

CHAPTER I

INTRODUCTION

1.1. Background

Law Number 20 of 2003 concerning the National Education System Article 1 paragraph 1 (in Aryasa, 2016: 2) states 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-spiritual strength, self-control, personality, intelligence, noble character, and skills needed by himself, society, nation, and state. The main purpose of education is to form community members into people who have personality, and humanity and become members of the community who can educate themselves according to the character of the community itself, reduce some of the difficulties or obstacles to the development of their lives and try to meet the needs of life and overcome problems (Ahmad, 2011): 3).

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-spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and state (UUSPN). Article 1 paragraph 1). This means that education has a very important role in human life. Because with education, humans will have a clearer and more focused view and direction of life. Therefore, a good education is an education that prepares students for a profession or position, but how education can prepare students to solve problems they will face in everyday life and be able to apply them in any conditions.

Understanding is a level of ability where students are expected to be able to understand the meaning of concepts, situations, and facts they know (Al-Siyam & Sundayana, 2014). Understanding concepts is the basis of understanding principles and understanding theories, so to understand principles and theories, students should first understand the concepts that make up these principles and theories, therefore students need to understand concepts in mathematics (Diana et al. al., 2020).

In learning mathematics, five basic abilities are the standard of mathematical ability according to NCTM (2000), namely: (a) problem-solving; (b) reasoning and proof; (c) communication; (d) connection, and (e) representation. This shows that in learning mathematics, it is necessary to learn mathematics with a deep enough explanation so that students understand the mathematical material.

The implementation of official duties at home/residential for teachers is also by the Circular Letter of the “MenPANRB” Number 34 of 2020 concerning Adjustment of the Work System of State Civil Apparatus (ASN) in Efforts to Prevent the Spread of Covid-19 in Government Agencies. During the Covid-19 pandemic, schools must continue to carry out learning for students at home. Learning activities are guided by online teachers through social media or available learning applications. While carrying out official duties at home/residence, teachers must still achieve performance targets under the provisions of the laws and regulations governing employee discipline.

The COVID-19 outbreak has urged testing of distance education almost as never before (Sun et al., 2020) for all elements of education, namely students, teachers, and parents. Considering that during the pandemic, time, location, and distance are major problems today (Kusuma & Hamidah, 2020). So, distance learning is a solution to overcome difficulties in carrying out face-to-face learning. This poses a challenge to all elements and levels of education to keep classes active even after schools have closed.

During the Covid-19 pandemic, of course, there were differences and different goals compared to the normal era before the pandemic, technology is very much needed and plays a very important role in the educational process during the Covid-19 pandemic like this. All elements of the school are required to maximize existing technology to achieve shared educational goals from teachers, school components, parents, to students. (Hanisah, 2020)

Learning video media is a media or tool that contains learning messages. Video as an audio-visual medium and has elements of motion will be able to attract students' attention and motivation in carrying out learning activities.

According to the Big Indonesian Dictionary (1995: 1119) defines video as 1) the part that transmits images on a television set; 2) live image recordings for broadcast on television sets. Video can summarize many events in a long time to be shorter and clearer accompanied by images and sounds that can be repeated in the process of its use. The video has the advantage of being able to help understand learning messages more meaningfully without being bound by other teaching materials. (Putro, 2020)

Behind the success of successful online teaching and learning, there must be careful preparation in creating or building the system. Some complaints that are around us are that some students have difficulty in online-based mathematics learning. Some of them have difficulty signaling due to cloudy or rainy weather, not having money to buy internet quota, boredom during the teaching, and learning process, and difficulty understanding the material in online learning. As a presenter, I interviewed and gave preliminary tests to high school students in class XI - IPA 1 at SMA Budi Murni 2 Medan, results some of the students I interviewed and preliminary test results to high school students in class XI-IPA 1, there are 12 of 18 students in class XI - IPA 1 of them students cannot understand the material and mathematical concepts because the material their teacher does is only PPT and lecture-based, there is rarely a question-and-answer session. Although there are examples that have been explained by the teacher, they still do not understand what their teacher teaches them. And from the teachers I interviewed, the teacher was still not optimal in making learning media. The teacher had already made learning materials using instructional video media, but it was still not enough for students to understand the polynomial material taught by the teacher, according to the teacher the main problem was that the student's ability to memorize formulas was still lacking. Although the material has just been explained, there are still students who do not memorize the formulas that have just been taught. When the teacher wants to give examples of questions outside the book, the teacher is still lacking in modifying the questions that have been taught by the teacher.

The validity of the instrument can be proven by several pieces of evidence. This evidence includes content validity or content validity or content validity,

construct or known as construct validity, and criterion or known as criterion validity (Yusup, 2018).

The validity test aims to see the accuracy of the measurement. While the reliability test aims to determine the extent to which the instrument can be trusted. Standardized and reliable instruments still have to be re-tested every time they are used. This is because each subject, different location, and time will produce different results (Yusup, 2018).

Rahma F, I (in Hamid et al, 2020: 44) added that effectiveness and efficiency mean the success of learning seen from the level of achievement of objectives after learning has been completed. If the learning objectives are achieved, the learning is said to be effective, if the achievement of learning objectives using the media is minimal, then learning is said to be efficient. Effective and efficient media can support learning achievement.

The practicality of learning media can be seen from the implementation of learning media in learning activities, teacher responses to learning media, and student responses to learning media. This practicality is obtained in several ways, namely as follows:

1. Teacher response questionnaire.
2. Questionnaire of student responses after being implemented and following learning that applies the developed learning media.

Based on the above background, the researchers are interested in developing technology-based learning media to make it easier for students to understand mathematical material based on several theories that are difficult for students to understand, with the research title "**Development of Learning Videos to Improve students' mathematical concepts on Polynomial material**"

1.2. Problem Identifications

Based on the description of the background of the problem that I wrote, we can identify several problems as follows:

1. There are still teachers who teach with lecture methods.

2. Lack of learning media that attracts students' attention in helping students understand the Polynomial material.
3. There are still teachers who still can't make video-based learning media.

1.3. Problem Limitations

Based on the background of the problem and the identification of the problem that we have obtained; it is necessary to limit the problem so that this research can be more focused. The limitation of problem to be studied will be limited to the development of learning media.

1.4. Problem Formulations

1. How is the validity of the video developed with PowerPoint and Filmora applications on Polynomial material?
2. How is the effectiveness of the video developed with PowerPoint and Filmora applications on Polynomial material?
3. How is the practicality of videos developed with PowerPoint and Filmora applications for high school students in class XI on Polynomial material?

1.5. Research Objectives

The objectives of this research are:

1. To see the validity of the video developed using PowerPoint and Filmora applications on class XI Polynomial material.
2. To see the effectiveness of the video developed using PowerPoint and Filmora applications on Polynomial class XI material.
3. To see the practicality of the video developed using PowerPoint and Filmora applications on class XI Polynomial material.

1.6. Research Benefits

After conducting the research, it is hoped that the results of this study can provide significant benefits for:

1. For students, it is expected that students will study harder and be able to ask the teacher questions about material that they cannot understand without being asked or feeling reluctant. And can help colleagues who still do not understand the mathematics material learned during distance learning.
2. For presenters, the information obtained can be an experience in learning mathematics material through the development of learning media to be able to find out problems and how to overcome these problems for better learning mathematics materials.
3. For other presenters, the information I get can be considered for other presenters or readers who want to study more deeply about the development of learning media to help students' problem-solving skills.

1.7. Operational Definitions

The operational definition of this research is

1. Development is an effort used to improve technical, theoretical, conceptual, and moral abilities according to needs through education and training. The development in this research is the creation and use of virtual videos using Microsoft PowerPoint and Wondershare Filmora for learning and teaching tools so that the learning process can take place more effectively and efficiently.
2. Media means medium or intermediary. In the communication process, media learning is a vehicle for distributing learning messages.
3. Media is a means of distributing messages or learning information to be conveyed by the source of the message to the target or recipient of the message.
4. Technology is a practical application or application of knowledge.
5. Educational Technology is a systematic way of designing, implementing, and evaluating the overall process of learning and learning in the form of learning objectives.
6. Video is a technology for sending electronic signals from a moving image. Video can also be defined as a useful technology for capturing, recording, processing, transmitting, and rearranging moving images.

7. Learning video is a medium that presents audiovisuals in the form of learning materials, as well as concepts, principles, procedures, and lessons taught.
8. The Wondershare Filmora application is an application that is used to make video editors professionally and has features that are quite complete and easy to use. This application can only be used on PC and macOS.



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