

## CHAPTER I

### INTRODUCTION

#### 1.1 Research Background

In delivering the learning process, teaching media are also needed, which can improve students' knowledge and connect concepts with real life, so that learning becomes meaningful. National research Council (1996) state Learning science is an active process that force students to be active and optimized students intellectual. So that, to construct students intellectual its needed learning media .One of the learning media suggested for use in the curriculum 2013 is the worksheet.

Worksheet is sheets contain students activity to do by student in line with the material that being discussed. Worksheet also can be defined as guide for students learning which make easier teacher and students doing teaching and learning process. In other side, worksheet also defined as sheets involved matter, summary, and directions to do task that should be done by students.

Worksheet can be useful in many ways such as, as supplements to textbook, worksheets can be used to add information for particular classes. According Toman (2013) worksheet developed based on constructivist approach enable the students to actively participate during learning process, help them to learn subject better, and increase students success. In addition, blanks in worksheets are invitations for students to fill in gaps, opportunities for knowledge construction. Well-designed questions in worksheet can draw students interest when paired with proper teaching methods (Lee, 2014).

.In improving the quality of students in terms of the education system various curriculum changes have been carried out along with the curriculum revision. As is known that the curriculum 2013 has changed the central pattern of the learning process, from teacher centered to student centered and teacher has function as facilitator only. In the curriculum of 2013 emphasizes on a

contextual approach becomes the process approach as strengthening of the use of scientific approach. The scientific approach is one of the approach that facilitates students to acquire knowledge and skills based on a scientific method: observing, questioning, reasoning, trying and forming networks (concluding, presenting, and communicating). Students are directed to process knowledge, discover and develop their own concepts with regard to the subject matter so that it provides an opportunity for students to cultivate their high-level thinking skills (Kemendikbud, 2013).

One basis for learning is discovery learning which is divided into two, free discovery learning and guided discovery learning. The learning base that the researchers chose in this study was to use a guided of discovery learning model. This is due to this learning model concentrating learning in the teaching process and training students' independence in their learning process. So that students are motivated to construct their cognitive abilities, so it is expected that with this learning model students get maximum benefits both from the process and from the learning outcomes.

The selected material is vertebrate which is a sub-topic of chapter animalia class X in semester 2 in biology learning, because these subjects are included in one subject that is difficult to understand by most students, this is in line with the criteria of compatibility of subject matter with basic competence such as completeness, the subject matter should support reach of Competence Standarts and Basic Competence, Broadness is presentation of the concept, definition, principle, procedure, example and training that support the needed, and Deepness towards the subject matter should fulfill the needed of cognitive, affective and psychomotor aspect that request, while vertebrate subject matter in book is too deep and detailed, not only mentioned but also described and this is over the limitation of learning objectives (Hidayat *et al.*, 2016).

So, it's needed the worksheet that make it keep in line with the thing that should be achieved. The researcher also chose the SMA 1 Perbaungan school, as a place of doing research because the school was the school also one of the school that used the book that contain over deep explanation as told above.

Based on the description of the problems above, the researcher is interested in conducting a study entitled development of student worksheet by using guided discovery learning on vertebrate topic grade X mia SMA negeri 1 perbaungan.

## **1.2 Problem Identification**

Based on problem background above, so problem that will be identification are :

1. Worksheet in teaching books or reference books only contains the description of the material along with the questions for strengthening certain concepts.
2. Vertebrate subject matter is one of topic that discuss deeply in book..

## **1.3 Problem Scope**

In order for the research not to deviate from the title, the researcher limits the problems to be studied, so that the problem limits as follows:

1. Development of worksheet products is developed using the 4D development model, which is define stage, design, develop and disseminate stage to see the feasibility level of worksheet .
2. Worksheet products is validated by expert of material, learning strategy and graphic design, also responses from biology teachers, and responses of students involved.
3. The validation using International Organization of Standardization (ISO) that is to see the compatibility size of worksheet, such as using A4 paper, width 210 mm and length 297 mm.
4. The developed student worksheet is based on guided discovery learning by stages explaining goals / preparing students, orienting students to problems, formulating hypotheses, conducting discovery activities, presenting the results of discovery activities, and evaluating discovery activities.

5. The developed worksheet contains vertebrate subject matter in accordance with Basic Competence 3.8 regarding animal grouping and Basic Competence 4.8 regarding the presentation the role of vertebrate.
6. The student worksheet developed is aimed at students of class X MIA in SMA Negeri 1 Perbaungan.
7. The effectiveness of student worksheet is measured by t-test from the differences score between pretest and posttest, pretest before doing the worksheet and posttest after doing the worksheet

#### **1.4 Research Question**

Based on the problems scope, so the researcher make the research question as follows :

1. How the process of development student worksheet ?
2. How the feasibility level of student worksheet on vertebrate subject matter according to material expert?
3. How the feasibility level of student worksheet on vertebrate subject matter according to learning strategy expert?
4. How the feasibility level of student worksheet on vertebrate subject matter according to graphic design expert ?
5. How the feasibility level according to biology teacher towards worksheet on vertebrate subject matter ?
6. How students responses of worksheet on vertebrate subject matter ?
7. How the effectiveness of worksheet ?

#### **1.5 Research Objectives**

Based on the research question described above, the objectives to be achieved are:

1. Knowing the process of development student worksheet.
2. Knowing the feasibility level of student worksheet on vertebrate subject matter based on expert of material.
3. Knowing the feasibility level of student worksheet on vertebrate subject matter based on expert of learning strategy .

4. Knowing the feasibility level of student worksheet on vertebrate subject matter based on expert of graphic design .
5. Knowing the feasibility level of student worksheet on vertebrate subject matter based on biology teacher .
6. Knowing student response towards student worksheet on vertebrate subject matter .
7. Knowing the effectiveness of worksheet.

### **1.6 Research Benefit**

By implementing the research above, it is expected that the benefits obtained after this research are as follows :

1. For schools: The results of this study can be used as references for the provision of teaching materials in the form of student worksheet based on guided discovery learning for students of class X MIA especially in vertebrate material.
2. For teachers: The results of this study was a worksheet based on guided discovery learning that may be used as a reference or teaching material in the vertebrate learning process.
3. For students: worksheet that produced from this development research can be used as a teaching media, so that it can motivate students to be more creative and independent.
4. For researchers: worksheet produced from this development research can be used as experience in applying learning using worksheet based on guided discovery learning to students in the classroom.
5. For other researchers: The results of worksheet product development research can be used as further research in implementing four-D or other model.

## 1.7 Operational Definition

The operational definitions in this study are as follows:

1. Worksheets is a teaching material consists of sheets with material, summary, and direction to do an experiment that should be done by the students, has theoretic characteristic towards core competence and basic competence. The development of this worksheet uses the Research and Development (R & D) method with the 4-D development research by Thiagarajan. This research is expected to produce a product that is feasible to use in the learning process. The worksheet developed only arrived at product testing with a limited scale validated by the expert team and through teacher responses and student responses.
2. The developed worksheet is based on guided discovery learning in vertebrate material, which is a guide for students to conduct learning activities that contain activities to provide opportunities for students to obtain and develop their understanding of the material to be studied in accordance with the learning objectives to be achieved.
3. Vertebrate is one of the biological material that studies the grouping of vertebrate animals according to Basic Competencies 3.8 and 4.8 regarding its role .