**Differences in Ethnomathematical Characteristics between Buton Traditional Houses**

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**Abstract.** The mathematical practice of the Buton people can be seen from the ethnomathematics of the Buton traditional house. This qualitative study aims to explore the differences in ethnomathematical characteristics between Buton traditional houses. The subjects of this study were 3 traditional leaders and 3 builders of Buton traditional houses. Data were collected through measurements, interviews, and observations of the traditional Buton house in Baubau city, the capital of the Buton kingdom, Indonesia. The credibility of the data was tested by using triangulation of sources. Data were analyzed descriptively qualitatively from Miles, Huberman, and Saldana in the form of data condensation, data presentation, and conclusions. The results of data analysis showed that the differences in the ethnomathematical characteristics of the three Buton traditional houses can be seen from the size and area of the house, the angle of the roof and stairs, the arrangement of the roof, the number of poles, the number of rooms, the model of the house, and the type, model, and the number of windows used. Teachers need to know the differences in ethnomathematical characteristics so that they can be used to increase students' active participation in learning mathematics in class.

**Keywords:** ethnomathematics, characteristics, Buton traditional Houses

1. **Introduction**

Each region has the potential that characterizes and is the pride of an area, the cultural potential developed from the habits of the people and is still being found today. For the Buton community, this potential can be in the form of cultural sites such as the traditional house-building of the Wolio Palace fort, traditional games, woven fabrics, shipbuilding, traditional snacks, and traditional ceremonial equipment/equipment. The mathematics that develops as a human activity of a society is known as ethnomathematics [1]. Ethnomathematical activities can be found in various cultural activities of each tribe in Indonesia such as the ethnomathematical activities of the Sundanese people in rural areas in using units of measure, mathematical modeling, and the use of clock symbols [2]. This ethnomathematical potential is getting lost and eroded by the times if it is not introduced to students. The researcher's initial study with the team found that learning mathematics at school did not use the ethnomathematics of the Buton traditional house as a context for mathematics, even though the Buton traditional house is very rich in the concepts of geometry and values. From various discussions and existing literature, it was found that the low use of ethnomathematics in mathematics learning was caused by the absence of teaching materials/books to link various mathematics materials with ethnomathematics, especially related to the Buton traditional house. As a result, the learning of mathematics learning is less meaningful and causes the students' mathematical and literacy skills below. The lack of mathematical and literacy skills hinders the development of mathematics learning...
in schools. One of the efforts that can be done to develop students' literacy skills is through the use of ethnomathematics in learning mathematics [3]. One of the efforts used to develop students' mathematical literacy skills is to use an ethnomathematics-based learning model because it turns out that the use of this ethnomathematical-based learning model can develop students' mathematical literacy skills better when compared to conventional learning [4]. This research was conducted to explore the potential of the ethnomathematics of the Buton traditional house to be developed as a reference source in the ethnomathematical learning of the Buton traditional house. Ethnomathematics in question is mathematics that is known and practiced in the cultural practice of the Buton community. As local wisdom, this ethnomathematical potential has begun to be less known, understood, utilized, and preserved by the Buton community.

The ethnomathematical potential of the Buton traditional house will be lost and eroded by the times if it is not introduced to students. The results of the research team's initial research showed that teachers did not take advantage of the ethnomathematical potential of the Buton traditional house when teaching mathematics in schools. The results of the research shows that there are three reasons why the ethnomathematics of the Buton traditional house is not used in mathematics learning, namely (1) the teacher has not been able to connect the ethnomathematical potential of the traditional house with mathematics material at school, (2) the teacher does not understand how to connect the ethnomathematical potential in learning mathematics in schools, and (3) the absence of validated teaching materials containing the ethnomathematics of the Buton traditional house. Should attract the attention of students in each lesson, teachers can take advantage of the various potentials of local wisdom that exist around students such as the traditional Buton house. When viewed from the structure and parts of the Buton traditional house, it appears that the Buton traditional house contains many ethnomathematical concepts that can be used in learning mathematics in the classroom. Teachers can use the ethnomathematics of the Buton traditional house to develop interesting, useful, and challenging learning. The use of ethnomathematics in learning can develop students' problem-solving skills through self-reflection in planning, monitoring, and evaluating the implementation of the thinking process. This activity can be carried out through the use of ethnomathematical parts of the Rejang Lebong traditional house [5].

Several research results have shown that the use of ethnomathematical learning can improve mathematical connection skills [6], students' motivation to learn mathematics [7], improve students' mathematical literacy skills [8], improve student learning outcomes [9], effectively improve mathematical problem-solving abilities and mathematical critical thinking [10]. This means that the use of ethnomathematics is very helpful for teachers and students to achieve the objectives of learning mathematics. The potential of ethnomathematics can be arranged in the form of teaching materials, contextual problems, or learning media. Because there are no ethnomathematical-based mathematics teaching materials for the Buton traditional house, this is an opportunity for teachers and learning curriculum developers to develop mathematics teaching materials based on the ethnomathematics of the Buton traditional house both for use at the elementary school level and the secondary school level. When viewed from the construction of each part of the Buton traditional house, it can be seen that the Buton traditional house has many geometric shapes and other concepts that can be used as contexts or media in learning mathematics in the classroom because this is very influential in improving various students' mathematical thinking skills, such as creative thinking skills. Students' mathematical creative thinking ability can be significantly improved through the use of ethnomathematical learning [11].

The lack of mathematics teaching materials that link mathematics material with ethnomathematical concepts, especially the Buton traditional house causes teachers to be unable to use ethnomathematical-based learning in the Buton traditional house which indirectly has an impact on the low learning activity of students during the mathematics learning process in the classroom. The low activity of students has an impact on the low mathematical skills of students and indirectly hampers the development of mathematics learning in schools. Therefore, it is necessary to study the ethnomathematical characteristics that exist in each Buton traditional house which can be used as a reference source for learning mathematics based on the ethnomathematics of the Buton traditional house. This study was conducted to know the differences in ethnomathematical characteristics between the Buton traditional house
2. Method
This qualitative study aims to explore the differences in ethnomathematical characteristics between Buton traditional houses. The subjects of this study were 3 traditional Butonese leaders and 3 builders of Buton traditional houses. All subjects in this study were male with the age of 50 - 65 years. Data were collected through observation, direct measurement, and interviews. Observations were made by recording and documenting several Buton traditional houses in Baubau city, Southeast Sulawesi province Indonesia. Baubau city was chosen as the research location because it is the capital of the Buton kingdom and in this location can still be found various types of Buton traditional houses from several generations since the sultanate. The existence of these traditional Buton houses can be used to answer this research question. To complete the observation data, interviews were conducted with community leaders and builders of Buton traditional houses who also understand the philosophy of Butonese traditional house construction. The interview guide has gone through a validation process by evaluation experts and the history of Buton so that it can be relied upon to reveal the data needed to answer the problems of this research. The ethnomathematical data obtained were then verified through measurements of several parts that differentiated between the Buton traditional houses. The credibility of the data was tested by using triangulation of sources. The data obtained were analyzed descriptively qualitatively through data condensation, data presentation, and conclusions [12].

3. Result and Discussion
3.1 The types of Buton traditional houses
Buton traditional house is called *bhanua tada* (right house) which can be distinguished according to the social status of the owner. Based on the social status of the owner, the Buton traditional house can be divided into three types, namely (1) *Kamali* (the king's house or palace as well as the residence of the king or sultan and his family). The palace for the Buton kingdom is not single because each sultan has his own house called *Kamali* or *malige*. So, in the Buton kingdom, if someone is appointed as Sultan, the house in question will be changed in status and specifications to become a *Kamali* or palace. In this case, every Buton palace must have a special room for the sultan which characterizes the palace which distinguishes it from a house that is not a *Kamali*. This special room is called *katukona paa* or *galampana kamali*. This room is the courtroom used by the sultan when there are meetings at the palace. This room is located on the front or terrace of the house. (2) *galampa pangka* which is the house occupied by the top officials of the royal palace. The top officials of the Buton royal palace are divided into six groups, namely *sapati* (prime minister), *kenepulu* (people who help *Sapati* to handle certain cases), *lakina*, *capitalao*, *bhonto Ogena*, and *Imam* of the Grand Palace mosque, and (3) *bhanua* (house), namely the house of ordinary people. All these types of traditional Buton houses adhere to the concept of *bhanua tada* (elbow house) with all its forms and variations according to the social status and abilities of the owner. The main differences in the ethnomathematical characteristics of the three houses are in terms of size and model. In general, the size of the *Kamali* palace is larger than the size of the *galampa pangka* house and the size of the general public's house. The general public house is the smallest in the Buton traditional house structure. The three types of Buton traditional houses can be seen in Figures 1, 2, and 3 below.

![Figure 1. Kamali](image1.png)

![Figure 2. Galampa pangka](image2.png)

![Figure 3. Bhanua](image3.png)
Based on Figures 1, 2, and 3 above, it can be seen that there are some differences in ethnomathematical characteristics between the three types of traditional Buton houses. These differences can be seen from the model, size, roof arrangement, number of floors, windows types, number of poles, angle or slope of the roof, and the slope of the stairs.

### 3.2 Differences in the ethnomathematical characteristics of the Buton traditional houses

Differences in the ethnomathematical characteristics of the Buton traditional houses are presented in Table 1.

**Table 1. Differences in ethnomathematical characteristics between Buton traditional houses**

| No | House types | Number of floors | Roof shape | Numbers of front poles | Numbers of plot | Total poles | Roof angle | Stair angle | Number of stairs |
|----|--------------|------------------|------------|------------------------|----------------|-------------|------------|-------------|-----------------|
| 1  | *kamali*     | 4                | 2 stacks   | 4                      | 5, 7, 9 (odd)  | 24 – 44     | 30° - 40°  | 30° - 40°   | 11 – 13         |
| 2  | *galampa*    | 3                | 2 stacks   | 4                      | 3 – 5          | 16          | 40° - 50°  | 40° - 50°   | 7 – 11          |
| 3  | *bhanua*     | 2                | 1 stack    | 3                      | 2 – 3          | 9           | 45° - 50°  | 45° - 75°   | 5 – 7           |

Based on Table 1, it can be seen that there are several differences in the ethnomathematical characteristics of the three types of traditional Buton houses. The most prominent differences are the differences in the shape of the roof, the difference in the size of the height of the house, and the difference in the variation of the house. The difference in the shape of the roof of the three types of houses can be explained as follows. The roof of the *Kamali* house has two layers [13] and also has gaps and spacing [14]. The meaning of this two-tiered roof arrangement is as a manifestation of the sultan's responsibility as a religious and royal leader. The roof of the *Galampa Pangka* house which is the official terrace house of the Sultanate of Buton is also double or double-layered but is not spaced or there is no gap between the two roof structures. The roof of the duplex sultanate official house is a symbol of the sultan and the protector of the people's servants. The shape of the roof of the house of the general public is only one pile which is also called a gable [14] and asymmetrical roof [13]. In addition, the main differences between the three types of traditional Buton houses are the number of floors, the number of front pillars, the number of plots, the number of poles, the angle of the roof, the angle of the stairs, the number of steps, the shape of the attic, the model of the window, and the variation of the house. These differences also cause differences in the size of the house. Because the number of different poles of course also causes the number of house lots and rooms and their designations to be different. However, when viewed from the structure of the three houses, it can be seen that there are specific differences in the size of the parts of the house and the ethnomathematics used.

The differences in the characteristics of these three types of houses can be understood by every Buton community. This means that every Buton community can distinguish between the types of official houses and ordinary people's houses just by looking at some of the outsides of the house. It can even be known whether the house is Buton's house or not. Because every Buton house has the characteristics that distinguish it from other traditional houses. For example, the wallboards of other traditional houses are only installed side by side or layered, while the wallboards of the Buton traditional house are mounted clamped to each other on each side or at the top and bottom so that they are very strong.

This ethnomathematical practice has been going on for many years and is still being maintained today. This can be proven by the expression that if a Buton community builds a house but the house is not by the social status of the owner, then the house and the person who built the house become the subject of discussion which in Buton is known as the *komenteaka* (surprised). In addition to these differences. Other differences in the ethnomathematical characteristics of the three Buton traditional houses can also be seen in Table 2.
Table 2. Differences in ethnomathematical characteristics between Buton traditional houses

| No | House Types | Owner status  | Number of floors | Pole shape | Attic shape | Windows Model | House variation |
|----|-------------|---------------|------------------|------------|-------------|---------------|----------------|
| 1  | Kamali      | King          | 4 squares        | both sides have attic and bosu-bosu | two windows on each side and front of the house | two shutters | there are pineapples and dragons on the roof of the house |
| 2  | Galampa pangka | The sultanate's office | 3 squares |  | On each side of the room and the front wall of the house, there are two shutters |  | there is only pineapple decoration without dragons on the roof of the house |
| 4  | Bhanua      | general public | 2 tube         | No wing attic | On each side of the room and the front wall of the house, there is only one single window |  | No variation |

3.3. Discussion
Buton people have practiced mathematics in constructing Buton traditional houses. This means that the Buton community carries out mathematical activities as part of their mathematical cultural activities. This shows that mathematics is a cultural system [15]. However, the mathematical practice of the Buton community is not written symbolically in mathematical expressions. Buton people only memorize and understand together the mathematical rules because they have become general rules that can be known by Butonese builders as well as Buton community leaders. So, when making houses, these builders understand what they have to do and what size they should use according to the condition of the owner's body size. This can be traced to the same statement from the respondents of this study. The ethnomathematical practices used to build the three houses can be distinguished in several ways such as the use of different angle sizes, differences in the size and size of the house, differences in roof arrangement, number of poles, and multiple windows as shown in the table above. The difference in the size of the angle in the Buton traditional house. The concept of a corner in a traditional Buton house. The concept of the angle used by the Buton community in building houses is a right angle which can be seen from the name of the Buton traditional house itself, namely bhanua tada (right house). This right angle is maintained in all parts of the house and the parts that attach to it because the concept of this right angle is the main requirement in building a Buton traditional house so that it remains solid and does not wobble or tilt. The concept of a right angle can be seen in Figure 2.
Each part of the Buton traditional house has its name in the Buton language (Wolio) and also has a function and meaning. The use of the term Buton (Wolio) to emphasize that the language used is the official language or unifying language at the center of the Buton sultanate, namely the Wolio language. As explained by the informants that in the kingdom of Buton many regional languages are used by the community to communicate daily. Based on data collected by the team of the Center for Language Research and Development, in the kingdom of Buton, 16 languages are used by the people in communicating. However, there is one language that must be mastered by every official in the Buton kingdom, namely the Wolio language used by the Buton people at the center of the Buton sultanate, in Wolio Baubau.

From Figures 4, 5, and 6 it appears that the models of these three types of Butonese houses are different. The difference can also be seen from the height of the house, it appears that Kamali is taller than galampa pangka and also bhanua. Kamali also has more variety than the other two types of houses and even the general public house has no variation at all. In its current development, the houses of the general public have also been varied according to the wishes and abilities of the homeowners. The thing that needs to be considered in making variations of the Buton house is that the variation must not violate the existing rules in Buton. For example, only the sultan's house may use the pineapple and dragon symbols on the front and back ends of the roof of the house. Pineapple is a fruit that characterizes the Buton community which symbolizes tenacity in facing various challenges of life, welfare, and adaptability so that they can adapt to the environment wherever they are. Pineapple is a plant that is easy to grow and does not wilt easily even if it is planted in dry soil and even in extreme weather conditions. The crown-shaped petals on the pineapple show the greatness of the Sultan and only the sultan must be an umbrella. Pineapple fruit is also not developed based on seeds which means that the kings in Buton are not inherited based on lineage, but are chosen by a special institution in the Buton kingdom which selectively chooses a sultan who will lead the Buton kingdom. This is certainly different from other kingdoms which base their lineage as the heir or successor to the king in the kingdom. While the dragon shows the power, greatness, and glory of the kingdom. This dragon symbol is used as a sign and belief that the ancestors of the Buton people have ties to China. In the history of Buton, it is mentioned that one of the important figures in the history of the founding of the Buton kingdom was Dungku Cangia or Kun Khan Ching who had the title Dung Kung Sang Hiang, a Chinese Muslim who was stranded in Johor and a warlord of the Chinese emperor Kubilai Khan. For those two pineapple and dragon symbols, only Kamali is allowed to use the pineapple symbol. In addition to the pineapple and dragon symbols, another symbol that can only be used on the Kamali and galampa pangka houses is the presence of butun or bosu-bosu in the bhat\(\text{e}\) or attic of the house's wing. Houses of the general public are not allowed to use bhat\(\text{e}\) let alone install bosu-bosu on the wings of their houses. This bhat\(\text{e}\) is identified with a person who has a waist so that because only an official has a waist, the attic of a house wing can only be owned by an official's house, including Kamali, the house of the general public may not have a bhat\(\text{e}\). The shape of this bhat\(\text{e}\) section also differs between these three types of houses. The form of bhat\(\text{e}\) on Kamali is also called tangkebala which has a larger size than bhat\(\text{e}\) on galampa pangka. The bhat\(\text{e}\) in this Kamali is shaped like a block room equipped with rectangular windows. While the surface of the bhat\(\text{e}\) on the galampa pangka is trapezoidal so that
the overall shape is a trapezoid. In public houses, this bhate is not made but prepared because it becomes an important part to hold the end of the roof and is also directly related to the pillars of the sidewalls of the house. This section is also related to the tananda or the place where the tutumbu or the great pole is placed in the Buton traditional house.

In Figures 4, 5, and 6 it can also be seen that these three types of houses have different roof slopes. This is intended to beautify the appearance of the Buton traditional house in addition to the aspects of authority and comfort. It can be seen from the three pictures that the higher the roof of the house, the lower the slope, which means that it is more comfortable when completing the installation of the roof of the house. From table 1 it can be seen that the slope of the roof of the Buton house is between 30°-50° while the slope of the stairs is between 30°-75° so that it is still on the ideal slope of the ladder to use. However, the slope of the stairs is closely related to the height of the house and the number of steps used. The number of stairs used by the Buton people is odd, namely 5, 7, 9, 11, and 13, so the slope of this ladder is closely related to the comfort of the users of the stairs. The smaller the angle of inclination of the stairs, the more steps are used so that the user becomes uncomfortable because the stairs are too long. Therefore, the Butonese when building a house pay close attention to the slope of the stairs, the length of the stairs, and the number of steps used. This is very important to be sought by craftsmen when making household stairs. Buton stairs are very often used by women because in Buton there are quite a lot of traditional ceremonies involving women. At each of these traditional ceremonies, women use sarongs so that if the slope and number of steps are not considered, it will greatly disturb the comfort of the stair users to climb or descend the stairs of the stilt house. Therefore, every handyman needs to pay attention to making this household ladder for the comfort and safety of its users.

Differences in the Buton traditional house can also be seen from the number of pillars and house plots, the size of each house plot, and the position of the floor. Based on the data obtained, it can be said that based on the number of front poles, Buton houses are only divided into two types, namely bhanua tadha tare pata pale (four-poster houses for official houses) and bhanua tadha tare talu pale (three-poster houses for general public houses). The total of all the pillars of the house then forms a house plot which is also always an odd number, which is 3 - 7 plots. 3 plots for public houses, 5 plots for official houses, and 7 plots for the sultan's house. The difference in the number also indicates the difference in the size of the house as explained above that the sultan's house is larger than the official's house and the ordinary community house, so of course, it affects the difference in the number of poles and the number of plots or spaces that exist in each type of house.

The slope of the stairs in each of the Buton traditional houses above is also different. The difference in the slope of the stairs can also be seen from the position of the stairs. If the ladder is in front of the house, then in general the slope of the ladder forms an angle of 40° - 42°. The size of the slope of this ladder is still at the ideal slope of the ladder because it is still in the slope range of 25°-45°. However, if the ladder is on the side of the house or even inside the house to access the attic space, the angle formed becomes larger, above 45° because this side ladder is rarely used by many people and is only used by people at home or close family. Likewise, the stairs in the house to access the attic of the house, these stairs are steep enough so as not to block access and traffic of people inside the house. The slope of the stairs in this house can even reach > 70°. The two side stairs and the inside of this house are of course different in function and frequency of use compared to the front stairs of the house. The front staircase is the part of the house that is mostly passed by both homeowners and by other people, especially mothers to make it more comfortable to walk. This is important because in Buton there are quite a lot of traditional ceremonies and those who play a large role in these activities wear a sarong (Buton woven cloth) so that with this ideal slope it is considered quite comfortable for everyone to ride it or pass it.

Based on the description above, it can be said that there are indeed differences in ethnomathematical characteristics between Buton traditional houses. The differences in ethnomathematical characteristics that can be quickly seen are the ratio of the size and area of the house, the arrangement of the roof, the number of pillars, and the number of windows used.

However, they are different, but all types of Butonnese traditional houses use the same principle, which is to maintain the concept of elbows, as the name implies (bhanua tadha right house) so that
even though the Butonnese house has been standing for quite a long time, even hundreds of years, the Buton traditional house is still standing strong to this day. One of the pieces of evidence that can be used as a basis is the still-standing of the Kamali Bata Palace which was built in 1880 or is now 141 years old. Kamali bata is the house or palace of Sultan Muhammad Umar (the 32nd Sultan of Buton) who ruled in 1886 – 1906, the Kamali Bata Palace is still standing firmly and majestically in the Melai village, Murhum district, Baubau City and is in the fortress of the Buton Palace. The Kamali bata can be seen in Figure 7.

![Figure 7: Kamali Bata in Baubau built in 1980.](image)

Based on the description above, it can be said that the Buton traditional house characterizes the local wisdom of Buton. An important finding from this research is that the Buton traditional house is unique and different from the traditional houses of other kingdoms or sultanates in Indonesia and even abroad. In terms of appearance and construction, from afar we can already tell that a house is a traditional Buton house or not. It is even clearer if we approach and pay more attention to the construction details and characteristics of the house, it will be more clearly different from other traditional houses. Buton's traditional house is called bhanua tadha (right house) because the construction of this house always maintains the concept of a right angle in all its parts so that it is not easy to collapse even in a very long period. Another uniqueness of the Buton traditional house is that all existing connections in the construction of traditional Buton houses do not use iron or similar elements. All the pegs used are of the same type of wood with which the wood is joined or glued or linked. The types of wood that are widely used in building Buton traditional houses are teak wood and ironwood (wola). In addition, all parts of the Buton traditional house are made of wood without any elements of iron or the like, and each meeting of the parts that form the same type of wood, the same type of wood is used so that it has the same expansion and shrinkage strength so that it remains strong for a very long time. This is very important in the manufacture of Buton traditional houses because the expansion and shrinkage properties of wood are not the same for each type of wood so that the same wood is used to make it the same.

The human activity that is in contact with the form of culture in the third form and is related to human activity is a mathematical phenomenon consisting of six basic mathematical activities such as counting, locating, measuring, designing, playing, and explaining [17]. For the people of Buton. The basic activities carried out are not only limited to these six activities because two additional activities also play a very important role in every daily activity of the Buton people, including building houses, namely weighing and predicting. So, if sorted, the mathematical activities used to build the Buton traditional house are clearing the land, choosing a location, measuring, planning, counting, weighing, predicting, and explaining. While playing activities are more about calculations so that the construction of the Buton traditional house is not carried out in a hurry so that the construction work of the Buton traditional house is carried out in a relaxed but measured manner.

In the construction of the Buton traditional house, it is impossible to estimate the length of time it will take from start to finish. The process of making a traditional Buton house is likened to a mother who is pregnant. If it's too soon, its name in Wolio language is tuwu langka/masimba, like a tree that grows its leaves thickly but its roots are not strong so that when the wind blows it, it immediately collapses. So, for the Butonese Momini tekadhaangiata te dhoita bholi ta kaagoago which means that
even though we have the ability and money, we shouldn't rush. In the process of building the Buton traditional house, it appears that everyone who plays a role, whether religious leaders, traditional leaders, builders, or homeowners, has always thought mathematically since the beginning of the construction of the Buton traditional house. The habit of thinking mathematically shows the character of the Buton. The thinking habits of the Buton people are contained in a single sentence, "*tungku kaufikiri, bangutaka kaulentu,*" which means that before doing calculations, reflect and think first. This concept is in line with the process of metacognition which is generally defined as the activity of monitoring and controlling cognition as thinking about thinking. The metacognitive habit of the Buton community is very important to be adopted to develop students' ability to solve problems by utilizing mathematics [5].

All of this is evidence that the Buton people are used to thinking and counting which are used to carry out various activities. These activities can always be found in many cultural groups. Ethnomathematics can be seen as a field of study that examines the way a group of people in a particular culture understand, express, and use the concept of their culture which is described by researchers as something mathematical. Ethnomathematics is a field of study which examines the way people from other cultures understand, articulate, and use concepts and practices which are from their culture and which the researcher describes as mathematical [18]. The concept of culture used by the community in the manufacture of traditional Buton houses has similarities with formal mathematics. This can be seen in the results of the ethnomathematical exploration of the construction of Buton traditional houses.

4. Conclusion

Based on the description above, it can be concluded that according to the social status of the owner, traditional Buton houses can be divided into three types, namely Kamali (king's palace), galampa pangka (house of high royal officials), and bhanua (house of the general public). The differences in the ethnomathematical characteristics of the three houses can be seen from seven aspects, namely (1) the size or area of the house, (2) the angle used on the slope of the roof and on the slope of the stairs, (3) the arrangement of the roof, (4) the number of poles, (5) the number of plots, (6) the model of the house, and (7) the type, model, and the number of windows used. These differences become important information for teachers to use the ethnomathematics of the Buton traditional house in learning mathematics in the classroom, such as to teach the concepts of relations, functions, line slopes, coordinate systems, angles, distances, comparisons, parallels, and similarity.

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