

# **CHAPTER I**

## **PRELIMINARY**

### **1.1.Problem Background**

Education is a conscious effort made by certain individuals or groups through teaching and/or training activities, which last a lifetime in various learning environments in an effort to prepare individuals to be able to play an appropriate role in community life (Purwanto, 2014). Education has a dynamic nature which means that it will continue to develop and change with the times. The changes in question are improvements in the field of Education that must be continuously carried out in anticipation of future needs, demands, and interests. Education is expected to be able to support development in the future, so education must be able to develop the potential of students so that students are able to find solutions and solve life problems that can occur in the future (Lilawati, 2017).

One of the important aspects to achieve the learning effect is the handling of material in the learning process. Learning is a process in which a person's environment interacts deliberately managed to enable him to participate in certain behaviors under special conditions or produce responses to certain situations, learning is a special set of education (Sagala, 2003). A person is said to have gone through a learning process if there is a process of permanent behavior change from previously ignorant to knowing, from not understanding to understanding, from less skilled to more skilled and from old habits to new habits that will provide benefits to the individual himself and his environment (Ibnu Badar Al-Tabany, 2014). This is also in line with Law No. 23 of 2003 which states that learning is a process of interaction between students and educators and learning resources in a learning environment. The learning process has a learning component that must be present to achieve the learning objectives. One component that must be present to help students in the learning process is learning resources (Rusman, 2011).

Learning resources are all sources that include people, messages, tools, techniques, settings and even materials that can be used by students both individually and in combined form to facilitate learning activities and help improve learning performance (Januszewski & Molenda, 2003). To maximize the utilization and use of learning resources, it is necessary to introduce and identify various learning resources. Good learning resources should be able to help optimize student learning, which is not only seen from student learning outcomes but also in terms of the process of student interaction with various types of learning resources that can stimulate students to learn and accelerate student understanding and mastery in learning materials (Sanjaya, Perencanaan Dan Desain Sistem Pembelajaran, 2017). The forms of learning resources include books, learning videos, films, brochures, posters, encyclopedias, slides, models, booklets, and so on (Prastowo, Sumber Belajar & Pusat Sumber Belajar Teori Dan Aplikasinya, 2018).

The curriculum that has now begun to be used in every school in Indonesia is the independent curriculum in line with the decision of the Ministry of Education and Culture for Research and Technology of the Republic of Indonesia No 56/M/2022 concerning guidelines for the implementation of the Independent Curriculum since the 2022/2023 school year. The independent curriculum has characteristics that are in accordance with post-pandemic learning conditions such as focusing on essential materials, project-based to shape the character of Pancasila students, and flexible according to the needs and character of each school. The independent curriculum also provides opportunities for students to increase student motivation by providing opportunities to choose project according to their interests and talents; increase student creativity and innovation by providing opportunities to explore various learning resources and create products or solutions that benefit the environment; increase student independence and responsibility by providing opportunities to plan, implement, and evaluate its projects; improve students' critical thinking and problem-solving skills by providing opportunities to identify problems, search for information, analyze data, and construct arguments; Improve students' communication and collaboration skills by providing opportunities to discuss, share ideas, provide input, and work together with others (Qolbiyah, Sonzarni, & Aulia Ismail, 2022). In line with

this, learning resources are one of the indispensable aspects to support the achievement of learning objectives in the implementation of the independent curriculum.

Biodiversity topic is one of the materials that must be studied in biology subjects in class X. Biodiversity topic is very important to study because it is directly related to the environment in which we live. This material discusses the level of biodiversity on earth, including gene diversity, species diversity and ecosystem diversity, biodiversity protection and the distribution of biodiversity in Indonesia. Based on the scope of the material, generally students will use the method of memorizing the material more than understanding the concept of the material. Therefore, in an effort to reduce conceptual and understanding errors, interesting and practical learning resources are needed for students. Apart from that, the existence of effective learning resources will make students more effective in learning. Interesting media, such as photography, can motivate students to learn and increase student retention. This is in line with the opinion expressed by Angkowo & Kosasih (2007) that visual media in particular help attract attention, clarify the presentation of ideas, and add diversity to neglected issues.

Learning resources can be obtained through the environment around us which provides a variety of real information that is closely related to everyday life. The existence of information sources around will be very useful in the learning process so it must be utilized as well as possible. One example is Siantar Zoo which can be used as a learning resource. This area is a very strategic location and can be easily reached by students in Siantar City but has not been fully utilized by teachers and students, especially for biodiversity topic. Teachers are generally only limited to using student worksheets, modules or textbooks to be used as learning resources. And student worksheets, modules or textbooks generally only provide materials and examples of biodiversity that are commonly used in each textbook.

Siantar Zoo located on Jl. Simanuk-manuk, Pematangsiantar city, North Sumatra province. Siantar Zoo was officially opened to the public on November 27, 1936. Siantar Zoo has an area of 4.5 hectares and has a large collection of animals with the best infrastructure in Indonesia. Siantar Zoo is divided into two locations, namely an animal park and a children's playground. Until now, Siantar Zoo still maintains its

status as the most complete and best animal park in the North Sumatra region. Despite various limitations such as limited space available, lack of funding and understanding for animal exhibition rejuvenation projects, through good animal care efforts, this animal park is quite successful in carrying out its role as a conservation institution and can be ranked as one of the best zoos among zoos in Indonesia. In line with this fact, Siantar Zoo can be used as a learning resource for students, especially in biodiversity topic, especially animal diversity.

Based on an interview with a Biology teacher conducted by the author in October 2023 at SMA N 1 Pematangsiantar, it shows that the learning resources provided by the school have not been able to fully support biology learning. In this case, learning resources used in schools are needed only textbooks that cannot provide a full picture according to the needs of students, especially biodiversity topics. This means that there are still students whose learning outcomes have not yet reached the KKM because their understanding of the material concepts is not optimal. Thus, it is necessary to develop learning resources, especially by utilizing local potential or the environment around the school. The learning resources needed by students, especially in biodiversity topic, are interesting, easy to understand, present visualizations of various species with morphological characteristics. This will provide a learning experience for students and not only limited to memorizing the material provided, but also understanding the concept of the material and getting to know biodiversity. Previously, the school only made simple observations of plants around the school, but this was also considered insufficient in providing learning experiences for students. As for observations on animal diversity, it has never been carried out due to various limitations. Therefore, learning resources that utilize local potential need to be developed as additional learning resources on biodiversity topic as a solution to outdoor learning problems, namely limited time, costs, equalization of student schedules, and school licensing for learning that requires activities outside of school. In this case, the local potential is research on biodiversity at Siantar Zoo which is presented in the form of a booklet. Learning resources in the form of booklets are expected to be able to provide a clear picture of the concept of biodiversity, especially animals for students.

In addition to teacher interviews, the author also made observations in the form of giving questionnaires to students to find out student needs. From observations made on 50 students who had studied biodiversity material, 50% stated that the material was difficult to understand. It is also known that, 74% of 50 students answered that there were no printed learning resources other than textbooks used in learning biology on biodiversity material. And in learning on the material, 48% of 50 students stated that the learning resources used were still lacking to help them understand biodiversity material and another 6% stated very lacking. 58% of the 50 students also responded that they felt the need to get additional learning resources other than textbooks in biodiversity learning especially at the biodiversity level, and another 38% answered that they really need to get learning resources other than textbooks on the material. So that one of the learning resources that can be developed is booklets, especially vertebrate booklets at Siantar Zoo which have also never been used by students at the school. This is also in line with the results of the questionnaire where 68% of 50 people answered that they had never used a booklet as a learning resource. As many as 74% also answered that the vertebrate diversity booklet at Siantar Zoo would be interesting if it was used as a learning resource on biodiversity material and another 22% answered that the booklet would be very interesting if it became a learning resource on biodiversity material. Students have also never used learning resources such as booklets for biodiversity topic. Thus, based on the analysis of these needs, the development of learning resources in the form of vertebrate animal diversity booklets at Siantar Zoo needs to be carried out.

A booklet is a small book that functions as a leaflet to convey certain messages or information. A booklet is a small (A5) and thin book consisting of 48 double-sided pages, containing writing and pictures. With a smaller size, booklets have more complete and shorter contents and are easy to carry anywhere so they are more practical (Rukmana, Syamswisna, & Yokhebed, 2018). The term booklet comes from books and leaflets, meaning that booklet media is a combination of leaflets and a book with a small format (size) such as leaflets. The structure of the contents of the booklet resembles a book (introduction, content, closing), it's just that the way the contents are presented is much shorter than the book (Simamora, 2009). So, by reading booklets,

someone will be able to gain knowledge like reading books, but with a reading time as short as reading leaflets so as to increase student learning effectiveness (Pralisaputri, Soegiyanto, & Muryani, 2016). Apart from playing an important role in teacher-student communication, booklets will also allow students to learn to the maximum as the content is developed based on basic competencies (Yani, Muhsyanur, Sahriah, Haerunnisa, & Salmawati, 2018). An interesting and comprehensive booklet can be a breakthrough to improve student achievement, motivation (Ajizatunnisa, Wahyuni, Waluyo, & Miharja, 2018) and improve the quality of discussions (Adri, Irawati, & Sueb, 2017).

Similar research regarding booklet development was also carried out by Syamsurizal, Syarif, Darussyamsu, & Farma (2021), a book about human movement systems for class XI with a very valid rating (94.11), was rated as very practical by students (94.59) and teachers (92.19). According to research by Suniah, Indriyanti, & Dewi (2018), a research book based on insect diversity in solananceae plants is worthy of being a complement along with biology teaching materials in high school because it got 93.30% which is a very valid criterion stated by experts, the students' cognitive learning outcomes are good. seen from the average N-gain score of 0.68, the criteria are 'medium' and received a positive response from teachers and students with a score of 86.79% which is very feasible. According to Maisyura, Ajizah, & Aminarti (2021), Bryophyta Booklets on the Banks of the Kembang River as Learning Media for Class Research by Rukmana, Syamswisna, & Yokhebed (2018), concluded that the diversity booklet has been validated for its suitability and is considered valid with an average validation score of 0.99 and is suitable to be used as a learning medium in the sub-material of using biodiversity.

Based on the background presentation above, the research entitled "**Development of Vertebrates Diversity Booklet at Siantar Zoo as a Learning Resource on Biodiversity Topic Grade X SMAN 1 Pematangsiantar**" is important to do.

## 1.2.Problem Identification

Based on the background of the problems that have been described, several problems are identified, namely:



1. Biology learning is limited to textbooks with examples of vertebrate diversity that are less relevant to the surrounding environment.
2. There is no direct observations of vertebrate diversity at material levels of biodiversity especially at Siantar Zoo due to limited costs, time and school permits.
3. There is still a lack of use of learning resources in the form of booklets that are used as learning resources for grade X high school students.
4. Booklet as a learning resource containing vertebrate diversity topic utilizes the surrounding environment and local potential that was previously underutilized.
5. The lack of learning resources on biodiversity material causes student learning outcomes to be less than optimal.

### **1.3. Research Scope**

The scope of this study is as follows.

1. The research method uses development research methods.
2. Booklet development focuses on class X biodiversity topic.
3. The feasibility assessment of the booklet was developed based on the results of assessments from learning resource experts, material experts, Biology teachers and class X students.
4. The effectiveness of the booklet is reviewed from student learning outcomes.
5. The effectiveness of the booklet is reviewed from the N-Gain parameter.

### **1.4. Problem Limitation**

Problem limits need to be determined so that researchers can be more focused and focused on the problem in research. Based on problem identification, researchers focus research on aspects of:

1. Development of a vertebrate diversity booklet intended for students who study Biodiversity topic in grade X of SMAN 1 Pematangsiantar.
2. The material developed is limited to the level of biodiversity and vertebrates observed at Siantar Zoo only at the species level which will then be outlined in booklet form.

3. Limited to researching the cognitive aspects of learners.
4. The research method uses the Sivasailam Thiagarajan Four-D (4D) development research method with stages of Define, Design, Development, and Disseminate.
5. The effectiveness of the booklet is reviewed from the N-Gain parameter.

### **1.5.Problem Statement**

1. How is the feasibility of the vertebrates diversity booklet at Siantar Zoo on biodiversity topic based on the results of media expert validators?
2. How is the feasibility of the vertebrates diversity booklet at Siantar Zoo on biodiversity topic based on the results of material expert validators?
3. How did the Biology teacher respond to the vertebrates diversity booklet at Siantar Zoo on biodiversity topic?
4. How do students respond to the vertebrates diversity booklet at Siantar Zoo on biodiversity topic?
5. How is the effectiveness of the vertebrates diversity booklet at Siantar Zoo on student learning outcomes on biodiversity topic?

### **1.6 Research Objectives**

1. Knowing the feasibility of vertebrates diversity booklet at Siantar Zoo that have been developed based on the results of media expert validators.
2. Knowing the feasibility of vertebrates diversity booklet at Siantar Zoo that have been developed based on the results of material expert validators.
3. Knowing the feasibility of vertebrates diversity booklet at Siantar Zoo that have been developed based on the responses of Biology teachers.
4. Knowing the feasibility of vertebrates diversity booklet at Siantar Zoo that have been developed based on student responses.
5. Knowing the effectiveness of the vertebrates diversity booklet at Siantar Zoo on student learning outcomes on biodiversity topic.



### 1.7 Research Benefits

The results of this development research are expected to be able to provide the following benefits.

a. Theoretical benefits

1. Theoretically, it can add to the knowledge of writers and readers about the vertebrate diversity in Siantar Zoo.
2. As a reference source for the development of similar research in the development of learning media.

b. Practical benefits

1. For schools, it can improve the quality of education in schools and be an input in the development of learning resources to support biology learning in schools.
2. For teachers, it can be an input in efforts to use booklets as a learning resource based on the surrounding environment and add interesting and useful learning resources for students.
3. For students, it can increase students' interest in learning and insight through the use of Booklets, especially on biodiversity topic.
4. For researchers and prospective teachers, adding skills and creativity in developing interesting learning resources, as needed, and communicative for students.