

## STUDENTS' CAPABILITIES IN UNDERSTANDING TEXT ON ENGLISH MATHEMATICS TEXTBOOKS

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### Abstract

*English Mathematics course mostly deals with comprehension questions, grammar and vocabulary related to the field of Mathematics. The goal is that students have the confidence in communicating using English as well as utilize various sources of English teaching materials. But in reality, they usually experience several problems as the medium of instruction changes from their mother tongue to another language. This phenomenon in the case of Mathematics education brings the consequences faced by Mathematics educators. This paper describes the understanding of Mathematical concepts in English textbooks (Fraction) on the students of English Mathematics Study Course of Mathematics Education of Madura University. The data that used in this research is the result of the translation scripts of students at the Mathematics education department on the fractional concepts in English textbooks, observations on the student presentation and interviews. The result of this research are, Subjects still have not been able to understand the meaning of fractions that are linked in real objects and clear Mathematical models, subjects still used word-for-word translation, translating without providing meaningful information and also lack of vocabulary.*

**Keywords:** English Mathematics Textbook, Understanding Concept of Fraction

### INTRODUCTION

Nowadays English is an important requirement in mastering science. The ability to speak English can help the confidence of each individual. This also happens in education, in learning activities, English is used to communicate. Mastery English will certainly support the achievements of the learners. Many English-language teaching materials that can be used to support knowledge, as well as students in universities.

Based on the researcher findings, students often have difficulty in understanding English sentences in textbooks due to the lack of vocabulary. Bell in Kusumawati and Noor (2014) lists basic terms in Mathematics (vocabulary) of about 360 words found on six basic topics: quantity, measurement, time, money, place value and natural numbers. The problem that arises in interpreting the

vocabulary is that there are differences in the meaning of the term in Mathematics and the terms commonly used in everyday life.

The objectives of the English language course in Mathematics Department are: (1) students are able to have reading comprehension skills related to Mathematics term, (2) students are able to comprehend the grammar and vocabulary, and (3) the students are able to comprehend the reading independently. The course mostly deal with brief reading followed by questions (short reading followed by comprehension questions, grammar and vocabulary), other than general content related to Mathematic semantics term. English subjects in the Mathematic departement are given to students at the early semester as a basis to assist students in understanding the source of materials in English courses either in the form of textbooks or online book.

Based on the researchers results observations as a lecturer for English

language course in Mathematics, one of the factors causing students less understanding English Mathematics textbooks is because students are not accustomed to reading English textbooks. The next cause is, the student is not trying to read first but directly translate it with the help of translator machine. According to Yushau (2005) "Students usually experience several problems when the medium of instruction changes from their native language to another one. This phenomenon in the case of Mathematics education brings dire consequences if unchecked by Mathematics educators". Students usually experience problems when the medium of instruction changes from their mother tongue to another language. This phenomenon in the case of Mathematics education brings the consequences that must be faced by Mathematics educators. Uncertainty will have an impact on the concept's mistake with the material being discussed. This problem must be solved immediately.

One of the main subjects discussed in English Mathematics course is the concept of fractions. Fractions are the basic material in Algebra that should have been well understood by the students, because it has been obtained in school. But in fact many of them are having difficulties in understanding English text books on the subject.

Language is a mean of communication used by humans to convey a message to others, both in spoken and written language. So the significance of a language needs to be considered that messages sent can be delivered properly. The language activity is not only mechanistic but also mentalistic. This means that language activities are also related to the process or mental activity (Chaer, 2011). The

mental activity of language deals with the processing of information in the the human brain. How a person is able to sort and choose the information they can absorb.

According to Chaer (2012) "Language can be regarded as a collection of sentences consisting of rows of meaningful sounds." Hence language must describe the relationship of sound and meaning in the form of precise and clear rules. According to Chomsky in Chaer (2011) every grammar of a language is a theory of the language itself and the grammar must meet two requirements: the first requirement is acceptance by the language user. Second, it should be shaped in such a way that the unit or term used is not based on any particular language phenomenon, and all of this must be parallel to a particular linguistic theory.

English is an international language that is currently used globally in science, technology, and the internet also used English. Therefore, textbooks that discuss the subject matter also use the English language. But for some students, English is a new thing that makes it difficult for them to understand textbooks that use English. The same thing is experienced by students majoring in Mathematics who have difficulty in understanding English Mathematics textbooks, because the Mathematic term used is complex and has multiple meanings. (Raborn in Yushau, 2005).

Based on the description above, this study aims to describe the ability of students in understanding the text in English Mathematics textbooks on the students of Mathematics education program at Madura University?

Arem (2009) said, "*Reading a Mathematics book is different from reading other types of books and*

*reading a Mathematics textbook is different from the traditional way students are taught to read textbooks in general.*” Reading a Mathematics book is different from reading other types of books. Here are some tips that can be used to help in understanding the Mathematics English textbook: (1) Slow down, do not rush when reading Mathematic texts because this requires concentration, (2) Every word counts, and every word is important. The discussion in a Mathematics book is usually not repetitive, never start in the middle of a book, chapter, or page. Read in sequence, (3) understand each sentence before you continue. Understand each sentence before continuing. Re-read as much as you need to master an idea when sometimes time consuming (4) do not skim diagrams and other kinds of Illustrative materials. Do not miss diagrams and other types of illustrative materials. Think of it as part of a written text and learn to understand its contents. (5) Write as you read, make a note of a summary of the important ideas you find, (7) Create a resource or "cheat" sheet note keywords in separate sheets to record important formulas, algorithms, theorems, derivations, equations and Mathematicemathical symbols, and relevant examples. (8) Use more than Mathematics book, Use other Mathematics books as reference text to clarify or explain better the topic being studied

## RESEARCH METHODS

This research is descriptive qualitative research. Qualitative research is used to reveal a phenomenon experienced by research subjects in the form of behavior, perception, motivation, action, etc., holistically and

described in the form of words, in a natural context and by utilizing various scientific methods (Moeleong, 2014). Descriptive research is a study intended to investigate a situation, condition, situation, event, activity, etc., and the results are presented in the form of a research report (Arikunto, 2010: 3). This study will describe the students' reading ability to understand English Mathematics textbooks.

The main instrument in this study is the researchers themselves. This research was conducted in Mathematics Education Program, FKIP University of Madura. Research subjects are students who take English Mathematics course in Odd semester Academic Year 2017/2018 Class A. the number of subjects are 25 students.

This research took place in Mathematics education program at Madura University. The data source in this study is the primary data, ie research data obtained directly from the original source. This data is the result of the translation scripts of students at the Mathematics education department on the fractional concepts in English textbooks, observations on the student presentation and interviews.

## RESULT AND DISCUSSION

### 1. Understanding the concept of reading Fractions in a Textbook

The subject has not understood the meaning of fractions associated with real objects and clear Mathematicsemathical models. The subject explains the concept of fractions in a series of sentences that refer to the use of objects without giving meaning to the fraction itself. The meaning of fractions as part of the whole is not conveyed.

Konsep pecahan  
pecahan yg digunakan di zaman dahulu berbeda dgn yg digunakan di zaman sekarang dulu menggunakan stik lingkaran maupun segitiga yang diarsir contohnya. jika  $\frac{1}{3}$  maka kita membuat garis yg dibagi 3 dgn 1 garis yg diarsir seperti digambar 6.2 disitu terdapat lingkaran yg dibagi menjadi 4 bagian disitu yg diarsir 3 bagian sehingga dpt diartikan lingkaran tersebut  $\frac{3}{4}$ . pecahan itu berbentuk  $\frac{a}{b}$  dgn syarat a dan b bilangan bulat serta b tidak boleh sama dgn 0.  
suatu himpunan yg mempunyai anggota dan salah satu anggota itu diambil maka kita nyatakan bagian yg kita ambil tersebut kita namakan pecahan.

Figure 1. The Result of the First Subject's Understanding the Concept of Reading Fractions in a Textbook

It should be emphasized “*fraction as a numeral in this way is commonly called the “part-to-whole” model*”.... (Musser, 2011) the subject should add explanation of the fraction definition.

The translation results are also not intact.

- Still fixated with the wording of the text (word-for-word translation).

pada awalnya pecahan digunakan sebagai bilangan dari bagian utuh. pada gambar 6.2 pizza dipotong menjadi 4 bagian yg ekuivalen dan sisa 3. Dalam kasus ini, kita gunakan pecahan untuk mempresentasikan 3 yg diambil dari 4 bagian. Gunakan sebuah pecahan sebagai angka dalam jalam ini disebut “bagian-utuh” model, jika a dan b bilangan utuh, dimana b bukan 0, maka  $\frac{a}{b}$ , mempresentasikan a dari b bagian yg ekuivalen.

Figure 2. The Result of the Second Subject's Understanding the Concept of Reading Fractions in a Textbook

Subjects simply translate each word in the text, without adding another

sentence as an additional explanation to make the sentence easier to understand.

So the concept of the fraction to be conveyed is easily understood by the reader. Translating English into Indonesian, is not always word-for-word translation, but sometimes there is

an implied meaning that requires more explanation.

- b. Translating without providing meaningful information

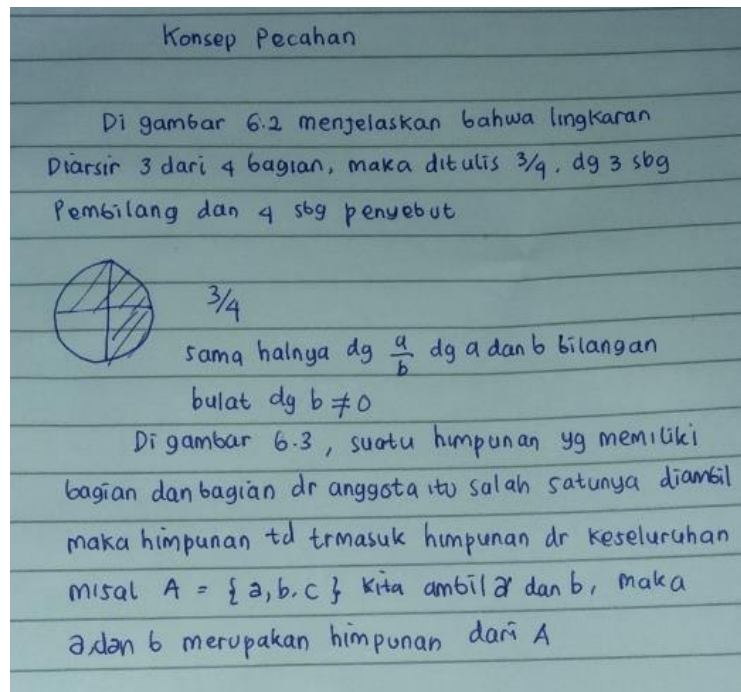


Figure 3. The Result of the Third Subject's Understanding the Concept of Reading Fractions in a Textbook

There is an important part of the translation of the definition of fractions, but the subject only translates without giving an explanation. Students often use translator machines, making them more lazy to learn to understand English texts so that the translations are often ambiguous and elusive sentences based on the Indonesian order. The vocabulary used in the field of Mathematics is often different from other fields or general vocabulary.

- c. Lack of vocabulary

Subjects are poor of vocabulary because subjects do not like to read. This also applies to English text. Some students only read and translate some or even just a paragraph of the text that is asked to be studied, and the main idea contained in the paragraph is not understood. They do not even try to understand the concepts that exist in the text, they try to explain themselves with the knowledge they have before by composing themselves out of the given reading. Here are some vocabulary that has many interpretations by students:

Table 1. The Result of the Student's Interpretations of the English Vocabulary on the Fraction

<b>Vocabulary</b>	<b>Student's translation Result</b>
Fraction equivalence	<i>Pecahan yang ekuivalen, Keekuivalenan pecahan, Pecahan sejenis, Pecahan Senilai, Pecahan yang sama, Kesamaan pecahan</i>
Whole Number	<i>Bilangan penuh Bilangan bulat, Bilangan tetap, Angka lengkap, Bilangan keseluruhan</i>
Equivalent Pieces	<i>Bagian ekuivalen, potongan yang ekuivalen, potongan yang sama, bagian yang senilai, bagian yang bernialaisama, potongan ekuivalen</i>
Filled Portion	<i>Porsi yang terisi, Mengisi bagian, bagian yang terisi, isi dari bagian</i>
Relative Amounts	<i>Jumlah yang relatif, relatif banyak, angka relatif</i>
Ordered Pair	<i>Pasangan berurutan, Pasangan terurut, Pasangan yang dipesan</i>
Numerousness	<i>Kebanyakan, banyak sekali, banyak</i>
A part-to-whole relationship	<i>Suatu hubungan bagian sampai utuh, hubungan sebagian hingga keseluruhan, sebuah hubungan bagain dari keseluruhan, suatu hubungan dari bagian sesuatu yang utuh</i>
Different subdivisions	<i>Cabang yang berbeda, bagian yang berbeda</i>
Equivalent fraction	<i>Pecahan setara, pecahan senilai, pecahan sejenis, pecahan yang bernilai sama, pecahan yang ekuivalen, pecahan yang sama</i>
Fraction strip	<i>Strip pecahan, strip untuk menjelaskan pecahan pita pecahan, gambar strip untuk menjelaskan pecahan</i>
Subdivisions vary	<i>Bagian yang berubah-ubah, bagian yang berubah, bagian yang berbeda, cabang yang berbeda, cabang yang berubah</i>
Equal fraction	<i>Pecahan yang sama, pecahan senilai, pecahan yang bernilai sama, pecahan sejenis</i>

## 2. Delivering Concepts Orally

After the subject is asked to encapsulate the concepts in the text, then subjects are asked to explain using their own language about the concept of fractions, the following will explain the results:

- a. Do not dare to explore the information provided on the text. Subject is less able to understand the information contained in the text. Although subjects are given the freedom to explain in their own language, once they have

translated and understood the concept of the fractions in question, they are transfixed by the text they have read. When explaining it sometimes they stalled and blocked by the vocabulary

- b. Lack of confidence  
The lack of subject ability in English becomes the causative factor for the lack of desire to try. From the results of interviews with the subject, most of the subjects felt inferior while using the English language due to their strong accent with the mother tongue, the fear for English and the lack of English vocabulary. Actually the subject already understands the concept of a real fraction, but for stringing sentences or using text, they are not confident
- c. Lack of practice to use English as a mean of communication.  
*Language is a habit.* This proverb can illustrate the obstacles faced by the subject when asked to explain the concept of fractions contained in the English text. Subjects are accustomed to using a translator machine that causes less English practice.

## CONCLUSION AND SUGGESTION

From the research discussion can be drawn conclusion as follow :

1. In understanding the Fraction Concept on Textbooks
  - a. Subjects still have not been able to understand the meaning of fractions that are linked in real objects and clear Mathematicsematical models.

- b. Subjects used word-for-word translation.
  - c. Translating, without providing meaningful information.
  - d. Lack of vocabulary
2. Delivering Concepts Orally
    - a. Do not dare to explore the information provided on the text.
    - b. Lack of confidence
    - c. Lack of practice to use English as a mean of communication.

Based on the conclusions above, there are some suggestions so that students are more motivated and confident in using English:

1. Lecturers should use English-language teaching materials and engage a few English-speaking sentences in each meeting
2. Motivate students to develop their English skills either through the course or by practicing in study groups.
3. Give some tricks to understand english texts, for example, when reading text should be in order of sequence that the information contained in the text is easy to understand. Find and review any diagrams, examples, or rules that reflect material on the website, or other Mathematicsematical DVDs to help understand the material.

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