activities. Post-Test is given to determine the level of understanding of teachers' knowledge related to ethnomathematical concepts, after the mentoring activities are carried out.

### Pre-Test and Post-Test Evaluation

The following is a comparative evaluation data of pre-test and post-test results.

**Table 3. Pre-Test and Post-Test Comparative Evaluation**

Sequence Number	Name	Pre-Test Score	Post-Test Score	Percentage Increase	Maximum Score Achievement
1	Participants 1	8	10	25%	Achieved during Post-Test
2	Participants 2	10	9	-10%	Achieved during Pre-Test
3	Participants 3	10	10	0%	Achieved during Pre-Test and Post-Test
4	Participants 4	9	10	11,11%	Achieved during Post-Test
5	Participants 5	9	10	11,11%	Achieved during Post-Test
6	Participants 6	10	10	0%	Achieved during Pre-Test and Post-Test
7	Participants 7	10	10	0%	Achieved during Pre-Test and Post-Test



8	Participants 8	10	10	0%	Achieved during Pre-Test and Post-Test
9	Participants 9	10	10	0%	Achieved during Pre-Test and Post-Test
10	Participants 10	7	10	42,86%	Achieved during Post-Test
11	Participants 11	6	10	66,67%	Achieved during Post-Test
12	Participants 12	3	9	200%	Not Achieved
	Rata-rata	8,5	9,83	15,69%	

*Note: Score 10 is the maximum score*

The table above shows a comparison of the results of the pre-test and post-test scores obtained by teachers of SMA Negeri 2 South Kuta as participants in Community Service activities, as well as the percentage increase in scores obtained as an overview of the level of teachers' understanding of ethnomathematical concepts.

#### 4 Discussion

The Community Service Program implemented by the Mathematics Education Study Program of FKIP Unmas Denpasar for Teachers at SMA Negeri 2 South Kuta aims to increase the understanding and application of the concept of Ethnomathematics in mathematics learning in order to provide a variety of learning resources for students. Through two main sub-topics, namely Strengthening Understanding of Ethnomathematics Concepts and Using Ethnomathematics as an Alternative Learning Source, this program provides new insights and methods for teachers in teaching mathematics with a more contextual approach and relevant to local culture. In the first sub-topic, Strengthening Understanding of Ethnomathematics Concepts, teachers are given in-depth knowledge about what Ethnomathematics is and how this concept can be integrated into mathematics learning in schools. Teachers are invited to understand that mathematics is not only universal, but can also be understood through the perspective of local culture and wisdom (Suastra 2017). With a strong understanding of this concept, it is hoped that teachers can

deliver mathematics material with a more diverse and interesting approach for students (Abramovich, Grinshpan, dan Milligan 2019).

Meanwhile, the second sub-topic, The Use of Ethnomathematics as an Alternative Learning Source, focuses on the application of the concept of Ethnomathematics in daily learning. The teachers were given concrete examples of how Ethnomathematics can be used as an interesting and relevant learning resource for students (Suryawan dan Sariyasa 2018). Teachers are invited to find and develop mathematics learning materials inspired by local culture, so that students can more easily relate mathematical concepts to their surroundings (Fouze dan Amit 2018). By combining these two sub-topics, this community service program aims to create a more inclusive, interesting, and memorable mathematics learning environment for students at SMA Negeri 2 South Kuta. Teachers are expected to be agents of change in spreading this concept of Ethnomathematics to all their students (Owens 2023), So that mathematics learning no longer feels monotonous and far from daily life, but becomes something relevant, interesting, and beneficial for the overall development of students. Thus, this Community Service Program is expected to make a positive contribution to improving the quality of mathematics education at SMA Negeri 2 South Kuta, as well as open the door for the development of more diverse and inclusive approaches to mathematics learning in the future.

### **Pre-Test and Post-Test Questions**

Pre-test and post-test questions designed to measure participants' understanding of Ethnomathematical concepts (Alghiffari, Prahmana, dan Evans 2024) . In this case, the questions are prepared to test participants' understanding of the basic concepts of Ethnomathematics, their application in learning, and their benefits in social and cultural contexts, which include:

#### **1) Definition and Concept of Ethnomathematics**

Question number 1 asks about the correct definition of Ethnomathematics. The correct answer is "A field of study that recognizes cultural diversity in the understanding and practice of mathematics". This question tests participants' understanding of the basic concepts of Ethnomathematics as a field of study that recognizes and appreciates cultural diversity in mathematics. Question number 2 asks about core concepts in Ethnomathematics. The correct answer is "Recognition of cultural diversity in the understanding and practice of mathematics". This question tests participants' understanding of the

importance of recognizing and appreciating cultural diversity in understanding and practicing mathematics.

## 2) Cultural and Mathematical Linkages

Question number 3 asks how Ethnomathematics views the relationship between culture and mathematics. The correct answer is "Ethnomathematics recognizes that culture has a strong influence on the development, understanding, and use of mathematics". This question tests participants' understanding of cultural influences on the development, understanding, and use of mathematics. Number questions ask what Ethnomathematics emphasizes in mathematics learning. The correct answer is "Emphasizing the importance of valuing and utilizing students' knowledge, practices, and cultural contexts". This question tests participants' understanding of the importance of considering the student's cultural context in mathematics learning.

## 3) Ethnomathematical Paradigm

Question number 5 asks what Ethnomathematics recognizes in addition to the traditional Western mathematical paradigm. The correct answer is "Acknowledging traditional counting systems, alternative measurement methods, and different mathematical approaches from certain cultures". This question tests participants' understanding of the concept of Ethnomathematics as an alternative to the traditional Western mathematical paradigm.

## 4) Ethnomathematics as a Source of Learning

Question number 6 asks about the meaning of Ethnomathematics as a learning resource. The correct answer is "A learning resource that introduces mathematical concepts from different cultures in the world". This question tests participants' understanding of Ethnomathematics as a learning approach that introduces mathematical concepts from various cultures.

## 5) Application of Ethnomathematics in Learning

Question number 7 asks how Ethnomathematics helps students understand mathematics in a broader social context. The correct answer is "Ethnomathematics helps students understand how values, traditions, and cultural norms affect mathematics". This question tests participants' understanding of how ethnomathematics can help students understand the relationship between mathematics and culture. Question number 8 asks how Ethnomathematics as a learning resource can create an inclusive learning environment. The correct

answer is "Ethnomathematics can increase the motivation and interest of students from different backgrounds". This question tests participants' understanding of how ethnomathematics can help create an inclusive learning environment and value students' cultural diversity. Question number 9 asks how Ethnomathematics can help students see the relevance and application of mathematics in everyday life. The correct answer is "Ethnomathematics helps students relate mathematical concepts to everyday life situations and problems". This question tests participants' understanding of how Ethnomathematics can help students understand the relevance and application of mathematics in everyday life. Question number 10 asks how ethnomathematics can help students gain a deeper understanding of mathematical concepts. The correct answer is "Ethnomathematics helps students see mathematical concepts from a variety of different cultural perspectives". This question tests participants' understanding of how ethnomathematics can help students develop a broader and flexible understanding of mathematical concepts.

### Pre-Test Results

From the data of the pre-test results conducted before the first session of mentoring about Ethnomathematics. This pre-test was given to 12 teachers who will take part in the mentoring, aiming to measure their initial understanding of Ethnomathematics. Based on a detailed analysis of the data of the pre-test results of each participant, the results were obtained, namely:

**Table 4. Analysis of The Data of The Pre-Test Results**

Sequence Number	Name	Score	Analysis
1	Participants 1	8	in this case the participant has a good initial understanding of Ethnomathematics, even though the score does not reach the maximum score, when the mentoring is carried out can focus more on understanding the concept of Ethnomathematics and its application in learning
2	Participants 2,3,6,7,8, and 9	10	in this case the participant had a very good initial understanding of Ethnomathematics. Participants

			can be a source of reference for other participants who want to learn more about Ethnomathematics
3	Participants 4 and 5	9	in this case the participant had a good initial understanding of Ethnomathematics. Participants during the mentoring were directed to focus more on understanding the concept of Ethnomathematics and its application in learning
4	Participants 10	7	in this case participants had a fairly good initial understanding of Ethnomathematics. Participants are directed to focus more on understanding the concept of Ethnomathematics and its application in learning
5	Participants 11	6	in this case the participants had a fairly good initial understanding of Ethnomathematics. Participants are directed to focus more on understanding the concept of Ethnomathematics and its application in learning
6	Participants 12	3	in this case the participant had a low initial understanding of Ethnomathematics. Participants need to be given additional material and a more detailed explanation of Ethnomathematics

Based on the table above, the results of the pre-test showed that most of the participants had a fairly good initial understanding of Ethnomathematics. However, there are also some participants who have a low initial understanding. This shows that the right learning strategy is needed to ensure that all participants can understand and apply Ethnomathematics well.

### Implementation of Mentoring

After the Pre-Test was carried out, the activity continued with a mentoring agenda about Ethnomathematics. There are two main sub-topics discussed in the mentoring, namely: Strengthening Understanding of Ethnomathematics Concepts and Using Ethnomathematics as an Alternative Learning Source. The first sub-topic discusses the concept of Ethnomathematics in depth. This material was delivered by Putu Suarniti Noviantari, S.Pd., M.Pd., who acted as the main resource person in this mentoring. He explained about the close relationship between culture and mathematics. Here, it discusses how cultural approaches can be applied in mathematics learning, as well as the importance of understanding universal mathematical concepts (Andriani dkk. 2020). This material also underlines the benefits of ethnomathematics in the context of learning. This sub-topic emphasizes that mathematics does not stand alone, but is closely connected to culture (Sacristán 2024). Each culture has a different perspective and approach to mathematics. The cultural approach in mathematics learning means using examples and contexts that are familiar to students, so that learning is easier to understand and interesting (Mazana, Montero, dan Casmir 2018). Despite cultural differences, there are also universal mathematical concepts that apply everywhere. Ethnomathematics has various benefits, such as increasing learning motivation, developing critical thinking skills, and strengthening a sense of cultural identity (Sari dkk. 2023).

The second sub-topic focuses on the application of Ethnomathematics as an alternative learning resource. This material was again delivered by Putu Suarniti Noviantari, S.Pd., M.Pd., who emphasized the importance of understanding the social context in mathematics. This material also discusses the concept of inclusive learning, as well as the importance of connecting mathematics with the context of students' lives (Ahmed Alnaim dan Sakız t.t.). The main goal of this sub-topic is to improve students' understanding of mathematical concepts through the use of ethnomathematics as an effective learning resource. Ethnomathematics emphasizes the importance of understanding the social context in mathematics learning (Owan 2019). This means that teachers must pay attention to the cultural background and life experiences of students so that the learning material can be understood properly. Ethnomathematics can be a tool to create inclusive learning, regardless of their cultural background, can learn and thrive (Lestari dan Bahri 2024). Ethnomathematics shows that mathematics is not just a formula and theory, but also has a close relationship with everyday life (Umbara, Wahyudin, dan Prabawanto 2021). By using Ethnomathematics, students

can more easily understand mathematical concepts because the learning material is presented in a context relevant to their lives (Widada dkk. 2019).

### Post-Test Results

The post-test was carried out after the second session of mentoring about Ethnomathematics. This post-test was given to 12 teachers who had participated in the mentoring, aiming to measure the improvement of their understanding of Ethnomathematics after participating in the mentoring. The following is a detailed analysis of the post-test results data for each participant:

**Table 5. Analysis of The Post-Test Results**

Sequence Number	Name	Score	Analysis
1	Participants 1,3,4,5,6,7,8,9,10, and 11	10	In this case the participant showed a very good understanding of Ethnomathematics, as seen from the maximum score obtained
2	Participants 2 and 12	9	In this case the participant showed an improvement in a good understanding of Ethnomathematics, although his score did not reach the maximum score

Based on the table above, the results of the post-test showed that there were 10 teachers or participants who managed to achieve a maximum score of 10, while 2 teachers achieved a score of 9.

### Pre-Test and Post-Test Evaluation

From the implementation of the pre-test and post-test, comparative data on the results of the pre-test and post-test conducted to 12 participants of the Ethnomathematics mentoring were obtained. This data shows an increase in participants' understanding after participating in the mentoring. The following is a detailed analysis of the evaluation data of each participant:

**Table 6. Analysis of Pre-Test and Post-Test Comparative Evaluation**

Sequence Number	Name	Analysis
1	Participants 1	Obtained a pre-test score: 8, post-test score: 10, the percentage increase reached 25%. In this case, participant 1 did not reach the maximum score during the pre-test but managed to achieve the maximum score during the post-test. Participant 1 showed a significant increase in understanding after participating in the mentoring, as seen from the maximum score he obtained
2	Participants 2	Obtained a pre-test score: 10, post-test score: 9, the percentage of score decrease reached 10%. In this case, participant 2 achieved the maximum score during the pre-test but failed to achieve the maximum score during the post-test. Participant 2 experienced a decrease in score on the post-test, although the score was still high
3	Participants 3	Obtained a pre-test score: 10, post-test score: 10. In this case, participant 3 managed to achieve the maximum score during the pre-test and post-test. Participant 3 maintained his excellent understanding of Ethnomathematics
4	Participants 4	Obtained a pre-test score: 9, post-test score: 10, the percentage increase reached 11.11%. In this case, participant 4 did not reach the maximum score during the pre-test but managed to achieve the maximum score during the post-test. Participant 4 showed an increase in good understanding after participating in the mentoring
5	Participants 5	Obtained a pre-test score: 9, post-test score: 10, the percentage increase reached 11.11%. In this case, participant



		5 did not achieve the maximum score during the pre-test but managed to achieve the maximum score during the post-test. Participant 5 showed an increase in good understanding after participating in the mentoring
6	Participants 6	Obtained a pre-test score: 10, post-test score: 10. In this case, participant 6 managed to achieve the maximum score during the pre-test and post-test. Participant 6 maintained his excellent understanding of Ethnomathematics
7	Participants 7	Obtained a pre-test score: 10, post-test score: 10. In this case, participant 7 managed to achieve the maximum score during the pre-test and post-test. Participant 7 maintained his excellent understanding of Ethnomathematics
8	Participants 8	Obtained a pre-test score: 10, post-test score: 10. In this case, participant 8 managed to achieve the maximum score during the pre-test and post-test. Participant 8 maintained his excellent understanding of Ethnomathematics
9	Participants 9	Obtained a pre-test score: 10, post-test score: 10. In this case, participant 9 managed to achieve the maximum score during the pre-test and post-test. Participant 9 maintained his excellent understanding of Ethnomathematics
10	Participants 10	Obtained a pre-test score: 7, post-test score: 10, the percentage increase reached 42.86%. In this case, participant 10 did not reach the maximum score during the pre-test but managed to achieve the maximum score during the post-test. Participants 10 showed a significant increase in understanding after participating in the mentoring

11	Participants 11	Obtained a pre-test score: 6, post-test score: 10, the percentage increase reached 66.67%. In this case, participant 11 did not reach the maximum score during the pre-test but managed to achieve the maximum score during the post-test. Participants 11 showed a significant increase in understanding after participating in the mentoring
12	Participants 12	Obtained a pre-test score: 3, post-test score: 9, the percentage increase reached 200%. In this case, participant 12 did not achieve the maximum score during the pre-test and post-test. Participants 12 showed a very significant increase in understanding after participating in the mentoring. Although his score did not reach the maximum score, the improvement was very high

From these results, there were 6 participants who managed to achieve the maximum score during the pre-test, 10 participants achieved the maximum score during the post-test, and 5 participants achieved the maximum score during the pre-test and post-test. In terms of percentage increase, there was 1 teacher, namely participant 2, who experienced a score decrease of 10%, while there was 1 teacher, namely participant 12, who experienced a very significant increase in score, reaching 200%. The results of the pre-test given to teachers related to the topic of ethnomathematics were obtained on average 8.5 while during the post-test an average of 9.83. From these results, it shows that there is an average increase in teachers' understanding related to ethnomathematics by 15.69%. Mentoring about Ethnomathematics is an important step to improve the understanding and application of Ethnomathematics in mathematics learning. The results of the evaluation show that mentoring has succeeded in contributing to improving teachers' understanding of Ethnomathematics.

## 5 Conclusion

### Theoretical Reflections

This community service program has succeeded in increasing the understanding and application of the concept of Ethnomathematics among teachers of SMA Negeri 2 South Kuta. Through two main sub-topics, namely Strengthening Understanding of Ethnomathematics Concepts and Using Ethnomathematics as an Alternative Learning Source, this program provides new insights and methods for teachers in teaching mathematics with a more contextual approach and relevant to local culture.

### Recommendations

- 1) It is necessary to develop Ethnomathematics learning materials inspired by local culture as a follow-up to the results of mentoring.
- 2) It is necessary to conduct regular teacher training to improve their understanding and skills in applying Ethnomathematics in learning.
- 3) Further research is needed on the effectiveness of Ethnomathematics in improving students' learning motivation, critical thinking skills, and learning achievement.
- 4) It is necessary to socialize Ethnomathematics to teachers in other schools to spread this concept more widely.

## 6 Acknowledgment

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