

ETHNOMATHEMATICAL EXPLORATION OF TRADITIONAL FOOD BANNANG – BANNANG: A GEOMETRY STUDY IN THE SOCIETY OF JENEPONTO DISTRICT

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ABSTRAK

Penelitian ini berfokus pada eksplorasi konsep matematika dan nilai budaya yang terkandung dalam makanan tradisional bannang-bannang, yang masih dijaga kelestariannya khususnya pada masyarakat kabupaten Jeneponto. Penelitian ini bertujuan untuk menentukan bagaimana proses eksplorasi khususnya pada konsep geometri dan mengetahui nilai-nilai budaya apa yang ada pada makanan tradisional bannang-bannang, dengan menggunakan metode penelitian kualitatif dengan pendekatan etnografi. Temuan tersebut menunjukkan bahwa kue tradisional Bannang-Bannang memiliki makna matematis karena desain geometrisnya adalah bangun datar dan bangun ruang yaitu tabung, setengah lingkaran dan lingkaran. Selain itu, bannang-bannang ini juga memiliki nilai budaya dan sering disajikan pada acara adat seperti acara pernikahan mulai dari lamaran sampai a'matoang yang merupakan tradisi masyarakat kabupaten jeneponto setelah acara resepsi pernikahan selesai, acara tahlilan mengenang 20 hari, 40 hari, 100 hari, dan 1 tahun di acara rangkaian orang yang meninggal dunia. Pengumpulan data dilakukan melalui observasi langsung, wawancara mendalam dengan pembuat kue bannang-bannang, serta dokumentasi visual dalam bentuk foto, video, dan audiovisual. Keabsahan data dijamin melakukan triangulasi teknik, guna memastikan konsistensi serta validasi temuan penelitian. Penelitian ini diharapkan memberikan kontribusi dalam pembelajaran matematika yang kontekstual khususnya dalam konsep geometri.

Kata kunci : bannang-bannang; etnomatematika; geometri; nilai budaya

ABSTRACT

This study focuses on the exploration of mathematical concepts and cultural values contained in traditional bannang-bannang food, which is still preserved especially in the Jeneponto district community. This study aims to determine how the exploration process is especially in the concept of geometry and to find out what cultural values are in traditional bannang-bannang food. using qualitative research methods with an ethnographic approach. The findings indicate that the traditional Bannang-Bannang cake has a mathematical meaning because its geometric design is a flat shape and a solid shape, namely a cylinder, a semicircle and a circle. In addition, this bannang-bannang also has cultural value and is often served at traditional events such as weddings from proposals to a'matoang which is a tradition of the Jeneponto district community after the wedding reception is over, tahlilan events to commemorate 20 days, 40 days, 100 days, and 1 year at the event of a series of people who have died. Data collection was carried out through direct observation, in-depth interviews with bannang-bannang cake makers, and visual documentation in the form of photos, videos, audiovisual. The validity of the data is guaranteed by conducting triangulation techniques, to ensure consistency and validation of research findings. This research is expected to contribute to contextual mathematics learning, especially in the concept of geometry.

Keywords : bannang-bannang; cultural values.; ethnomathematics; geometry



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Introduction

In primary, secondary and tertiary education, mathematics is very important. (Astuti et al., 2023) Mathematics learning helps students improve their way of thinking, how they think about the future. (Safitri et al., 2021) However, the difficulty in linking geometric concepts to real situations results in students finding this material difficult to understand. (Ayu et al., 2021) Therefore, a more contextual and real-life experience-based learning approach is needed to help students understand and apply geometry better. This approach is also very much needed so that classroom learning is more effective.

One method to describe the real relationship between environmental culture and mathematics as a body of knowledge is ethnomathematics. To overcome the problems in Mathematics Education in Indonesia, fundamental changes need to be made so that mathematics can be more connected to real concepts and local culture. Methods or practices that are in accordance with local customs are part of ethnomathematics. Practices that are still used today because they are useful for people's lives and are passed down from generation to generation. (Surmiyanti et al., 2021) contextual learning based on ethnomathematics can improve students' mathematical abilities and learning outcomes (Naja et al., 2022). The use of ethnomathematics in the learning process can reveal that there are different ways of learning mathematics (Susanti et al., 2022).

Ethnomathematics is a study that investigates the relationship between mathematics and culture. (Yosafat Hadi Manapa et al., 2024) Which comes from customs integrated into local traditions (Fitriyani et al., 2022). Ethnomathematics is a field of research that combines cultural elements in the understanding and teaching of mathematics. (Fouze & Amit, 2023). Culture is an important component of social life, because culture is a comprehensive unity and is the basis for relationships between individuals. (Oktavianti et al., 2022) Ethnomathematics can connect community traditions with education, especially in terms of mathematics learning in schools. (Diniyati et al., 2022) In its development, Ethnomathematics has provided valuable insights into how different cultural groups around the world develop, use, and understand mathematical concepts in their own cultural contexts. (Amrin et al., 2025). Ethnomathematics is an activity that combines local culture (Sari et al., 2023) In its development, Ethnomathematics has provided valuable insights into how different cultural groups around the world develop, use, and understand mathematical concepts in their own cultural contexts. (Fitriyani & Putra, 2022)

Ethnomathematics is a field of study that examines the relationship between mathematical concepts from different cultures. (Prahmana & D'Ambrosio, 2020) This approach emphasizes how mathematics is integrated into local traditions and customs, encompassing various cultural groups such as national societies, tribes, and certain professions. (Sa'o et al., 2022)

One example of ethnomathematics is seen in traditional food, which teaches various mathematical concepts that exist in traditional food. Food is a tradition, what is interesting about food is the process and role of food in various rituals and

traditional ceremonies, from generation to generation, ancient recipes for processing food continue to be passed down from generation to generation. Because food is not just consumed, but becomes a medium in establishing relationships between humans and God or ancestral spirits, fellow humans, and with nature. Food can also be seen as a form of mixing more than one culture (acculturation). (Saputra et al., 2024) Furthermore, traditional food is food and drink that is usually consumed by a certain community, with a distinctive taste that is accepted by the community. In making traditional food, the role of culture is very important, namely in the form of skills, creativity, artistic touches, traditions and tastes. The higher the culture of a community, the wider the variety of food forms and the more complex the way it is made and the more complicated the way it is served. (Cherniaieva, 2021) Traditional food is a dish that is passed down from generation to generation, important values in traditional food include solidarity, mutual cooperation, respect for diversity, and respect for fellow human beings, nature, and the creator, which even contains prayers and hopes in it. (Tupen, 2024)

Based on research related to ethnomathematics exploration of traditional foods that have been carried out, such as: ethnomathematics of traditional Bugis food (Irfah, 2024) which revealed that traditional Bugis cakes can be used as examples of concrete objects in learning mathematics, namely geometry, especially in the material of spatial shapes.; ethnomathematics of traditional Batak cakes (Sari et al., 2023) stated that After exploration, there were ethnomathematic elements in traditional Batak cakes. These traditional Batak cakes consist of lapet, gadong cake, ombus-ombus, dolung-dolung, cimpa, labar, and nitak.; ethnomathematics of traditional Cilacap food (Choeriyah et al., 2020) revealed that the concepts contained in Cilacap Traditional Food include squares, long persei, triangles, parallelograms, trapezoids and sides. The mathematical concepts contained in Cilacap Traditional Food can be used to introduce mathematical concepts through local culture; ethnomathematics of spatial form concepts in traditional Lampung cakes (Merliza et al., 2022) The spatial shape concepts found are the block and cube concepts in engkak and buak tat cakes, the cylinder concept in sekubal and bebai maghing, and the pyramid concept in selimpok; ethnomathematics of traditional Tamo cakes, Sangihe Islands Regency (Merliza et al. 2022) and ethnomathematics of Sasak culture in traditional food studies (Sari et al., 2023) (Pratiwi et al., 2020). Looking at all the existing research, no research has been found that specifically discusses the exploration of ethnomathematics in traditional bannang-bannang food, especially the elements of cultural values, and the geometric concepts in traditional bannang-bannang food. The purpose of this study is to investigate the cultural values found in traditional Bannang-Bannang cuisine and to investigate ethnomathematics in traditional cuisine, especially Bannang-Bannang, through the study of geometry. The philosophy, values, and methods of food preparation that are part of the local culture today can all be preserved with the help of this study.

Research Methods

This type of research uses qualitative research with an ethnographic approach with the aim of understanding how the people of Jeneponto Regency use geometric concepts in making bannang-bannang and how the people of Jeneponto interpret the geometric concept in bannang-bannang cooking from a local cultural

perspective (Sari et al. 2023). Berbagai aspek budaya masyarakat dapat diteliti, dipahami, dan dideskripsikan melalui penelitian ini. Research data were obtained from various sources, namely direct observation of the making of bannang-bannang, in-depth interviews with informants, and visual documentation in the form of photos, videos and audiovisuals. This study discusses the exploration of ethnomathematics in traditional bannang-bannang food: a study of geometry in the Jeneponto Regency community.

Data collection techniques used in this study include 1) Observation, which is done to directly observe the process of making traditional bannang-bannang food. 2) Interview, the maker of bannang-bannang who is one of the sources of the researcher in order to obtain information related to the process of making to the philosophy and cultural values of bannang-bannang. 3) Documentation, in the form of photos of bannang-bannang cakes, tools used during the process of making this bannang-bannang.

Results and Discussion

The results of the study are described based on the results of observations, interviews and documentation of the makers of bannang-bannang. Because the shape of this cake resembles intertwined threads, the word "bannang-bannang" literally means "thread." Bannang-bannang is made using a recipe that has been passed down from previous generations to the current generation. This cake is processed using a traditional tool made of coconut shells with holes resembling a sieve and is designed to be easier to shape into the shape of bannang-bannang.(Upacara et al., 2024). Bannang-Bannang shown in Figure 1.



Figure 1. Bannang-Bannang

Based on the picture above, Bannang-bannang is a food of the Bugis Makassar nobility in ancient times, but along with the development of the times, this food can be enjoyed by all groups from anywhere. Bannang-bannang cake, also known as nennu-nennu cake, is a typical Bugis cake. Bannang-bannang cake is also known as tangled woven cake in Indonesian. The name bannang-bannang cake comes from its shape which resembles tangled thread (Nur et al., 2022) (Nurhalisa et al., n.d.). The word "bannang-bannang" which in Indonesian means "thread" has a very deep

meaning for life. In Jeneponto, bannang-bannang itself is often seen at important events such as engagement and tahlilan events.(Pathuddin & Raehana, 2019)

Based on the results of the interview that has been conducted with Mrs. Anti as the maker of the bannang-bannang, obtained:

A classic dish from Bugis Makassar is bannang-bannang. "Benang" is the Makassarese word for bannang-bannang. These bannang-bannang are shaped like threads or woven fabrics tied together. In the past, Bugis Makassarese nobles ate bannang-bannang, but as time goes by, anyone, anywhere, can now enjoy this dish.

Bannang-bannang has a special meaning for the people of Jeneponto Regency, its shape like a tangled thread symbolizes a relationship that is intertwined, close, and inseparable. This is often associated with family relationships, especially in marriage, where two families unite into one, just like threads that are wrapped around each other, a married life full of twists and turns with challenges that must be faced together. This cake is often served at big events or traditional events such as weddings starting from the proposal to a'matoang which is a tradition of the people of Jeneponto Regency after the wedding reception is over, tahlilan events to commemorate 20 days, 40 days, 100 days, and 1 year at the event of a series of people who have died.

The cultural values that can be inherited in bannang-bannang are the patience and precision required during the manufacturing process, to teach us how to appreciate the process to achieve the results obtained, the value of perseverance that teaches us to persist in the face of difficulties and continue to strive to achieve goals and the unique form of bannan bannang shows that the people of Jeneponto Regency who make these bannang bannang have aesthetic values and high appreciation for beauty and art.

Considering the results of observations carried out at Mrs. Anti's house as the maker of the bannang-bannang, the following Figure 2 was obtained:



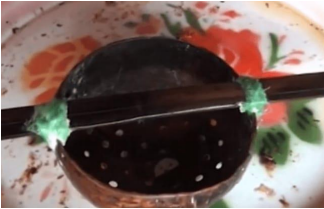
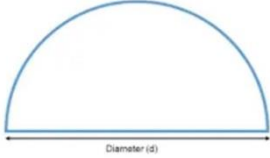

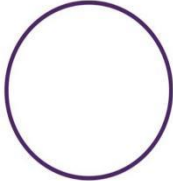
Figure 2.Tools for making banana fritters

Sumber: <https://jurnalpangadereng.kemdikbud.go.id>

Konsep Geometri pada Makanan Tradisional Bannang-Bannang


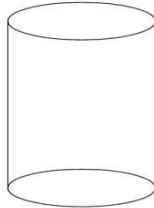
The Concept of Geometry in Traditional Food Bannang-Bannang shown in Table 1.

Tabel 1. Geometry concept of flat buildings

Bangun Datar			
No	Picture	Mathematical Concepts	Explanation
1			<p>The results of the observations found, on the tools used in making bannang-bannang. The concept of flat plane geometry is a semicircle.</p> <p>The formula for determining the area and circumference of a semicircle: Area of a semicircle: $\frac{1}{2} \times \pi \times r^2$ Circumference of a semicircle: $\pi \times d$</p>
2			<p>The results of the observations found, in the traditional food bannang-bannang there is a shape of this food at the bottom which is circular although sometimes there are some that are not symmetrical. The geometric shape found is a flat circular plane.</p> <p>Formula to determine the area and circumference of a circle: Area of a Circle: $\pi \times r \times r$ Circumference : $\pi . d$ atau $2 \times \pi \times r$</p>

Geometry Concept of Spatial Buildings shown in Table 2.

Tabel 2. Geometry concept of spatial buildings

BANGUN RUANG			
No	pictures	Mathematical Concepts	Explanation
1			<p>The results of the observations found, the traditional food bannang-bannang is elongated and wrapped with an estimated size of the palm of the hand. The mathematical idea in the traditional cuisine of bannang-bannang is the geometry of the solid shape, namely the cylinder.</p> <p>surface area of the cylinder: $LP = 2\pi r(r + t)$ volume of the cylinder: $V = \pi x r^2 x t$</p>

Researchers found geometric concepts (flat and spatial shapes) such as semicircles, circles, and cylinders in bannang-bannang. Exploration of ethnomathematics in traditional food has also been done a lot before. Research conducted by Irfah Aulia (2024) in the exploration of ethnomathematics in traditional Bugis food, especially bannang-bannang, this study also discusses how the use of geometric patterns, proportions, and measurements in the process of making traditional Bugis desserts, especially bannang-bannang. (Fitriani and Putra 2022) This study also shows the teaching of mathematical concepts that are contextualized through cultural practices or beliefs, such as preparing traditional dishes. The geometric concepts found in traditional Cilacap food, such as squares, rectangles, triangles, parallelograms, and trapezoids, are also discussed in other ethnomathematics research on the subject by Lailatul Khoiriyah, Toto Nusantara, and Abdul Qohar Subanji (2020). (Choeriyah et al. 2020)

The use of ethnographic research methods and traditional food investigations are two important aspects of this study that are based on a number of previous studies. Because this study explores the idea of geometry of proportion and dimension in the process of making traditional cakes, the work of Irfah Aulia (2024) is relevant to the research being conducted. Likewise, the research of Lailatul Khoiriyah, Toto Nusantara, and Abdul Qohar Subanji (2020) (Choeriyah et al. 2020) is relevant because it looks at the idea of geometric and cultural values in the food studied.

However, this study differs from other studies because it examines the cultural and historical meaning of traditional bannang-bannang cuisine in addition to the existing geometric concepts. This offers a new perspective that has not been widely explored in previous studies.

Kesimpulan dan Saran

This study aims to explore ethnomathematics of mathematical concepts, and cultural values in traditional food bannang-bannang. In addition to having high aesthetic value because of its tangled thread-like shape, according to the results of the research that has been conducted, Bannang-Bannang also has relevant geometric ideas such as cylindrical solids and flat planes of circles and semicircles. This further shows how traditional culinary can function as a contextual, more concrete, and significant mathematics learning tool. This cake is often served at big events or traditional events, such as weddings, which include proposals and a'matoang, the customs of the Jeneponto Regency community after the wedding reception, as well as tahlilan events to honor a number of people who have died on their twentieth, fortieth, one hundredth, and one year old birthdays.

It is suggested that future academics take a closer look at the philosophical principles underlying the creation and form of bannang-bannang and derive other mathematical ideas without taking into account any mathematical concepts. It is suggested that schools adopt a culture-based approach to teaching mathematics, taking into account factors including student motivation, perspectives, and understanding of mathematical concepts.

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