CHAPTER I
INTRODUCTION

1.1 Background

The development of Information Technology (IT) has had an influence on the world of education, especially in the learning process (Rusydi, 2017). The development of Information Technology (IT) is strongly supported by the availability of internet networks. In education, the internet is used as a support in learning media (Maritsa, et.al., 2021). In this era of globalization and information, the use of Information Technology (IT)-based learning media has become a necessity (Muhson, 2020). By utilizing advances in information technology (IT), it is hoped that education will become better and more flexible, both in terms of the system to be developed, the material that can be accessed by students and teachers, the learning process that will be implemented and the learning media used (Mulyana, 2021). Learning media has an important role because it can help students' learning process, apart from that, media can also concretize abstract concepts in learning, especially in chemistry learning (Dony, et al., 2018; Karo & Rohani, 2018; Mardhiah & Ali Akbar, 2018). Apart from that, learning media can be used to convey material efficiently and easily for students to understand and media can be used to increase student motivation and learning outcomes (Adawiyah, et al., 2021; Fransisca, et al., 2019).

One of the media that can be used to carry out chemistry learning is Android-based interactive media (Lukman, 2020). Interactive media is a combination of images, video, animation and sound in one software with the aim of users interacting directly (Novitasari, 2016). Interactive media is a tool to clarify the presentation of lesson material. The use of interactive media aims to make it easier for students to learn the material (Armansyah et al, 2019). The ability of interactive media to increase understanding of this concept is related to the use of animation which helps students visualize abstract chemical concepts thereby improving students' way of thinking (Mustika, 2023). Based on research conducted by Clara, F (2023) stated that the use of interactive learning media has a significant positive impact on students' understanding of chemical concepts and learning motivation.

Utami's research (2020) states that the use of interactive learning media also has a positive effect on student learning motivation. Students show a higher level of learning motivation and are more motivated to participate in the learning process. Furthermore, research by Fadillah (2021) states that interactive media can be an effective tool in improving the quality of mathematics learning in a more interesting and interactive way. The characteristics of material that contains many abstract concepts requires visualization from a submicroscopic perspective to help students understand the material so that appropriate learning media is needed (Samha, 2019).

One of the materials studied in chemistry is salt hydrolysis. The material on Salt Hydrolysis studied by class understanding salt hydrolysis requires an understanding of the types of acids and bases that make up the salt, the ionization reactions that occur, the acids and/or conjugate bases that undergo hydrolysis, the ions produced by the hydrolysis reactions, and the effect of changes in ionic equilibrium on the properties of the solution (Habidin, 2023). The topic of salt hydrolysis must also be studied through an introduction to its three aspects. The macroscopic aspect of salt hydrolysis is related to things that can be observed or measured, such as the pH of the salt solution, the nature of the acid-base that forms it, and the characteristics of the salt solution undergoing hydrolysis. The submicroscopic aspect of salt hydrolysis includes abstract concepts that cannot be observed directly, such as the ions in solution that form salt. The symbolic aspect of salt hydrolysis material includes formulas, symbols, and reactions, such as chemical formulas for salt compounds, salt hydrolysis reaction equations, and calculating the pH of salt solutions. (Albanani, et.al., 2020).

To increase students' learning motivation, especially in studying salt hydrolysis material, it is necessary to develop interactive learning media. In developing learning media, several supporting applications are needed, such as Website 2 Apk Builder, which is software that converts learning media files from Power Point combined with iSpring Suite into an Android application. Ispring Suite is a tool used to create interactive questions in various forms (Nugraha et al., 2021). Ispring Suite can convert Power Point files into an attractive flash format that can be used directly by users (Hanisah et al., 2022). Ispring Suite is also a multi-purpose

e-learning authoring tool that allows the creation of various types of e-learning content (Ariyanti et al., 2020). Website 2 Apk Builder is used to convert web-based applications into apk-based applications. The way this application works is very easy by changing the file format from web (html) to android application (apk) so that this web-based application can function well on android-based smartphones (Safira et al., 2022). These three applications can be combined to build an Android learning application that will make it easier for students and educators to teach and learn (Furi & Rozi, 2020). Some of the advantages of iSpring include being able to insert various forms of media, such as recording and synchronizing videos, adding flash and YouTube videos, importing or recording audio, adding information-making presentations, and being able to create unique designs so that the learning media products will be more attractive. In addition, iSpring Suite can be optimized for the web and can design quizzes with various types of questions, namely: true/false, multiple choice, multiple answers, typing, matching, sorting, numeric, fill in the blanks, and multiple choice text (Alfin, LF, Listiadi, 2021).

Based on the results of interviews conducted at SMA Negeri 5 Medan in October 2023, there were several problems that occurred in the teaching and learning process, one of which was the students' chemistry learning results which did not reach the KKM (Minimum Completeness Criteria) score, especially in the salt hydrolysis material. Then, the learning tools used by teachers include chemistry textbooks, Learning Implementation Plans (RPP) and Learning Outcomes (CP) for presenting material to students. The use of learning tools, which can be said to be monotonous, does not help students increase motivation and interest in learning so that the learning outcomes obtained are low. Supported by research conducted by Veronica (2018), data was obtained that the majority of students had not reached the KKM in learning salt hydrolysis. Salt hydrolysis material requires a good understanding of concepts and involves a lot of chemical reactions in the discussion. Mastery of salt hydrolysis material also requires understanding of supporting concepts, such as acid-base material that has been studied in previous lessons. However, in reality students' understanding of the acid-base concept as a support for salt hydrolysis material is still very low. This is what causes low student

chemistry learning outcomes in salt hydrolysis material.

Then, the results of research by Somantika (2020) show that students have difficulty understanding the material on salt hydrolysis which consists of indicators (1) identifying changes in the color of red litmus and blue litmus indicators in several salt solutions, (2) understanding the explanation of ion equilibrium in salt solutions , (3) deduce the acid-base properties of a salt solution and determine the pH of the salt solution, with levels of difficulty respectively 46.72% (medium), 45.83% (medium), 37.83% (low), and 49.67% (medium). This research also found that internal factors causing difficulties in learning chemistry include students' weak understanding of the prerequisite material for salt hydrolysis, students' understanding of salt hydrolysis concepts is relatively low, students' mathematical abilities are low, students' interest in learning and motivation to learn chemistry is also low. External factors causing difficulties in learning chemistry include the negative influence of peers, short learning time at school, and inadequate facilities to support the salt hydrolysis learning process.

Apart from exploring the concept, in the 2013 Curriculum one of the basic competencies for salt hydrolysis is designing, carrying out and concluding experiments on the design results of identifying the pH of salts and identifying salts produced from base acids. So teachers should use good analogies that can help students store information in their long-term memory. Therefore, the development of Android-based iSpring learning media on salt hydrolysis material is very appropriate to help students understand the lesson material. Previous research related to the development of iSpring, including Anwar et al (2019), stated that the iSpring learning media was successful in increasing students' interest in learning. Then Amali et al., (2019) showed that the application of iSpring learning media made the learning process more participatory. Meanwhile, research conducted by Faiqotul Himmah (2017) used iSpring Suite 8 media on students at SMPN 1 Puri Mojokerto in the 2016/2017 academic year on additional materials which resulted in increased student learning outcomes. The research results were seen from the learning media with an average score percentage of 93.9% with very good criteria and student responses of 98.33% with very good criteria.

In creating iSpring learning media, researchers used the 4D development model adapted from Thiagarajan and Semmel (1974). The 4D model consists of four stages, namely Define, Design, Develop, and Disseminate (Sugiyono, 2020). First, researchers will carry out an analysis of the media, materials and conditions of needs of teachers and students as research subjects. Then the researcher will modify the development model according to needs. Then the researcher will prepare a product design and design the initial media. After the design stage, the next stage is validation or standardization of learning media by several validators according to their expertise and competence. After the validation and revision stages, the media is ready to be tested or distributed to students to find out how students respond to learning media through student response questionnaires. However, this trial phase was not carried out effectively due to time constraints and will be tested by other schools after this application is disseminated to students. The measuring tools for the success of developing iSpring learning media are validation instruments and student response questionnaires.

It is hoped that with the presence of iSpring learning media, the learning process will become more interactive, varied and increase students' interest in learning so that students can more easily master the salt hydrolysis material and improve student learning achievement.

Based on the background above, researchers tried to develop Student Worksheets in chemistry learning and process the use of Android applications in developing Student Worksheets to increase high school students' learning motivation. To support the success of learning activities, researchers are interested in conducting research entitled **"Development of iSpring Learning Media Based on Android Mobile Using LKS on Salt Hydrolysis Material".**

1.2 Problem Identification

Based on the background explained above, then problem identification in

this research includes:

1. It is difficult for students to understand the concept of salt hydrolysis because it does not involve macroscopic, microscopic and symbolic aspects.
2. Lack of variety in teacher learning media in delivering teaching material.
3. Most teachers have not developed application or program-based learning media.

1.3 Scope of Study

The scope of this research problem can be formulated as follows:

1. This research discusses the analysis of the development of Android-based iSpring learning media using student worksheets (LKS) on salt hydrolysis material.
2. This research discusses the feasibility of iSpring learning media on salt hydrolysis material.

1.4 Problem Limitation

So that the problems in this research do not become widespread, it is necessary to limit the research as follows:

1. The learning media that will be developed is Android-based iSpring learning media using student worksheets (LKS)
2. The material presented in the learning media is salt hydrolysis material in two classes XI Science at SMA NEGERI 5 MEDAN.

1.5 Problem Formulation

Based on problem identification and problem limitations, the problem formulation in this research is as follows:

1. What are the results of the needs analysis and learning media currently used at SMA Negeri 5 Medan?
2. What is the feasibility of Android-based iSpring learning media using student worksheets (LKS) on salt hydrolysis material?
3. How do students respond to the iSpring learning media on salt hydrolysis material?
4. How is the effectiveness of iSpring learning media on student learning

outcomes?

1.6 Research Objective

This research will be carried out with the following objectives:

1. To find out the results of the needs analysis and learning media used at SMA Negeri 5 Medan.

2. To determine the feasibility of Android-based iSpring learning media on salt hydrolysis material.

3. To determine students' responses to the Android-based iSpring learning media on salt hydrolysis material.

4. To determine the effectiveness of iSpring learing media on student learning outcomes

1.7 Research Benefit

This research is expected to provide the following benefits:

1. Based on theoretical points

   Through research, it is hoped that it can increase insight into development knowledge and broaden thinking about developing Android-based iSpring learning media.

2. Based on practical points

   a. For students

      The availability of iSpring media can help students understand the salt hydrolysis material presented by the teacher. Also trains students to be more active and independent in the learning process, and increases student interest.

   b. For teachers

      It is hoped that the quality of chemistry learning will improve by using iSpring learning media on salt hydrolysis material. This is also an input to be more innovative and creative in contributing to the field of education, so that learning is more effective and active.

   c. For school

      It is hoped that the iSpring media can become a source of learning and

information in chemistry learning at school.