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# EXPLORATION OF ETHNOMATHEMATICS IN THE TRADITIONAL GAME OF UNCAL NONGKO

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## Abstract

This study aims to explore and reveal the ethnomathematical values contained in the traditional game of Uncal Nongko, which originates from Sekaran Village, Bojonegoro Regency, East Java. It also seeks to examine the potential application of this game within the context of mathematics learning in schools. Ethnomathematics, as a learning approach, provides students with the opportunity to understand mathematical concepts that are directly connected to their daily lives and cultural backgrounds. This research employs a qualitative approach, specifically ethnographic research. The article thoroughly examines the mathematical aspects embedded in the Uncal Nongko game, such as number concepts, probability, geometry, and decision-making strategies. The main findings indicate that the traditional Uncal Nongko game significantly contains mathematical concepts that can be understood and applied by children through play activities. The educational implication of this finding is that Uncal Nongko can serve as an effective and enjoyable medium for teaching mathematics, thereby enhancing students' interest and understanding of mathematics in a contextual and interactive manner. This study demonstrates that traditional games can be used as alternative learning media that are fun, meaningful, and contextual, while also fostering appreciation for local cultural heritage.

**Keywords:** ethnomathematics; traditional game; uncal nongko

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## Introduction

In the current era of rapid technological and informational development, the learning approaches being used are continuously evolving (Effendi & Wahidy, 2019). In this era, the term "Society 5.0" refers to 21st-century skills related to fast-paced technological advancements. It also points to a learning system that clearly reflects increasingly sophisticated technological progress (Harun, 2022). Advances in various fields, including mathematics, influence the development of technology and education that support the growth of human culture and life worldwide (Sundawan, 2016). In this context, there is a need for a learning approach that is not only adaptive to the times but also preserves local values. One learning method that has gained attention is the use of ethnomathematics as an approach to teaching mathematics. This approach emphasizes not only the understanding of mathematical concepts but also connects them with local culture, allowing students to learn in a more contextual, meaningful, and relevant way in relation to their daily lives.

Ethnomathematics aligns well with constructivist approaches in education, helping students understand and master mathematics by connecting school subjects with their prior knowledge and experiences (Widana & Diartiani, 2021). the constructivist perspective on learning enables students to construct their own knowledge through discovery-based activities (Nursyahidah & Saputro, 2015). In line with this view, mathematics is not merely transferred from teacher to student, but students actively engage in reconstructing mathematical concepts in their own way (Umbara, 2017). Ethnomathematics is also deeply connected to culture, particularly as it relates to mathematics (Hardiarti, 2017). The mathematics taught in schools is typically academic mathematics, whereas ethnomathematics refers to the mathematics used to identify cultural groups within society (Ubiratan D'Ambrosio, 1985). Ethnomathematics is a method that can explain the actual relationship between culture and mathematics (Rusliah, 2016). It is a field of study in mathematics that emerges from human activities in their environment, influenced by cultural context (Nursyahidah et al., 2018). Furthermore, ethnomathematics can be viewed as a program aimed at studying how students understand, articulate, process, and ultimately use mathematical ideas, concepts, and practices to solve problems related to their daily lives, in accordance with the conditions and realities present in their surroundings (Lukman Harun et al., 2024).

One form of innovation aimed at eliminating the stigma that mathematics is a difficult and hard-to-understand subject is culture-based mathematics learning (Oktavia et al., 2024). By integrating engaging and familiar cultural elements into teaching, it is expected that the public perception of mathematics will become more flexible and positive (Ramadhani et al., 2023). The integration of culture into mathematics education not only makes the learning process more enjoyable but also encourages students to think contextually and creatively. Moreover, culture-based learning can contribute to the development of problem-solving skills, ultimately leading to better academic achievement (Utami et al., 2018). Culture itself is an inseparable part of human life, as it is through culture that communities are formed and united through various forms of expression they produce (Widada et al., 2019). Culture can be defined as a collection of customs containing important values passed down from generation to generation, serving as a source of values, norms, and local knowledge that are highly useful for education (Mawarni, 2022). Education and culture are integral parts of daily life (Utami et al., 2018). Therefore, by incorporating local cultural values into mathematics learning, students

can strengthen their own identities while preserving the nation's cultural heritage. Education and culture are two interrelated and mutually reinforcing aspects. Education functions to shape individuals to possess character and cultural values, while culture serves as the philosophical foundation for education (Hardiyanto et al., 2024). Thus, culture-based mathematics learning is a strategy that is not only pedagogically relevant but also strategic in building a generation that is intellectually intelligent and rooted in cultural values.

Indonesia, as a country rich in cultural diversity (Cahyawati, 2022), has been officially recognized by the Ministry of Education, Culture, Research, and Technology. This diversity encompasses various cultural entities, including tangible and intangible cultural heritage. In 2021, the Ministry of Education, Culture, Research, and Technology recorded 289 officially recognized intangible cultural heritages across 28 provinces. One form of this cultural heritage is traditional games, which serve not only as entertainment but also contain local values that can be applied in educational contexts (Nurwahidah et al., 2021). Previous studies have explored various traditional games such as jump rope, congklak, gundu, and marbles, which contain basic mathematical elements including numbers, geometry, and arithmetic operations (Fadila & Mariana, 2021; Rohmatin, 2020; sarah et al., 2022). However, there remains a lack of research specifically examining the traditional game Uncal Nongko from Sekaran Village, Bojonegoro Regency, which holds significant potential as a medium for culture-based mathematics learning. Thus, this study offers a new contribution by filling the gap in ethnomathematical research on traditional games that have not yet been widely explored. Although numerous studies have discussed the application of ethnomathematics in mathematics learning, most of these studies still focus on the general integration of culture or use other cultural objects such as art, crafts, or traditional architecture. Few studies have specifically examined traditional games as a source of ethnomathematical values, even though traditional games are part of local culture that is close to students' daily lives and hold great potential as a medium for contextual learning. One traditional game that has not been widely explored in this context is "Uncal Nongko" from Sekaran Village, Bojonegoro Regency. One traditional game that has not been widely explored in this context is "Uncal Nongko" from Sekaran Village, Bojonegoro Regency.

## Methods

In this study, an ethnographic method with a qualitative approach was employed. This method aims to document and analyze a specific culture through in-depth field research (Winarno, 2015). Qualitative research is a form of realistic inquiry in which the researcher serves as the primary instrument, directly engaging in the field to collect data through observation and interviews without manipulation (Sari et al., 2022). The research was conducted in April 2025 in Sekaran Village, Bojonegoro Regency, the origin of the Uncal Nongko game. In this study, informants were selected using purposive sampling based on the following criteria: residents of Sekaran Village who understand and have played the Uncal Nongko game, as well as community leaders or elders who are knowledgeable about the cultural background of the game. The researchers examined the Uncal Nongko game in detail, including its playing tools, gameplay techniques, scoring system, and the ethnomathematical concepts embedded within the game. The main instruments for data collection in this study were observation sheets and interview guidelines designed based on the researcher's analytical framework. The data

collection techniques included observation, interviews, and documentation. A total of eight informants participated in this study, consisting of five active players from Sekaran Village and three community figures who understand the history and cultural values associated with the game. The selection of informants was done purposively based on their ability to explain the rules and philosophy of the game, as well as their willingness to serve as sources of information.

This study began with the preparation of research instruments in the form of observation sheets and interview guidelines, which were content validated by two experts in ethnomathematics and one lecturer in mathematics education. The validation process assessed the suitability of the indicators with the research objectives, resulting in a Content Validity Index (CVI) of 0.92, indicating high content validity. Data triangulation was conducted by cross-checking the results from observations, interviews, and documentation, as well as performing member checks with the informants to ensure data accuracy. After the instruments were validated, the researcher conducted field observations directly. The data analysis technique consisted of four stages: domain analysis, taxonomic analysis, componential analysis, and cultural theme analysis. These stages aimed to understand the mathematical aspects and cultural values embedded in the Uncal Nongko game. Following this, Table 1 was revised and adjusted to reflect the ethnographic study of the traditional Uncal Nongko game in Sekaran Village, Bojonegoro Regency, East Java, within the context of an ethnomathematical approach. This table was structured based on Spardley's stages of ethnographic analysis: domain analysis, taxonomic analysis, componential analysis, and cultural theme analysis.

**Table 1.** Summary of Ethnographic Study on the Traditional Game *Uncal Nongko* According to Spardley (1979).

| Guiding Questions | Initial Response | Analysis Stage | Perspective | Researcher Activities |
|---|---|---|---|---|
| Where to start the observation? | Observing the implementation process of the Uncal Nongko game by the people of Sekaran Village, which involves mathematical practices. | Domain Analysis | Culture | Conducting observation and interviews with Uncal Nongko players and cultural figures in Panaga village to identify cultural and mathematical elements in the game |
| What is the process of making and how to play Uncal Nongko? | Examining the detailed aspects of the creation and implementation of the Uncal Nongko game in Sekaran Village, which reflects local mathematical | Taxonomy Analysis | Alternative Thinking | Classifying the components of the Uncal Nongko game, such as tools, rules, and playing techniques, and identifying the |

| | | | | |
|---|---|---|---|---|
| | practices | | | mathematical concepts contained within it. |
| What ideas, methods, or techniques | Determining the approaches and techniques | Componential Analysis | Mathematics and the philosophy of mathematics | Analyzing the differences and similarities |

## Results

This research shows that the traditional game Uncal Nongko not only functions as a source of entertainment but also contains rich and relevant mathematical elements for learning. The integration of local culture in mathematics education can enhance students' activity, interest, and understanding of mathematical concepts (Widana & Diartiani, 2021). Through the activity of playing Uncal Nongko, students gain concrete experience in understanding number concepts and sequences through the numbering of boxes, as well as learning about geometry by dividing the area into six equal boxes, where the area of each box can be calculated using the formula $\left(\frac{p \times l}{6}\right)$. Additionally, the activity of throwing rubber bands into numbered boxes introduces the concept of probability in a tangible way, where theoretically, the probability of the rubber band landing in one of the boxes is 1/6. However, in practice, the empirical probability may vary depending on the player's skill and physical condition. This game also trains mathematical logic, value comparison, and understanding of geometric transformations through variations in the direction and angle of the throw.

Thus, Uncal Nongko becomes an effective medium for introducing and reinforcing mathematical concepts, particularly probability, in a contextual and meaningful setting. Children can conduct simple experiments, collect data from the throws, and analyze the chances of success, so the concept of probability is not only learned abstractly, but also experienced directly in everyday life. By engaging in collaborative play, students also develop social skills and learn to communicate mathematical ideas with their peers, fostering a positive learning environment. The details of the ethnomathematical elements contained in the Uncal Nongko game can be seen in the table below.

**Tabel 2.** Ethnomathematical Elements in the *Uncal Nongko* Game

| Domain | Mathematics Ideas/ Methods/ Techniques | Mathematical Activities in the Uncal Nongko Game | Mathematical Concepts that Emerge |
|---|---|---|---|
| Designing | Drawing the shape of the playing area on a flat surface | Take a piece of wood or a solid object to draw the shape of a rectangle ($p \times l$) which will later be divided into 6 equal parts, or it can be written (pxl)/6 | Geometry |
| | Recognizing the shape of a circle | Using a rubber band, which is circular in shape, as the main tool for the game | |
| Explaining | Calculating the | The player estimates the correct | Estimation, |

| | | | |
|---|---|---|---|
| | estimated distance and angle of the throw | distance and angle to make the rubber band land in a specific numbered box from the starting line | distance, angle, relative position |
| | Calculating the probability of the rubber band landing in the arena box | The player estimates the probability of the rubber band landing in a specific box, as well as the probability of becoming the game leader based on the throw results with the sample space T={1,2,3,4,5,6}. This helps children understand the concept of probability in a contextual manner. | Probability, possibility, and comparison of probabilities |
| Playing | Performing the activity of twisting the rubber band before it is thrown | The activity of twisting the rubber band performed by the players before throwing it towards the playing area introduces a mathematical concept, namely geometric transformation, specifically rotation | Geometric transformatio n and parabola |
| | The player throws the twisted rubber band into the playing box | The activity of throwing the rubber band into the playing box introduces a mathematical concept, namely geometric transformation, specifically translation. Moreover, the rubber band throw that forms a curve brings up the concept of a parabola. | Geometric transformatio n and parabola |

Table 2 outlines the elements of ethnomathematics contained in the traditional game Uncal Nongko. From this explanation, it can be seen that this game not only provides entertainment value but also incorporates contextual and meaningful mathematical concepts. Elements such as the rubber band are related to the introduction of the shape of a circle, while the game arena consisting of numbered boxes reflects the concepts of numbers and sequences. The activity of throwing the rubber band teaches children about estimating distance, angles, and probability, all of which are part of mathematical concepts. Even the act of throwing the rubber band into the arena introduces the concept of geometric transformation. The game rules, which involve scoring based on numbers, show the application of mathematical logic and value comparison. In addition, this game also plays a role in character development, such as fostering responsibility, sportsmanship, cooperation, and decision-making skills. Therefore, the table illustrates that Uncal Nongko is a traditional game rich in educational and mathematical values that can be utilized in the learning process.

## Discussion

The traditional game Uncal Nongko is a traditional game originating from Bojonegoro, specifically from Sekaran Village, Bojonegoro Regency. However, if we look at how this game is played and the rules, the name varies in different regions. This game only requires rubber

bands owned by each player. The Uncal Nongko game is commonly played by children. The steps in playing Uncal Nongko are as follows (1) Make a box and number it from 1 to 6; (2) After creating the box and numbering it, all players line up at the starting line, and then all players throw their twisted rubber bands into the box; (3) If the rubber band falls inside one of the boxes, the player becomes the leader; (4) Meanwhile, other players will continue throwing their rubber bands until one lands inside the box. If it does not land inside the box, the leader will take the rubber band; (5) If the rubber band lands inside the box, the leader will be replaced by the player whose rubber band landed inside the box, and the previous leader will give a number of rubber bands corresponding to the number of the box it landed in. For example, if it lands on number 1, the leader will give 1 rubber band to the new leader; (6) The game continues with the same rules.

The game ends when the children no longer have any rubber bands left. From a mathematical perspective, each stage of this game contains fairly complex mathematical elements that can be analyzed in greater depth. In the process of creating the numbered boxes from 1 to 6, children indirectly learn about the concepts of natural numbers, sequences, and sets, where {1, 2, 3, 4, 5, 6} represents an ordered set of positive integers. This numbering also trains their understanding of the concept of ordering and number patterns. From a geometric perspective, the game arena, which is divided into six equal sections, teaches the concepts of partitioning, area division, and plane symmetry. Let the length of the arena be PPP and the width LLL, then the area of each box is $(P \times L)/6$, llowing children to understand area division concretely. The activity of throwing the rubber band into the box also involves elements of probability. Theoretically, if each box has the same chance of being the target, then the probability of the rubber band landing in any given box is 1/6. However, factors such as skill, throw angle, and distance will affect the empirical probability, and thus a probability model can be developed based on observational data. From a strategic perspective, this game can also be analyzed using game theory, where each player must determine the optimal strategy to increase their chances of becoming the leader or obtaining more rubber bands.

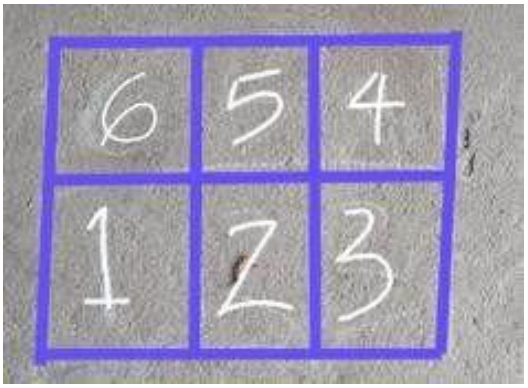


**Figure 1.** Game Arena

The system of the Uncal Nongko game is quite simple and easy to understand for children, making it a game that can be played without the need for complicated equipment. The initial step starts by drawing the game arena on the ground using tools like sticks or sharp stones. The arena is rectangular and is then divided into six equal sections. Each section is numbered consecutively from 1 to 6, which will later serve as target spaces in the game. Once the arena is set up, each player is required to bring or prepare one rubber band, which will be used as the "gacu," the object or item thrown that becomes the focal point of the game. This

gacu rubber band not only serves as a marker for turns or positions but also becomes the main tool in the game's strategy, as the accuracy of throwing and directing the gacu to the numbered sections will greatly influence the course of the game. The simplicity of the tools and the rules is what makes Uncal Nongko a folk game that is accessible to children from all walks of life in their local communities.

**Figure 2.** The start of the game

Next, all players are asked to line up neatly behind the pre-determined boundary line. Each player holds one rubber band in their hand as a symbol of participation and as the tool to start the game. Once all players are in their ready positions, they prepare to throw their rubber bands into the game arena, which has been numbered or marked accordingly. The throws are made either in turns or simultaneously, depending on the initial agreement. The goal of this throw is for the rubber band to land on the section of the arena that has the highest game number. This is important because the player who successfully throws their rubber band into the area with the highest number will gain a special privilege, which is to become the game leader. The position of game leader is considered important because that player will have influence in determining the course of the next round of the game, as well as showcasing their luck and skill in throwing. Thus, this stage not only forms part of the game process, but also creates a fun competitive atmosphere among the players.

If one of the players successfully becomes the leader, they will stand behind the game arena box. The game then continues with the remaining players who have not become the leader, by throwing their rubber bands into the arena box. If the thrown rubber band lands inside the box and matches the target number, the game leader is entitled to give a number of rubber bands to that player, corresponding to the number they obtained. However, if the rubber band thrown does not land inside the arena box, then the rubber band becomes the property of the game leader. Furthermore, if the player who threw the rubber band succeeds in getting a number greater than or equal to the number of the previous player, they are entitled to become the new leader and replace the previous leader.

**Figure 3.** One becomes a leader

This game has various positive benefits, especially for children's development. Through the activity of throwing rubber bands into numbered boxes, players can train their concentration, accuracy, and hand-eye coordination. Additionally, this game hones strategic thinking and calculation skills, as players must determine the right moves to get the highest number and become the leader. On the other hand, interaction among players in following the game rules can foster sportsmanship, socialization skills, and teamwork. The player selected as the leader also learns about responsibility and leadership roles in a simple way. The physical movements involved in this game aid in the development of fine motor skills, particularly for children. Overall, this game not only serves as an enjoyable form of entertainment but also provides educational values that are beneficial in the process of children's growth and development.

The game of Uncal Nongko can be linked to mathematics. In this case, the game is connected to the concept of probability, as seen in the game arena, which consists of 6 squares that can be used as a sample space, where the formed sample space is T= {1,2,3,4,5,6}. Furthermore, mathematical elements are present in the concepts of numbers and arithmetic operations, which are evident when players throw a rubber band into a numbered box and calculate the outcome to determine points or the next step in the game. In addition, there is the application of comparison concepts and mathematical logic, especially when players compare the numbers they get to decide who is eligible to become the next game leader. Understanding of space and position also emerges when players must estimate the direction and strength of their throw to land the rubber band accurately in the target box. The rules of the game, involving turn order, role changes, and the reward-punishment system, indirectly introduce patterns and systematic mathematical thinking. Therefore, this game is not only a form of entertainment but also reflects local wisdom that integrates mathematical values into the everyday activities of the community.

In line with previous research, the traditional games are not only a form of entertainment for children, but also contain educational values that can shape children's character (Naser et al., 2022). The traditional games showed that students' mathematics learning outcomes could improve, and students' responses to learning mathematics through games were very enjoyable and led to greater interest in learning mathematics (Dhevin et al., 2016).

## Conclusion

This study reveals that the traditional game Uncal Nongko from Sekaran Village, Bojonegoro, contains rich and relevant ethnomathematical elements for mathematics learning in schools. Through in-depth exploration, it was found that the activities in this game involve concepts of numbers, probability, geometry, and mathematical logic, which can be learned by students in a concrete and contextual manner. Formal analysis shows that theoretical and empirical probability, number sequences, area calculations, and decision-making strategies can be integrated into every stage of the game.

The results of this study strengthen previous findings that traditional games are an effective source of learning mathematics. However, specifically, Uncal Nongko offers a unique

integration of various mathematical concepts within a single playing activity. The educational implication of this finding is that Uncal Nongko can serve as an alternative, enjoyable, and meaningful mathematics learning media that can increase students' interest, activity, and understanding of mathematical concepts, particularly probability and geometry. Moreover, the use of traditional games in learning also contributes to the preservation of local culture and the development of students' character Thus, this research recommends that teachers and education practitioners begin integrating traditional games like Uncal Nongko into mathematics learning, both as the main media and as a source for contextualizing the material. Further research can be conducted to develop learning tools based on traditional games and quantitatively measure their effectiveness in improving students' mathematics learning outcome.

## Conflicts of Interest

The authors affirm that there are no conflicts of interest related to the publication of this manuscript. Furthermore, ethical issues such as plagiarism, misconduct, data fabrication or falsification, duplicate publication or submission, and redundancies have been addressed and resolved by the authors.

## Author Contributions

**Christine Tamara Ayuningsih**: Developed the concept, formulated the idea, wrote the initial draft, created the visualization, collected data, conducted formal analysis, and designed the methodology; **Lukman Harun:** Contributed to concept development, writing, and reviewing, and was responsible for validation and supervision; **Rizky Esti Utami**: Involved in writing, reviewing, and data collection.

## References

Cahyawati, P. N. (2022). Quo Vadis Kebudayaan Nusantara. *Jurnal Lingkungan & Pembangunan*, *6*(1). https://ejournal.warmadewa.ac.id/index.php/wicaksana

Dhevin, A., Damayanti, M., & Putranti, R. D. (2016). Prosiding Seminar Nasional Matematika dan Terapannya. *Prosiding Seminar Nasional Matematika Dan Terapannya*.

Effendi, D., & Wahidy, D. A. (2019). *Pemanfaatan Teknologi Dalam Proses Pembelajaran Menuju Pembelajaran Abad 21*.

Fadila, R. W., & Mariana, N. (2021). Eksplorasi Etnomatematika Pada Permainan Tradisional Lompat TaliEksplorasi Etnomatematika Pada Permainan Tradisional Lompat Tali. *JPGSD*, *09*, 2028–2039.

Hardiarti, S. (2017). Etnomatematika: Aplikasi bangun datar segiempat pada candi muaro jambi. *Aksioma*, *8*(2), 99–110.

Hardiyanto, L., Sidik Iriansyah, H., & Saryono. (2024). Landasan Filosofis Pendidikan Budaya dan Karakter Bangsa. *Jurnal Citizenship Virtues*, *2024*(1), 733–741.

Harun, S. (2022). Pembelajaran di era 5.0. *Prosiding Seminar Nasional Pendidikan Dasar*.

Lukman Harun, Aunul Ma’bud, & Putri Ayu Trihara. (2024). Exploring Ethnomathematics in the

Menara Kudus as a Learning Resource for Geometry. *Mosharafa: Jurnal Pendidikan Matematika*, *13*(2), 315–322. https://doi.org/10.31980/mosharafa.v13i2.1604

Mawarni, H. (2022). Kearifan Lokal dalam Lawas (Puisi Rakyat) Upacara Ponan Masyarakat Sumbawa Nusa Tenggara Barat. *EDUKATIF : JURNAL ILMU PENDIDIKAN*, *4*(2), 2164–2173. https://doi.org/10.31004/edukatif.v4i2.2395

Naser, S. R., Eka Chandra, F., Saidi, S., & Khairun, U. (2022). Etnomatematika Pada Permainan Cenge-Cenge Sebagai Media Pembelajaran Matematika. *Saintifik@ Jurnal Pendidikan MIPA*, *7*(1), 11–17.

Nursyahidah, F., & Saputro, B. A. (2015). Pembelajaran Discovery Learning Menggunakan Tangram Geogebra untuk Menemukan Luas Persegi. *AKSIOMA: Jurnal Matematika Dan Pendidikan Matematika*.

Nursyahidah, F., Saputro, B. A., & Rubowo, M. R. (2018). Students Problem Solving Ability Based on Realistic Mathematics with Ethnomathematics. In *Journal of Research and Advances in Mathematics Education* (Vol. 3, Issue 1). http://journals.ums.ac.id/index.php/jramathedu

Nurwahidah, Maryati, S., Nurlaela, W., & Cahyana. (2021). Permainan Tradisional Sebagai Sarana Mengembangkan Kemampuan Fisik Motorik Anak Usia Dini. *PAUD Lectura: Jurnal Pendidikan Anak Usia Dini*, *4*(02), 49–61. https://doi.org/10.31849/paud-lectura.v4i02.6422

Oktavia, L., Fatqurhohman, AH, N. I., & Agustina Lady. (2024). Pengembangan LKPD Berbasis RME Dengan Pendekatan Etnomatematika Pada Materi Garis Dan Sudut. *JURNAL MathEdu (Mathematic Education Journal)*, *7*(2), 97–106.

Ramadhani, R., Syahputra, E., & Simamora, E. (2023). *Model ethno–flipped classroom: solusi pembelajaran fleksibel dan bermakna*. Indonesia Emas Group.

Rohmatin, T. (2020). Etnomatematika permainan tradisional congklak sebagai teknik belajar matematika. *Prosiding Konferensi Ilmiah Dasar*, *2*, 2020. http://prosiding.unipma.ac.id/index.php/KID

Rusliah, N. (2016). Pendekatan Etnomatematika dalam Permainan Tradisional Anak di Wilayah Kerapatan Adat Koto Tengah Kota Sungai Penuh Propinsi Jambi. *In Proceedings of The International Conference on University-Community Engagement*, 715–726.

sarah, siti, Suhendri, H., & Ningsi, R. (2022). Eksplorasi Etnomatematika Pada Permainan Tradisional Kelereng Di Kelurahan Bahagia, Babelan, Bekasi. *Jurnal Derivat*, *9*(1), 21–29.

Sari, I. N., Lestari, L. P., Kusuma, D. W., Mafulah, S., Brata, D. P. N., Iffah, J. D. N., & Sulistiana, D. (2022). *Metode penelitian kualitatif*. UnismaPress.

Sundawan, M. D. (2016). Perbedaan Model Pembelajaran Konstruktivisme Dan Model Pembelajaran Langsung. *Jurnal Logika*, *XVI*(1), 1–11.

Umbara, U. (2017). Implikasi Teori Belajar Konstruktivisme Dalam Pembelajaran Matematika. *Jurnal Matematika Ilmiah STKIP Muhammadiyah Kuningan*, *3*(1).

Utami, R. E., Nugroho, A. A., Dwijayanti, I., & Sukarno, A. (2018). Pengembangan E-Modul Berbasis Etnomatematika Untuk Meningkatkan Kemampuan Pemecahan Masalah. *Jurnal Nasional Pendidikan Matematika)*, *2*(2), 268–283.

Widada, W., Herawaty, D., Jumri, R., Zulfadli, Z., & Damara, B. E. P. (2019). The influence of

the inquiry learning model and the Bengkulu ethnomathematics toward the ability of mathematical representation. *Journal of Physics: Conference Series*, *1318*(1). https://doi.org/10.1088/1742-6596/1318/1/012085

Widana, W., & Diartiani, P. A. (2021). Jurnal Emasains: Jurnal Edukasi Matematika dan Sains Model Pembelajaran Problem Based Learning Berbasis Etnomatematika untuk Meningkatkan Aktivitas dan Hasil Belajar Matematika Problem Based Learning Model Based on Ethnomatematics to Increase Activities and Mathematics Learning Outcomes. *Jurnal Emasains: Jurnal Edukasi Matematika dan Sains*, *X*(1), 88–98. https://doi.org/10.5281/zenodo.4657740

Winarno, K. (2015). Memahami Etnografi Ala Spradley. *Jurnal SMART (Studi Masyarakat, Religi, Dan Tradisi)*, *2*.