



Student response to the development of android-based interactive multimedia on mushroom materials in high school



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ABSTRACT

The current development of science and technology demands learning that is easily accessible to students. The presence of technology in learning biology is very important in improving the quality of learning. One of the technologies that can be used in biology learning is Android-based interactive multimedia. The purpose of this study was to determine student responses to android-based interactive multimedia on mushroom material in high school so that learning biology using these learning applications can develop properly according to student needs. This research is quantitative descriptive. The data collection technique used a response questionnaire which contained 5 aspects and 21 statement items (validity results $V_{\text{count}} (1.00) \geq V_{\text{table}} (1.00)$). The five aspects of the student response questionnaire used were fun, interest, liveliness, ease and interest. The results showed that the student responses in the field trial class were in the "Very Good" category with an average of 97.3. Thus it can be concluded that the android-based interactive multimedia application on mushroom material has received a positive response from students and is practically used as a medium to help students in learning ease and interest.

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INTRODUCTION

The development of science and technology is currently experiencing very rapid progress (Wibowo & Sadikin, 2019). In the current field of education, an educator is required to always make innovative efforts in learning activities by utilizing technology (Utami & Akhyar, 2023). This aims to improve the quality of teaching so that the use of media in the learning process is highly recommended (Yu et al., 2021). The existence of educational media can be utilized by educators in maximizing the delivery of messages containing learning materials so that the knowledge given to students can be remembered and absorbed properly (Hardhienata et al., 2021).

The media used in learning must be adapted to the analysis of learning needs in achieving the effectiveness of the learning process (Falloon, 2020). One alternative that can be used to reduce boredom in the learning process is to innovate learning by displaying audio-visual elements (Arif & Darmayanti, 2023). Learning by combining audio-visual elements with more than one media is called learning multimedia (Delima et al., 2018). This multimedia is various combinations of text material, animated images, sound and video packaged in one multimedia product (Hamimi & Sari, 2020). To add to the essence of multimedia in attracting students' interest in studying multimedia, this learning can be combined with quizzes and chat rooms so that multimedia is more interactive and student-centered learning because students themselves interact directly with the multimedia.

One of the uses of technology as interactive learning multimedia is that it can be applied using an Android device (Sari et al., 2019). This is because apart from being a communication medium, Android devices also have the potential to be easily developed as interactive multimedia packaged in the form of interactive learning applications (Dasilva & Suparno, 2019). Android-based learning is a learning strategy that is easy to apply to students, because the use of Android smartphone devices is no longer a new thing (Martono & Nurhayati, 2014). Currently, many students at the high school level have Android smartphones with features that allow them to install learning applications (Bayram, 2021). The type of smartphone that is more popular today and is experiencing very rapid development is the Android smartphone so that the development of Android-based interactive multimedia is quite promising in helping the success of learning in the field of education (Hertati, 2022).

When the needs analysis survey was carried out, the researchers obtained information that Android interactive multimedia had never been implemented in learning at SMA Negeri I Kayan Hilir specifically in biology subjects. Technology-based learning media that has been used is by using PowerPoint in the form of illustrated slides and learning videos. Previously, learning multimedia had never been developed which contained a collection of materials, learning videos, video tutorials, quizzes and chat rooms packaged in an Android application. This is one of the basics for researchers in developing Android-based interactive multimedia. This development was carried out with the intention that student-centered learning so that students can gain experience interacting directly with interactive multimedia applications developed using their respective Android smartphones. The selection of Android-based learning is also supported by the results of a questionnaire survey regarding private facilities owned by students, the researchers obtained the result that as many as 94% of students already had an Android smartphone. This is also the basis for choosing an Android application as a place to design Android-based interactive multimedia in high school biology subjects. the researcher obtained the result that as many as 94% of students already had an android smartphone. This is also the basis for choosing an Android application as a place to design Android-based interactive multimedia in high school biology subjects. the researcher obtained the result that as many as 94% of students already had an android smartphone. This is also the basis for choosing an Android application as a place to design Android-based interactive multimedia in high school biology subjects and and this application.

Biology subject is one of the subjects in the science field (Khairunisa, 2019). One of the materials that students learn in biology is mushroom material. This material is very complex and the majority uses Latin. Besides that the material is abstract so that students need learning media that can concretize the material so that it is easy to understand (Jannah et al., 2019). The material in learning biology has basic concepts that must be understood by students of class X High School because each material is related to the next material so that it must be studied continuously (Harefa et al., 2022). Referring to this, researchers see the need to develop interactive multimedia in studying material in learning biology so that learning feels more fun and not boring for students.

However, to see how far the level of student acceptance of this learning application requires an analysis of student responses to the learning product.

Student responses to Android-based interactive multimedia are needed so that researchers and teachers can further evaluate the development of this learning application (Artanti et al., 2022). Therefore, as a teacher in carrying out innovative learning activities it is very important to be able to know student responses in teaching and learning activities (Abidin & Purbawanto, 2015). Teachers are also expected to be able to understand students' thinking patterns so that teachers can provide direction to students to be able to hone students' thinking skills properly and correctly (Darmaji et al., 2019). By knowing student responses, a teacher will easily find out the location of deficiencies and mistakes made during the learning process, thus this can be used as a source of student learning information so that these deficiencies do not recur in the future so that the learning process can be better and of better quality (Zen, 2018).

Before conducting an analysis of student responses to Android-based interactive multimedia, the researcher first analyzed the learning needs of biology subjects in class X, followed by determining the product to be developed, then developing the learning application and implementing it in learning activities. Next, the researcher continued by looking at students' responses to learning using Android-based interactive multimedia on mushroom material. This is intended to be able to re-analyze the continuation of learning by using the learning application. Research on students' responses to Android-based learning media in chemistry subjects has also been disclosed by (Kartini & Putra, 2020). However, in this study the researchers put more emphasis on interactive multimedia in biology learning. The media displayed in the learning applications that have been developed are also more diverse. With the development of this Android-based interactive multimedia, student responses are needed so that this learning application can maximize its usefulness in biology learning in the future. Based on the things that have been explained, the researcher is interested in conducting research on analyzing student responses to learning using interactive multimedia based on android on mushrooms in high school. The purpose of this study was to determine students' responses to interactive multimedia based on Android on mushrooms in high school.

RESEARCH METHODS

Research Design

The approach in this study was descriptive quantitative by means of questionnaire data analyzed and then described in the form of descriptions of student responses to the use of the learning application on mushrooms in high school. This research was conducted in March 2023 at SMAN I Kayan Hilir.

Population and Samples

The population in this study were all students of class X SMA Negeri I Kayan Hilir. A sample of 21 respondents who are class X students. The sampling technique used a purposive sampling technique based on consideration of student scores and those selected as samples consisted of 7 students with high abilities, 7 students with moderate abilities and 7 students with low abilities.

Instruments

The instrument used in this study was a student response questionnaire which had previously been validated and analyzed using Aiken V content validity. The instrument was declared fit for use with the results of the validity of $V_{\text{count}} (1,00) \geq V_{\text{table}} (1,00)$. The student response questionnaire used consisted of 5 aspects, namely fun, interest, liveliness, ease and interest. This response questionnaire consists of 21 item statements with four scales of answer choices.

Procedures

This research was divided into three stages, namely the research preparation stage, the research implementation stage and the research completion stage. In the research preparation stage, the researcher assessed the needs of learning media, reviewed theories, formulated research problems, determined research samples using purposive sampling techniques, developed Android-based interactive learning multimedia, implemented the products that had been developed. At the research implementation stage the researcher prepared research instruments and distributed them to students in the form of student response questionnaires. At the completion stage, the data that has been collected through a student response questionnaire is then analyzed using a Likert scale and then described to get the final conclusion. The research procedure in this study is shown in Figure I.

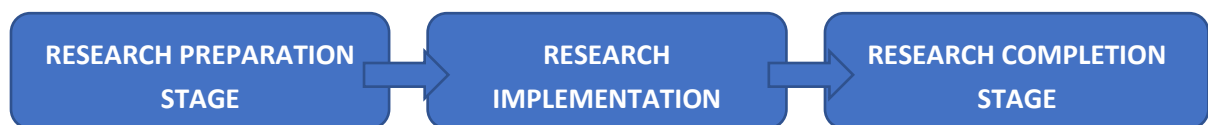


Figure I. Research Stages

Data Analysis

Questionnaire data analysis technique of student responses to the interactive application was developed using a Likert scale. The Likert scale guidelines used in more detail are shown in Table I.

Table I. Score Guidelines for Student Response Questionnaires

Evaluation	Score
Strongly	4
Agree	3
Don't agree	2
Strongly disagree	1

The data obtained from the response questionnaire is then recapitulated and calculated per statement item using the following formula.

$$P = \frac{\text{The total score of data collection results}}{\text{Total score sum}} \times 100\%$$

note:

P = Percentage per statement item

Based on the calculations that have been done, then interpretation of the data is carried out based on predetermined categories. These categories are presented in more detail in Table 2.

Table 2. Score Interpretation Criteria

Score Interval (%)	Category
81-100	Very good
61-80	Good
41-60	Enough
21-40	Not enough
0-20	Very less

This analysis aims to determine and conclude student responses to learning using Android-based interactive multimedia on mushrooms

RESULTS

After the Android-based interactive multimedia product has been validated, tested and implemented to students, the next step is to distribute student response questionnaire sheets to students. Respondents referred to in this study were students of class X as many as 21 respondents. The results of the student response questionnaire to Android-based interactive multimedia are shown in Table 3.

Table 3. Questionnaire Results of Student Responses to Android-Based Interactive Multimedia

Aspect	Indicator	Amount	%	Criteria
Happiness	Enjoyment in learning the material	81.3	96.8	Very good
Interest	Experience gained by students	81.8	97.3	Very good
	Students follow the lesson to completion	84	100	Very good
liveliness	Active in learning activities	82.3	97.9	Very good
comfort	Ease of understanding learning material	80,2	95.4	Very good
	There are no difficulties in using interactive multimedia applications based on Android	84	100	Very good
Interest	The desire to study biology material more deeply using Android-based interactive multimedia	84	100	Very good
Average				97.3

DISCUSSION

Android-based interactive multimedia is an interactive application that is easy for students to use in learning (score 100) and the use of the interactive application makes students interested in learning deeper biology material (score 100). Based on the results of the average value of each indicator, the overall average result is 97.3 in the very good category. The use of android-based interactive multimedia at SMA Negeri I Kayan Hilir has a very good response in learning, but the quality of learning using android-based interactive multimedia still needs to be maintained and improved by continuing to update the content of the material in learning applications so that it continues to vary so that it can adapt to student needs in learning. Based on the results of the average value of each indicator, the overall average result is 97.3 with a very good category. The use of android-based interactive multimedia at SMA Negeri I Kayan Hilir has a very good response in learning, but the quality of learning using android-based interactive multimedia still needs to be maintained and improved by continuing to update the content of the material in learning applications so that it continues to vary so that it can adapt to student needs in learning. Based on the results of the average value of each indicator, the overall average result is 97.3 in the very good category. The use of android-based interactive multimedia at SMA Negeri I Kayan Hilir has a very good response in learning,

Learning media certainly has a very important role in increasing student motivation in the learning process. This is important because the use of appropriate learning media greatly influences the student learning process. Learning media in the form of the interactive application can also increase students' curiosity and motivation in learning so that the learning process becomes more effective (Fikri & Madonna, 2018). Curiosity and student motivation can develop student learning potential so that student learning outcomes become more optimal. Especially in biology learning material which is abstract in nature, the existence of android-based interactive multimedia in learning can make it easier for students to study mushroom material so that the material looks more interesting and fun.

The following is displayed in graphical form the results of a questionnaire about the use of interactive multimedia based on Android which consists of students' pleasure in learning the material, the experience gained by students, students' interest in participating in learning until it is finished, students' interest in activeness in learning activities, ease in understanding learning material, convenience in the use of Android-based interactive multimedia and the desire of students to study biology material more deeply by using interactive multimedia based on Android. The results of student responses to the development of Android-based interactive multimedia are more clearly shown in Diagram I.

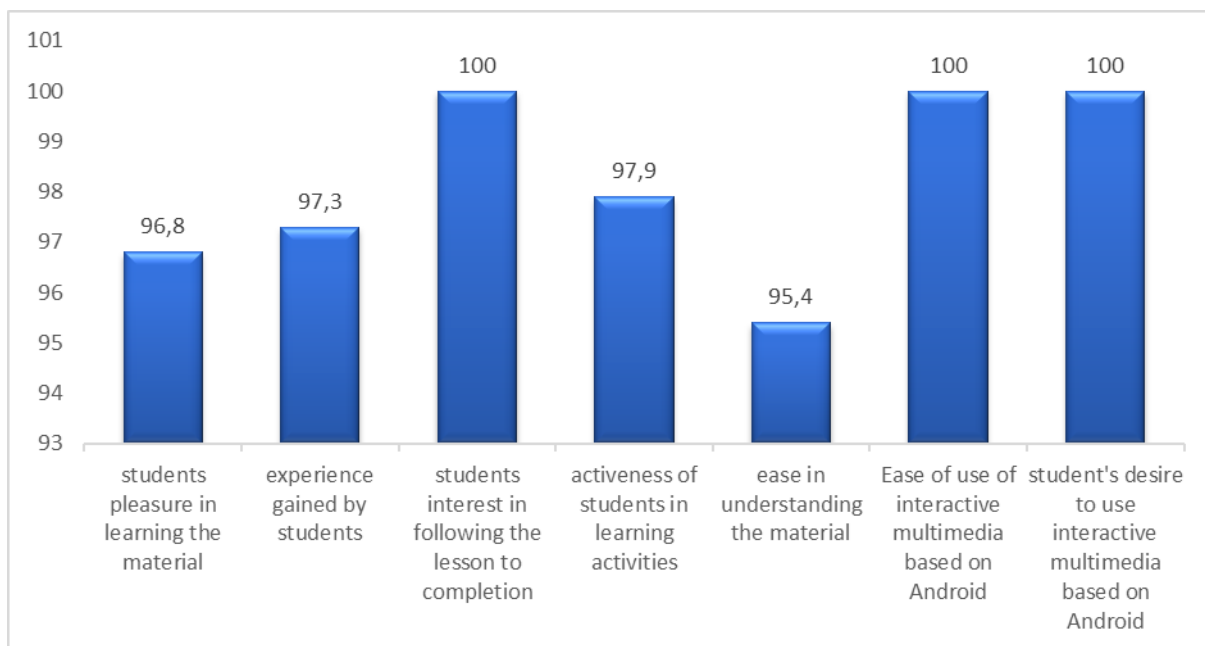


Diagram I. Results of Student Survey Using Android-Based Interactive Multimedia

Based on Diagram I, the data obtained is the average obtained from each indicator is 97.3 which shows that Android-based interactive multimedia has a very positive impact on learning in SMA Negeri I Kayan Hilir. The success of learning cannot be separated from the use of appropriate media in learning both at school and at home (Zairana et al., 2020). Learning applications in shape Android-based interactive multimedia must have several indicators including providing a sense of fun for students when implemented in learning, providing experiences that foster student interest, making students interested in participating in learning until it is finished, fostering student activity in learning, making it easier for students to learn learning material, learning applications that are easy to use and make students want to use these learning applications on an ongoing basis. Students' perceptions of the learning applications used really need to be

analyzed because one of the successes of learning depends on the use of learning media. This is what makes the teacher must be able to develop learning multimedia that is in accordance with the analysis of student needs (Kartini & Putra, 2020) who also said that the interactive android-based media that was developed received a positive response from students and was easy to implement as a learning medium. What distinguishes this research from previous research is the subject matter studied and the type of media developed in learning applications.

CONCLUSION

Based on the research results obtained, it can be concluded that in general at SMA Negeri 1 Kayan Hilir, especially class X students, gave a good response to the application interactive multimedia based on Android with an average of 97.3. Thus, the interactive learning application of interactive multimedia based on Android is stated to be practical and has a positive impact on class X students as an android-based interactive multimedia on Mushrooms material.

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