CHAPTER I
PRELIMINARY

1.1. Background

The impact of technological developments in education on learning process is significant. To be effective and efficient, the learning process must be developed, implemented, analyzed, and monitored. The advancement of technology and information should provide opportunity for students to learn. With the advancement of technology, teachers are being forced to be more creative and imaginative in their media creation. Teachers can help to create material that is appropriate for the way they educate if they are involved in the creative process. With the constant media and how teachers teach, the teaching learning process would've been smoother.

The current pandemic is a problem facing everyone in the world. This situation affects daily activities, including the teaching and learning process. One of the effects of changing conditions based on what happens during the teaching process is the lack of physical and social contact between teachers and students to prevent the spread of the virus. It can be said that it is difficult to strictly deal with the prevention of physical contact, because there must be interaction between teachers and students in the teaching and learning process. This interaction is one of the triggering factors of student activities in the learning process. The lack of learning media that can replace the way teachers teach when offline is one of the causes of the lack of student learning outcomes during online. This change in the situation is one of the fatal effects, because the teaching media that teachers will develop is very different from the previous teaching media.

Seen from the problems that emerged during the pandemic, it shows that there is a lack of development of educational media that can be accessed by students from school by teachers. The development of this media must be carried out immediately in tandem with the advancement of technology development to assist in the teaching and learning process in the future. Good learning media can be the main key in the way teachers teach. The way teachers teach can be influenced by the use of existing media. Learning media that is utilized appropriately in the learning process will become a more effective and efficient support tool in achieving the learning objectives.

The factor of the students' understanding of the material; especially in chemistry, how the teacher effectively delivers his material to students with using certain media. Learning media should be engaging and help students in the learning process the material being taught, this is in line with the statement expressed Sanaky in Puspitarini, (2019) that the benefits of instructional media include: (a) By using learning media, the learning process will be more interesting, so it can lead to motivate student learning; (b) Can clarify learning materials, so that students can easily understand the material and enable students to master the learning objectives; (c) By using instructional media, the learning process becomes more varied. The material is not only delivered orally, so students do not get bored quickly and more effectively and efficiently; and (d) Students listening to the material presented by the teacher, doing more learning activities such as: observing, doing, demonstrating, and others (Puspitarini & Hanif, 2019)

The provision of media as well as effective teaching methods is indispensable in improving learners' learning outcomes. Because the potential of learners will be more aroused when helped by media that support the interaction process in teaching and learning. Students can be understood in learning scientific concept and discover the importance of the material with such experience has to offer. If the student has the chance to learn what they find interesting in chemistry, student will feel a sense of more enthusiasm toward their learning. Teachers should plan science education with respect to their students and effective media and method in teaching. Physical media that are usually used to help offline learning are inefficient when it is used online. As a result, hence the need for the development of flexible and engaging learning media for students.

Multimedia, a form of computer science, refers to the combination of two or more than two media. The fact is that multimedia is a unity of media and a reasonable coordination of media instead of a simple combination of a variety of media to show information and enhance people’s understanding and memory of information (Guan et al., 2018). One of the multimedia can be used is Animation video.

Animation video is stir-shaped image of a set of objects (images) are arranged uniformly follow of the flow movement that has been determined at each increment

count the time that happened. Image or object that is referred to in the above definitions may include images of human, animal, or in writing. In the process, the creator of animation or better known as the animator must use logical thinking to determine the flow of motion of an object from the first to the final state of the object (Nurharini, 2017).

The animated video design is attractive and has obtained the consent of the respondent on the basis of the results provided through the questionnaire which is at high level. The respondent has shown a high level of agreement on the video animation able to give a better understanding (Park et al., 2016). The use of interesting animated videos with appealing colors, motion, and visuals makes it easier for students to focus their attention and concentration on the material getting delivered.

Hydrocarbons is a class XI learning material that discusses carbon and hydrogen compounds that are closely related to everyday living, such as carbohydrates, lipids, and combustion results. Because of its difficulty in learning, hydrocarbons are considered as difficult.

There are several students find it difficult to understand the terms, theories, and structures of carbon chain structures until they make an error. This can be concluded from students' mark in hydrocarbon quiz, with 0% student that have mark up from 61 to 100. Majority of student have mark in range 31 to 40 (39%) and least in range 51 to 60 at 4%. Teaching the structure of the carbon chain requires clear visualization, which would be helped by the teacher's exposure. It needs a proper media for teaching and visualizing how the chain's structure are.

With the results of this study, the authors want to develop learning media in the form of animated video as learning media on Hydrocarbons material at SMAN 2 Tanjungbalai class XI. For this reason, the authors are interested in researching with the title **"Development of Learning Media Based on Animation Video in Learning Hydrocarbon Material at Grade XI Senior High School".**

1.2. Problem Identification

Based on the description of the problems above, the following problems can be identified:

1. The lack of development of educational media in schools that flexible to access by student when pandemic happen.
2. The lack of development of educational media as learning media on hydrocarbon material.
3. Hydrocarbon material is considered as difficult because several students make errors hydrocarbons terms, theory, and structure with 0% student that have mark up from 61 to 100, majority of student have mark in range 31 to 40 (39%) and least in range 51 to 60 at 4%.

1.3. Problem Scope

The limitations of the problem in this study are:

1. This research was conducted on student in SMAN 2 Tanjungbalai class XI 2023/2024 at school year.
2. The research is limited to the development of Animated Video learning media hydrocarbon material.
3. The material used is a Hydrocarbon in the form of based of K-13 curriculum.

1.4. Problem Formulation

Based on these problems, the researchers formulated the problem formulations in this study, namely

1. How to develop a valid Animated video as learning media on hydrocarbon material at SMAN 2 Tanjungbalai?
2. How to develop a practical Animated video as learning media on hydrocarbon material at SMAN 2 Tanjungbalai?
3. How to develop an advisability Animated video as learning media on hydrocarbon material at SMAN 2 Tanjungbalai?

1.5. Research Objectives

Based on the formulation of the problem above, the objectives of this study are:

1. Knowing the validity of Animated video as learning media on hydrocarbon material at SMAN 2 Tanjungbalai.
2. Knowing the practicality of Animated video as learning media on hydrocarbon material at SMAN 2 Tanjungbalai.
3. Knowing the advisability of Animated video as learning media on hydrocarbon material at SMAN 2 Tanjungbalai.

1.6. Research Benefit

The benefits of developing interactive video learning media as a tool to improve high school student learning outcomes are as follows:

a. For teachers

   The media development can help teachers overcome difficulties in the learning process. In addition, the development of this learning media can be a learning media alternative that can be used to clarify hydrocarbons material.

b. For student

   Media development like this is useful as new learning resource in hydrocarbon material regarding terms, theory, and bonds structure of hydrocarbons. And can be used to increase student achievement in learning hydrocarbons materials.

c. For schools

   This media development can be used as a learning facility for students of the SMAN 2 Tanjungbalai.

d. For researchers

   This research becomes experience in developing a diverse, creative, and interactive learning media. Furthermore, this research acts as a reminder to researchers that when they become teachers, they should continue to undertake additional research before compiling learning designs and being mindful of a school environment.

1.7. Operational Definition

1. The development of animated video learning media on hydrocarbon subjects is an activity of compiling, designing, and testing the feasibility of learning media using animated videos which contain hydrocarbon material.

2. An animation-based learning video is a series of moving images that convey learning messages to help students understand a material and additional resources to students
3. Hydrocarbons are compounds containing the elements C and H in which each carbon chain and hydrogen atoms are bonded that can be encountered in everyday life, such as kerosene, gasoline, natural gas, plastics and others.