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ETHNOMATHEMATICS: MATHEMATICS IN BATIK TURONGGO YAKSO FROM TRENGGALEK

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Abstract

Culture is unique and can be a characteristic or identity of an area formed from daily habits. Without realizing it, culture is closely related to education, one of which is mathematics. This is because culture can be used as a learning medium associated with a realistic learning style. Culture as a learning medium can be used by educators in the learning process, especially on mathematical concepts. Mathematics learning that is carried out with a cultural approach is called ethnomathematics. Ethnomathematics is a realistic mathematics learning approach that bridges mathematics learning through local culture. The purpose of this study was to explore the Turonggo Yakso Batik Motifs typical of Trenggalek and describe the mathematical concepts that exist in the elements of the Trenggalek Turanggo Yakso Batik Motifs. This research is a type of qualitative research using an ethnographic approach. The results of this study indicate that the elements of Batik Turanggo Yakso From Trenggalek can be implemented as a medium for learning mathematics on the following materials: flat shapes, folding symmetry, rotational symmetry, angles, mirroring, similarity and congruence.

Keywords: Batik Turanggo Yakso From Trenggalek, ethnomathematics, exploration

Abstrak

Budaya adalah hal yang unik dan dapat menjadi penciri atau identitas dari suatu daerah yang terbentuk dari kebiasaan sehari-hari. Tanpa disadari budaya berkaitan erat dengan pendidikan, salah satunya dengan mata pelajaran matematika. Hal tersebut karena budaya dapat dijadikan sebagai media pembelajaran yang dikaitkan dengan gaya belajar realistik. Budaya sebagai media pembelajaran dapat digunakan pendidik dalam proses pembelajaran terutama pada konsep matematika. Pembelajaran matematika yang dilakukan dengan pendekatan budaya disebut dengan etnomatematika. Etnomatematika merupakan pendekatan pembelajaran matematika realistik yang menjembatani pembelajaran matematika melalui budaya setempat. Sebagian masyarakat belum menyadari bahwa konsep matematika sebenarnya sudah dilakukan dalm kehidupan sehari-hari. Tujuan dari penelitian ini adalah mengeksplorasi Batik Motif Turonggo Yakso khas Trenggalek dan mendeskripsikan konsep matematika yang ada pada unsur Batik Motif Turanggo Yakso Khas Trenggalek Penelitian ini merupakan jenis penelitian kualitatif dengan menggunakan pendekatan etnografi. Hasil penelitian ini menunjukkan bahwa unsur dari Batik Motif Turanggo Yakso Khas Trenggalek dapat diimplementasikan sebagai media pembelajaran matematika pada materi: bangun datar, simetri lipat, simetri putar, sudut, pencerminan, kesebangunan dan kekongruenan.

***Kata kunci**: Batik Motif Turanggo Yakso Khas Trenggalek, eksplorasi, etnomatematika.*

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INTRODUCTION

Culture and education are like two inseparable things. In the opinion of Ayuningtyas & Setiana (2019) education and culture cannot be avoided in life. Culture emerges from community habits that have occurred long ago and have been hereditary to become the identity of an area (Fauzan & Nashar, 2017). In these activities, the community does not realize that knowledge is tucked away. This description is in line with Jayadi & Kamarudin (2021) which says that culture is all human activity, namely knowledge, beliefs, art, morals, law, customs, and other habits. Education is essential for society because as long as humans live, they will continue to learn. One of the pieces of knowledge contained in culture is mathematics. Mathematics is very close to life and has been developed by humans to answer the phenomena around it (Prahmana & D'Ambrosio, 2020). People have included mathematical concepts and ideas in their daily activities without realizing it. An alternative that can link culture with mathematics is ethnomathematics. Opinion Faqih's et al. (2021) revealed that one that can become a bridge in education and culture, especially mathematics education, is ethnomathematics. Ethno-mathematics is mathematics that grows and develops in certain societal cultures (Dhiki & Bantas, 2021). Much research has been done on the ethnomathematics of batik motifs, but no one has researched the ethnomathematics of Trenggalek's Turonggo Yakso Batik Motif. Research conducted by Risdiyanti & Prahmana, (2018) concluded that there is a mathematical concept of geometric transformation in Semen Rama Batik motifs that has existed since Paku Buwono IV. Pramudita & Rosnawati, (2019) the results of his research concluded that batik in Javanese culture, especially slope, ceplok, and jlamprang motifs, is ethnomathematics related to lines and angles, triangles and rectangles, and circles. Other research on ethnomathematics in batik has also been conducted by Fauzan & Nasharm (2017), who concluded that Solo Batik motifs contain elements of geometry, namely the principles of translation and reflection. There are vertical and horizontal lines and perpendicular and parallel lines in the Solo Batik motif.

Trenggalek is one of the regencies in East Java Province, which has a variety of regional cultures with distinctive characteristics that make it different from other regions in East Java. Like Jaranan Turonggo Yakso, one of the art icons in Trenggalek. Jaranan Turonggo Yakso was inspired to make another work, namely the Trenggalek typical batik motif. Apart from that, something is interesting about the typical Trenggalek batik, inspired by various kinds of natural potential, one of which is the primary commodity of Trenggalek plantations. Examples of these commodities are clove flowers, durian, mangosteen, and coffee beans. The turonggo yakso batik motif contains elements of the central motif, complementary motifs, and isen-isen. In the elements of turonggo yakso batik typical of Trenggalek, forms and concepts are the same as the geometry material in mathematics learning. This means that in the typical Turonggo Yakso batik of Trenggalek, the concept of geometry is found in mathematics, so without realizing it, the culture of Turonggo Yakso batik, typical of Trenggalek, has indirectly applied mathematical concepts in making this batik. So that studying mathematics can

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become a unity with the culture that is owned by the local community, especially Trenggalek. Besides functioning as information for the community, research on ethnomathematics also has a somewhat important role in learning. According to Richardo (2017), mathematics material should be linked to student experiences and touch the realm of local arts and culture. Other research from Pratiwi & Pujiastuti (2020) concludes that applying ethnomathematics in learning can motivate, stimulate, and overcome boredom and student learning difficulties because ethnomathematics has become part of the daily life of students who come from the local socio-cultural environment. In addition, Agustin et al. (2019) suggest involving ethnomathematics in mathematics learning with a predominance of empirical and ethnomathematics problems showing a positive role for a culture-based curriculum. So this proves that culture always has a mathematical element. Therefore, it is considered necessary to write about "Ethnomathematics Exploration of Batik Turanggo Yakso Typical Trenggalek" as a particular study of mathematics owned by the Trenggalek community, which contains traditional values and heritage, which can be used as a reference in learning mathematics. Based on the background above, it is possible to formulate a research question "what geometric concepts are found in the ethnomathe-matics of the Turanggo Yakso Typical Trenggalek Batik motif." Based on the research questions that have been formulated, the purpose of this study is to describe and document the results of ethnomathematics exploration of geometric concepts on the physical form of Batik Turanggo Yakso Typical Trenggalek.

RESEARCH METHODS

This study uses a type of qualitative research using an ethnographic approach. Qualitative research has a naturalistic nuance (Afnan, 2018). Naturalistic research is the main instrument of going directly to the field to obtain data through observation and interviews with sources as they are without being manipulated. The ethnographic approach is empirical and theoretical (Sa'o et al., 2022). This ethnographic qualitative approach empirically and theoretically aims to obtain an in-depth description of the Trenggalek Typical Turanggo Yakso Batik and its traditional values based on fieldwork in a certain period intensively. The research method used by researchers to obtain these data is by observing and interviewing.

The research started in early August 2022 and was carried out at one of the Turonggo Yakso motif batik artisans. The choice of this craftsman was because he had been making Turongg Yakso batik for a long time and had won a batik competition at the national level. The next activity is compiling supporting instruments, namely interview and observation guidelines. The second phase is data collection. Conduct an initial visit to the craftsman's place to determine in detail the time and place for conducting interviews and observations. At the agreed time, the researcher conducted interviews to obtain information about the elements and geometric concepts in the Turanggo Yakso Typical Trenggalek Batik. After collecting all the required data, proceed with data analysis techniques.

The data analysis technique used according to (Miles & Huberman (1992) cited in research (Naja et al,, 2021) there are three types, namely data

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reduction, data presentation, and conclusion. The reduction stage is selecting the resulting data research that will be used to collect further data and discard data that is not needed. The presentation of data is data processing coherently and transparently to obtain an overview of what has been studied-drawing a conclusion, namely concluding the cultural relationship in Batik Turanggo Yakso Typical Trenggalek with mathematical concepts.

RESULT AND DISCUSSION

History of Turonggo Batik

The results of interviews with the turonggo yakso batik craftsman typical of Trenggalek, Mrs. Tie Poek, showed that the source of the idea for Trenggalek batik was obtained from various natural potentials in the form of the primary commodities of Trenggalek plantations, superior products and Trenggalek art which each batik artisan then created in Trenggalek. At the beginning of making the Turonggo Yakso batik motif, namely around 2015, the Trenggalek batik was almost forgotten by residents, and the art of Turonggo Yakso's jaranan was almost recognized by other countries. So that it inspires the public to introduce the Trenggalek typical art by pouring it into a two-dimensional form, namely batik. As a result, the turonggo yakso batik motif is widely known and has won competitions. Turangga Yakso Tie Poek Batik depicts Turangga Yakso cultural art, whose philosophy is the same as in the Turangga Yakso Dance. Following previous research, the turonggo yakso batik motif was taken from the turonggo yakso art (Adilla & Suhartini, 2018). The central motif of turanggo yakso drawn on Prigi rocks symbolizes that the dance is performed on the ground of Trenggalek. Clove complementary motifs contain the meaning of life, kawung motifs contain the meaning of friendship, and truntum motifs contain the meaning in human life that humans cannot be alone and need other people. Every human needs friendship, and cloves thrive among the turonggo yakso motifs. The hope is that humans will always maintain peace according to what is contained in the Turanggo Yakso batik motif

Ancestral Value of Batik Turanggo Yakso Typical of Trenggalek

The concept of making Turonggo Yakso batik works is taken from exploring the story behind the art of Turonggo Yakso Trenggalek. Turonggo Yakso is a jaranan art that originated in the Dongko Trenggalek area and was inspired by traditional ceremonies after harvesting agricultural products. The Dongko people call the ceremony the Baritan. Baritan is an acronym for "disbanded ngarit tanduran" in Indonesian, "after harvesting, it is time to replant." A Baritan ceremony is a form of gratitude to God Almighty for abundant agricultural products. The movement in the Turonggo Yakso dance tells of the activities of farmers in rice fields ranging from cultivating land, planting rice, fertilizing rice plants, eradicating pests that attack rice plants, harvesting rice plants to holding the Turonggo Yakso dance performance as a form of gratitude to God Almighty. For the bountiful harvest.

The process of creating the idea of a batik motif from exploring the story behind the Turonggo Yakso Trenggalek dance on a long cloth is carried out through several stages, namely seeing the actual object, seeing the Turonggo Yakso dance directly, carrying out the preparation stage from various points of view to get the results of the story motif

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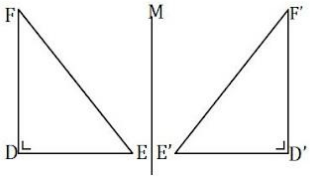
behind the Turonggo dance. Yakso Trenggalek. The following process is making several alternative sketches. Then the six best sketches are selected to be realized in the form of a long batik cloth using the written batik technique and the dyeing and dyeing technique. Making written batik requires patience and thoroughness in order to get beautiful and harmonious batik results. This method is done manually, so the batik process sometimes experiences unforeseen problems. As in the process of applying the size of the klowong, which is inconsistent or does not penetrate to the back of the cloth, when making night batik, it can also drip on other parts of the cloth, requiring joos (removal of wax by first moistening the cloth with water, then the tip of a spoon). Which has been heated is rubbed into the dripping night). Therefore, in the making of this work, many errors are not predictable, and there are many ways to find solutions to solve them.

The batik process begins with designing a 1:1 scale and then proceeds to klowong, isen-isen, coloring, nembok, and pelorodan. The dyes used are synthetic, naphthol, remasol, indigo sol, and natural dyes (but rarely used if there is no order). The coloring process also has problems with the gradation coloring, which must be more thorough because it takes concentration and speed to mix colors on the fabric, which is done when the color is still wet. If the color used for the gradation is dry, it will appear as two different colors. After all the processes are done, batik works are created from the concept of exploring the story behind the Turonggo Yakso Trenggalek dance. The work underwent a long process until it became a beautiful batik and contained meaning in each of his work.

Implementation of Turonggo Yakso Batik Motif in Mathematics Learning

The results obtained from this study are in the form of image data and mathematical concepts on the Turonggo Yakso batik motif. Many mathematical concepts are found in this typical Trenggaek Turonggo Yakso batik motif, including points, lines, symmetry, flat shapes, spatial shapes, similarity, and congruence. In the following, the researcher presents the ethnomathematics of batik Turonggo Yakso typical of Trenggalek, which is associated with mathematical concepts.

Table 1. Ethnomathematics of Batik Turonggo Yakso from Trenggalek

No	Ethnomatematics	Mathematical Concepts	Learning Implementation
1.			Identify the turonggo yakso jaranan motifs that face each other at the same size and distance. No. 1 and 2 depict the concept of mirroring and are congruent because they have the same shape and size and face each other. In previous research, there were batik motifs that faced each other and had the same shape and size (Abdullah & Rahmawati, 2021 ;Sudianto & Santoso, 2021)

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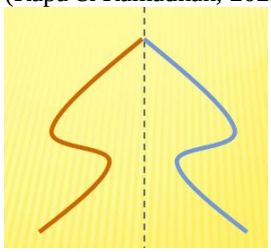
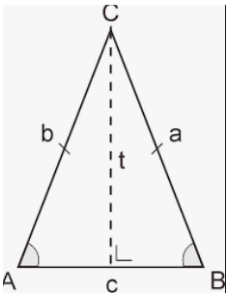
No	Ethnomatematics	Mathematical Concepts	Learning Implementation
2		The batik motif has an abstract shape that forms the same motif on the left and right. This is similar to research conducted by (Rapa & Ramadhan, 2022) 	Implementation of the concept of folding symmetry. In the batik motif, the right and left sides are the same when folded from the right to the left or vice versa. However, if it is folded from the bottom up or vice versa, the shape does not meet. So that the depiction of the symmetrical concept in the batik motif is a folding symmetry. The motif also has rotational symmetry because if you make a 360° rotation pattern, it returns to its shape only once.
3		 Around: $2\pi r$ *or* πd Large: πr^2	The implementation of the flat wake concept on the additional motif of turonggo yakso batik, namely the kawung motif, is a circle shape, and the number of folding and rotating symmetries is infinite. Ethnomathematics exploratory research on circular shapes also has infinite rotational and folding symmetries (Islam & Mariana, 2021;Choeriyah et al.,, 2020)
4.		 Circumference: the third sum of isosceles Large: $\frac{1}{2}\ x\ a\ x\ t$	Implementing the flat shape concept on the additional motif of turonggo yakso batiks, a combination of truntum and clove flower motifs forms a flat shape of an isosceles triangle. The isosceles triangle also contains one fold and rotated symmetry. One new concept is that the angles in an isosceles triangle have a right angle of 90° and also an acute angle of <90° The aspect that can be assessed from the exploration above is an isosceles triangle with its elements in line with research (Naja et al., 2021; Hidayatulloh & Hariastuti, 2018)

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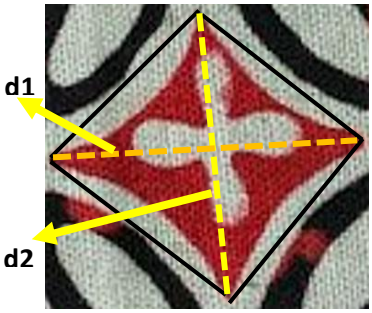
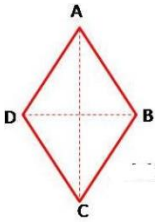
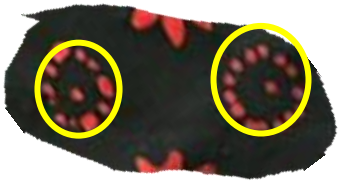
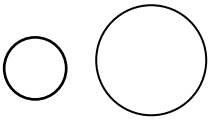
No	Ethnomatematics	Mathematical Concepts	Learning Implementation
5.		 Unlike a square, the two diagonals of a rhombus are not always the same lengt.. Around: 4s Large: $\frac{1}{2}$ $x\ d1\ x\ d2$	The implementation of the flat wake concept on the additional motif of turonggo yakso batik forms a rhombus. The rhombus also has two-fold and turn symmetries. The angles on a rhombus are 360° and <A+<B=180° Dhiki & Bantas (2021) also explained that rhombus shapes are found in items that are often used daily.
6.			The implementation of the concept of congruence in the additional motif of turonggo yakso batik, namely the truntum batik motif. In these batik motifs, there are the same motifs but different sizes. The concept of congruence is also found in previous research, on the lopo roof frame (Dosinaeng et al., 2020)

CONCLUSION AND SUGGESTION

Conclusion

Based on the data collection results and the discussion described earlier, it can be concluded that the research results show that the Turanggo Yakso Typical Trenggalek Batik culture has elements and mathematical concepts. Unknowingly, the people of Trenggalek have understood and applied mathematical concepts. This is evidenced by ethnomathematics in the elements of Turanggo Yakso Typical Trenggalek Batik, which can be seen in the central and complementary motifs. This confirms that learning resources are no longer fixated on books but can also come from the environment and culture around students. The conclusions from Fauzi et al., (2020) research revealed that culture could be used as a more concrete source of student learning. Learning mathematics with a cultural approach and giving examples in the real world will be more meaningful and memorable for students because it follows their learning style in elementary school, which is easier to learn with concrete objects. The exploration results show that ethnomathematics is found in the turonggo yakso trenggalek batik motifs, namely simple mathematical concepts related to the central motifs and their auxiliary motifs. Similar research also says that mathematical concepts are found in batik motifs (Fauzi & Setiawan, 2022 ;Ulum et al., 2018). The motifs from turonggo yakso batik can be used to study the concepts of plane shapes, angles, folding symmetry, rotational symmetry, congruence, congruence, and reflection. Learning mathematics associated with the culture

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around students (ethnomatematka) becomes a link for more meaningful learning activities.

Suggestion

In this research, the researcher gives the following suggestions:

1. Based on the benefits that can motivate students, teachers should deliver mathematics material using an ethnomathematical approach from the surrounding culture.
2. The research results on an ethnomathematical exploration of Turonggo Yakso batik typical of Trenggalek can be used as alternative ideas for learning mathematics outside the classroom related to contextual problem-solving.

REFERENCES

Abdullah, A., & Rahmawati, A. (2021). Eksplorasi Etnomatematika Pada Batik Kayu Krebet Bantul. *UNION: Jurnal Ilmiah Pendidikan Matematika*, *9*(2), 163–172. https://doi.org/10.30738/union.v9i2.9531

Adilla Hanny, N., & Suhartini, R. (2018). Motif Batik Trenggalek. *Jurnal Tata Busana*, *7*(3), 24–32.

Afnan, D. (2018). Ritualisasi Nadran Sebagai Sarana Komunikasi Antara Budaya Dan Agama. *SOSFILKOM : Jurnal Sosial, Filsafat Dan Komunikasi*, *12*(01), 1–6. https://doi.org/10.32534/jsfk.v12i01.1445

Agustin, R. D., Ambarawati, M., & Era Dewi Kartika, E. D. (2019). Ethnomatematika: Budaya dalam Pembelajaran Matematika. *Laplace : Jurnal Pendidikan Matematika*, *2*(1), 11–18. https://doi.org/10.31537/laplace.v2i1.190

Ayuningtyas, A. D., & Setiana, D. S. (2019). Pengembangan Bahan Ajar Matematika Berbasis Etnomatematika Kraton Yogyakarta. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *8*(1), 11–19. https://doi.org/10.24127/ajpm.v8i1.1630

Choeriyah, L., Nusantara, T., Qohar, A., & Subanji. (2020). Studi Etnomatematika pada Makanan Tradisional Cilacap. *AKSIOMA : Jurnal Matematika Dan Pendidikan Matematika*, *11*(2), 210–218.

Dhiki, Y. Y., & Bantas, M. G. D. (2021). Eksplorasi Etnomatematika Sebagai Sumber Belajar Matematika Di Kabupaten Ende. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *10*(4), 2698. https://doi.org/10.24127/ajpm.v10i4.4254

Dosinaeng, W. B. N., Lakapu, M., Jagom, Y. O., Uskono, I. V., Leton, S. I., & Djong, K. D. (2020). Etnomatematika Untuk Siswa Sekolah Menengah:Eksplorasi Konsep-Konsep Geometri Pada Budaya Suku Boti. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *9*(3), 739. https://doi.org/10.24127/ajpm.v9i3.2900

Faqih, A., Nurdiawan, O., & Setiawan, A. (2021). Pengembangan Media pembelajaran Multimedia Interaktif Alat Masak Tradisional Berbasis Etnomatematika. *Mosharafa: Jurnal Pendidikan Matematika*, *10*(2), 301–310. https://doi.org/10.31980/mosharafa.v10i2.876

ISSN 2089-8703 (Print)
ISSN 2442-5419 (Online)

DOI: https://doi.org/10.24127/ajpm.v12i1.6240

Fauzan, R., & Nashar, N. (2017). "Mempertahankan Tradisi, Melestarikan Budaya" (Kajian Historis dan Nilai Budaya Lokal Kesenian Terebang Gede di Kota Serang). *Jurnal Candrasangkala Pendidikan Sejarah*, *3*(1), 1. https://doi.org/10.30870/candrasangkala.v3i1.2882

Fauzi, A., Rahmatih, A. N., Sobri, M., Radiusman, R., & Widodo, A. (2020). Etnomatematika: Eksplorasi Budaya Sasak sebagai Sumber Belajar Matematika Sekolah Dasar. *Jurnal Review Pembelajaran Matematika*, *5*(1), 1–13. https://doi.org/10.15642/jrpm.2020.5.1.1-13

Fauzi, A., & Setiawan, H. (2022). *Eksplorasi Etno Matika Pada Motif Batik Kota*.

Hidayatulloh, N., & Hariastuti, R. M. (2018). *KAJIAN ETNOMATEMATIKA ANGKLUNG PAGLAK BANYUWANGI*. *06*(1), 68–72.

Islam, M. T., & Mariana, N. (2021). Konsep Geometri Dalam Motif Batik Mojokerto Sebagai Peninggalan Kerajaan Majapahit. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, *9*(7), 2788–2801.

Jayadi, U., & Kamarudin, L. (2021). Budaya Bereqe Sasak Lombok Sebagai Upaya Melestarikan Nilai Religius Dan Jati Diri Masyarakat Montong Baan Kecamatan Sikur Lombok Timur. *Berajah Journal*, *1*(1), 43–49. https://doi.org/10.47353/bj.v1i1.4

Naja, F. Y., Mei, A., & Sa'o, S. (2021). Eksplorasi Konsep Etnomatematika Pada Gerak Tari Tradisional Suku Lio. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *10*(3), 1836. https://doi.org/10.24127/ajpm.v10i3.3885

Prahmana, R. C. I., & D'Ambrosio, U. (2020). Learning geometry and values from patterns: Ethnomathematics on the batik patterns of yogyakarta, indonesia. *Journal on Mathematics Education*, *11*(3), 439–456. https://doi.org/10.22342/jme.11.3.12949.439-456

Pramudita, K., & Rosnawati, R. (2019). Exploration of Javanese culture ethnomathematics based on geometry perspective. *Journal of Physics: Conference Series*, *1200*(1). https://doi.org/10.1088/1742-6596/1200/1/012002

Pratiwi, J. W., & Pujiastuti, H. (2020). Eksplorasi Etnomatematika pada Permainan Tradisional Kelereng. *Jurnal Pendidikan Matematika Raflesia*, *5*(2), 1–12. Retrieved from https://ejournal.unib.ac.id/index.php/jpmr/article/view/11405

Rapa, L. G., & Ramadhan, N. R. (2022). *OPEN ACCESS EKSPLORASI ETNOMATEMATIKA TERHADAP MAKANAN KHAS TORAJA Ethnomathematic Exploration Of Toraja ' s Special Food Abstrak*. *11*(September), 123–131. https://doi.org/10.22487/j24775185.2021.v10.i1.pp-pp

Richardo, R. (2017). Peran ethnomatematika dalam penerapan pembelajaran matematika pada kurikulum 2013 [The role of ethnomathematics in the application of mathematics learning in the 2013 curriculum]. *LITERASI (Jurnal Ilmu*

ISSN 2089-8703 (Print)
ISSN 2442-5419 (Online)

DOI: https://doi.org/10.24127/ajpm.v12i1.6240

Pendidikan), *7*(2), 118–125.

Risdiyanti, I., & Prahmana, R. C. I. (2018). Ethnomathematics: Exploration in Javanese culture. *Journal of Physics: Conference Series*, *943*(1). https://doi.org/10.1088/1742-6596/943/1/012032

Sa'o, S., Mei, A., Bito, G. S., & Mei, M. F. (2022). EKSPLORASI ETNOMATEMATIKA POLA LANTAI PADA FORMASI TARIAN TEA EKU DAERAH NAGEKEO. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *3*(April), 49–58.

Sudianto, S., & Santoso, E. (2021). Eksplorasi Etnomatematika pada Pembuatan Motif Batik Kabupaten Majalengka. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *5*(3), 2941–2949. https://doi.org/10.31004/cendekia.v5i3.967

Ulum, B., Budiarto, M. T., & Ekawati, R. (2018). Etnomatematika Pasuruan: Eksplorasi Geometri Untuk Sekolah Dasar Pada Motif Batik Pasedahan Suropati. *Jurnal Review Pendidikan Dasar : Jurnal Kajian Pendidikan Dan Hasil Penelitian*, *4*(2), 686. https://doi.org/10.26740/jrpd.v4n2.p686-696