International Journal of Trends in Mathematics Education Research
Vol. 5, No. 1 (2022), pp. 94-104
ISSN 2621-8488 (online)
DOI: https://doi.org/10.33122/ijtmer.v5i1.118

SAINTIS publishing

Research Article

Study of Mathematical Activities in "*Rumah Tuo*"

Reri Seprina Anggraini[1], Ferinaldi[2], Nurfauziah[3], Wahyu Widada[4], Dewi Herawaty[5]

[1,3] Department of Mathematics Education, IAIN Kerinci, Sungai Penuh, Indonesia, 37112
[2] Department of Mathematics Education, Merangin University, Bangko, Indonesia, 37313
[4, 5] Mathematics Education Postgraduate Program, Bengkulu University. Kandang Limun Street, Bengkulu City, Indonesia, 38371A
*Corresponding Author: reriseprianа@gmail.com

Received: 27 January 2022 *Revised: 24 February 2022* *Accepted: 28 March 2022* *Available online: 30 March 2022*

ABSTRACT

Mathematics learning still tends to be structuralistic and mechanistic. It resulted in students' difficulties and errors in understanding mathematical concepts and principles. Whereas mathematics is a human activity that is always in contact with their culture. One of the cultures that becomes the starting point for learning mathematics is a traditional house, such as the "*Rumah Tuo*". The purpose of this study was to describe the mathematical activity at the *Rumah Tuo*. This type of research is a qualitative-research with an ethnographic approach. The research instrument used in the form of observation, interviews, and documentation. The results of this study are that there are mathematical activities carried out at *Rumah Tuo*, namely counting activities using Gantang Biheh, measuring activities in making poles in the form of a 16-sided prism, and designing traditional houses in such a way that they can be shaped like ancient means of transportation, namely ships. The conclusion of this research is that there are three mathematical activities through the "Rumah Tuo" culture, namely measuring, designing and calculating.

Keywords: Ethnomathematics; Mathematics activity; *Rumah Tuo*

1. INTRODUCTION

Mathematics is often considered as a difficult subject matter. This is based on the idea that mathematics is not really applied in everyday life. Mathematics is learned without being interpreted by students. This can be seen from the results of previous studies which stated that learning mathematics was not meaningful so that students did not know how to use the mathematics they had learned to solve problems in everyday life (Karnilah & Juandi, 2013). To show mathematical abilities inherent in everyday life can be felt through people's experiences in life (Nfon, 2015). The problem that is often faced in learning mathematics is the learning process which tends to be structuralistic, mechanistic and not contextual. As a result, students have difficulty understanding concepts and principles in mathematics. Learning by utilizing existing media around students or local culture, can provide students with opportunities to learn mathematics more realistically and its meaning can be understood (Hariastuti & Budiarto, 2019; Widada, Herawaty, Andriyani, Marantika, & Yanti, 2020; Herawaty, Widada, Adhitya, Sari, & Novianita, 2020). Mathematics education is not only focused on transmitting mathematical knowledge without paying attention to its use so that many students are only able to memorize formulas without being able to interpret mathematics in real contexts and applications (Risdiyanti & Prahmana, 2020).

This thinking needs to be used as a reference for teachers in teaching mathematics to students. Mathematics learning needs to be planned better and maximally so that the complexity of mathematical objects can be accepted and understood by students (Hariastuti & Budiarto, 2019). In fact, there are many uses of mathematical concepts in everyday life. Mathematics and culture cannot be considered unrelated, because culture is a unified whole and comprehensive and applicable in a society, while mathematics is knowledge used by humans in solving everyday problems (Hardiarti, 2017). Mathematical concepts and principles can be achieved through daily activities. It can take the form of an integrated culture in all aspects of people's lives (Widada, Herawaty, Rahman, Yustika, & Elsa, 2020; Widada, Efendi, Herawaty, & Nugroho, 2020; Herawaty, Khrisnawati, Widada, & Mundana, 2020). Therefore, a person's conception of mathematics can be influenced by their cultural background, because what they do is based on what they see and feel (Jayanti & Puspasari, 2020). Mathematics and culture develop simultaneously in society, culture also affects the mathematics of society, which is something that people often see and feel in life. But the fact is that people do not realize that mathematical activities and concepts are used in culture (Safitri et al., 2021).

One of the renewal breakthroughs in mathematics learning is linking mathematics with the culture of life around them (Heriyati & Handayani, 2022). Mathematics in culture is often referred to as ethnomathematics. The term was first introduced by Ubiratan D'Ambrosio (Ambrosio, 2001; François, 2010; Rosa & Orey, 2011). According to Ambrosio, ethnomathematics is the science of mathematics that is practiced by certain cultural groups, such as society, ethnicity, work groups, children of certain age groups, professional workers, and so on (Wikaningtyas et al., 2022). Ethnomathematics is a

mathematical science that grows and develops and is influenced by culture so that learning mathematics will be more interesting.

Ethnomathematics can help teachers and students to understand mathematics in the context of ideas, ways and practices used in everyday life which will ultimately encourage understanding of academic mathematics in schools (Risdiyanti & Prahmana, 2020). Learning should not be content-oriented, which only focuses on theory and the application of formulas to problems. Also, it can be modified to include cultural values. Rosa & Gavarrate (2017) state that teaching mathematics by considering that mathematics is an expression of cultural development and human thinking is a relevant reason for teaching mathematics on an ethnomathematical basis. Thus, learning mathematics needs to be started by using the real context of the sociocultural and realities around students, students' needs are not just learning external values and rigid academic mathematical knowledge. Through ethnomathematics in mathematics, it allows students to understand that humans and cultures are diverse as well as mathematical knowledge that exists in this world is also diverse (Risdiyanti & Prahmana, 2020). The integration of ethnomathematics in learning has multiple benefits, on the one hand learning becomes more contextual and definitely fun and on the other hand it also builds a sense of love and respect and preserves culture (Sae et al., 2021). Ethnomathematical objects can be in the form of traditional games, traditional crafts, artifacts, and cultural (action) activities (Octizasari & Haji, 2019). Other cultural diversity possessed by the Indonesian people is very diverse, namely ethnicity, customs, traditional clothing, local community traditions, and traditional houses which are part of the preservation of local wisdom (Zulkifli & Ika, 2020). One of the cultural objects that need to be preserved is the traditional house (Herawaty, Widada, Novita, Waroka, & Lubis, 2018; W. Widada, Herawaty, & Lubis, 2018; W Widada, Herawaty, Widiarti, Aisyah, & Tuzzahra, 2020; Andriani et al., 2020).

A traditional house is a house building that has the characteristics of a place or area in Indonesia that symbolizes the culture of the local community (Pramono, 2013). One of the fields of education that can study traditional houses is mathematics (Kurino & Rahman, 2022). Traditional houses have a relationship with mathematics, which can be seen in the shape and size of the building (Wardhani et al., 2022). Talking about traditional houses, Jambi province also has traditional houses scattered in various regions. One of the traditional houses in Jambi Province is the *Rumah Tuo*. *Rumah Tuo* is a traditional house or traditional house that is hundreds of years old and has cultural value. This house is located in *Tabir* sub-district, *Merangin* district, Jambi province. The people who inhabit the *Rumah Tuo* settlement are of Malay ethnicity called the Batin Tribe (Wiyana, 2016). Traditional houses have a relationship with mathematics which can be seen from the equipment and shape of the traditional house. By studying *Rumah Tuo* in mathematics, as well as studying culture in order to foster a sense of love for one's own culture (Zulkifli & Ika, 2020).

Previously, research on *Rumah Tuo* by Nuarini (2017) on Sumatran Architectural Exploration Edition: Tuo Jambi House has been conducted. However, this research is general in nature because it only discusses the architecture, while in this study, we delve deeper into the ethnomathematics of each part of the *Rumah Tuo* which shows the mathematical activities in it in terms of geometry. It needs to be investigated in terms of geometry because geometry is the oldest study in the field of mathematics. Geometry is a branch of mathematics that studies form, space, composition and its properties, sizes, and the relationship between one another (Rahmah et al., 2020). He occupies a special position in the elementary and secondary school mathematics curriculum, because of the many concepts contained in it (Putri, 2017). In addition, geometry is also often considered difficult, whether it is studying the size of angles, flat shapes, or building spaces. So it is necessary to show that geometry is also widely applied in everyday life, including in the field of regional culture. Inside the *Rumah Tuo* there is geometry, both plane geometry and space geometry.

The ethnomathematical study in this study is in the form of an analysis of the mathematical activities contained in "*Rumah Tuo*". Fundamental activities related to ethnomathematics according to Bishop (Theresia et al., 2019) are a) counting, the concept of numbering is related to the question "how much" where calculating tools such as fingers and stones can be used; b) measuring, relating to sorting, measuring the quality of value; c) determining location (locating), relating to place measurement, route description, determining environmental location, travel and distance, straight and curved lines, circles, and spirals; d) designing, this activity is related to a predetermined design; e) playing, related to mathematical aspects such as flat shapes and other forms; f) explaining, relating to similarities, classifications, conventions, and explanations of forms (Rudhito, 2021). Of the six activities, they are divided into three main activities, namely counting, measuring, and designing activities in the field of geometry. The purpose of this study was to describe the activities of counting, measuring, and designing contained in the *Rumah Tuo* of the Rantau Panjang Batin.

2. RESEARCH METHOD

This type of research is a qualitative-research with an ethnographic approach. The selection of qualitative research is because the research results will describe the description of the process and the results of observations in the form of words and pictures while ethnography was chosen because basically ethnomathematical research is an ethnographic-research that aims to observe and describe a culture in society in the context of mathematics. The research was carried out at the *Rumah Tuo* of the *Batin Rantau Panjang*, precisely in Hamlet *Baruh* Village, *Tabir* sub-district, *Merangin* district, Jambi province. The research was conducted on the elders of Kampung Baruh Hamlet to achieve the goal of exploring geometric activities at the *Rumah Tuo*. The research subjects were people who knew correctly about the *Rumah Tuo* of the Rantau Panjang Inner Tribe, namely Mr. Iskandar. He is the heir of the *Rumah Tuo* who knows the ins and outs of the *Rumah Tuo*. Data was collected through observation, interviews, and documentation. The stages in this research consist of the planning stage, the implementation stage, and the completion stage. a) the planning stage begins with the study of literature, analysis of

geometric materials, preparation of research instruments, namely interviews and observations. b) the implementation stage is carried out by collecting data using research instruments that have been made. and c) the completion stage is carried out by analyzing the data that has been obtained in research or data collection.

3. RESULTS AND DISCUSSION

The *Rumah Tuo* of the Inner Rantau Panjang Tribe is one of the traditional houses located in Baruh Village, *Tabir* sub-district, *Merangin* Regency, Jambi province. The people who inhabit the *Rumah Tuo* settlement are of Malay ethnicity, known as the Batin Tribe. The Inner Tribe is a tribe that comes from two cultural fusions, namely Minangkabau and Jambi Malay. *Rumah Tuo* was built facing north because in ancient times the enemy always came from the north. This house is made of ironwood. The installation technique does not use nails but only uses a hook-and-joint technique called pegs, and this technique is one of the characteristics of traditional houses that developed in Southeast Asia in general (Wiyana, 2016).

The results of observations and interviews showed that there were mathematical activities at *Rumah Tuo* in the form of counting activities, measuring activities, and also designing. Counting activities are found in objects in *Rumah Tuo*, where these objects are useful for the community in calculating the amount of rice obtained when harvesting and the amount of rice that must be issued when paying zakat. The measuring activity is found in determining the shape of the pillars used in the construction of houses. The poles were built as many as 24 poles with the provision that each pole has an *ideh* or a side of 16 *ideh*. Then the design activity is contained in the design of the house building. The house is built to resemble a river transportation tool, namely a ship. The shape of the *Rumah Tuo* can be seen in **Figure 1**.

Figure 1. "*Rumah Tuo*" Ethnic group of "*Batin Rantau Panjang*"

Counting Activities

The activity of counting initially developed because of a need in a society to keep records of its assets. This activity is a form of activity related to the needs of a community. Whatever the concept of numbering is related to counting activities such as number operations, fractions, positive and negative, the probability of an event. This activity is related to the question "how many" which can be used counting tools such as fingers, and stones.

Counting activities are found in the different functions contained in the *Rumah Tuo*, namely *Gantang Biheh*. *Gantang Biheh* is a very meaningful tool for the local community, because the local community is generally a farmer so this tool is often used whenever planting rice. The function of this tool is to determine how much rice is obtained at harvest, which in turn will determine how much zakat must be issued. From this activity, it is clear that there is a counting activity that occurs at *Rumah Tuo*, namely calculating the yield of rice harvest and the amount of rice issued for zakat with a bushel *biheh* tool. The shape of the *biheh* bushel used can be seen in **Figure 2**.

The *biheh* bushel is shaped like a tube. To calculate the ratio between the amount of rice yields and the zakat issued using this bushel of *biheh*, that is, with the provisions of 10 bushels of rice issuing 1 bushel of rice for rice zakat. This process includes counting activities.

Figure 2. *Gantang Biheh*

Besides the *Gantang Biheh* tool, there are also other counting activities at the *Rumah Tuo*. This relates to the way the elders used to determine the sanctions against the applicable customary law. The ancestors used to call it a hundred customary sanctions. This means that all things must be sanctioned as much as one hundred, such as one hundred bushels of rice, one hundred kilos of meat, and one hundred *kajang* cloth. This customary law is the highest customary law for the local community. In this process, counting activities occur to determine the amount of fines that must be paid by perpetrators who violate customs.

Activity Measure

Initially this measuring activity was used to compare one object with another that was carried out by a community group in determining volume, weight, time, and speed. In addition, measuring activities are also related to sorting, measuring valuable qualities. The results of the observations show that there is a measuring activity in *Rumah Tuo*, namely on the pillars of the house. To build the *Rumah Tuo*, of course, you need pillars so that the house can stand firmly and not easily collapse. The pillars in the *Rumah Tuo* were built as many as 24 pillars with each pole having an ideh or side. The shape of the pillars of the *Rumah Tuo* can be seen in **Figure 3a; 3b**.

Figure 3a. *Pole Rumah Tuo*

Figure 3b. *Pole Rumah Tuo (close-up)*

Figure 3 shows the shape of the pillars of the house shaped like a prism. The number of idehs or sides of each pole is 16 idehs or sides. This idea is not made haphazardly, the idea on each pole is made based on the number of people who first lived in this *Rumah Tuo* settlement. Because this measuring activity is also related to "how much" so it is included in the measuring activity, namely determining the number of ideas on the tuo pole.

Designing Activities

Design activities are related to a predetermined building design. At first this activity is to see the shape of an object to see a developing pattern. Design activities involve imagination about nature and the surrounding environment. The concepts related to this activity are forms, aesthetics, similarity, congruence, properties of form, geometry, and geometry. To build a house, of course, first do the design. This design activity is found in the *Rumah Tuo* section, namely the shape of the house. According to an interview conducted with Mr. Iskandar that the shape of the house is designed to resemble the shape of a ship or boat because in the past their ancestors when they were going to build a building or house always imitated the means of transportation. The ancient means of transportation that were imitated were forms of transportation on the river, namely ships, tempek, and boats.

Designing the shape of the house so that it can have a shape similar to a ship certainly uses mathematics. This is so that the house can still stand firmly, and not collapse when inhabited, but its shape still resembles a ship. At least when making calculations to resemble a ship, the elders used to use the concept of similarity and comparison of sizes from each side of the ship. To complete the shape of the house that was built, a door was made. There are many doors in the *Rumah Tuo*, but they are only mentioned in two terms, namely upright doors and gedang doors. Upright doors are reserved for entering and exiting the house. The size of this upright door is designed not too high and small. The goal is that when you enter, you have to bend down to show your face and then when you come out you will bend down and show your back. It is considered as something good and right. The shape of the upright door can be seen in **Figure 4**.

Another door made in the *Rumah Tuo* design is the door *gedang* (big door). The shape of the *gedang* door can be seen in **Figure 5**. This door is shaped like a rectangular flat shape, a rectangle is a rectangular flat shape whose four corners are right angles and the opposite sides are the same length (Lumbantoruan, 2019). This door is devoted to see what atmosphere is going on below. People who are above know and vice versa, what is done above or in the house then people who are below will appear. This is because the nature and behavior of the previous people or ancestors was very strong in transparency or negotiated *bejeleh-jeeh*. It's very rare for them to cover up something, so everything has to be clear. In speaking the language, the ancients were directly discussed to the point without further ado. What is asked, that's what they answer. That is the meaning of the shape of the upright door and the door of the *gedang* which is made, namely *unding nak bejeleh-jeleh*.

Figure 4. *Tegak*-Door

Figure 5. *Gedang* Door

Another design of the *Rumah Tuo* can also be seen from the support for the foundation of the house called the joint stone. In the *Rumah Tuo* there are two types of joint stones, namely joint stones made of wooden blocks and joint stones made of concrete. The joint stones in the *Rumah Tuo* are believed to be able to anticipate earthquake shocks. The shape of this joint stone is like building a block room. The shape of the joint stones can be seen in **Figure 6**.

Entering the house, there will be the first room, the *Gaho* room. This room is used as the first room that guests encounter when entering through the vertical door. The shape of the *gaho* room is designed to resemble a rectangle as shown in **Figure 7.**

Figure 6. *Sendi* Stone

Figure 7. *Gaho*-Room

If the person entering the house is a guest, then from the *Gaho* room, they will be directed to go to the foyer. This room is exclusively for guests. Then on the other side, a central room is designed for the family. Its size is wider than the foyer. Between the foyer and the living room is limited by a bow, where the elders also put a pole between the two spaces, so this design requires a calculation where the location of the pillars is so that the building remains strong. The shape of the foyer and living room can be seen in **Figure 8**.

Furthermore, the *Rumah Tuo* design has a room that is higher than the living room which is the family room. This space is the transverse hall. The transverse hall is made for *ninik mamak*, tuo clever people, pious scholars during traditional events. The shape of the transverse hall room can be seen in **Figure 9**.

Figure 8. The foyer and living room

Figure 9. Room of *balai melintang*

The room made at *Rumah Tuo* is designed in a rectangular shape to suit the shape of the overall structure of the house. The structure of the *Rumah Tuo* in the form of a ship has the intention and philosophy that in the past, the ancestors always followed the example in terms of building houses or buildings based on means of transportation. The ancient means of transportation were only those on the river, such as ships, boats, *tempek*, and *biguk*. This gives the philosophy that at the end of the boat there is a higher seat. The seat is the seat of the boat controller. The same means that in the part of the house there is a higher room, namely the transverse hall where the elders are our guides or controllers.

Mathematical activities that can be inferred from cultural studies in the "*Rumah Tuo*" are geometric activities related to measuring, designing and calculating. The results of this study are in line with previous studies, such as in learning mathematics through an ethnomathematical approach students can combine pieces of information about parts of the Rejang Lebong traditional house which have similar properties to 3-dimensional mathematical shapes such as pyramids, prisms, rectangular prisms, and cubes (Herawaty et al., 2018). Through ethnomathematics, you can build an understanding of multiplication and division operations, including verbal communication, writing, and drawing based on real media from local culture, namely the *dakon* game (W Widada, Herawaty, Pusvita, et al., 2020). Also, students can connect elements together to form a unified whole based on the observation of "*kue lupis*" (W Widada, Herawaty, Hudiria, et al., 2020). Students can achieve the concepts and principles of fractions correctly if the abstraction process starts from something close to the surrounding culture. This is a horizontal math activity. contextual problems trigger students to carry out various abstraction processes that can improve the ability to understand mathematical concepts (Umam et al., 2021). The ethnomathematical approach can overcome students' difficulties in learning mathematics (Herawaty et al., 2021); improve

mathematical problem-solving skills (Lubis, Widada, Herawaty, Nugroho, & Anggoro, 2021); increasing mathematical thinking activities (Widada, Nugroho, Sari, & Pambudi, 2019) (Widada, Efendi, Herawaty, et al., 2020) (Herawaty, Widada, et al., 2020). Thus, the three student geometry activities based on the "*Rumah Tuo*" culture provide convenience in achieving the concepts and principles of geometry. It is the activity of measuring, designing and calculating.

4. CONCLUSION

The results of the study concluded about the geometric activity in "*Rumah Tuo*". These activities are calculating, measuring, and designing the *Rumah Tuo* of the Rantau Panjang Batin as a mathematization process through an ethnomathematical approach. Counting activities are found in traditional objects, namely *Gantang Biheh* to calculate rice yields and the amount of zakat issued and fines from traditional sanctions of one hundred. That means that all things must be sanctioned as much as one hundred, such as one hundred bushels of rice, one hundred kilos of meat, and one hundred *kajang* cloth. The measuring activity is found in the house pole which was built based on the number of people who lived at the beginning in the *Rumah Tuo*, and the designing activity is in the form of the house that was built designed in the form of an ancient means of transportation, namely a ship.

ACKNOWLEDGEMENTS

Thanks to Department of Mathematics Education IAIN Kerinci for a references as well as facilities provided. *Merangin* District Government, The Disrict Officer and Chief *Tabir* along the heir of *Rumah Tuo* Suku *Batin Rantau Panjang* who have been willing to bork together during this study took palace.

AUTHOR'S CONTRIBUTIONS

The author discussed the results and contributed to from the start to final manuscript.

CONFLICT OF INTEREST

There are no conflicts of interest declared by the author.

REFERENCES

Ambrosio, U. D. (2001). What is ethnomathematics, and how can it help children in schools? National Council of Teachers of Mathematics Feb.

Andriani, D., Widada, W., Herawaty, D., Ardy, H., Nugroho, K. U. Z., Ma'rifah, N., … Anggoro, A. F. D. (2020). Understanding the number concepts through learning Connected Mathematics (CM): A local cultural approach. Universal Journal of Educational Research, 8(3), 1055–1061. https://doi.org/10.13189/ujer.2020.080340

François, K. (2010). The Role of Ethnomathematics Within Mathematics Education. Proceedings of Cerme, 1517–1526. https://doi.org/10.1007/978-3-319-12688-3

Hardiarti, S. (2017). Etnomatematika: Aplikasi Bangun Datar Segiempat Pada Candi Muaro Jambi. Aksioma, 8(2), 99–110.

Hariastuti, R. M., & Budiarto, M. T. (2019). From Culture to Classroom: Study Ethnomathematics in House of Using Banyuwangi. International Journal of Trends in Mathematics Education Research, 2(2), 76–80. https://doi.org/10.33122/ijtmer.v2i2.60

Heriyati, & Handayani, S. (2022). Ketupat Makanan Tradisional Betawi sebagai Media Pembelajaran Berbasis Etnomatika. Jurnal PEKA (Pendidikan Matematika), 05(02), 105–111. https://doi.org/10.37150/jp.v5i2.1415

Herawaty, D., Widada, W., Novita, T., Waroka, L., & Lubis, A. N. M. T. (2018). Students' metacognition on mathematical problem solving through ethnomathematics in Rejang Lebong, Indonesia. Journal of Physics: Conference Series, 1088. https://doi.org/10.1088/1742-6596/1088/1/012089

Herawaty, Dewi, Khrisnawati, D., Widada, W., & Mundana, P. (2020). The cognitive process of students in understanding the parallels axiom through ethnomathematics learning. IOP Conf. Series: Journal of Physics: Conf. Series 1470 (2020) 012077 Doi:10.1088/1742-6596/1470/1/012077

Herawaty, Dewi, Widada, W., Adhitya, A., Sari, R. D. W., & Novianita, L. (2020). Students' ability to simplify the concept of function through realistic mathematics learning with the ethnomathematics approach. IOP Conf. Series: Journal of Physics: Conf. Series 1470 (2020) 012031 Doi:10.1088/1742-6596/1470/1/012031

Herawaty, Dewi, Widada, W., Falaq, A., Anggoro, D., Dewarif, S., & Anggoro, T. (2021). Overcoming Difficulties in Understanding the Linear Equation System Through the Ethnomathematics Approach in the COVID-19 Pandemic. Advances in Social Science, Education and Humanities Research, 532, 129–137.

Jayanti, T. D., & Puspasari, R. (2020). Eksplorasi etnomatematika pada Candi Sanggrahan Tulungagung. JP2M (Jurnal Pendidikan Dan Pembelajaran Matematika), 6(2), 53–66.

Karnilah, N., & Juandi, D. (2013). Study Ethnomathematics: Pengungkapan Sistem Bilangan Masyarakat Adat Baduy. Jurnal Online Pendidikan Matematika Kontemporer, 1(1), 1–16.

Kurino, Y. D., & Rahman. (2022). Eksplorasi Etnomatematika Rumah Adat Panjalin Pada Materi Konsep Dasar Geometri Di Sekolah Dasar. Jurnal Cakrawala Pendas, 8(1), 268–275.

Lubis, A., Widada, W., Herawaty, D., Nugroho, K. U. Z., & Anggoro, A. F. D. (2021). The ability to solve mathematical problems through realistic mathematics learning based on ethnomathematics. Journal of Physics: Conference Series, (1731), 1–7. https://doi.org/10.1088/1742-6596/1731/1/012050

Lumbantoruan, J. H. (2019). Materi Pembelajaran Geometri 1. Unpublished.

Nfon, N. F. (2015). Ethnomathematics: The cultural aspects of secondary school mathematics in Cameroon. International Journal of Multidisciplinary Research Review, 2(1), 137–147.

Octizasari, G., & Haji, S. (2019). Ethnomatematics of South Bengkulu in Mathematical Learning Community. International Journal of Trends in Mathematics Education Research, 2(2), 81–85. https://doi.org/10.33122/ijtmer.v2i2.111

Pramono, A. (2013). Media Pendukung Pembelajaran Rumah Adat Indonesia Menggunakan Augmented Reality. Jurnal ELTEK, 11(1).

Putri, A. H. (2017). Pengaruh Kemampuan Spasialterhadap Kemampuan Geometri Pada Peserta Didik Kelas Viii Smp Swasta Di Kecamatan Kebomas GresiK. Didaktika, 23(2), 114–121.

Rahmah, Ikashaum, F., & Cahyo, E. D. (2020). Pemahaman konsep dan perspektif siswa terhadap geometri. LINEAR Journal of Mathematics Education, 1, 135–143.

Risdiyanti, I., & Prahmana, R. C. I. (2020). Ethnomathematics (Teori dan Implementasinya: Suatu Pengantar). In UAD Press: Yogyakarta. UAD Press: Yogyakarta.

Rosa, M., & Gavarrate, M. E. (2017). An Ethnomathematics Overview: An Introduction. In Ethnomathematics and Its Diverse Approaches for Mathematics Education. Cham: Springer.

Rosa, M., & Orey, D. C. (2011). Ethnomathematics: the cultural aspects of mathematics. Revista Latinoamericana de Etnomatemática, 4(2), 32–54.

Rudhito, M. A. (2021). Filsafat Pendidikan Matematika Abad ke-21. In Deepublish Publisher: Yogyakarta.

Sae, S. N., Dominikus, W. S., & Nubatonis, O. E. (2021). Etnomatematika pada aktivitas menganyam dalam masyarakat mollo utara. Prosiding Seminar Nasional Pendidikan Matematika, 9, 29–35.

Safitri, J. D., Rinaldi, A., & Suherman. (2021). Eksplorasi Etnomatematika Pada Upacara Adat Pernikahan Suku Lampung, Jawa, Dan Bali. Maju, 8(1), 386–392.

Theresia, P., Dapa, N., & Suwarsono, S. (2019). Etnomatematika Pada Rumah Adat Bajawa, Kabupaten Ngada, Propinsi Nusa Tenggara Timur. Prosiding Sendika, 5(1), 35.

Umam, K., Nugroho, Z., Widada, W., Herawaty, D., Panduwinata, B., & Sospolita, N. (2021). Abstraction Ability of Students About Fractions Through Local Cultural Approaches. Advances in Social Science, Education and Humanities Research, (532), 480–485.

Wardhani, C. A. R., Permatasari, F. P., & Dwiasmaraditya, N. (2022). Kajian Etnomatematika pada Konstruksi Rumah Adat Suku Muna dari Sulawesi Tenggara. Prisma, Prosiding Seminar Nasional Matematika, 5, 354–363.

Widada, W., Herawaty, D., & Lubis, A. N. M. T. (2018). Realistic mathematics learning based on the ethnomathematics in Bengkulu to improve students' cognitive level. Journal of Physics: Conference Series, 1088. https://doi.org/10.1088/1742-6596/1088/1/012028

Widada, W, Herawaty, D., Hudiria, I., Prakoso, Y. A., Anggraeni, Y. R., & Zaid, K. U. (2020). The understanding of the triangle in Lobachevsky Geometry through local culture. International Seminar on Applied Mathematics and Mathematics Education 2020 (2nd ISAMME 2020). Journal of Physics: Conference Series, 1657(012038), 1–7. https://doi.org/10.1088/1742-6596/1657/1/012038

Widada, W, Herawaty, D., Pusvita, Y., Anggreni, D., Aripianti, R., & Panduwinata, B. (2020). Multiplication and division of integers through cultural approaches of playing dakon. International Seminar on Applied Mathematics and Mathematics Education 2020 (2nd ISAMME 2020), Journal of Physics: Conference Series, 1657(012030), 1–9. https://doi.org/10.1088/1742-6596/1657/1/012030

Widada, W, Herawaty, D., Widiarti, Y., Aisyah, S., & Tuzzahra, R. (2020). The cognitive process of students in understanding the triangles in Geometry of Riemann through local content. International Seminar on Applied Mathematics and Mathematics Education 2020 (2nd ISAMME 2020). Journal of Physics: Conference Series, 1657(012033), 1–8. https://doi.org/10.1088/1742-6596/1657/1/012033

Widada, W., Efendi, S., Herawaty, D., & Nugroho, K. U. Z. (2020). The genetic decomposition of students about infinite series through the ethnomathematics of Bengkulu, Indonesia. IOP Conf. Series: Journal of Physics: Conf. Series 1470 (2020) 012078 Doi:10.1088/1742-6596/1470/1/012078

Widada, W., Herawaty, D., Andriyani, D. S., Marantika, R., & Yanti, I. D. (2020). The thinking process of students in understanding the concept of graphs during ethnomathematics learning. IOP Conf. Series: Journal of Physics: Conf. Series 1470 (2020) 012072 Doi:10.1088/1742-6596/1470/1/012072

Widada, W., Herawaty, D., Rahman, M. H., Yustika, D., & Elsa, P. (2020). Overcoming the difficulty of understanding systems of linear equations through learning ethnomathematics. IOP Conf. Series: Journal of Physics: Conf. Series 1470 (2020) 012074 Doi:10.1088/1742-6596/1470/1/012074

Widada, W., Nugroho, K. U. Z., Sari, W. P., & Pambudi, G. A. (2019). Characteristics of Students Thinking in Understanding Geometry in Learning Ethnomathematics. Journal of Physics: Conference Series, 1318(3), 1–6. https://doi.org/10.1088/1742-6596/1179/1/012056

Wikaningtyas, C. R., Hayati, N., & Novea, K. (2022). Kajian Etnomatematika Terkait Aspek-aspek Geometri pada Rancang Bangunan Rumah Adat Larik. Prisma, Prosiding Seminar Nasional Matematika, 5, 414–422.

Wiyana, B. (2016). Arti Tiang Rumah Tradisional Suku Batin Di Kampung Baruh, Jambi. Purbawidya: Jurnal Penelitian Dan Pengembangan Arkeologi, 5(1), 1–11.

Zulkifli, A., & Ika, R. (2020). Eksplorasi Rumah Adat Joglo Pada Materi Geometri Di Sekolah Dasar Abstrak. JPGSD, 8(1), 591–600.