

CHAPTER I INTRODUCTION

1.1 Background Of Study

In the National Education System Law No. 20 of 2003, it is stated that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spirituality, self-control, personality, intelligence, noble character, as well as the skills needed by himself, society, nation, and state (Rasyidin et al, 2016:26). The purpose of national education is to educate the nation's life. As stipulated in the Law of the Republic of Indonesia No. 20 of 2003 concerning the National Education System Article 3, that education functions to develop capabilities and shape the character and civilization of a dignified nation in Indonesia.

Learning is a process of teaching and learning activities that play a very important role in determining the success of student learning. From the learning process there will be a reciprocal activity between the teacher and students for a better purpose. In the learning process, teachers, as people who are considered to have the ability to transfer knowledge to students, are expected to carry out tasks professionally following their disciplines. According to Sugiharto (2020) education is one of the efforts to improve the ability of human intelligence, thus he is able to improve the quality of his life.

One way that educators can do to realize these goals can be done by developing teaching materials. According to Zulkifli (2017) the development of teaching materials is part of developing competence and can increase competence as a professional teacher. The main goal of an educator in developing teaching materials

is to make learning more effective, efficient, and in accordance with the competencies that have been set.

However, the reality is that there are still many educators who depend on conventional teaching materials. Conventional teaching materials are teaching materials that can be directly used without the effort of planning, preparing and compiling them yourself. errors in the selection of teaching materials result in a less than optimal understanding of students in learning so that the learning outcomes obtained do not meet the specified Minimum Completeness Criteria (Zuriah, et al, 2016). This is in line with Prastowo (2015) which states that the quality of learning is low when educators are only fixated on conventional teaching materials without any creativity to develop innovative learning.

Based on observations made by researchers at the Islamic Middle School Al-Ulum Terpadu Medan grade 7A, it was found the results of interviews between researchers and teachers of mathematics, one of the factors that influence student learning outcomes which are still low is the lack of interest in students learning by using printed teaching materials that are too thick, monotonous and uninteresting and not concise. so that students do not have their own initiative to open books outside of class hours, the learning process is monotonous and there are still many students who are passive in learning mathematics. After the interview, The researcher also collected data through needs analysis in the form of filling out a questionnaire addressed to subject teachers and several students chosen by the teacher.

The method used by the researcher is purposive sampling, in the research method book Sugiyono (2012:126) explains that purposive sampling is a sampling

technique with certain considerations. in this case the researcher took a sample based on observations in class of 15 students. The following is a table of results from an analysis of the needs of teachers and students for digital teaching materials that want to develop.

Table 1.1 Teaching Material Needs Analysis Questionnaire (For Teacher)

No.	Information Type	Response	
		Total Score	% Score
1.	Teachers need additional teaching materials for the learning process	5	100%
2.	The use of digital teaching materials in the learning process is still rarely used.	4	80%
3.	The facilities that students have for learning using digital teaching materials are limited to cellphones.	4	80%
4.	Due to the limited internet access of students, teachers need teaching materials that can still be accessed online and offline.	5	100%
5.	Teachers need teaching materials that can be used easily via cellphones.	5	100%
6.	The student's score on the flat wake material is not good.	5	100%
7.	Learning in Plane Topic looks monotonous.	4	80%
8.	Teachers need teaching materials that can facilitate the delivery of material to students.	5	100%
9.	Bilingual mathematics digital pocket book teaching materials in Plane Topic have never been developed	5	100%
10.	Teachers need bilingual mathematics digital pocket book teaching materials in Plane Topic to increase student learning activity	5	100%
TOTAL		47	94%

Table 1.2 Teaching Material Needs Analysis Questionnaire (For Student)

No.	Information Type	Response	
		Total Score	% Score
1.	The facilities that students have for digital learning are limited via cellphones.	70	93%
2.	Plane Topic difficult for students to understand.	70	93%
3.	In teaching the Plane Topic, the teacher uses digital teaching materials.	69	92%
4.	Students have limitations on internet access so students need digital teaching materials that can be accessed easily online and offline.	69	92%
5.	Students have never used teaching materials such as Bilingual Mathematics digital pocket books in Plane Topic.	71	95%
6.	Students have never used digital teaching materials in which materials, images, videos and animations can be used directly via cellphones.	68	91%
7.	Students always understand the material presented by the teacher well.	71	95%
8.	Students need additional teaching materials such as Bilingual Mathematics digital pocket book in Plane Topic.	70	93%
9.	Teaching materials such as the Bilingual Mathematics digital pocket book in the Bangun Datar material can add to the enthusiasm of students' learning.	70	93%
10.	Teaching materials such as Bilingual Mathematics digital pocket books are very suitable for learning Plane Topic.	71	95%
TOTAL		699	93%

Based on interviews, and based on the results of the needs analysis of teachers and students, 94% of the results of the questionnaire showed that teachers

needed additional supporting teaching materials and 93% of the results of the student questionnaires indicated that students needed additional teaching materials. Therefore, researchers will develop a teaching material in the form of a digital pocket book where this digital pocket book teaching material is used as additional teaching material to help improve student learning outcomes, not as a substitute for the main book. What is meant by the main book is that textbooks are mandatory books that must be used in the learning process, containing basic materials based on competency standards that have been determined by the government. Meanwhile, the digital pocket book in question is an enrichment book, according to (Fahtria and Lina; 2015) an enrichment book is a book that contains one main material that is discussed in depth to enrich information about the material.

The development of mobile technology is currently so rapid, one of the mobile devices that is currently commonly used is the cellphone. The digital pocket book application has the advantage of being a user-friendly digital pocket book, which is easy to use, practical to use and can be used anywhere and anytime. The presence of a digital pocket book is intended as a complement to learning and provides opportunities for students to learn material that is less mastered anywhere and anytime. (Wirawan, 2011:22- 23)

Digital pocket book is designed to help learning both in class and outside the classroom which is displayed in digital format so that it can make learning more interactive (Anori, Putra, & Asrizal, 2013). Likewise, the digital pocket book teaching materials that I will develop in it will display text, visuals, and videos that will make students more interested in using them, the ease of

accessing these teaching materials is also an advantage where students simply access the link to open the available teaching materials. given. These teaching materials are also quite practical and flexible where students can later use these teaching materials easily.

Students can learn independently by using digital pocket books that have been prepared by subject teachers. Digital pocket books have various functions, including: (a) as an alternative teaching materials; (b) different from printed teaching materials, digital pocket books can contain multimedia content in them so that they can present more interesting teaching materials. and make learning more fun; (c) as a medium of information; and (d) compared to printed teaching materials, these digital pocket books can be distributed easily, in addition, digital pocket book teaching materials are also environmentally friendly and support the paperless movement (Zulkifli, 2017).

The use of appropriate learning materials can foster interest in learning, even improve student learning outcomes (Daryanto in Simorangkir, 2018). Teachers need a materials to facilitate learning because, In addition to the main learning resources, students also need to be supported with additional teaching materials that they can use practically. Supplement teaching materials are defined as teaching materials that are intended to enrich, add to or deepen curriculum content (Borba:2016) Learning materials that can be used as learning resources such as digital pocket books.

The development of digital pocket books has existed before and has always had a good impact on students so this has encouraged researchers to develop digital pocket books using two languages that are still rarely encountered

and digital pocket books that will be developed are on plane topic. This digital pocket book uses Indonesian and English with the aim of making students accustomed to reading English books from an early age so that it can make it easier for students to access information. The use of English in digital pocket books is expected to help students understand Mathematics terms in English and prepare a generation that can advance and compete internationally.

One supplement of teaching materials that can support students in getting concepts is a pocket book. According to experts the pocket book is a book that is small, concise, practical to carry and can be read easily (Gay:2015). This pocket book is expected to help students to easily learn the essence of learning concepts that are being taught by lecturers. In school students are given student worksheets and modules but outside of that students rarely learn except when there are assignments from the teacher.

From the statement above, it can be concluded that a digital pocket book is a book that contains knowledge that can be accessed instantly. The digital pocket book offered by the researcher is a bilingual digital pocket book which contains explanation materials, formulas, sample questions, completion of sample questions, as well as animated learning videos, using two languages, namely Indonesian and English which can be accessed anywhere and anytime, so that students will be more interested and diligent in using it than just using textbooks from school. This will make students have a good understanding of the materials being taught. If students have a good understanding of the learning materials, then the learning objectives will be easily achieved by improving student learning outcomes.

This digital pocket book uses a scientific approach, where the scientific approach is a learning approach that provides broad opportunities for students to explore and elaborate on the materials being studied, in addition to providing opportunities for students to actualize their abilities through learning activities. which has been designed by the teacher (Rusman, 2015).

As for the stage of making a digital pocket book product, the researcher first determines learning materials that refer to the even semester syllabus for the 2021/2022 academic year, then the researchers compile a digital pocket book script that contains a sequence of images and graphics as well as image designs that need to be made using Microsoft Office software and also adobe photoshop or adobe illustrator, then the author produces a digital pocket book based on a script that has been made then the researcher converts the product design into digital form with the help of the site <https://online.flippingbook.com>, after the product is published the next step is to validate the product with the help of materials experts as many as two people, as many as 2 media experts. After validation, if there is a revision, the researcher will carry out the revision.

In the plane topic, there are different mathematical terms when translated into English. For example the word "sebangun", if translated into English it will be "congruous", even though English is more suitable for the term Mathematics is "similar". Another example is the word "berpelurus". If translated into English it will be "straighten", even though English is more suitable for the term Mathematics is "supplementary". This is what underlies the researcher choosing the plane topic as the materials to be discussed in the digital pocket book that will be developed.

In line with Alifudin's research (2018), mobile pocketbook media development is declared feasible and can be used as teaching materials in schools with a completeness percentage of 83.33% with a sample of thirty so that it is said to be useful as a student learning medium. Furthermore, it is also supported by research by Apri Widodo (2017) in his research that the digital pocketbook application has succeeded in increasing student learning outcomes in limited tests and operational tests, respectively having a standard gain value of 0.734 and 0.876. In addition, research conducted by Rahmat Fajar (2018) with the title of developing a digital pocket book on Plane Topic states that digital pocket book learning media can be used as a supporting medium in the teaching and learning process. Based on the description above, with the same assumptions, researchers are interested in conducting research with the title "Development of Bilingual Mathematics Digital Pocket Book to Improve Student's Ability in Understanding Plane Topic".

1.2 Problem Identifications

Based on the background of the problem above, the identification of the problem in this study are as follows:

- 1) Al Ulum Terpadu Islamic Junior High School Medan not yet used digital pocket books as learning materials.
- 2) The learning process in mathematics tends to be monotonous.
- 3) Students are passive in the learning process of mathematics.
- 4) Students do not have their own initiative to open textbooks outside class hours.

- 5) The results of the needs analysis are 94% of the results of the subject teachers' responses and 80% of the students' responses stating that they need the development of teaching materials

1.3 Scope of Problems

Based on the problem identification above, researcher limit the problem in this study are :

- 1) Development of bilingual mathematics digital pocket book to improve student's ability in understanding plane topic.
- 2) Bilingual mathematics digital pocket book developed only in flipbook form.

1.4 Problem Formulations

Based on the scope of problems, the formulations of the problem in this research are:

- 1) How is the validity of the bilingual mathematics digital pocket book to improve students' ability in understanding Plane topic ?
- 2) How is the practicality of the bilingual mathematics digital pocket book to improve students' ability in understanding Plane topic ?
- 3) How is the effective of the bilingual mathematics digital pocket book to improve students' ability in understanding Plane topic ?

1.5 Research Purposes

In line with the formulations of the problem mentioned in the previous section, the objectives of this study are:

- 1) Knowing the validity of the bilingual mathematics digital pocket to improve students' ability in understanding Plane topic

- 2) Knowing the practicality of the bilingual mathematics digital pocket book to improve students' ability in understanding Plane topic
- 3) Knowing the effectiveness of the bilingual mathematics digital pocket book to improve students' ability in understanding Plane topic

1.6 Research Benefit

This research is expected to have a positive impact on all participants involved, namely researchers, students, and teachers. The following are expectations for all parties involved:

- 1) For researchers, this research is expected to increase creativity and innovation in the development of teaching materials
- 2) For mathematics teachers, this research is expected to help in the delivery of materials in order to improve students' ability in understanding plane topic
- 3) For students, this research is expected to help in the learning process and improve students' ability in understanding plane topic
- 4) For other researchers, this research is expected to be a reference for similar research and as a motivation to develop better teaching materials.

1.7 Operational Definition

To avoid differences in interpretation of the terms in this study, the authors define the following terms :

- 1) Teaching materials are learning resources that have an important role in supporting the learning. Teaching materials are information, tools, and or texts needed by teachers for planning and reviewing learning implementation.

- 2) Digital pocket book is an electronic book. Digital pocket books can be opened electronically via a computer. This pocket book is in the form of files in various formats. This digital pocket book uses Indonesian and English with the aim of making students accustomed to reading English books from an early age so that it can make it easier for students to access information. The use of English in digital pocket books is expected to help students understand Mathematics terms in English and prepare a generation that can advance and compete internationally.
- 3) Bilingual is two language (KBBI). The digital pocket book developed in this study uses two languages or bilingual such as English and Indonesian. So, hopefully students can practice using and reading digital book in English

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