



# RME Teaching Materials Based on Bengkulu Ethnomatics in Mathematics Lessons for Class IV Elementary School

Desi Andriani<sup>1</sup>(✉), Bambang Sahono<sup>2</sup>, Badeni<sup>2</sup>, and Saleh Haji<sup>2</sup>

<sup>1</sup> Doctor of Education Study Program, University of Bengkulu, Bengkulu, Indonesia  
umidesya@gmail.com

<sup>2</sup> Faculty of Teacher Training and Education, University of Bengkulu, Bengkulu, Indonesia

**Abstract.** Mathematics is a subject that has a very broad scope and is very useful for the daily life of students. Mathematics is a subject that is difficult for students to understand. Through a mathematics learning approach that encourages students to relate mathematics to the real world, the Realistic Mathematics Education (RME) approach is based on Bengkulu's regional culture (Ethnomathematics Bengkulu) so that it can improve mathematics learning outcomes for grade IV Elementary School, because it can be seen that there are many Bengkulu cultures that can be related to the fourth grade mathematics material. This study aims to obtain information about the need for Bengkulu ethnomathematics-based RME teaching materials used in grade IV Elementary School, delivery strategies and learning assessment guidelines. The method used in this research is a survey of schools in the city of Bengkulu. The instrument used in the form of a questionnaire that was imposed on educators in grade IV elementary school. Based on the results of the research survey, it was found that 96.6% of educators used manuals from the ministry of education and had not used teaching materials that used the Bengkulu Ethnomathematics-based RME approach; 75.9% did not make companion teaching materials related to Bengkulu Ethnomathematics-based RME; 16, 7% apply learning assessment in accordance with the assessment standard.

**Keywords:** Teaching Materials · Realistic Mathematics Education · Ethnomathematics

## 1 Introduction

Mathematics is the main subject at the elementary school level [1], mathematics is learned at every level of education and becomes a lesson that can determine the graduation of students at every level of education [2] mathematics is very useful for students' lives in real life. Mathematics is also a subject that is difficult to understand by most students in elementary school [3]. An approach that encourages students to be able to relate mathematics to real-world life is the Realistic Mathematics Education (RME) approach [4] mathematics material in the real world is bridged with regional culture known as ethnomathematics [5]. Understood by students so that learning outcomes can

be improved this is because the material is directly related to the culture of students' daily lives.

The scope of ethnomathematics which includes mathematical ideas, thoughts and practices developed by culture. Ethnomathematics aims to study how students understand, articulate, process, and ultimately use mathematical ideas, concepts, and practices and are expected to be able to solve problems related to their daily activities. Ethnomathematics uses broad mathematical concepts related to various mathematical activities, including grouping, counting, measuring, designing buildings or tools, playing, determining locations, and others [6].

Bengkulu regional culture has its own uniqueness so that in the application of mathematics lessons in grade IV elementary schools in Bengkulu city using the 2013 curriculum, it is expected to be able to attract students or become a reference for learning the Bengkulu ethnomathematics-based RME approach.

## **2 Method**

This research is part of long-term research (Development Research). This study uses a quantitative descriptive method to describe the application of Bengkulu Ethnomathematics-based RME so that it can improve mathematics learning outcomes for fourth grade elementary school students. The approach applied is using a survey method. The survey conducted by the researcher was in the form of a questionnaire conducted on educators in grade IV SD in Bengkulu city. The participants involved in the survey were 30 teachers who came from educators in public and private elementary schools in Bengkulu city. The data collection technique used is interviews. Data analysis techniques are descriptive qualitative and descriptive statistics.

## **3 Result and Discussion**

Based on the research results in the form of survey data that have been collected, there are the following points about the Bengkulu Ethnomathematics-based RME teaching materials:

### **3.1 Educators Use Guidebooks Form the Government**

The success of implementing the curriculum in educational institutions as expected by the government and society is determined by the understanding of the main stakeholders, namely teachers. Teachers must have understanding, awareness, ability, creativity, patience and perseverance. For example, in understanding the geographical conditions of students in class. So that learning is carried out well, different geographical locations will automatically have different characteristics. In accordance with the demands of the curriculum, the teacher should carry out learning well and meaningfully so that books are needed as guidelines in learning.

Teachers in carrying out learning are still guided by the guidebooks that have been issued by the government, namely the Ministry of Education and Culture of the Republic of Indonesia and have not paid attention to the characteristics of students in their



**Fig. 1.** The Use of Manual Guidebooks

**Table 1.** Results of teachers making companion teaching materials

Creating teaching materials/RME modules	Not making RME Teaching materials
24,1%	75,9%

respective classes. The reality on the ground, teachers still face many difficulties and ambiguity in implementing the curriculum. They need a guide that can be used effectively and efficiently to develop creative and innovative learning. The use of the manual can be seen in the following Fig. 1:

The results of quantitative data show that almost all respondents use government guidebooks, namely 96.6% of educators use guidebooks from the ministry of education and have not used teaching materials that use the Bengkulu ethnomathematics-based rme approach.

### 3.2 Bengkulu Ethnomathematics-Based RME Teaching Materials

Learning using Ethnomathematics-based RME can improve problem solving abilities [7] and make learning creative and innovative [8] so that teachers should prepare teaching materials in the form of modules that can be used in learning and become teaching materials for companion books of the Ministry of Education and Culture and according to the characteristics of students in our class.

Based on the results of a survey of teachers in the city of Bengkulu, the following data were obtained (Table 1):

The data above 75.9% does not make companion teaching materials related to the Bengkulu Ethnomathematics-based RME, even in learning teachers are still monotonous using the available books and even still using books based on the curriculum that has not been revised.

**Table 2.** Application of the Mathematics Subject Assessment System

Already Implemented Well	Haven't implemented well	Not applying well
16,7%	82,6%	0,7

### 3.3 Learning Assessment

Assessment is a way of collecting and processing information to measure the achievement of student learning outcomes [9]. The national curriculum in Indonesia in the form of Curriculum 2013 regulates an assessment system based on attitude assessment, knowledge assessment and skills assessment. The 2013 curriculum has been implemented since 2013 until now, but based on the results of a survey of teachers in Bengkulu City, there are still teachers who have not carried out the assessment as stipulated in the assessment guide contained in Permendikbud 23 of 2016. This is because teachers are still attached to the old assessment system and there are still many obstacles in the field in the application of the assessment system, including the difficulty of teachers integrating existing assessments of the material presented in accordance with the basic learned by students. The following data has been processed (Table 2):

The data above illustrates the lack of understanding of teachers in conducting assessments because the available teaching materials do not describe assessments such as the demands in the 2013 curriculum assessment guide.

The results of the study illustrate that the accompanying teaching materials are needed by teachers in carrying out classroom learning so that the assessment system can be carried out properly and in accordance with the existing assessment system in the Indonesian national curriculum. Learning is more meaningful and easier to understand, so the concept of the material is also adjusted to the characteristics of students and uses learning resources obtained outside the classroom [10].

Companion teaching materials closest to students in the form of activities that occur in students' daily lives (RME) [11] so that later they can train students to solve problems [12]. Bengkulu ethnomathematics-based teaching materials can make it easier for students to love the culture in Bengkulu or commonly called regional cultural literacy [13] ethnomathematics is also effective in improving students' mathematical understanding [14].

## 4 Conclusion

The results of this study conclude that there is a role for ethnomathematics to assist students in understanding mathematics. Some relevant research on ethnomathematics in mathematics learning does have a positive influence for students to understand, especially the culture of real things and living hand in hand with society, so ethnomathematics is a good bridge for educators to provide material in mathematics lessons. Ethnomathematics can also interpret Mathematics to be more meaningful because Mathematics is needed in everyday life. In order for elementary mathematics learning in Bengkulu to be carried out properly, teaching materials that are RME based on Bengkulu Ethnomathematics are

needed, so that teachers can easily assess students according to the national curriculum assessment guidelines.

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