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Ethnomathematics: Rice Procession Faced with Batubara Malays of North Sumatra

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Abstract
This study aims to examine the cultural links in a local area with mathematical concepts or commonly known as ethnomathematics. This ethnomathematical research raises the topic of discussion about a "Nasi Face-to-face" procession at weddings in the traditional Malay culture of Batubara, North Sumatra. This research will explore what mathematical aspects are contained in a regional culture of the Batubara Malay tribe, especially the "Nasi Face-to-face" procession. Descriptive qualitative research method with ethnographic approach is used in this study. The results of the research show that in the procession of "Nasi Facing the face", various mathematical concepts are found, namely sets, functions, geometry of flat shapes, and geometry of geometric shapes. With this research, it is hoped that it can be used as a unique medium for learning mathematics as well as getting to know the local culture that is applied in learning mathematics in schools.

Keywords: Ethnomatematics: *Face-to-face rice*

INTRODUCTION

The era of globalization has an effect on every aspect of the fields that exist in life, this one of which also occurs in the field of education (Dewi, 2019). Significant changes and developments which at the same time can also have a positive and negative impact in the era of globalization and are felt directly on aspects of the education sector. In essence, education is an action to reach knowledge and information that is useful for one's life (Juliani & Widodo, 2019). Education in the era of globalization creates natural resources of high quality and has a good human element. Education is also an important asset for a nation and includes indicators to assess the progress or not of the quality of human resources. Education consists of various branches of science, one of the branches of science that contributes the most to life is the branch of mathematics.

Mathematics means science that reviews conceptual objects and prioritizes the reasoning process starting from universal things so that it goes to special things and is always related to symbols, symbols, calculations and concepts (Setiawan & Sulistiani, 2019). In addition, mathematics is also a branch of science that has many roles in daily life activities. But nowadays, there are often cases in schools where students do not understand mathematics well. This is because there are still students' misconceptions about mathematics learning that is applied in schools. Therefore, to overcome misconceptions and improve students' understanding of mathematics, it is necessary for an educator to choose the right method of learning mathematics to solve this case. Mathematics has various learning methods in solving various math problems, one method of learning mathematics that is quite unique from the many methods is ethnomathematics.

Ethnomathematics is a form of learning based on mathematics that is associated with using cultural strategies (Putra et al., 2020). Culture means an action that is usually experienced by a person and can be found in an area (Aziz & Suryadi, 2017). Ethnomathematics is able to change the state of the relationship between mathematics and the real conditions of society, which has always had a distance because the teaching of mathematics is considered rigid and organized in the reality of society. Indonesia is a country that has many cultures, of the many provinces in Indonesia, North Sumatra is an area that has a diverse and unique culture.

North Sumatra is one of the provinces in Indonesia which geographically resides on the island of Sumatra with a geographical location of 98^{0}-100^{0} east longitude and 1^{0}-4^{0} north latitude and is located on the equator, traversed by the Bukit Barisan stretch, and flanked by Indian Ocean and the Strait of Malacca (Prasetyo et al., 2018). North Sumatra has 25 districts and 8 cities. With this condition, it is possible that the North Sumatra area has a variety of tribes and cultures. One of the dominant tribes in North Sumatra is the Malay tribe.

The Malays are ethnic groups who live in North Sumatra, which have a variety of traditional and customary processions (Akbar, 2021). Malay culture in general is always associated with various arts such as reciprocated rhymes, Malay poetry, Malay music, Malay dances, customary law, traditional symbols, Malay relations with Islam and Malay traditional wedding processions. This is based on the large number of related and Malay-based heritage evidence that can be traced and preserved until now, besides that the Malay ethnicity is also associated with the identity of the sound of different languages according to the position of the type of Malay ethnic origin. There are various types of ethnic Malays in North Sumatra, for example, Deli Malay, Langkat Malay, Bila Malay, Asahan Malay, and Batubara Malay.

Batubara Malay is a part of the Malay tribe originating from the Batubara district who has lived for generations around the coastal areas of East Sumatra (Khairuddin & Azhari, 2017). The hallmark of the Batubara Malay community is that it has a variety of cultures, including the language used in daily life, customs and has customary symbols. Batubara Malay has various traditions and customs, especially in the traditional wedding procession. The traditional culture of the Batubara Malay wedding has traditional processions such as the Bernai Night, the Bride's Decorated Bath, Traditional Kenduri, Reciprocated Pantun Bride's Fence, Malay Silat, and Face-to-Face Rice.

"Nasi Facing" in the Malay wedding procession is a procession of eating with the bride and groom together with all the two parties of the bride and groom, this procession is carried out after the activities of the wages process in the Malay Batubara custom (Laila et al., 2021). "Nasi Face-to-face" is accompanied by two people who sit beside the bride and groom and are guided by an emcee when the procession is carried out. This procession has its own uniqueness because in the “Nasi Face-to-face” procession there are various types of Coal Malay food served, such as bridal rice in which there is a chicken that has been burned into two parts as treasure, twin bale flowers, various kinds of sweets. and traditional snacks decorated into flower arrangements placed on the bride's rice, various kinds of jelly and pudding made in various shapes, various types of fruits and sweets are served, as well as various kinds of traditional sponges that have different shapes and colors. -different. Therefore, researchers are interested in making the "Nasi Face-to-face" procession as an object of research in ethnomathematics, because there are many things in this "Nasi Face-to-face" procession that can be related to mathematical concepts as well as introducing traditions to the Coal Malay culture of North Sumatra.

This study will provide an explanation of the relationship between mathematical concepts in "Nasi Face-to-face", this is done with the aim of finding ethnomathematics in the object of research. With this research, it is hoped that it can be used as a unique medium for learning mathematics as well as getting to know the local culture that is applied in learning mathematics in schools.

METHOD

This study uses descriptive qualitative research methods. According to Creswell, qualitative research is research that uses an approach that can explore a symptom in general and is used when the condition of the object is natural, symptoms in general can be understood by interviewing research participants using general questions (Shidiq & Choiri, 2019). Qualitative method as a democratic aspect that makes information from participants as a source of data, ideas, and their thoughts can be combined and clarified. Qualitative descriptive research aims to explain in more detail a problem under study by knowing the individual or group of a problem and incident (Hardani et al., 2020). This study also uses an ethnographic approach, which means that the theoretical and empirical approach used is useful for obtaining complete data analysis and descriptions about the facts of a culture in the field based on research that has been done previously (Maryati & Pratiwi, 2019). The object of this research is the procession of "Nasi Face-to-face" in the Batubara Malay ethnic group. The data collection instrument has two instruments, namely the main instrument as a researcher and a supporting instrument for exploring ethnomathematics in the culture. The supporting instruments used to see the ethnomathematics on the object are observation sheets and interviews. Observations were made to observe objects directly and to obtain object data in the field, while interviews were conducted with an entrepreneur making “Nasi Face-to-face”, namely Eliza, S.Pd to obtain detailed data from sources who have been involved in the object. After that, the data that has been obtained on the instrument is explained in the form of writing or narration which is connected with mathematical concepts.

RESULTS

A. The Concept of Association in the "Rice Face-to-face" Procession

A set is a member that can be expressed in the form of a collection of objects (Darmanto et al., 2020).

In the picture of the "Nasi Facing" procession, it can be identified that this procession is related to the concept of a set, including:

1. A collection of food servings

   a) The set of all the foods contained in the “Nasi Face-to-face” procession, A = {various jelly, various traditional cakes, various candy decorations, various candied fruit offerings, various fruit dishes, a wedding rice, snacks traditional} this set belongs to the universal set type.
   b) The set of food types of jelly, B = {star-shaped jelly, triangular-shaped jelly, trapezoidal jelly, rhombus-shaped jelly, rectangular jelly, kite-shaped jelly, heart-shaped jelly, corn-shaped jelly, some grape-shaped jelly, pineapple-shaped jelly, goldfish-shaped jelly, koi-shaped jelly, rose-shaped jelly, sunflower} This set is a subset type.
   c) The set of various traditional cakes, C = {traditional chocolate cake, traditional pandan cake, traditional Sukade cake, traditional lapis legit cake} This set is a subset type.
   d) The set of various, D = {candy in the shape of a girl doll, candy in the shape of a flower, candy in the shape of a peacock} This set belongs to the type of subset.

e) A collection of various traditional snacks, E = {traditional snacks in the form of flowers, traditional snacks in the form of geese, traditional snacks in the form of ducks} This set is a subset type.
f) The set of various sweets, F = {candied halua papaya, candied halua nutmeg, candied sweet Malay rice} This set belongs to the type of subset.
g) The set of various fruit offerings, G = {fruit shaped into flower basket carvings, fruit shaped into flower crown carvings, fruit shaped into duck shape carvings} This set is a subset type.

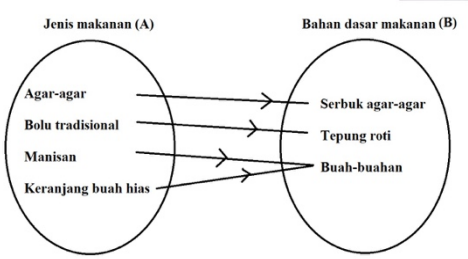
2. Set on food utensils

a) The set of food utensils, A = {set of flat plate utensils, set of ceramic bowls, glasses, spoons, knives, basins} This set belongs to the type of subset.

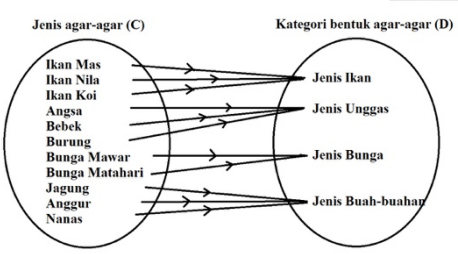
B. The Concept of Function in the "Rice Face-to-face" Procession

A function is a connection that juxtaposes all members of the set from the origin to the opposite area exactly one by one (Amir & Prasojo, 2016). In the procession of "Nasi Face-to-face" it can be identified that this procession is related to the concept of functions including:

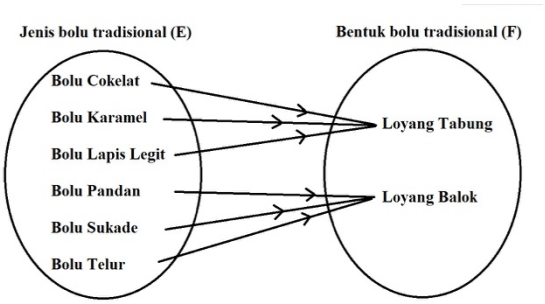
1) Two sets of data were obtained in the "Nasi Face-to-face" procession, namely (Types of food with food-based ingredients) which can be expressed as A ={ Agar-agar, traditional cakes, sweets, ornamental fruit baskets} and B ={ Agar powder -agar, Bread flour, Fruits}. Then the image of the arrow diagram of the relational function that can be described is:



2) Data obtained from two sets contained in the "Face-to-face Rice" procession, namely (Types of agar with a gelatinous shape category) which can be expressed as C={Carp, Tilapia, Koi Fish, Goose, Duck, Bird, Roses, Sunflowers, Corn, Grapes, Pineapple} and B={Types of Fish, Types of Poultry, Types of Flowers, Types of Fruits}. Then the image of the arrow diagram of the relational function that can be described is:



3) Data obtained from two sets contained in the "Nasi Face-to-face" procession, namely (Types of traditional cake with traditional sponge shape) which can be expressed as E = {Chocolate Sponge, Caramel Ball, Legit Lapis Sponge, Pandan Sponge, Sukade Sponge, Egg Sponge } and F ={Tube Pan, Beam Pan}. Then the image of the arrow diagram of the relational function that can be described is:



CONCLUSIONS AND SUGGESTIONS

Based on the results of this study, it can be concluded that the "Nasi Face-to-face" procession obtained mathematical elements in the form of the concept of sets, functions, flat shapes, and space shapes. In addition, various types of all types of food, such as gelatin, traditional sponge cake, candy, sweets, traditional snacks, fresh fruit servings, and food utensils can be linked to the set concept and the function concept. Then, the “Rice” procession Face-to-face" has various types of processed foodstuffs whose shapes have similarities to the elements of the concept of flat and spaced shapes. Ethnomathematics can change the community about mathematical concepts in the "Nasi Face-to-face" procession, can introduce Batubara Malay traditional culture and add knowledge of mathematics by linking their own culture. It is hoped that from the research can make the concept of culture as a method of learning mathematics applied in schools. In order to create learning that is unique, interesting, and at the same time understandable for students.

REFERENCES

Akbar, W. (2021). Character Values in the Application of the Tradition of Pantun Malay Culture of Deli Hamlet 17 Bandar Khalifah Village. *Cybernetics: Journal of Educational Research and Social Studies* , *2* (2), 48–53. https://doi.org/10.51178/cjerss.v2i4.295

Amir, MF, & Prasojo, BH (2016). Basic Mathematics Textbook. In *Umsida Press* (1st ed., Vol. 53, Issue 9). Umsida Press.

Arina, D., Mujiwati, ES, & Kurnia, I. (2020). Development of Interactive Multimedia for Learning. *Scientific Journal of Education* , *1* (76), 168–175. https://doi.org/https://doi.org/10.37478/jpm.v1i2.615

Aziz, F., & Suryadi, E. (2017). The Influence of Organizational Culture and Interpersonal Communication on Employee Performance in the General Bureau of the Ministry of Education and Culture of the Republic of Indonesia. *Journal of Office Management Education* , *2* (2), 178–187. https://doi.org/10.17509/jpm.v2i2.8107

Darmanto, Dinata, Karsoni B., & Junaidi. (2020). *Set Theory* (PB Nugroho (ed.); 1st ed.). Muhammadiyah University of Earth City.

Dewi, E. (2019). Portrait of Education in the Era of Technocentrism and Dehumanization Globalization. *Sukma: Journal of Education* , *3* (1), 93–116. https://doi.org/10.32533/03105.2019

Hardani, Nur Hikmatul Auliya, Andriani, H., Frdani, RA, Ustiawaty, J., Utami, EF, Sukmana, DJ, & Istiqomah, RR (2020). *Qualitative & Quantitative Research Methods* .

Juliani, W. iffah, & Widodo, H. (2019). Integration of the Four Pillars of Education (Unesco) Through Character-Based Holistic Education at SMP Muhammadiyah 1 Prambanan. *Journal of Islamic Education* , *10* (2), 65–74. https://doi.org/10.22236/jpi.v10i2.3678

Khairuddin, & Azhari, I. (2017). Coal Malay Ethnic Identity. *Journal of Sumatran Anthropology* , *15* (1), 241–251.

Laila, A., Sinar, TS, & Zein, TT (2021). Inter-Semiotic Relationship of Verbal and Visual Texts in Face-to-face Rice. *Bahterasia: Scientific Journal of Indonesian Language and Literature Education* , *2* (1), 40–56. https://doi.org/10.30596%2Fbahterasia.v2i1.6567

Maryati, M., & Pratiwi, W. (2019). Ethnomathematics: Exploration in Traditional Dance at the Opening of the 2018 Asian Games. *FIBONACCI: Journal of Mathematics and Mathematics Education* , *5* (1), 23–28. https://doi.org/10.24853/fbc.5.1.23-28

Prasetyo, B., Irwandi, H., & Pusparini, N. (2018). Rainfall Characteristics Based on Topographic Variety in North Sumatra. *Journal of Weather Modification Science & Technology* , *19* (1), 11–20. https://doi.org/10.29122/jstmc.v19i1.2787

Putra, RY, Wijayanto, Z., & Widodo, SA (2020). Ethnomathematics: Soko Tunggal Mosque in 2D Geometry Learning. *Journal of Educational Research and Mathematics Learning Innovation (JRPIPM)* , *4* (1), 10–22. https://doi.org/10.26740/jrpipm.v4n1.p10-22

Setiawan, A., & Sulistiani, IR (2019). Value, Culture and Character Education in Basic Mathematics Learning at Elementary/Middle Schools. *Elementary: Scientific Journal of Islamic Basic Education* , *1* (1), 33–41. https://doi.org/10.33474/elementeris.v1i1.2767

Shidiq, U., & Choiri, M. (2019). Qualitative Research Methods in the Field of Education. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).

Unaenah, E., Hidyah, A., Aditya, AM, Yolawati, NN, Maghfiroh, N., Dewanti, RR, Safitri, T., & Tangerang, UM (2020). Brunner's Theory on the Concept of Flat Shape in Elementary School. In *Journal of Education and Social Sciences* (Vol. 2, Issue 2). https://doi.org/https://doi.org/10.36088/nusantara.v2i2.840