

CHAPTER I INTRODUCTION

1.1 Background

According to (Mughtar, 2004) chemistry is one of the natural sciences that plays an important role and a significant influence on the development and technological progress. But on the other side chemistry also can be categorized into a science that is full of abstract concepts, this abstraction makes students difficult in enjoying and understand the chemistry lesson further. One of chemistry topic that requires a long time understanding to study is an acid-base topic. The acid-base material is a chemical material that requires a long time understanding to study, sufficiently large subject matter so it needs a media that can be used by learners to learn independently to facilitate the learning process considering the learning time in school is less than outside school. Above statement was supported by many researchers that research acid base such as “LKS Asam Basa Berbasis Pendekatan Ilmiah dalam Meningkatkan KPS Ditinjau dari Jenis Kelamin” by Novita Sari Fasihah in 2017 and “Pengembangan LKPD Praktikum Berbasis Lingkungan Pada Materi Asam Basa Dikelas XI SMAN 1 Sabang” by Sardaini Nawarda in 2017. To make students easier in the understanding acid-base matter, a teacher should find an appropriate media.

The use of learning media is one way to support the achievement of learning purposes. The use of appropriate media and variations in the learning process can increase the motivation to learn and can reduce the passivity of students. Learning media should be packaged interesting so that students can linger learn a learning material. Learning media are often used in schools such as powerpoint, video learning, text modules. But the learning media cannot be used at any time by students. Less varied media is distributed not solely teacher error, but because of less optimize technological developments. It requires a good understanding to succeed in chemistry not by memorizing. The student worksheet in the learning process is one of the efforts to create more qualified learning. However, from various kinds of student worksheet that are often used and provided by the school for the learning process is print media or powerpoint

which is not interesting at all. To support the study of chemistry that contains abstract concepts, it can be utilized an ICT based learning media (Bunce, 2009).

The Internet is now a part of life global society, not only limited to adults but also children, generally, they now use the internet. This is all not free from easy offered via the internet, anything can be found and learned by everyone anytime and anywhere according to respective needs. (Husni, 2016). According to statistical data, the survey in 2014 almost half the world community used the internet and Indonesia is ranked 13th the largest internet user with 42,258,824 numbers the user. (Kompas, 2014). Based on the results of a survey conducted by Europe Union Kids Online and published by the European Commission's Safer Internet Program shows that the highest activity carried out by children and these teenagers are:

- Homework (92%)
- Playing game (83%)
- Watch the video (75%)
- Social networking (71%) (Council Europe, 2014)

The Internet has also become a major reference for accessing news and information that is massive in various sectors of life. Even pens and paper for students has turned into Facebook, Twitter, Line, What's Up, Instagram, YouTube, Google, Wikipedia, and others. Internet users are most teenagers are still at the age of junior and senior high school that so ambitious in seeking information and accessing information through the internet (Kominfo, 2015).

Development of Student Worksheet is required to be able to overcome the problems in the learning process, one form of the development of Student Worksheet is the use of information and communication technology in the field of education. The form of the utilization of information and communication technology is mobile learning (m-learning). One part of electronic learning (e-learning). M-leaning is a media of learning by using mobile devices such as mobile phones, PDAs, laptops, and tablet PC (Astra, 2012: 175-176). In this study, the researcher tries to make an android based student worksheet.

The Students' Worksheet based on android was developed by inquiry training learning media because inquiry training is an effort to help students to develop critical thinking skills, problem-solving abilities and in general to develop intellectual skills. The student worksheet contains material and exercise questions that learners can use as self-learning media. The material contained in this Worksheet developed is compiled from various leaning sources, to provide students with a wider insight into the material. Insight held by learners is what affects the liveliness in the learning process.

Based on the above background, the researcher tries to develop Student Worksheet by using an android application on acid-base material to facilitate students to study independently and learning activities, especially in SMA N 14 Medan. Then the researcher is interested in conducting research entitled **“The Development of Inquiry Training Students' Worksheet by Using Android on Acid Base Topic ”**

1.2 Problem Identification

Based on the background explained above, the problem identification in this research includes

1. Students' Worksheet used in the chemistry learning process is still limited to print media (book).
2. Students' Worksheet should develop under technological developments and can be used by learners as a self-learning media that is practical, economical, and not bound by time and space.
3. Many learners who own and use mobile devices in the form of android phones, but not yet used optimally to expedite the learning process.
4. Students are required to understand the acid-base learning topic.

1.3 Problem Limitation

The problems studied in this study are limited to:

1. Students' Worksheet was developed by using ionic framework application
2. Android-based student worksheet only contain material, exercise questions and discussion about an acid-base matter related to curriculum 2013

1.4 Problem Formulation

Based on the above description, can be formulated by research problems as follows:

1. How is the properness of android based student worksheet?
2. Can android base student worksheet increase student learning achievement?
3. How are students learning motivation with android based student worksheet?

1.5 Research Objectives

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

1. To know the properness of android based student worksheet as practical and economical learning which has been compiled.
2. To know the effect of android based student worksheet can increase student learning achievement
3. To know the students learning motivation with android based student worksheet

1.6 Research Benefit

The results of this study are expected to have benefits for teachers and high school students in general and researchers in particular. In general, the benefits derived from this research are:

1. For Educators (High School Teachers)
 - a. The existence of this research adds chemical learning media in the form of Students' Worksheet on Acid-Base material that can be used by the teacher as a self-learning tool to facilitate the learning process.
2. For High School Students
 - a. Increase the interest of students in studying Acid-Bases.
 - b. Improving the comprehension of learners that can improve the learning achievement of students.

3. For Researchers

This research is useful for researchers because it can improve the insight and knowledge in training skills as an educator and can improve the skills of researchers in making learning media in the form of Students' Worksheet for the learning process.

1.7 Operational Definition

1. Research development is an attempt to develop effective educational products in the form of learning materials, media, strategies, or other materials in learning to be used in schools not to test the theory (Gufron, et al, 2007: 5)
2. Student Worksheet is a student manual used to conduct an investigation or problem-solving activities (Trianto, 2009)
3. Android is an operating system for Linux-based mobile devices that includes operating systems, middleware and applications (Nazruddin, 2012: 1).
4. Inquiry Training Learning Model is an effort to help students to develop cognitive skills, problem-solving abilities and in general to develop intellectual skills (Joyce et al, 2011: 215)
5. Properness of teaching material is a proper teaching material about the acid-base that arranged systematically, operational and accompanied by guidelines for using it. The properness was measured by the media and material validation sheet.
6. Learning achievement is a student's cognitive skill in an acid-base topic, the learning achievement is measured through pretest (before learning) and posttest (after learning).
7. Student Motivation is an encouragement of students to study.
8. Acid-base is a subject matter of XI grade science in even semester. The acid-base is used to determine the pH of a solution which is categorized as acid, base or neutral.