Review Article

Bridging mathematics and culture: A systematic review of indigenous mathematical concepts in Indonesian traditions

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ABSTRACT

A mathematical theory called ethnomathematics studies how individuals or groups within a culture comprehend, express, and apply the concepts and customs of their culture. The purpose of this project is to investigate ethnomathematics in the Indonesian region. The systematic literature review approach combined with the PRISMA technique was the research methodology employed in this study. The articles used in this study were 21 journal articles obtained from the Scopus database. Based on the literature review conducted, the results obtained were (1) The majority of studies are in the special region of Yogyakarta, West Java, and Central Java, because these areas are centers of education in Indonesia, (2) the mathematical concepts contained in the culture and traditions of Indonesian society discuss a lot of material on the concept of geometry, and (3) the culture contained in ethnomathematics discusses a lot of mosque architecture, traditional houses, batik, crafts, and other cultural values. Therefore, further research is needed on the application of other mathematical concepts related to Indonesian regional culture. Such as in Bali, Papua, Kalimantan, North Sulawesi, Nusa Tenggara, and other regions in order to map more clearly the relationship between mathematics and Indonesian culture as a whole.

Keywords: culture, ethnomathematics, Indonesia, mathematical concepts, systematic review

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INTRODUCTION

Mathematics is a universal natural language, but its application in different cultures and societies can vary (Wahyudin, 2018). Indonesia, as an archipelagic country with diverse ethnic groups (Waman & Dewi, 2021), culture (Amirah & Budiarto, 2022), and tradition (Syifa, 2021), having a wealth of mathematical concepts in everyday life is closely related to human activities (Sihombing, 2022). Based on a quote from (Hajar et al., 2021) that mathematics is formed from the results of human thought related to ideas (Aledya, 2019), process (Damas Sadewo et al., 2022) and reasoning (Akuba et al., 2020). In mathematics, an idea usually refers to a basic concept or idea that underlies a theory or method (Firdaus et al., 2018). Meanwhile, the process in mathematics refers to the steps or methods used to solve problems in order to achieve certain goals (Lupita & Hidajat, 2022). And for reasoning ability in mathematics is a person's thinking skills to analyze, interpret, and solve mathematical problems (Kotto et al., 2022).

Indonesian people have developed a deep understanding of mathematical concepts in their daily activities (Solehah & Setiawan, 2023). Understanding mathematics is a complex and diverse concept (Aledya, 2019). As in social life, mathematics provides a solid foundation for solving problems in everyday life (Turmuzi et al., 2022). Starting from buying and selling activities, banking and loans (Siregar & Dewi, 2022). The mathematical concept in buying and selling involves calculating prices, discounts and profits (Kou et al., 2021). Meanwhile, in banking activities it is used in calculating savings interest, credit risk analysis, and asset management, to make appropriate and efficient decisions (Korompis et al., 2020). And in lending activities, it involves calculating loan interest, estimating total payments, and risk analysis, which helps to understand financial obligations clearly (Mulyana et al., 2023).

Since ancient times, various mathematical methods and formulas in the Indonesian region have been developed over time (Andari et al., 2022). Starting from the Javanese calendar calculation (Muasmara & Ajmain, 2020), traditional architecture (Ruek & Padmasari, 2022), and traditional food (Choeriyah et al., 2020). In the Javanese Calendar there is an arithmetic mathematical concept that is used to determine the wedding date, by combining various cycles such as pasar, wetonan, and pawukon (Anisa et al., 2023). Meanwhile, the traditional architecture of the traditional house has a geometric concept on the main roof which has a slope that contains an isosceles trapezoid shape (Ruek & Padmasari, 2022). And in the traditional Idul Fitri ketupat food, there is also a geometric mathematical concept which has shapes such as rhombuses, prisms and cuboids (Utami et al., 2022). Therefore, mathematics plays an important role in various cultural contexts and traditions of Indonesian society (Azmi, 2024).

Ethnomathematics has an important role in understanding the diversity of mathematical ways of thinking that exist in various cultures of a nation (Andriono, 2021). This concept integrates mathematics and culture, also providing insight into how mathematical knowledge develops in different social and environmental contexts (Makonye, 2020). The study by Motseki et al. (2025) how to explore the role of Ndebele artifacts in teaching elementary geometry mathematics. Demonstrates the potential of ethnomathematics to transform pedagogical approaches and change learners' attitudes towards mathematics (Günay & Takunyaci, 2023). Although their contributions are rarely acknowledged in contemporary education, Ndebele artifacts provide opportunities for teachers to teach geometry in ways that encourage critical thinking and intellectual growth (Chen, 2021). By integrating ethnomathematics into learning, teachers can overcome resource limitations and modify teaching techniques to create more meaningful learning experiences (Mohamad & Hassan, 2022).

The concept of mathematics is not only about formulas and numbers in academics (Azmi, 2024). However, it is an integral part of Indonesian culture (Aulana et al., 2024). Meanwhile, understanding mathematics is not only for the development of science, but also for understanding and preserving the rich and diverse cultural heritage in Indonesia (Serepinah et al., 2023). This article's next section will examine how mathematical ideas that are ingrained in Indonesian culture and traditions relate to one another and how this knowledge can improve the country's mathematical education practices. The systematic literature review (SLR) method will be used to conduct the research. It is anticipated that the findings of this literature review would provide scholars with a solid basis upon which to investigate ethnomathematics in Indonesian culture and customs.

Research Problem Formulation

1. Which regions in Indonesia have explored the most mathematical concepts in Indonesian culture?
2. What mathematical concepts are documented in the literature related to the culture and traditions of Indonesian society?
3. What cultures and customs have been studied in ethnomathematics research?

METHODOLOGY

The method applied in this study uses the SLR approach using PRISMA analysis. According to Higgins et al. (2011) quoted by (Mohamed et al., 2021) SLR aims to find and comprehensively synthesize related research using organized, transparent, and replicable procedures at every step in the process. The benefits of this SLR method

Table 1. Population intervention comparison outcomes (context)

Variable	Value
Population (P)	Culture
Intervention (I)	Mathematical concepts
Comparison (C)	There isn't any
Outcomes (O)	The concept of mathematics in culture
Context (C)	Indonesia

are the synthesis of various interconnected researcher findings so that the factual information presented is more accurate. The steps in SLR are such as identification, selection, evaluation, and synthesis of existing scientific literature systematically. Page et al. (2021) define to guarantee quality and reproducibility in the research revision process, PRISMA is a standardized, peer-reviewed technique that employs checklist principles. PRISMA is designed as a tool for creating an SLR and is a guide to lining up evidence consisting of flowcharts. In the selection process carried out referring to the four stages in PRISMA, namely identification, screening, eligibility, and included.

The data used in this study utilizes the Scopus database, a highly reputable indexing database that the authors have access to. Because it offers access to a variety of data frequently used for writing and research, such as titles, abstracts, and keywords, the Scopus academic database was selected (Aghaei et al., 2013; Falagas et al., 2008). Additionally, almost every international journal publication on the globe is included by the database. The first step in performing a data search is creating search terms using PICO (C), which gives a summary of the SLR's parameters and extent. When creating review questions, the PICO model guarantees that the pertinent elements are clearly stated (Eriksen & Frandsen, 2018), as shown in **Table 1**.

Table 1 uses the PICO concept search worksheet and strategy (Eriksen & Frandsen, 2018). From **Table 1**, the keywords formed are "culture", "mathematical concepts", "mathematical concepts in culture in Indonesia". After the keywords are formed, then create various language terminologies as alternative keywords to find journal articles that match the research topic as in **Table 2**.

Table 2 is formed by the main keywords ((("mathematics" OR "math" OR "maths" OR "mathematics* education" OR "mathematics* learning" OR "math* learning" OR "math* education" OR "maths* learning" OR "maths* education") AND ("cultures" OR "culture" OR "customs" OR "custom" OR "mores")). After the keywords and language terminology are formed, then create inclusion and exclusion criteria using the PICO format as in **Table 3**.

After the inclusion and exclusion criteria in **Table 3** has been formed, the next step is to use PRISMA to search for and filter literature that matches the inclusion criteria (Saidi et al., 2024).

Table 2. Language terminology

Language understood	Terminology 1	Terminology 2	Use of Boolean operators
Mathematical concepts	Mathematics	math OR maths OR mathematics education OR mathematics learning OR math learning OR math education OR maths learning OR maths education	"mathematics" OR "math" OR "maths" OR "mathematics* education" OR "mathematics* learning" OR "math* learning" OR "math* education" OR "maths* learning" OR "maths* education"
Culture	Cultures	culture OR customs OR custom OR mores	"cultures" OR "culture" OR "customs" OR "custom" OR "mores"
Mathematical concepts in Indonesian culture	There isn't any	There isn't any	"mathematics" OR "math" OR "maths" OR "mathematics* education" OR "mathematics* learning" OR "math* learning" OR "math* education" OR "maths* learning" OR "maths* education") AND ("cultures" OR "culture" OR "customs" OR "custom" OR "mores"

Table 3. Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Document type	Article	Proceeding, book, chapter, etc.
Publication type	Final	In proses, review, etc.
Source type	Journal	Book, chapter, proceeding, etc.
Language	English	Non-English
Open access	Open access	Close access

Identification

The researcher used the Scopus database to conduct a search. Based on the keywords that have been determined by the researcher, the researcher formulated two search terms, namely: "mathematical concepts" and "culture" (**Table 2**). Based on the most sought terms, the researcher has created a list of language terminology. In order to look at other studies that might be pertinent, the researcher broadened the criteria and methodologies. utilizing the primary search terms, which were produced by fusing the terms discovered to perform a search. Each term was separated by the researcher using the "OR" operator, and the second keyword was connected using the "AND" operator. The researcher then searched for articles, with the main keywords (("mathematics" OR "math" OR "maths" OR "mathematics* education" OR "mathematics* learning" OR "math* learning" OR "math* education" OR "maths* learning" OR "maths* education") AND ("cultures" OR "culture" OR "customs" OR "custom" OR "mores")) there was a search of 6,910,000 documents indexed by Scopus.

Screening

The next stage is the screening stage, indicating that the selection process meets the PRISMA criteria (**Figure 1**), as described by Moher et al. (2009). Researchers employ a variety of criteria in this approach to include and omit specific components. Book chapters, conference proceedings, and systematic review volumes are not included in the literature collection by researchers. Because English-language journal papers are so common, researchers simply concentrate on them, which eliminates the need for ambiguous or imprecise translations. Furthermore, in order to have a comprehensive grasp of research findings across various historical periods, the researchers in their analysis did not impose year constraints on the publication of publications. To make the study process easier, researchers only incorporate open access publications. Researchers specialize this study for the country or region of Indonesia. After the screening stage, the research criteria made 6,909,952 publications ineligible, because they were not in the country or region of Indonesia. After going through this screening stage, 48 articles were obtained that focused on discussing Indonesian culture.

Eligibility

Next, enter the eligibility stage (**Figure 1**), the process at this stage the researcher excludes journal papers that do not discuss the concept of mathematics and culture. Based on the inclusion and exclusion criteria set, the researcher then conducts a comprehensive assessment of each article title, abstract, methodology, findings, and discussion to ensure that the 48 publications meet the criteria and objectives of the research selection. Articles that pass this stage will enter the systematic review process stage. The results obtained 21 articles that met the inclusion criteria and 27 excluded articles. The excluded articles were due to 16 articles discussing mathematical concepts, 5 articles discussing culture, 5 articles not discussing mathematical concepts and culture, and 1 article using the SRL method.

Inclusion and Exclusion Criteria

After collecting the results from all identified sources, the researchers used the selection criteria that had been determined by the research needs to eliminate publications that were not relevant to the study. The inclusion and exclusion criteria should be clearly stated when choosing which studies to include and which to exclude. This guarantees that the research chosen have a direct bearing on the study's primary goal. Together with the relevant study findings, **Table 3** lists the precise criteria that were used to decide whether a publication qualified for inclusion in this evaluation. The researchers then read the selected articles based on the specific criteria that were relevant to this study and obtained 21 articles that will be reviewed in this study, which will be discussed to answer the research questions.
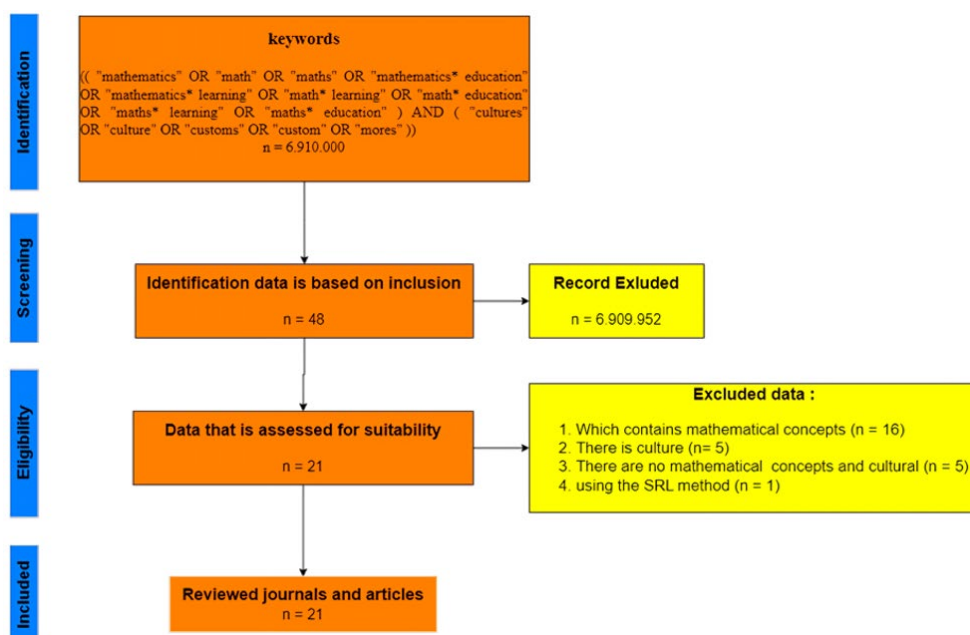

Figure 1. PRISMA SLR process flow diagram [Source: Authors' own elaboration based on Moher et al. (2009)]

Table 4. The content analysis on reviewed article

Author/year	Place	Method	Mathematical concepts	Culture
Muhtadi et al. (2017)	Kuningan, West Java	Exploratory with an ethnographic approach	Estimation, measurement, geometry, approximation	Sundanese society such as its behavior, language, bamboo crafts, methods of measuring time, traditional games
Faiziyah et al. (2020)	Surakarta, Central Java	Classroom action research	Geometry	Typical batik from Surakarta
Prahmana and D'Ambrosio (2020)	Special region of Yogyakarta	Ethnography	Geometry	Typical batik from the special region of Yogyakarta
Pathuddin et al. (2021)	Gowa, South Sulawesi	Ethnographic qualitative approach	Basic operations, congruence, similarity, geometry	The Bugis tribe is associated with the tradition of making and serving traditional Barongko cakes.
Risdiyanti and Prahmana (2021)	Special region of Yogyakarta	Design research	Set	Shadow Puppets
Umbara et al. (2021)	Kuningan, West Java	Ethnographic approach	Basic operations, set number operations, congruence, algebra	The Cigugur Traditional Community makes calculations to determine a good day to start building a house.
Prahmana et al. (2021)	Special region of Yogyakarta	Ethnography	Basic operations, algebra,	Yogyakarta society analyzes elements of traditional systems such as seasons, calendars, and traditional ceremonies.
Prahmana and Istiandaru (2021)	Special region of Yogyakarta	Ethnography	Set	Shadow Puppets
Sudarsono et al. (2022)	Bima, West Nusa Tenggara	Experiment	Geometry	Local cultural character values of Bima
Fauzi et al. (2022)	Lombok, West Nusa Tenggara	Qualitative	Geometry, Sets	Character values of the Sasak people
Hariastuti et al. (2022)	Banyuwangi, East Java	Qualitative	Geometry, similarity, congruence, arithmetic	Traditional house of the Using Tribe
Wiryanto et al. (2022)	Surabaya, East Java	Qualitative	Geometry, basic operations	Tedhak Siten ceremony and Javanese calendar calculations
Utami et al. (2022)	Jepara, Pati, Rembang, Kudus, Blora and Grobogan, Central Java	Qualitative	Geometry	Ketupat Tradition, a typical Eid food
Purniati et al. (2022)	Bandung, West Java	Qualitative ethnography	Geometry	Architecture of the Great Mosque of Bandung
Supriadi (2022)	Lebak, Banten	Qualitative and quantitative approaches	Number	Traditional games of the Sundanese people
Zuliana et al. (2023)	Demak, Central Java	Ethnographic data analysis	Geometry	Architecture of the Great Mosque of Demak
Umbara et al. (2023)	Kuningan, West Java	Phenomenography and Ethnomethodology	Basic operations, measurement, geometry	Seren Taun ceremony tradition, Pancaniti traditional building, Abon Geulis traditional calendar system
Pathuddin et al. (2023)	Rappang, South Sulawesi	Qualitative	Arithmetic, numbers, basic operations	Panannrang
Susanta et al. (2023)	Bengkulu City, Bengkulu	Research development	Geometry	Traditional house architecture and typical Bengkulu food
Kurniawan et al. (2024)	Purworejo, Central Java	Qualitative with ethnographic design	Geometry	Traditional house architecture, Jolenan Somongari tradition, jolen ceremony
Mairing et al. (2024)	Palangka Raya, Kapuas and South Barito, Central Kalimantan	Qualitative	Geometry	The value of the local wisdom of the Dayak Ngaju tribe

FINDINGS

Based on the search results conducted using an SLR, there were 48 documents, which then became 21 articles that entered the final review process. Below are data from 2 articles that meet the eligibility criteria. This study uses three research questions to guide its review of the selected articles. The results of the research review are intended to provide an overview of the concept of mathematics in culture in Indonesia.

Of the 21 articles selected by researchers in **Table 4**, the studies listed were focused on ethnomathematics covering various regional locations throughout Indonesia, presented in **Figure 2**.

Distribution of research studies based on regions in Indonesia shows the categories of studies selected based on the regions where the studies were conducted. The majority of studies collected from several regions in Indonesia, such as (n = 4) special region of Yogyakarta, (n = 4) West Java, (n = 4) Central Java, (n = 2) South Sulawesi, (n = 2) East Java, (n = 2) West Nusa Tenggara, (n = 1) Bengkulu, (n = 1) Central Kalimantan, and (n = 1) Banten. From various regions in Indonesia, researchers found mathematical concepts that are interrelated with the culture and customs of Indonesian society in their daily lives.

Figure 3 shows that the mathematical concepts found by researchers are documented in the literature related to the culture and customs of Indonesian society. In the researcher's findings, there are mathematical concepts of geometry (36%, n = 15), basic operations (15%, n = 6), set (10%, n = 4), congruence (7%, n = 3), algebra (5%, n = 2), measurement (5%, n = 2), number (5%, n = 2), similarity (5%, n = 2), number operations (5%, n = 2), arithmetic (5%, n = 2), and approximation (2%, n = 1). From the mathematical concepts reviewed,

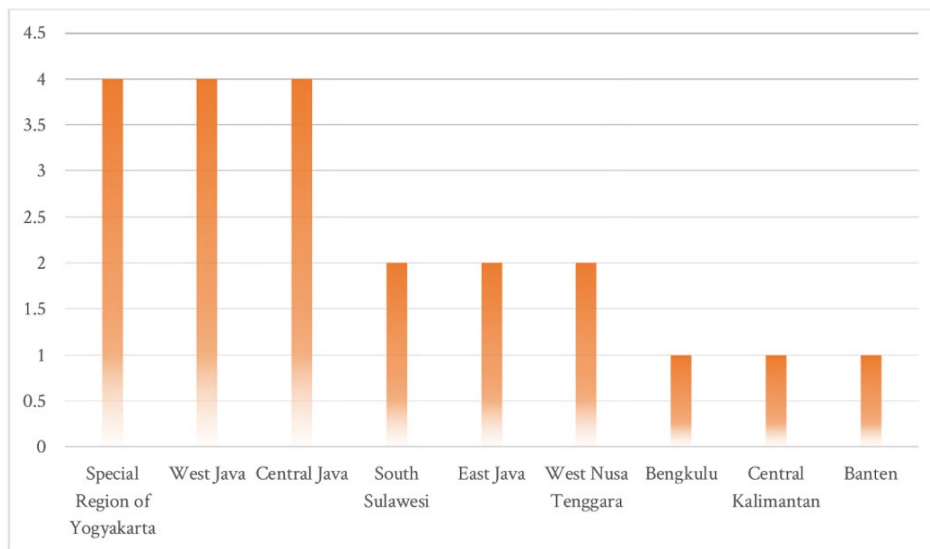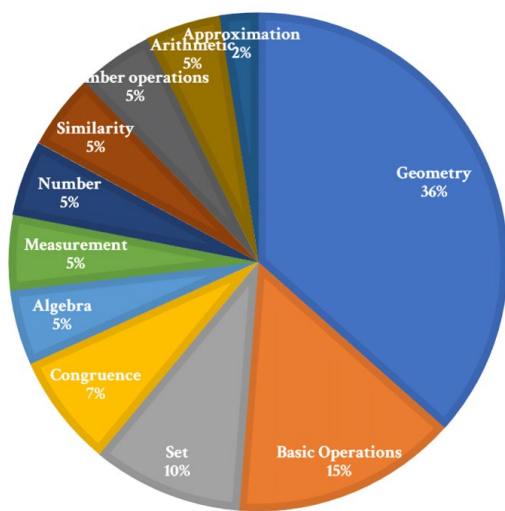**Figure 2.** Place where the research was conducted (Source: Authors' own elaboration)

Figure 3. Mathematical concepts that are widely used in Indonesian culture (Source: Authors' own elaboration)

researchers can also see the culture and customs that are integrated into the daily lives of Indonesian society.

Figure 4 illustrates the culture related to mathematical concepts identified by researchers and recorded in the literature on Indonesian culture and customs. The findings cover various aspects, including traditional architecture (n = 6), community character values (n = 5), traditional ceremonies (n = 4), traditional time calculation (n = 4), traditional food (n = 3), shadow puppets (n = 2), batik (n = 2) and traditional crafts (n = 2). This culture shows how mathematics is integrated into the daily lives of Indonesian people. This relationship reflects the richness of culture in Indonesia which is not only aesthetic but also related to mathematical concepts.

DISCUSSION

This research successfully identified and analyzed various mathematical concepts found in the culture and customs of Indonesian society. The uniqueness is that society is not aware that the culture they practice in everyday life has mathematical concepts (Helan et al., 2023). The first question regarding the regions of Indonesia that are widely explored is mostly in the special region of Yogyakarta, West Java, and Central Java, because these areas are the centers of education in Indonesia.
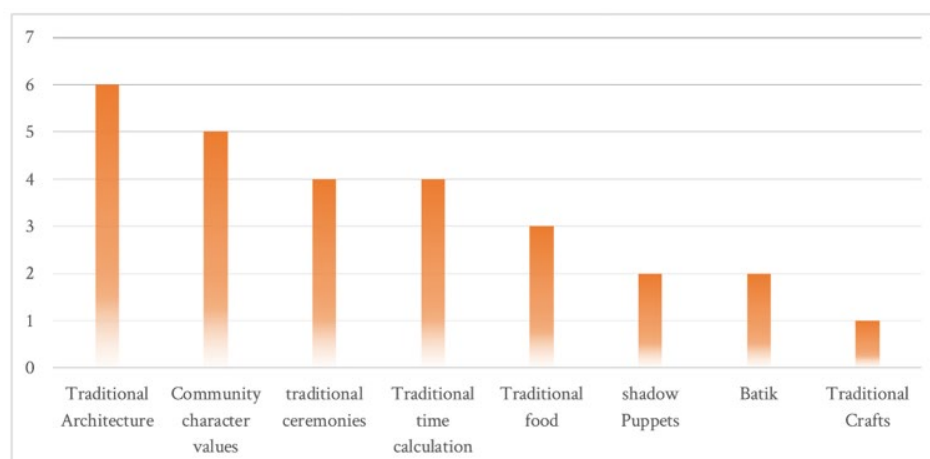

Figure 4. Culture and customs in Indonesia (Source: Authors' own elaboration)

Based on statistical data, Indonesia reported that school participation in these three areas was the highest, after DKI Jakarta (Girsang et al., 2023). Apart from that, the community still holds fast to strong culture and customs in their daily lives (Al-Fajriyati, 2019).

Meanwhile, research studies are still relatively few in Central Kalimantan, Banten, and Bengkulu. In fact, these three regions have a variety of rich cultures and customs. For example, in the culture in Central Kalimantan, there is the Dayak tribe whose life is very thick with culture (Efendi et al., 2020), as in bead crafts with motifs related to the mathematical concept of geometric transformations (Haeruddin et al., 2023). Other areas in the Banten region where the Baduy tribe lives have a strong culture of Sunda Wiwitan (Suidat et al., 2023), as in the Baduy woven cloth craft motif seen from the concept of geometric mathematics (Ridwan, 2018). And traditional architecture, namely the roof of the Baduy traditional house, the typical Banten gate, and the roof of the Great Mosque of Banten which is based on the Pythagorean concept (Nirmalasari et al., 2021).

Even though Bengkulu is not as strong as the two regions in upholding culture, they have the art of Andun dance as a source of learning mathematics and knowing the ethnomathematics activities of geometry and algebra (Miznurida et al., 2024), and the architecture of the grand mosque of Bengkulu city has a geometric mathematical concept (Lusiana et al., 2019). If seen from its form, both are related to the concept of geometric mathematics. Like in the art of Andun dance, in its movements there are mathematical concepts such as right angles, obtuse angles, rotations, axis of symmetry of circles, relations and functions (Miznurida et al., 2024). Meanwhile, the architecture in Bengkulu mostly resembles the shapes of triangles, rectangles, circles, cubes, blocks, pyramids and cylinders (Lusiana et al., 2019).

Based on the second question regarding the mathematical concepts found in Indonesian culture and traditions, there is a lot of discussion of the material regarding the concept of geometry (Faiziyah et al., 2020; Fauzi et al., 2022; Hariastuti et al., 2022; Kurniawan et al., 2024; Mairing et al., 2024; Muhtadi et al., 2017; Pathuddin et al., 2021; Prahmana & D'Ambrosio, 2020; Purniati et al., 2022; Sudarsono et al., 2022; Susanta et al., 2023; Umbara et al., 2023; Utami et al., 2022; Wiryanto et al., 2022; Zuliana et al., 2023). The mathematical concepts of geometry are found in the reviewed articles, such as in architecture (Hariastuti et al., 2022; Kurniawan et al., 2024; Purniati et al., 2022; Susanta et al., 2023; Umbara et al., 2023; Zuliana et al., 2023), batik (Faiziyah et al., 2020; Prahmana & D'Ambrosio, 2020), traditional food (Pathuddin et al., 2021; Utami et al., 2022), art craft (Muhtadi et al., 2017), and cultural values (Fauzi et al., 2022; Mairing et al., 2024; Sudarsono et al., 2022).

This shows that geometry has an important role in the daily lives of Indonesian people (Purnama et al., 2022). Geometry is not only a science, but also a part of Indonesian cultural identity (Mulyatna et al., 2022). By reflecting local wisdom and traditions that have been passed down from generation to generation (Widianto & Lutfiana, 2021). There is a reciprocal relationship between mathematical concepts and regional cultures in Indonesia (Nurhasanah & Puspitasari, 2022). So that regional culture can improve the development of mathematics teaching materials to be more relevant to the daily lives of Indonesian society (Richardo, 2016). Therefore, learning mathematics can preserve regional culture and customs through the use of mathematical concepts (Putra & Prasetyo, 2022). And can also introduce the culture and traditions of Indonesian society on the international stage (Maulida et al., 2021).

Based on the third question regarding culture and tradition, ethnomathematics discusses a lot about mosque architecture (Purniati et al., 2022; Zuliana et al., 2023) and traditional houses (Hariastuti et al., 2022; Kurniawan et al., 2024; Susanta et al., 2023; Umbara et al., 2023). Traditional architecture reflects the cultural values and local wisdom of a society (Marpaung, 2024). Indonesia is a country that is rich in culture and local wisdom that is diverse in every region (Yuniarti et al., 2021). Each type of building, such as traditional houses, mosques, churches and temples, is designed considering geographical conditions, climate and the needs of the local community (Ratodi, 2017). For example, the traditional houses of the using tribe contain geometric and arithmetic mathematical concepts on the roof and walls of the house (Hariastuti et al., 2022). Thus, traditional Indonesian architecture not only functions as a place to live, but also as a symbol of a nation's cultural identity (Selvia & Sunarso, 2020).

The integration of ethnomathematics concepts into the Indonesian mathematics education curriculum is crucial (Payadnya et al., 2024). It can enhance students' understanding of the relationship between mathematics and local culture and strengthen their cultural identity (Harefa, 2024). In addition, the application of project-based learning methods that involve cultural exploration can encourage students to think critically and creatively (Barak & Yuan, 2021). So they can apply mathematical concepts in everyday life contexts. Therefore, training teachers in effective teaching strategies can provide relevant learning resources. Furthermore, it is an important step in creating meaningful and contextual learning experiences for students (Mubarok et al., 2022).

Based on the articles that have been reviewed, culture and customs in ethnomathematics are still very diverse (Prasetyo, 2022). From traditional architecture, traditional food, traditional games to arts and crafts. All these aspects show that mathematics is not just numbers and formulas (Isnaintri et al., 2023). But also an important part of the cultural identity and way of life of the people (Aprianti et al., 2022). Understanding this relationship can enrich mathematics teaching and provide deeper cultural insights into the importance of mathematics in the context of everyday life. Therefore, further research is needed on the application of other mathematical concepts related to various aspects of Indonesian regional culture. Such as in Bali, Papua, Kalimantan, North Sulawesi, Nusa Tenggara, and other regions in order to map more clearly the relationship between mathematics and Indonesian culture as a whole.

CONCLUSION

It can be concluded that ethnomathematics in culture and customs is mostly found in the special region of Yogyakarta, West Java, and Central Java, because these three regions are centers of education in Indonesia and their communities still hold fast to tradition. Meanwhile, the use of mathematical concepts discusses a lot of mathematical material in the field of geometry such as flat shapes, spatial shapes, lines, angles. And it also contains basic operations, sets and number operations. For the specifications of culture and customs that contain ethnomathematics, it turns out that many are in the form of traditional architecture, batik, crafts, traditional ceremonies, time calculations, and other cultural values. Researchers discovered that ethnomathematics in culture and customs can be used to create educational resources for students studying mathematics.

So that further research can explore ethnomathematics in cultures that exist in other regions of Indonesia, in order to map more clearly the relationship between mathematics and Indonesian culture as a whole. To improve the understanding and application of ethnomathematics, it is recommended that further research be conducted in under-researched regions, such as Papua and Kalimantan. Furthermore, ethnomathematics development modules should be integrated into professional development programs for teachers to enrich students' learning experiences and strengthen the connection between mathematics and local culture. These recommendations are expected to be concrete steps for researchers and practitioners in advancing mathematics education in Indonesia.

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