

Learning Cultural Literature and Ethnomathematics Through Local Business "Oemah Batik Nusantria" in Jombang, East Java

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ARTICLE INFO

Keywords: Learning Cultural Literature, Ethnomathematics, Nationality, Oemah Batik Nusantria

Received : 3, February

Revised : 23, February

Accepted: 26, March

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ABSTRACT

Learning is one of the life processes that must be done by every human being. There are many things in this life that can be used as objects of human learning to gain knowledge and experience. One of the objects of learning that can provide knowledge and experience is a local business located in the hills of Jombang City, East Java, which is named "Oemah Batik Nusantria". Oemah Batik Nusantria is a business located in Sumberrejo Village, Wonosalam which focuses on creating various types of Batik. One of its mainstay products is Batik Ecoprinting. Oemah Batik Nusantria can be used as a place to develop learning of cultural literature and ethnomathematics. Learning cultural literature can be done through patterns, images, which are poured into batik cloth. Ethnomathematics can be done through the form of buildings and calligraphy poured into the patterns or motifs of the batik cloth. This study aims to describe the process of community service carried out by the local business 'Oemah Batik Nusantria' through two collaborative fields: Cultural Literature and Ethnomathematics.

INTRODUCTION

Batik is one of Indonesia's cultural heritages as well as the identity of the Indonesian nation. No other country in the world has Batik, only Indonesia. Batik is a gift that can be said to be unique, because it only exists in Indonesia as the only country that owns and makes and distributes Batik throughout the world. Batik is rich in various values and knowledge in it, because of this wealth, Batik should be preserved and developed. The phenomenon that has emerged recently related to batik, namely some of the gen-z generation tend to prefer other fashions or foreign fashions, such as: Korean style, Japanese style, old money style, all of which have foreign cultural orientations, not Indonesian culture. Based on this phenomenon, the researcher and writer together with his team want to re-encourage the existence of Batik through the world of Education. Batik is not just a cloth but there are many things that can be learned in Batik itself. The researcher who also acts as the writer is a team of lecturers from the Faculty of Teacher Training and Education, Dr. Soetomo University. Soetomo Surabaya teaches its students to re-develop science and knowledge related to Indonesian literature and Mathematics to explore what things are in Batik to be related to the two fields of study.

Indonesian Literature and Mathematics, both are fields of study that must be taught to students from an early age. Learning literature emphasizes intuitive and imaginative, while learning Mathematics emphasizes logical and systematic thinking. If these two fields are combined, it will create students who have creative, critical, and tough characters both mentally and spiritually. Through Batik, learning literature can be done. Cultural literature is a combination of literature and culture. Learning literature means learning culture. Culture, as Hall put it, is the actual environment for various practices, representations, languages, and customs of a particular society; various forms of contradictory common sense that are rooted in and help shape the lives of many people. Culture is related to questions about shared social meaning, namely the various ways we understand this world. This world does not merely float outside but is built through signs, especially language signs (Barker, 2006: 8).

Cultural Literature is different from Mathematics. Mathematics is a subject that is seen as free from values and culture, as a result of which there is a view that mathematics education does not need to take into account the growing diversity of the student population. Mathematics has long been viewed as a neutral and culture-free discipline that is free from social values. Mathematics has always been taught in schools as a subject that involves learning facts, concepts, and content that are considered universally accepted. This means that Western or academic mathematics consists of a body of knowledge of news, algorithms, axioms, and theorems. In relation to this, ethnomathematics programs have been developed to "deal with the taboo that mathematics is a universal and acculturated field of study." There is support for the interconnectedness between mathematical content and the culture of students, as well as between different branches of mathematics, the various disciplines that use mathematics, the historical roots of mathematical content, and the interconnectedness between the real world and the global workplace.⁴ An

ethnomathematical perspective on mathematics education appears to provide a way to increase access to teaching and learning processes and better mathematical understanding for students in a truly multicultural Indonesia. However, a curriculum and learning process that integrates an ethnomathematical perspective into it is neither easy nor cheap to realize.

Community service activities are intended for students, especially prospective educators, to have a positive concept, insight, and perspective on Batik. As a prospective educator, one must truly understand that Batik is not just an identity, it is more than just a national identity. An educator must be able to recognize the strength and wealth of his nation and develop that wealth into an unforgettable learning process for the students he will guide. Learning is not only in the classroom, but learning outdoors will provide experiences and knowledge that are no less far and interesting than learning indoors or in the classroom.

IMPLEMENTATION AND METHODS

Service Allocation

The location of the service carried out by a team of lecturers from the Faculty of Teacher Training and Education, Dr. Soetomo University Surabaya is "Oemah Batik Nusantria" which is located in Sumberejo, Sumberjo, Wonosalam District, Jombang Regency, East Java with the route or map location, namely <https://g.co/kgs/cGi6Htr>



Figure 1. Location Oemah Batik Nusantria

A local business called "Oemah Batik Nusantria" has a history in the process of its establishment and naming. The name "Nusantria" attached to this local business came from the idea of the brand owner, Mrs. Fitria. Mrs. Fitria had a special idea to combine the word "Nusantara" with her name "Fitria" which ultimately resulted in the name "Nusantria". Mrs. Fitria as the brand owner of "Oemah Batik Nusantria" thinks that Batik is the wealth and identity of the archipelago that should not be extinct, lost, and stagnant. She continues to think of various ways to maintain the existence of Batik and continue to grow. One of the things she developed was Ecoprinting Batik and she was the first person in Jombang to learn how to ecoprint and apply it to her batik business. The process she did was not easy. Along the way, she experienced failure, ups and downs, and spent tens or even hundreds of meters to create good ecoprinting Batik that met business standards.

Implementation Time

The Community Service Action carried out by the team of lecturers from the Faculty of Teacher Training and Education, Dr. Soetomo University, Surabaya, was held on:

Day, date : February 8, 2025

Time : 10.00-15.00 WIB

Location : House of the Owner of the Brand "Oemah Batik Nusantria"

Participant Background

Community Service Action entitled "Learning Cultural Literature and Ethnomathematics Through Local Business "Oemah Batik Nusantria" in Jombang, East Java was attended by 8 lecturers and 6 students representing 3 study programs at FKIP Dr. Soetomo University. The three study programs are Indonesian Language and Literature, Mathematics, and Educational Technology.

Activity Method

The methods used in this community service action are field trip, demonstration, discovery, lecture, and ended with a question-and-answer session. The explanation of each method will be presented as follows.

1. Field Trip Method

The field trip method, field trip here means a visit outside the classroom. So, the field trip above does not take place far from the school and does not require a long time. Field trips for a long time and a far place are called study tours.

2. Demonstration Method

The demonstration and experiment methods are very effective teaching methods because they help students to find answers by their own efforts based on correct facts. The demonstration in question is a teaching method that shows how something happens. The demonstration method is a fairly effective teaching method because it helps students to get answers by observing a particular process or event. The demonstration method is carried out in the middle of the community service session.

3. Discovery Method

Discovery learning is a learning method that applies inquiry-based instruction. The discovery learning method will encourage students to investigate on their own, build on past experiences and knowledge, use intuition, imagination, creativity, seek new information to find facts, correlations, and new truths. In this case, learning is not the same as absorbing what is said or read, but students will learn to actively seek answers and solutions on their own. Meanwhile, according to education expert Rusman, discovery learning is the support of an individual or group to find their own knowledge based on the experience they have gained. Furthermore, referring to Permendikbud Number 22 of 2016, the definition of discovery learning is

problem-based learning that aims to develop project assessment instruments that are suitable for use and as one of the innovations in developing more operational assessments. The discovery method is a method used as a center of activity so that students are able to explore everything related to learning cultural literature and ethnomathematics.

4. Lecture Method

One type of learning method that is often used is the lecture method. This means that this method is applied by lecturing or conveying information verbally to students. This method is the most practical and economical method, does not require many tools. This method can be used to overcome the scarcity of literature or reference sources of information because the purchasing power of students is beyond reach. The lecture method is used at the beginning of community service activities.

5. Question and Answer Method

The Question-and-Answer Method is a teaching method that allows for direct communication that is two-way traffic, because at the same time there is a dialogue between the teacher and the students. The lecturer asks and the students answer. In this communication, there is a direct reciprocal relationship between the lecturer and the students. The question-and-answer method is carried out in the session or at the end of the event.

Activity Material

This community service activity has the following agenda.

Table 1. Rundown Activity

Time	Activity
10.00-10.15	Preparation
10.15-10.30	Opening
10.30-10.45	Briefing
10.45-11.00	Demonstration by Owner Brand "Oemah Batik Nusantria"
11.00-13.00	Discovery Learning + Practice Making Batik
13.00-13.30	Break
13.30-14.15	Presentation by Students
14.15-14.45	Questions and Answer
14.45-15.00	Closing

In addition to having a rundown, this community service action also has materials and tools to support the event. The tools and materials needed are mostly prepared by the owner of the brand "Oemah Batik Nusantria". The tools and materials used include: cloth for making batik, batik equipment, laptop, projector, and other supporting tools.

Activity Photos

As for the photos of the community service activities carried out by the FKIP lecturer team at Dr. Soeotomo University, Surabaya, can be observed as follows.



Figure 2. Owner Oemah Batik Nusantria



Figure 3. Community Service Team

RESULTS AND DISCUSSION

Through the community service action entitled "Learning Cultural Literature and Ethnomathematics Through Local Business "Oemah Batik Nusantria" in Jombang, East Java, several things were discovered, namely:

Table 2. Learning Cultural Literature and Ethnomathematics.

Motif/Corak Batik	Sastra Budaya	Etnomatematika
	Animal patterns that are usually used as characters in Indonesian legends or fables	translation, rotation, symmetry, line, acute angle, oval,

 ALAS - ALASAN Alas-alasan, kata ini berasal dari bahasa Jawa (suku kata: Alas) yang berarti hutan, alas-alasan dapat diartikan sebagai hutan-hutan yang seperti hutan. Motif Alas-alasan ini termasuk dari bagian motif tradisional, pada pola motif ini terdapat berbagai macam jenis binatang, dari binatang kecil hingga binatang yang cukup besar ditampilkan sebagai bagian dari pola motif. Pengguna motif Alas-alasan diharapkan mampu mengajak orang lain untuk membaca ulang dan selalu mawas diri, keji dan bijaksana dalam menjalani kehidupan di dunia yang penuh dengan tantangan. Sources: https://bbkb.kemenperin.go.id		
 ANGGUR Motif anggur masuk ke dalam kategori Lung-Lungan. Lung-Lungan memiliki dua makna, yang pertama merupakan nama dari permainan kata dimana Lung-Lungan dimaknai dengan "Tulung-tolongan" yang berarti tolong menolong. Motif lung-lungan selalu digambarkan saling terkait dan mengait. Lung-Lungan sendiri secara harfiah bermakna Sulut-sularan, yang kita tahu memiliki bentuk panjang dan saling mengait. Motif Anggur menyiratkan harapan agar orang yang memakainya memiliki kehidupan sosial yang baik. Sources: https://bbkb.kemenperin.go.id	Cultural Philosophy: helping each other	Angle of span, reflection, line, acute angle, oval,
 EMPRIT Burung Emprit (jawa) atau Burung Pipit merupakan burung yang tidak pernah lepas dari kelompoknya. Burung Emprit berfalan kecil, namun mampu bertahan menghadapi dunia yang luas dikarenakan mereka selalu hidup berkelompok. Motif Batik Burung Emprit ini menyampaikan pesan agar manusia belajar dari Alam dan sekitar, bahwa sebagai makhluk sosial kita harus menjaga hubungan baik dengan sesama. Jika pada Sido Asih Surakarta, batiknya memiliki desain "Ceplok" maka Sido Asih Yogyakarta ini memiliki desain "Semen". Oleh karena itu motif ini acap kali disebut dengan "Semen Sido Asih". Sources : https://bbkb.kemenperin.go.id	Moral message: maintain good relations between fellow human beings and nature	Circle, square, line, acute angle, oval,

Literature Learning

Literary learning in batik can be done by observing the motifs or patterns of the batik itself which present the culture, philosophy, and values of a culture. Learning literature means learning culture. Culture in the process of making, choosing motifs, to the final process of batik contains values and philosophy. In batik there are values, there are forms that are commonly used in legends or folk tales, there are messages or messages that are expressed, there are certain thoughts that can be developed into a beautiful and quality story or fiction. Not only that, there are many Indonesian writers who use Batik in their fictional works, whether on the cover page or cover of their work or in their stories, where the characters in the story wear Batik clothes. There are several novels that have titles related to Batik, namely:

- The novel "Canting" by Arswendo Atmowiloto, published by Gramedia in 1986, tells the story of a priyayi family in Solo who runs a batik writing business

and has a shop in Klewer Market, as well as the struggle of a woman named Ni to maintain her family's batik business.

- b. The novel entitled "Rahasia Batik Berdarah" by Leikha Ha. This novel tells the story of the main character who is female. Fiska left for Yogyakarta in frustration. Not only because of a broken heart. Her departure to the student city was on the order of a sudden coverage from Mr. Edi as a punishment because she was absent from work for a week to heal her broken heart. This coverage was not just to pursue confirmation of celebrity gossip, but to reveal the murder case of Nita, an employee of a famous traditional batik stamp company in the city. Fiska encountered various oddities while looking for news material. The owner of the cottage who was extraordinarily polite but was able to read minds. The oddity of the confession of Mr. Wiryo, the owner of the stamped batik company and the blood stains on a piece of stamped batik cloth next to the empty warehouse where Fiska was taken by Diki, Nita's boyfriend. What actually happened? Did Fiska succeed in revealing the murder case? Or did she become the next victim?
- c. *Canting* (gusti paring pitedah, bisa liwat bungah, bisa liwat sulit) by Fissilmi Hamid. In this novel, the main characters are played by Sekar Kinasih and Hadi Suwito, the antagonist is played by Dr. Ajeng (Rahajeng Sukmawati) and Sekar's father, and the tritagonist (supporting role) is played by Simbok, Kanjeng Ibu Sundari, Haryo, Ratri, Airlangga, Eldo, Ferdi and Queen Mary students. The story in this novel begins with Sekar's father who matches her with Hadi Suwito (28 years old, the only child of the former village head of Sardonoarjo who is also the owner of the House of Sundari, an MBA graduate from the Faculty of Economics and Business UGM and a Double Degree majoring in MSc International Business at Queen Mary University of London, Merylebone). Initially, Sekar did not agree to be married young because she did not want to be like her friend who only ended up in the kitchen, well and bed. However, Simbok advised her with Javanese philosophy about women. In Javanese culture, women have three names, namely wadon, wanito and estri. That in reality, a woman's nature is to be her husband's servant, but according to her rights and role as a wife and mother who educates her children to be pious, smart and diligent. No matter how great a husband is, there is a role and encouragement from his wife behind him. Simbok also said, "Dedalané guna teman sekti, kudu andhap asor, wani ngalah dhuwur wekasane, tumangkula yen dipun dukani, bapang den simpangi, ana catur mungkur." Taken from the macapat sekar mijil song which means reborn.

Ethnomathematics

The term 'ethnomathematics' has been used by D'Ambrosio (1985) to describe "the mathematical practices of an identifiable cultural group and may be considered as the study of mathematical ideas found in any culture". Furthermore "Ethnomathematics is used to express the relationship between culture and mathematics" (D'Ambrosio, 2001: 308, in Heron & Barta, 2009: 26). And according to Francois (2009: 1517) "These changes and enriches the meaning of the concept of 'ethnomathematics' having an impact on the philosophy of mathematics education. From now on, ethnomathematics becomes meaningful in every

classroom since multicultural classroom settings are generalized throughout the world. Every classroom is now characterized by (ethnic, linguistic, gender, social, cultural ...) differences". Ethnomathematics is specifically defined by the community of a particular cultural group or region in activities related to mathematics. These activities are a process of abstracting real experiences in everyday life into mathematics and vice versa, such as calculations, measurements, making patterns, grouping things, designing a building, determining a location, and so on (Rachmawati, 2012).

Based on the research results obtained, the mathematical concepts found in the pre-production, production, and post-production processes of Batik include: standard units, comparisons, whole numbers, data presentation, measurement, units of time, folding symmetry, rotational symmetry, reflection, rotation, dilation, translation, flat shapes, units of length, social arithmetic, data centralization, and linear programming. The findings are all part of ethnomathematics which combines mathematics with cultural science.

CONCLUSIONS AND RECOMMENDATIONS

Based on community service activities that have been carried out in the local business "Oemah Batik Nusantria" located in Sambirejoo Village, Wonosalam, Jombang, East Java, several things can be concluded, namely:

1. Batik is not only an identity and wealth of the Indonesian nation, but there are values, knowledge, experience, and culture that cannot be measured. In Batik, there is a learning process and some learning processes that can be found are learning cultural literature and ethnomathematics.
2. Learning can be anywhere, anytime, and anything. Learning while having an impact on others and the surrounding environment will provide a special moment that can be remembered by the learner.
3. Learning cultural literature and ethnomathematics can be combined through project-based learning by raising certain themes or topics in learning. The existence of PBL will make students more creative and increase efficiency in time and learning systems.

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