The Development of Interactive Multimedia using *Adobe Animate* to Increase Student's Learning Interest in Electrolyte and Non-Electrolyte Solution Material

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ABSTRACT

Education is a process of developing a person's strengths and abilities, in a conscious and planned way to create a learning process and atmosphere that allows students to actively develop their potential. Education provides everyone with the knowledge, abilities, and values they need to face difficulties and challenges in life. In the modern technological era, education and technology are two elements that are increasingly integrated and have an extraordinary impact on human life. The purpose of this study is to find out how effective the use of interactive multimedia using *Adobe Animate* is to increase students' interest in learning electrolyte and non-electrolyte solution materials. The method used in this study is *Literature Review* to compare data from several journals relevant to the research topic. This research relies on literacy data search websites, such as Jurnal Sinta, *Google Scholar*, and *Mendeley*. The results of the study show that using interactive multimedia using *Adobe Animate* as a fun learning medium can increase students' interest in learning.

INTRODUCTION

Education in Indonesia has been regulated in the National Education System Law No. 20 of 2003, the learning atmosphere and learning process must be realized through education so that students actively develop their potential. In today's digital era, education and technology are two elements that are increasingly integrated and have an extraordinary impact on human life. In 21st century learning, learning positions digital technology as one of the main indicators as a means of learning that can be accessed easily and anytime.

Learning technology and media-based learning models/applications are designed for the development of learning media (simple, audio, video, interactive multimedia, animation) based on the applicable curriculum according to the level of education. The curriculum in Indonesia continues to

adapt to achieve better educational goals and is relevant to the needs of society. The Independent Curriculum is a more flexible curriculum framework that focuses on basic materials as well as the development of students' competencies and character. This curriculum provides flexibility for educators to adjust learning to the needs and learning environment of students, so that learning becomes more in-depth, relevant, and fun.

Chemistry is one of the science subjects in the Independent Curriculum in Senior High School (SMA) which aims to improve students' thinking skills and mindset in understanding concepts, principles, laws, chemical theories and their application to solve problems in daily life. But in reality, in learning, many students experience difficulties in representing this. Especially in abstract electrolyte and non-electrolyte solution materials, which cause difficulties for students in understanding the material (Aisyah et. al, 2021). This is because students cannot see directly the process of the solution can conduct electricity due to the presence of free-moving ions, so that the electrons are able to produce electrical conductivity.

The learning process has many problems and difficulties that make students less interested in learning. The learning interests of students can have a significant effect on their learning process and success. Students with high interest in learning tend to be more active, enthusiastic, and motivated in participating in learning, so that it is easier to understand the material and be able to overcome difficulties that arise (Arhin & Yanney, 2020) .

The method of lectures and discussions and the lack of variety of learning media used by teachers in delivering material make students feel bored. Therefore, an interesting learning media is needed, one of which is interactive multimedia. This multimedia learning involves the senses of sight and hearing through text, visual (motion and still), and audio media as well as interactive media based on computer and technology (communication and information).

Interestingly, a learning medium is very important so that the learning process is fun and does not make students feel bored or monotonous. Interactive learning media based *on adobe animate* includes materials and simulations to make learning media fairly interesting, which changes the conventional way of teaching to not be boring and does not reduce the slightest bit about delivering material to students (Wirawan & Sulistiyo, 2020).

Adobe Animate is one of many *software* that has the ability to create new features for use in education, such as combining learning concepts with audiovisual technology. The use of learning media with *this software* is able to provide a very good response to students' interest and motivation to learn. In addition, it also provides convenience for students in obtaining and utilizing

learning resource references with a free time and place independently (Saniriati et al., 2021) .

This study is important because it examines the effectiveness of the use of interactive multimedia using *adobe animate*, as well as its relationship with overcoming learning difficulties and low learning interest of students in electrolyte and non-electrolyte solution materials. This research is expected to overcome the low interest of students in learning chemistry subjects, especially electrolyte and non-electrolyte solution materials.

RESEARCH METHOD

The method used in this study is *Literature Review* to compare data from several journals relevant to the research topic. The literature used comes from scientific articles on research results related to interactive multimedia, *Adobe Animate*, and students' learning interests. This study relies on literacy data search websites to search for articles, such as Jurnal Sinta, *Google Scholar*, and *Mendeley*. In the preparation of this study, descriptive analysis is used as a way to analyze the data in the study. The articles used in this study must meet the following criteria: published in the range of 2020-2024, ISSN, freely accessible, contain full text, written in Indonesian or English, and have a relationship between the title and content of the article with the development of interactive multimedia, *Adobe Animate*, and learning interests.

RESULT AND DISCUSSION
Research Results

Based on the testing of the criteria carried out, five articles were selected to be used as references in this study. The articles related to the results of the research can be seen in the following table.

Researcher and Year	Article Title	Research Results
Iqbal et al., (2020)	Multimedia Development of Electrolyte and Non-Electrolyte Solution Learning Based on Multiple Representations Using *Lectora Inspire*	Based on the results of limited product trials in the form of individual product simulations, it is classified as very good with an average percentage of 93.2%. From the aspect of appearance with a percentage of 92%, it is classified as Very Good (SB). The quality aspect of the content with a percentage of 92% is classified as Very Good

		(SB). The percentage of practicality aspects is 94% with the category of Very Good (SB). The percentage of readability aspects is 96% with the category of Very Good (SB). Furthermore, the motivation aspect with a percentage of 92% in the Very Good (SB) category.
Amalia et al., (2020)	Development of Interactive Multimedia Based on a Scientific Approach of Electrolyte and Non-Electrolyte Solution Materials	The results of the study with the percentage of feasibility of small group trials of 86.96% are classified as "Very Feasible" and the feasibility of field trials are classified as "Very Good" with a kappa value of 0.824, it can be concluded based on the validity of experts, small group trials, and field trials of media products developed for the learning process on electrolyte and non-electrolyte solution materials are declared feasible for use.
Wirawan & Sulistyo, (2020)	Development of Adobe *Animate-based interactive learning media devices* in Basic Electrical and Electronics Subjects	In the study, the effectiveness of the developed learning media received a rating of 92.3% in the Very Good category. The learning outcomes are divided into two, namely cognitive and psychomotor with an average of 86.08% and 83.75%. Based on the results of the analysis, with the help of *this software*, the average score of student learning outcomes was 85.84%, which exceeded the Minimum Completeness Criteria that had been determined, which was 78. Interactive learning media based on *Adobe Animate* has

		proven to be effective to practice during learning activities.
Kartini & Putra, (2021)	Development of Android-Based Interactive Learning Media on Hydrocarbon Materials	The results of the research obtained from media testing with the alpha test I instrument produced an average precession of 73.67%, in alpha test II got an average percentage of 95.81% and alpha test III got an average percentage of 100%. According to the study's findings, the generated media can be regarded as excellent and utilized as a tool for bettering educational endeavors. Based on the results of the study, it can be concluded that. android-based interactive learning media is suitable for use in teaching and learning activities so that It is hoped that it can improve student learning outcomes.
Nurhairunnisah et al., (2022)	Development of Interactive Learning Media Based *on Guided Discovery Learning* on Electrolyte and Non-Electrolyte Solution Materials	The results of this study obtained an average score of 3.3 with a very good category. Based on the results of the small group trial, it was found that students were interested in learning using interactive learning media. The delivery of the material presented is easy to understand because it is equipped with test simulations that can be practiced directly by students, and is also equipped with brief explanations.

Discussion

Combining two or more input or output media is known as multimedia. Audio, video, animation, text, graphics, and photographs are some examples of

these media (Saprudin et al., 2020). There are two categories of multimedia: interactive and linear. The distinction is that linear multimedia, like TV and movies, lacks a controller that consumers can use to operate sequentially. In the meantime, interactive multimedia has a controller that the user can control to select what he wants for the subsequent step. Interactive learning multimedia, game applications, and other similar applications are examples of interactive multimedia (Manurung, 2020). By combining interesting images, animations, and even sounds, interactive media can showcase concepts with an attractive display. With this display, students will not feel bored with learning. This will make them more interested in understanding what they are learning (Mustofa et al., 2024).

In learning the Independent Curriculum, students are required to actively develop their own knowledge. To achieve this, supporting facilities are needed, one of which is technology. *Chemo-edutainment (CET)* is an interesting idea about chemistry learning that can be realized through learning media. The media helps students to learn independently. This method's usage of computer-based learning resources is one of the varied options for the chemistry learning process which might enhance students' learning outcomes. Learning strategies in which all activities are relevant to the material and emphasis on students' activeness can reduce boredom and entertain them. The use of media like this makes it easier for students to understand and provide long-term memory, as well as motivation for fun learning (Suryana, 2018). This technology helps students be interested in active learning and understand abstract materials such as electrolyte and non-electrolyte solutions in high school chemistry subjects (Chairiah et al., 2016).

Especially in electrolyte and non-electrolyte solution materials, it is one of the abstract chemistry subject matter, causing difficulties for students in understanding the material (Aisyah et. al, 2021). This is because students cannot see directly the process of the solution can conduct electricity due to the presence of free-moving ions, so that the electrons are able to produce electrical conductivity. The learning interests of students can have a significant effect on their learning process and success. Students who have a high interest in learning tend to be more active, enthusiastic, and motivated in participating in learning, so that it is easier to understand the material and be able to overcome difficulties that arise (Arhin & Yanney, 2020) .

Based on research conducted by Iqbal et al. (2020), Multimedia Development of Electrolyte and Non-Electrolyte Solution Learning Based on Multiple Representations Using *Lectora Inspire*. From the results of the study, it was concluded that the learning media based on multiple representations using

Lectora Inspire developed can be a learning solution for electrolyte and non-electrolyte solution materials. Furthermore, research conducted by Amalia et al. (2020), in relation to the creation of interactive multimedia using a scientific approach to electrolyte and non-electrolyte solution components generated findings that are very practicable for use in the educational process. Then, the research of Kartini et al. (2021), Development of Android-based Interactive Learning Media on Hydrocarbon Materials which shows that the media developed and produced can be categorized as very good and can be used as media to support learning activities that can improve student learning outcomes.

Multimedia in this study is designed using *Adobe Animate*, which is one of many *software* that has the ability to create new features for use in the field of education, such as combining learning concepts with audiovisual technology. The use of learning media with *this software* is able to provide a very good response to students' interest and motivation to learn. In addition, it also provides convenience for students in obtaining and utilizing learning resource references with a free time and place independently (Saniriati et al., 2021) . Based on the research conducted Nurhairunnisah et al. (2022), the results of the small group trial found that students were interested in learning using interactive learning media. The presentation of the material presented is easy to understand because it is equipped with test simulations that can be practiced directly by students.

Therefore, the most effective solution to increase students' interest in learning electrolyte and non-electrolyte solution materials is to use interactive multimedia that can be accessed easily and anytime by students in learning. By using *Adobe Animate,* interactive multimedia is designed to support students to be able to learn independently, foster learning interest, and learner-centered and focused learning.

CONCLUSION

From the description of the results and discussions that have been submitted, it can be concluded that using interactive multimedia using *Adobe Animate* as a learning medium can increase students' interest in learning. This is because interactive multimedia using *Adobe Animate* can make students interested in learning and help understand the material.

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