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Mandarese Ethnomathematics: Lipa' Sa'be Mandar and Its Relation with Mathematics Learning at Schools

Aprisal[1*], Sartika Arifin[2]

[1*,2]Mathematics Education Program, Universitas Sulawesi Barat
Jalan Prof. Dr. Baharuddin Lopa, Majene, West Sulawesi, Indonesia
[1*]*aprisal@unsulbar.ac.id; [2]sartikaarifin91@unsulbar.ac.id*

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Abstrak

Lipa' sa'be Mandar merupakan salah satu contoh identitas budaya masyarakat Mandar yang tidak lepas dari muatan konsep matematika. Penelitian ini bertujuan mengeksplorasi lipa' sa'be Mandar sebagai sumber belajar matematika. Penelitian ini merupakan penelitian kualitatif dengan pendekatan etnografi. Data pada penelitian dikumpulkan dengan metode observasi, wawancara mendalam, dan dokumentasi. Subjek pada penelitian ini adalah kelompok ibu rumah tangga di Desa Gulung Talu Kec. Balanipa. Teknik analisis data pada penelitian ini terdiri dari reduksi data, penyajian data, dan menarik kesimpulan. Eksplorasi lipa' sa'be Mandar menunjukkan bahwa terdapat konsep matematika pada proses pembuatan dan corak lipa' sa'be Mandar. Konsep matematika tersebut antara lain: konsep pengukuran, konsep garis singgung lingkaran, dan konsep himpunan.
Kata Kunci: Etnomatematika; Garis Singgung Lingkaran; Himpunan; Lipa' Sa'be; Pengukuran.

Abstract

Lipa' sa'be Mandar is an example of the cultural identity of the Mandar people which cannot be separated from the content of mathematical concepts. This research was conducted to explore lipa' sa'be Mandar as mathematics learning resources. This study is qualitative research with ethnographic approach. The data in this study were collected by observation, interview and documentation methods. The subjects in this study were community groups or housewives in Gulung Talu village, Balanipa distric. The data were analyzed using data reduction, data presentation, and making conclusion. Exploration of lipa' sa'be Mandar shows that there are mathematical concepts in manufacturing process and pattern of lipa' sa'be Mandar. These mathematical concepts include: the concept of measurement, the concept of circle tangent line, and the concept of sets.
Keywords: Circle Tangent Line; Ethnomathematics; Lipa' sa'be; Measurement; Set.

I. INTRODUCTION

Mathematics is a subject that is closely related to all aspects of life. In line with Andy and Steve's opinion that mathematics is everything that surrounds humans. Humans often unconsciously perform mathematical operations in solving their life problems (Noyes, 2007; Muslim & Prabawati, 2020). It is further explained that mathematics is formed from human responses to their environment such as the results of experience, seeking explanations and solutions to the phenomena they encounter (Ernest et all, 2016; D'Ambrosio, 2007; Hartono & Putra, 2022). Many societies in the past have used mathematical concepts in their cultural acculturation. Mathematics exists and is formed due to the influence of the social environment, geography, and culture of the community in which they live (Utami, Sayuti, & Jailani, 2019; Ja'faruddin & Naufal, 2023). Therefore, people in the past who never learned mathematics formally, but they can apply mathematics concepts in their lives well (Pathuddin, Kamariah, & Nawawi, 2021; Aini, Hastuti, & Mariyati, 2023). This indicates that mathematics is seen as the result of human intellect in carrying out daily activities, so that mathematics is one of the cultural products.

Indonesia as an archipelago certainly has variety of tribes with its own culture, which if researched will not be separated from mathematics. One of the tribes in Indonesia is Mandar tribe. The Mandar tribe is an ethnic that inhabits West Sulawesi Province. The term Mandar is a bond between seven coastal kingdoms (*Pitu Ba'ba'na Binanga*) namely the kingdoms of Balanipa, Sendana, Pamboang, Banggae, Tappalang, Mamuju, and Binuang and seven mountain kingdoms (*Pitu Ulunna Salu*) namely the kingdoms of Rantebulahang, Aralle, Tabulahang, Mambi, Matangnga, Tabang, and Bambang which later strengthened each other in an agreement (*Sipamandar*) by their ancestors at Allewuang Batu in Luyo (Budiarto & Setianingsih, 2019).

The unification between the coastal kingdom and the mountain kingdom has given birth to a variety of cultures which later became the identity of the Mandar tribe. In Mandar society, there is culture known as *sibali parri* (Bahrum et al., 2019). This culture shows how the relationship and cooperation between husband and wife in supporting the economic strength of the family. When a husband is the main support of the family economy, the wife does not have to be passive to find additional income. Many wives in Mandar society such as in Balanipa, Limboro, and Tinambung Sub-districts seek additional income by weaving silk cloth or known as *lipa sa'be* Mandar (Bahrum et al., 2019).

Lipa' sa'be is a typical Mandar sarong always combined with traditional Mandar clothing (Reskiah et al., 2022). *Lipa' sa'be* Mandar is silk sarong woven from Mandar women. *Lipa' sa'be* is silk sarong that is still traditionally made using non-machine looms. The tool is functioned with the position of the weaver sitting on the floor called *manette*'. The process of weaving *lipa' sa'be* has always been done with tool called *parewatandayang*. Weaving skills have been passed down from generation to generation without formal education. For the Mandar people, weaving is profession that can only be done by women, especially housewives. *Lipa' sa'be* has smooth but stiff weave (Hadija & Yuniarti, 2022). Mandar

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weaving materials are produced from native silk worms or silk threads imported from India or China as producers of good quality silk threads. At first glance, Mandar weaving has similarities with silk woven fabrics from other regions in Sulawesi, but *Lipa' sa'be* Mandar has special characteristic in terms of patterns called *sure'* and *bunga* (Asmawati & Sari, 2020).

The classic pattern in *lipa' sa'be* Mandar is called *sure'*. *Bunga* is pattern that has been developed from classic pattern (*sure'*) by adding flora or fauna pattern so that it looks more attractive (Dahlan, 2013; Wahyuni & Suherman, 2023). The making of *sure'* and *bunga* pattern has their respective purposes according to the basis of economic standards, social culture, religion, and social strata (Ihwan, 2018).

The manufacturing process of *lipa' sa'be* Mandar is still done traditionally with several stages. They are yarn selection, yarn colouring process (*maccingga), maggalenrong, mappamaling, sumau', mappatama, and mannette* (Dahlan, 2013). At the yarn selection stage, the thread used in *lipa' sa'be* manufacturing is from silkworms. Next comes the yarn coloring stage, the traditional dyeing process generally uses four basic dyes, that is nila leaves to produce blue and black, *ka'lanjo* to produce light brown, mangrove bark to produce pink, and gamalo wood to produce dark brown. The coloured yarn is then wrapped around bamboo and tin cans called *maggalenrong*. The purpose of *maggalenrong* is to make the lungsi thread and then put it on a bamboo stick (*mappamaling*). After the lungsi yarn is ready, the next process is *sumau'* where the yarn is arranged to form the desired colour combination. The yarn has been arranged and formed a colour combination, then removed from the *sautan* and put into the *tandayang* to be woven. The weaving process (*manette*) uses tool called *parewa tandayang*.

The idea to use local culture (*lipa' sa'be*) in learning mathematics is in line with D'Ambrosio's opinion (2007) that mathematics was born as a form of human response to its environment to understand and solve its problems. In line with Rachmawati's (2012) opinion that mathematics is essentially not only taught but also practiced, especially those related to socio-cultural values. Therefore, one of the lessons that can be applied is learning that connects mathematics with culture, known as ethnomathematics.

Ethnomathematics is field of knowledge that explains the relationship between mathematics and culture (Pathuddin et al., 2021). Ethnomathematics is alternative learning approach that links students' everyday activities with formal mathematics concepts (D'Ambrosio, 1985; Nursyeli & Puspitasari, 2021). According to D'Ambrosio (2016) also Rosa & Orey (2016), ethnomathematics is way of people in community to learn mathematical concepts by combining ideas with methods or techniques with the aim of developing their civilisation. With ethnomathematics, it is possible to have similarities and differences in perspectives, ideas and methods between one community and another to learn mathematical concepts (D'Ambrosio, 1985; Nova & Putra, 2022). Ethnomathematics has two goals, namely:

recognizing cultural ideas and practices in communities and explaining the different ways of knowing quantity, space, and relations by communities as cultural actors (Albanese et al., 2017; Mulyani & Natalliasari, 2020). Therefore, learning with ethnomathematics helps students to learn meaningfully because it is in accordance with students' initial experiences (Astriandini & Kristanto, 2021; Diniyati et al., 2022). Furthermore, learning with ethnomathematics will encourage students to think critically, creatively and is motivated to learn mathematics and appreciate their culture (Prahamana & Istiandaru, 2021; Fauzi et al., 2023).

In Indonesia, various studies have been conducted on ethnomathematics. Study by Prahmana & Istiandaru (2021) was to learn the set theory through shadow puppet shows. Phatuddin et al. (2021) explored Barongko cake to find mathematical concepts such as concept of division, concept of space volume, and concept of congruence and similarity. Study on geometry concepts was by Dewi et al. (2022) in Keraton Kasunanan Surakata Hadiningrat and study by Fachrunnisa & Sari (2023) was on Batik Melati Kebon Village, Bayat. Finally, Hadija and Yuniarti (2022) found the concept of geometry in patterns of *lipa' sa'be* Mandar. However, there are still few studies that use Mandar culture, especially *lipa' sa'be* in mathematics learning. The researcher believes that *lipa' sa'be* Mandar is rich in mathematical concepts not only from the existing patterns but also from manufacturing process of *lipa' sa'be*. Therefore, this study aims to explore ethnomathematics in *lipa' sa'be* Mandar which will be the starting point for using Mandar culture in learning mathematics. On the other hand, by using Mandar culture as a learning approach, students will appreciate their culture more.

II. METHOD

This research is qualitative study using an ethnographic approach. The ethnographic approach was chosen because it is in accordance with ethnomathematics to explain ideas, methods, and techniques in community groups as cultural actors (Prahmana & D'Ambrosio, 2020). The purpose of this study is to explain ethnomathematics in Mandar *lipa' sa'be*. This research design uses the ethnomathematics research framework developed by Prahmana & D'Ambrosio (2020). The ethnomathematics research framework consists of four basic questions that are in accordance with the principles of the ethnographic approach. The four questions are: "where to start looking?", "how to look?", "what is it?", and "what does it mean?".

The data in this study were collected using observation, interview, and documentation methods. The data collected through observation is manufacturing process of *lipa' sa'be* Mandar, including the tools used, the stages of making, and types of *lipa' sa'be*. In addition, data were collected through interviews. The interview subjects in this study were community groups or housewives in Gulung Talu village, Balanipa distric, Polewali Mandar who work as *lipa' sa'be* weavers. Interview was also conducted with cultural activist groups in West Sulawesi. During the interview, researcher recorded and wrote any

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information from informants and took pictures as documentation. The data in this research was analyzed using 3 stages, namely: data reduction, data presentation, and drawing conclusions. The data in this study were also validated using the triangulation.

III. RESULT AND DISCUSSION

Focus of ethnomathematics in this study is lipa' sa'be Mandar as one of the Mandar tribe cultural identities. After studying lipa' sa'be Mandar in depth through observation, interviews, documentation, and literature review, it was found various mathematical concepts. Mathematical concept in lipa' sa'be Mandar is not only found in pattern but also in manufacturing process which still uses traditional tools. Furthermore, more detailed explanation of the mathematical concepts in lipa' sa'be Mandar is as follows.

A. Concept of Measurement

The following are the results of interview about measurement concept in *lipa' sa'be* Mandar.

Dialog 1

- *Researcher: what are the basic ingredients that must be prepared to make lipa' sa'be Mandar?*
- *Weaver: to make lipa' sa'be Mandar, we need silk yarn and dye.*
- *Researcher: what is the first step in making lipa' sa'be?*
- *Weaver: the first step is to boil the silk yarn by adding wood burning ash so that the silk yarn becomes smooth.*
- *Researcher: after that?*
- *Weaver: colouring the yarn (macingga). In the past, we used natural dyes but now we use chemical dyes.*
- *Researcher: to make one lipa' sa'be, how many lengths of yarn are needed?*
- *Weaver: one lipa' sa'be requires 7.5 benggol of yarn.*
- *Researcher: how many meters 7,5 benggol? 20? 30?*
- *Weaver: benggol is actually heavy. But one original lipa' sa'be needs 15 benggols of yarn.*
- *Researcher: After that?*
- *Weaver: the next process is maggalenrong. Maggalenrong is the process of winding the yarn into galenrong and roeng. The purpose is to prepare the lungsi yarn.*
- *Researcher: Is there a length requirement between the lungsi yarns that must be digalenrong to make lipa' sa'be?*
- *Weaver: usually the lungsi yarns that galenrong has width from 50-75 cm for lipa' sa'be which have high 100-150 cm.*

Making one *lipa' sa'be* requires 7.5 *benggol* of silk yarn consisting of lungsi and pakan yarn. Based on the results of the interview, one *benggol* of yarn is a measure of yarn weight. Another literature revelas that, *benggo*l is actually an old coin used during the Dutch government. For some reason, Mandar society or people who work as weaver call this coin with *benggol*. Even though the coin only says $2\frac{1}{2}$ cent. From various sources, it is said that the coin depicts Dutch Kingdom symbol with inscription of 19 and 45. On the other side, there are Javanese and Arabic letter. One *benggol* usually has weight of 12 up to 12.5 grams. In Mandar society, *benggol* currency plays important role in the silk trade. Not only as a measure for yarn transactions, but even as a scale for buying dyes. In Mandar society, buying *lipa' sa'be* is still found by

using *benggol* size. Based on the interview and description above, the mathematical concept in this activity is the concept of measurement. For example, one original *lipa' sa'be* Mandar requires 15 benggol of yarn. 1 benggol = 12 grams, so one lipa' sa'be needs at least = 15 x 12 = 180 grams of silk yarn.

Meanwhile, to make one lipa' sa'be Mandar with height of 100-150 cm, the rolled lungsi yarn must have a width of 50-75cm, or if illustrated by the equation, namely:

$$N = 2L$$

where N = the height of the lipa' sa'be and L = the width of the lungsi yarn.

B. Concept of Circle Tangent Line

The following are the results of interviews about the concept of the tangent line of the circle in *lipa' sa'be* Mandar.

Dialog 2

- *Researcher: what's the next step?*
- *Weaver: the next step is mappamaling. Mappamaling is the process of transferring the lungsi yarns from the galengrong to pamalingan tool (while showing the tool).*
- *Researcher: what is the name of pamalingan tool?*
- *Weaver: this is the large circle called paindoengdongan. While the small one is called belle'- belle' or usually also replaced with large pipe.*

Here's picture of the *mappamaling* tool.

Figure 1. Paindoengdongan

Figure 2. Belle'-belle'.

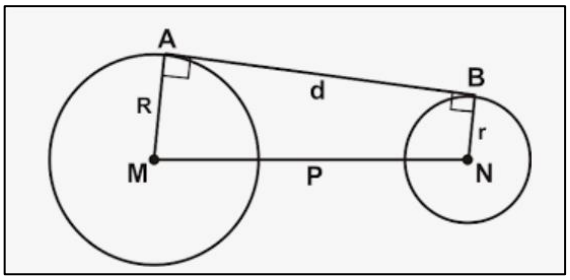

Figure 3. Ilustration of Pamalingan Tool

Based on the Figure 1 and Figure 2, we can make representation of the shape circle tangent line like as Figure 3. It can be used to teach the properties and formulas of the circle tangent line; especially common tangent two circles are as follow.

- The tangent of circumference is perpendicular to the radius of the circle through tangent point
- Through one point on circle only can make one circle tangent line
- Through a point outside the circle, two tangents to the circle can be drawn.

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- The length of the tangent drawn from a point outside the circle to the tangent point is same.
- There are 2 types of tangents to circles, namely common tangent and transverse common tangent two circles.
- The length of common tangent two circles in Picture 3 is

$$d^2 = p^2 - (R - r)^2$$

C. Concept of Set

The following are the results of the interview on the concept of set in *lipa' sa'be* Mandar.

Dialog 3

- *Researcher: what is the steps after maggalenrong?*
- *Weaver: Sumau' and Mappatama. Sumau' is the step of inserting the lungsi yarns into a device called a sautan. The lungsi yarns are inserted vertically into the sautan. While, mappatama is the process of winding lungsi yarns on the pamalu board.*
- *Researcher: what is the purpose of the mappatama process while the activities are almost the same as sumau'?*
- *Weaver: mappatama is the process of moving the lungsi yarns into the tandayang or loom after it has been finished in sau'. After that, the last process is weaving or manette. The manette is process to make pattern of lipa' sa'be Mandar with combining lungsi yarn and pakan yarn.*
- *Researcher: How many patterns of lipa' sa'be Mandar are there?*
- *Weaver: there are two, namely sure and bunga.*
- *Researcher: what is the difference between sure' and bunga?*
- *Weaver: (while showing lipa' sa'be) Sure is pattern of shapes such as squares, straight or curved lines. While bunga patterns add shapes such as flora, fauna, or other shapes.*
- *Researcher: How many types of sure and bunga?*
- *Weaver: there are sure parara, sure salaka, sure puang lembang, sure mara'dia etc. And for bunga, there are pakka'-pakka', parabola, bunga rui', bunga tallu, etc.*

Here's picture of Sure' and Bunga.

Figure 4. Sure mara'dia

Figure 5. Sure' puang lembang

Figure 6. Bunga pakka'-pakka'

Figure 7. Bunga parabola

Based on dialog 3, *lipa' sa'be* Mandar has some pattern. Picture 4 and Picture 5 are pattern of *lipa' sa'be* Mandar called *sure*. While Picture 6 and Picture 7 are another basic pattern called *Bunga*. Pattern of *lipa' sa'be* Mandar can be used to learn set theory. Suppose U is the set of *lipa' sa'be* Mandar pattern, then the set can be denoted as follows.

U = {x | x is *lipa' sa'be* Mandar pattern}

Furthermore, suppose the set of sure patterns is denoted by S and the set of bunga patterns is denoted by B then:

S = {$sure\ parara$, $sure\ salaka$, $sure\ mara'dia$, $sure\ puang\ lembang$, … }

B = {$pakka' - pakka'$, $parabola$, $bunga\ rui'$, $bunga\ tallu$, … }

In another source it is explained that, the classical lipa sa'ba Mara'dia patterns or sure simemangan consists of twelve patterns (Asdy, 2007). They are *sure pangulu, sure mara'dia, sure puang lembang, sure puang limboro, sure batu dadzima, sure padzadza, sure' salaka, sure bandera, sure peja'-peja', sure' gattung layer, sure' janga-janga*, and *sure' beru-beru*.

Ihwan (2018) reveals that *sure'* and *bunga* patterns are made with their respective purposes according to the basis of economic standards, socio-culture, religion, and social strata. For the example, *sure'* which is made for *mara'dia* (king) and nobility, namely; *sure' pangulu, sure mara'dia, sure' puang limboro, sure' puang lembang*. Therefore, nobility *sure'* set can be written as follows:

King and nobility sure' = {sure' pengulu, sure' mara'dia, sure' puang limboro, sure' puang lembang}

Suppose M is king and nobility *sure'*, so the set can be denoted as follows.

M = {x ∈ U | x is *lipa' sa'be* Mandar pattern for king and nobility}

On the other hand, there are also *lipa sa'be* Mandar pattern made for groups or worn by dancers (*pattu'du*). For example, *sure padzadza, sure 'batu dadzima*, and *sure' bandera*. Meanwhile, common people use *lipa' sa'be* with pattern of *sure' peja-peja, sure' janga-janga, sure' gattung layar*, and *sure' beru-beru* (Asdy, 2007). The explanation can be written in set form as follows.

Sure' pattu'du = {*sure' padzadza, sure' batu dadzima, sure' bandera*}

Common people *sure'* = {*sure' peja-peja, sure janga-janga, sure gattung layer, sure beru-beru*}

Suppose P is set of *sure' pattu'du*, so the set can be denoted as follows.

P = {x ϵ U | x is *lipa' sa'be* Mandar pattern for *pattu'du*}

Suppose Q is set of common people *sure'*, so the set can be denoted as follows.

Q = {x ϵ U| x is *lipa' sa'be* Mandar for common people}

In another explanation, it is mentioned that there are *sure' pattu'du* made specifically for nobility women (*sure' pattu'du towaine*).

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These include: *sure' padzadza tanditole, padzadza magawu, sure' padzadza mamea, sure' padzadza malotong, sure' padzadza bunga*. Therefore, the set can be written as follows.

Sure' pattu'du towaine = {sure' padzadza tanditole, padzadza magawu, sure' padzadza mamea, sure' padzadza malotong, sure' padzadza bunga}

Suppose T is the set of *sure' pattu'du towaine*, so the set can be denoted as follows.

T = {x ϵ U | x is *lipa' sa'be* Mandar for *pattu'du towaine*}

Based on the description about *lipa' sa'be Mandar* pattern, it can be used to learn the concept of set operations, namely subset, union, intersection, and complement. For example, according to the explanation above, it is known that the set of *sure' pattu'du towaine* is part of *sure' pattu'du*. Therefore, all members of *sure' pattu'du towaine* become member of *sure' pattu'du*. Or it can be written as follows.

Sure' pattu'du towaine $\subset$ sure' pattu'du

or

$$T \subset P$$

Next is the union. The concept of union is combination all members of the two sets. Union concept can be found in lipa sa'be Mandar pattern namely *sure'* and *bunga*. It Ian be written in the form of a set as follows.

Lipa' sa'be Mandar pattern set = *sure'* pattern set $\cup$ bunga pattern set

or

$$S \cup B = U = \{x \mid x \in S \text{ or } x \in B\}$$

Intersection is defined if there are two sets so the member which belong to both. In *lipa' sa'be* Mandar pattern, the concept of intersection can be seen as follows.

sure' pattu'du towaine $\cap$ *sure' pattu'du = sure' pattu'du towaine*

or

$$T \cap P = T = \{x \mid x \in T \text{ and } x \in P\}$$

Furthermore, concept of complement is all the objects that are not members of the defined set. For example:

$nobility\ sure'^{\,c}$ = *common people sure'*

$$M^c = Q$$

In addition, there is empty set concept on the purpose of manufacturing *lipa' sa'be* Mandar patterns. As it is known that *sure'* is a style of *lipa' sa'be* that is made one of them by looking at one's position. Nobility Sure' is made only for use by *mara'dia* (kings) and nobility. Therefore, this type of sure' in the past could not be used by common people.

Sure' for king and nobility $\cap$ *sure'* for common people = $\emptyset$

or

$$M \cap Q = \emptyset$$

Mandar society are the largest tribe that inhabits West Sulawesi. The culture created in Mandar society is influenced by the place where they live. As a society that mostly inhabits the coast, making Mandar people mostly work as fishermen. When Mandar men (husbands) go to sea for days, weeks, even months, Mandar women (wives) are looking for busyness by making *lipa' sa'be* Mandar. The purpose is not only to fill empty time but also to find additional income to jointly support the family economy.

Making *lipa' sa'be* Mandar is culture that has been passed down from generation to generation. Since childhood, Mandar

women have been trained to be able to make *lipa' sa'be* Mandar. Without realizing it, manufacturing process of *lipa' sa'be* Mandar is rich in mathematical concepts. These mathematical concepts are certainly not formally learnt, but Mandar women have been able to use them in *lipa' sa'be* Mandar. Nevertheless, they do not know exact name/term of mathematical concept.

Based on the exploration of *lipa' sa'be* Mandar, it was found that there are several mathematical concepts. These concepts include the concept of measurement, the concept of circle tangent line, and the concept of set. This proves that mathematics is form of representation of behaviour and culture of particular community (Palinussa, 2013). Mathematics will always be close to human life. In line with Noyes (2007) opinion that people often apply mathematical concepts without realizing it.

In line with students' assumption that mathematics is difficult subject. These condition makes student to feel anxious when they have to learn mathematics. As a result, students will feel that mathematics is unimportant and unnecessary for their lives (Hendriana et al., 2019). Ethnomathematics can be an alternative learning approach that can be applied by teachers to solve these problems (Abdullah, 2017). Teachers are expected to create a learning atmosphere that is fun but meaningful for students. For the example, teachers can use local culture in learning mathematics. The culture that can be used is local culture that is close to students' daily lives. The use of local culture in learning mathematics, not only creates fun learning, but can also motivate them to understand mathematics well. With ethnomathematics, students will think that "their parents never studied mathematics formally but they could use mathematics well without school, so they must also understand mathematics well".

Several previous studies have proven that learning developed based on exploration of ethnomathematics in local culture is able to increase students' interest and achievement in mathematics (Nasrullah & Zulkardi, 2011). Nasrullah & Zukardi (2011) used one of the traditional games of South Sulawesi to teach the concept of number operations. Another study by Risdiyanti et al. (2019) used the Kubuk Manuk game to design learning on social arithmetic material. Finally, the study used shadow puppet show and Mahabrata story to design a learning trajectory to learn set theory (Risdiyanti & Prahmana, 2021).

If we Compare with the results of previous study, the results of this study to equip ethnomathematics study on local cultures in Indonesia. The focus of this study is exploring mathematical concepts in *lipa' sa'be* Mandar. It does not rule out the possibility that investigations in other Mandar cultures, even in *lipa' sa'be* Mandar will find many mathematical concepts. Cultural exploration once again proves that mathematics is very close and needed by humans. There is no reason not to apply and practice mathematics as part of life (Prahmana & D'Ambrosio, 2020) and ethnomathematics becomes bridge to connect and understand mathematics through culture.

IV. CONCLUSION

Ethnomathematics is bridge to connect culture and mathematics.

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Ethnomathematics is one way of understanding mathematics through cultural diversity in various regions. One of the cultures in Indonesia is *lipa' sa'be* Mandar. In manufacturing process and patterns of *lipa' sa'be* show that Mandar people have applied various mathematical concepts. Mathematical concepts namely: the concept of measurement, especially weight, concept of circle tangent lines, and concept of sets. The results of the exploration of mathematical concepts on *lipa' sa'be* Mandar can be starting point for teachers to design fun and meaningful mathematics learning based on local culture. In addition, it is hoped that in the future there will be other studies that explore other Mandar cultures as a reference for learning other mathematics concepts.

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AUTHORS BIOGRAPHY

Aprisal, M.Pd.

Lecturer in the Mathematics Education Study Program at the University of West Sulawesi. Graduated from S1 in Mathematics Education at Makassar State University in 2014 and graduated from S2 in Mathematics Education at Yogyakarta State University in 2018.

Sartika Arifin, M.Pd.

Lecturer in the Mathematics Education Study Program at the University of West Sulawesi. Graduated from S1 in Mathematics Education at Universitas Muhammadiyah Makassar in 2014 and graduated from S2 in Mathematics Education at Makassar State University in 2017.