

## CHAPTER I

### PRELIMINARY

#### 1.1. Background of the Problem

The COVID-19 (Coronavirus Disease-19) pandemic has affected education systems around the world, leading to the closure of schools, universities, and colleges. Based on research, public health experts and government officials take several steps, including social distancing, isolation, or quarantine; strengthening health facilities and urging people to work from home (Bedford, 2020). The policies taken by many countries, including Indonesia, by canceling all educational activities, have forced the government and related institutions to present alternative educational processes for students and students who cannot carry out the educational process at educational institutions (Purwanto, 2020). The results of the decision from the minister of education stated that all learning activities both in schools and universities were carried out in their respective homes through available applications. This is not a new phenomenon because the house has long been a center of learning, especially in terms of informal education. But now, learning from home has become a "new normal".

Along with the needs of the pandemic situation, students are required to have more policies in using Android or Smartphones that can support the effectiveness of online or online lectures, in these lectures students are required to look for online book sources as a companion in learning.

According to the Association of Educational Communication and Technology (AECT), learning resources are grouped into learning resources because they are utilized and learning resources are planned. The source of learning that is currently being planned is the use of the internet and also as a basis for understanding someone in using technology. With a variety of creativity,

models, and designs in developing technology as a learning resource that can attract the attention of students.

Technology to improve the quality of 21st-century education today must produce human resources who have complete competencies, known as 21st-century competencies. Human resources are expected to have knowledge skills and abilities in the fields of technology, information media, learning skills, innovation, and life skills and career (Punaji, 2013). One significant change is in the field of education which is often referred to as the industrial revolution 4.0. The changes made are not only in the way of teaching, but more importantly, the change in perspective on the concept of education itself. Entering the era of the industrial revolution 4.0, by apparently times, make not only the use of science and technology in learning but also support student learning outcomes.

A pocketbook is a simple book, a collection of material that is summarized in a form that is more practical to carry (Susilana, 2008). Considering that biology books have quite a lot of pages so that some biology students do not have an interest in reading, pocketbooks also have designs that can attract students' reading interest, such as book designs, and use language that is easy to understand.

Digital books can provide many benefits because information can be presented through multimedia in the form of narration, images, colors, animation, video, and audio.

The method of digital book is expected to be a solution to the difficulties, blase, and less of interest of students in understanding learning by utilizing digital pocketbooks as a complement to teaching materials (Mutalib, 2012). Digital pocketbooks have advantages that make it easier for students to study independently, such as being more accessible to students anywhere and anytime, not easily damaged because they are in digital form, not in print, and saving space. because it does not require storage space.

In the last 20 years, biotechnology has developed very rapidly. In several developed countries, biotechnology is getting serious attention and being developed intensively with the hope of providing solutions to various problems

faced by humans today and in the future which involve; needs for food, medicine, research, which in turn all aim to improve the welfare of human life. Biotechnology is a branch of biological science that belongs to one of them, namely being one of the productivity of biology students (Nugroho, 2018).

Based on the results of interviews with the google form and questionnaire sheet from Unimed students majoring in Biology class 2018 who have taken Biotechnology courses, the most widely used book sources are e-books or books that are accessed online and biotechnology learning does not run optimally due to the less of free book sources on the internet. and circulating websites or blogs that are not worthy of reading, this causes a less of understanding of Biology students and less interest in reading because generally biotechnology books have thick and very monotonous pages so that students are less effective in understanding the book. Students also often don't use books when biotechnology courses are running so they can only use teachers to understand the material.

Additional digital pocketbooks as a complement are needed to achieve biotechnology learning objectives and make the learning process effective. One of the best supplementary teaching materials used in the biotechnology sub-material is a digital pocketbook. Pocketbooks can be made digitally to convey one-way subject matter information in the form of a digital pocketbook. Digital pocketbooks are learning resources that utilize Science and Technology so that electronic devices such as smartphones and computers are used in learning. In these electronic devices there are picture materials, and colors that attract students' interest to be used practically and efficiently in the learning process

Based on the above background, the the researcher carried out with the theme of development a digital pocket book based on learning media as a learning resource for biology students. Various integrations of digital learning media in learning can enrich students' learning materials.

## 1.2. Identification of Problems

Based on the background of the problems that have been stated, the problems that can be identified are as follows.

1. Commonly of students already use Android or smartphones but do not maximize their use as a learning resource.
2. In general of online books are not worth reading,
3. Less of effectiveness in understanding biotechnology material so that pocketbook media is recommended as a learning companion source in achieving learning effectiveness.

## 1.3. Formulation of the Problem

Based on the limitations of the problems that have been described, the formulation of the problem in this study are:

1. How is the feasibility of a digital pocketbook of animal and plant biotechnology materials based on material experts and media experts?
2. How do students respond to the digital pocket book for animal and plant biotechnology materials?
3. How is the effectiveness of pocketbook media on the learning outcomes of animal biotechnology and plant biotechnology,?

## 1.4. Scope of problem

So that the research does not deviate from the research objectives, it is necessary to limit the problem, namely as follows.

The scope of this research problem is the Development of Android-Based Digital Pocket Book Learning Media in Development Of Biotechnology Digital Pocket Book Learning Media On Animal, and Plants, For Biology Students, which will be used by students in digital pocketbooks.

### 1.5. Problem Limitation

Based on the identification of the problem, this research is limited to:

1. The scope of this research is the development of learning resources accompanying textbooks by using the *ADDIE* model, namely the analysis, design, development, implementation, and evaluation stages
2. In this book, only 2 chapters of material topics are presented, namely animal biotechnology, and plant biotechnology,
3. This research is focused on measuring the feasibility of using digital pocketbooks among students, and discussing the effect on student books.

### 1.6. Research purposes

Based on the existing problems, the purpose of this research is as follows.

1. To determine the feasibility level of a digital pocket book for animal and plant biotechnology materials based on the results of the assessment of material experts and media experts
2. To find out student responses to digital pocket books for animal and plant biotechnology materials
3. To find out the effectiveness of pocketbook media on learning outcomes of animal biotechnology, plant biotechnology, in the Biotechnology class.

### 1.7. Benefits of Research

The benefits of doing this research are:

1. **Theoretical**
  - a. Adding knowledge about the development of digital pocketbooks as a learning resource and other benefits.
  - b. Adding knowledge to the world of education, through learning media in the form of a digital-based pocketbook, is expected to be an effective means of communication in the learning process to improve student learning outcomes.

## 2. Practical Benefits

- a. Availability of books as learning resources for students who can complete the handbook

### 1.8. Operational Definition

The operational definition in this research is as follows.

1. Learning resources are sources that are used to gain knowledge for someone, the learning resources referred to in this study are pocketbooks
2. Development research is a research method used to produce certain products and test the feasibility of a product.

