CHAPTER I
INTRODUCTION

1.1 Background of the Problem

The 21st century can be characterized as the century of knowledge, a century characterized by massive transformation, namely the rapid development of Science and Technology (Rahayu, Iskandar, & Abidin, 2022). This transformation process is also marked by the emergence of globalization and the swift flow of information which causes many social and cultural changes in society. (Sudarsri., 2018)

In the midst of the transformation that occurs, it triggers challenges that everyone must face, therefore a paradigm shift is needed in the education system that provides a set of 21st century skills needed by students to face every aspect of global life (Rahayu, Iskandar, & Abidin, 2022). The change in question does not involve changes in curriculum content, but changes in pedagogy, namely changes in action from simple action towards comprehensive action and shifting the dominance of traditional teaching towards technology-based teaching (Lestari, 2018).

Currently, the world of education in Indonesia has entered the Era of disruption which forces the world of education to make changes. Education is required to innovate by utilizing technology. The use of technology in the learning process aims to facilitate students in solving various learning problems, increase learning motivation, foster independent learning abilities, and enable learning interactions anywhere and anytime Priat(Yulia, Susanti, & Rizal, 2022). The use of technology in learning has changed the learning process from using the lecture method to using interactive learning media. Learning media that was previously in the form of printed media has changed to interactive multimedia that can be accessed online or offline (Ardiansyah & Nana, 2020).

Educators in the 4.0 era are required to master technology. Not only

technology, an educator must also be selective in determining media that is in accordance with the characteristics of students, so that students are better able to absorb learning quickly without the onset of boredom. Errors in choosing technology media and ease of accessing data will become a polemic for students and will ultimately lead to failure in achieving learning goals (Priatna & Arsani, 2019).

Learning media that is suitable for use in learning in accordance with student characteristics is interactive multimedia, where the media provided does not only provide one content in the form of text only, audio only but presents a combination of these contents. Army & Ghea (2019) in their research mentioned that the interactive learning media developed included valid, practical and effective media used in the learning process because it succeeded in increasing the value of student learning outcomes. This is also supported by research conducted by Ayu, ri & Lukman (2022) Interactive multimedia affects learning outcomes on student effort and energy material. Based on the Mann Whitney hypothesis test, sig = 0.000 <0.05 was obtained, which means that there is a significant effect of using interactive multimedia.

One of the utilization of technology as a learning media is using android devices. Besides being used as a communication tool, android devices also have the potential to be developed as interactive learning media that is beneficial for students. With android-based technology, learning will not be monotonous with text alone, but can create audio or visual elements and even animation to make it easier for students to understand learning material and can provide maximum results (Putra, Kartini, & Widiyaningsih, 2019).

Based on preliminary studies conducted by direct observation and interviews with class X Physics Teachers at SMA Negeri 1 Berastagi, currently learning physics is still done with conventional learning. Based on the teacher's information, it is also obtained that the student learning resources used by class X SMA Negeri 1 Berastagi still use modules that are distributed in pdf form. Until now, the media owned by the teacher is still very limited to the module. The use of textbooks is not responded positively by students, most students are lazy to open and not read modules because they are considered uninteresting by students.

Based on the description and background above, it is necessary to develop research to examine the problem with the title "Development of android-based interactive media on global warming topics to improve student learning outcomes".

1.2 Problem Identification

Based on the background of the problem, the researcher identifies sharing problems as follows:

1. Teachers' limited ability to make learning media
2. Demands for technological developments in current learning media
3. The modules used cannot display videos, animations so that students quickly feel bored
4. In SMA Negeri 1 Berastagi, the utilization of smartphones as a physics learning media in the form of applications has never been done.
5. Mobile phones have not been optimally utilized as a means of learning by students, more students use it for entertainment media alone.

1.3 Problem Limitation

Based on the identification of the problem above, the authors limit the subject matter as follows:

1. This research focuses on how to design android-based learning media, on class X global warming topics.
2. This research was conducted in class X SMA Negeri 1 Berastagi
3. The problem is limited to the development, feasibility, practicality and effectiveness of android-based interactive learning media for class x global warming topics at SMA Negeri 1 Berastagi.

1.4 Problem Formulation

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

1. What is the validity level of android-based learning media for class x global warming topics at SMA Negeri 1 Berastagi?

2. What is the level of practicality of android-based learning media for class x global warming topics at SMA Negeri 1 Berastagi?
3. What is the level of effectiveness of android-based learning media for class x global warming topics at SMA Negeri 1 Berastagi?

1.5 Research Objectives

Based on the problem formulation described above, the research objectives are as follows:

1. To evaluate the validity of android-based learning media for class x global warming topics at SMA Negeri 1 Berastagi.
2. To evaluate the level of practicality of android-based learning media for class x global warming topics at SMA Negeri 1 Berastagi.
3. To evaluate the level of effectiveness of android-based learning media for class x global warming topics at SMA Negeri 1 Berastagi.

1.6 Benefits of Research

Based on the research objectives to be achieved, this research is expected to have benefits in education both directly and indirectly. The benefits of this research are as follows:

1) Theoretical Benefits

a. For Teachers

This research is expected to make it easier for teachers to deliver learning materials with the development of android-based learning media on global warming topics for class x.

b. For Students

This research is expected to increase learning enthusiasm and motivation in participating in the teaching and learning process so that global warming topics is easier to understand.

c. For schools

This research is expected to be used as a teaching and learning reference and media in the learning process.

d. For researchers

The benefit for researchers is that they can develop the knowledge gained in college and provide innovation in teaching and learning activities as well as a reference for developing creative ideas on existing opportunities.

2) Practical benefits

a. For the teacher
   1. Provide information that by applying the appropriate media with the material to be taught, it can realize fun learning and increase understanding for students.
   2. Provide information to motivate teachers that interesting learning will make students active during the learning process.

b. For students
   1. Getting students used to being active, and participating when the learning process takes place and motivating students to study harder.
   2. Make students understand more about global warming topics so that it can improve learning outcomes.

c. For school

   Improve learning management in achieving the desired learning objectives

d. For Researchers

   For researchers, the benefits obtained are adding insight, experience on how to improve student learning outcomes, looking for reference data and motivating enthusiasm in research, increasing knowledge and skills more than before about android-based mobile learning and how it is applied in learning.

e. For policy makers

   This research is expected to help improve the quality of education so that educational goals can be achieved as much as possible.