Students' Perceptions of the Use Android Based Interactive Multimedia in Mathematics Learning in Elementary Schools

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Abstract. Android technology has a very reliable potential as a means of playing a learning role, namely in giving assignments, as well as explaining material. With interactive multimedia based on Android, students can learn not only in theory but also in practice because multimedia contains elements of audio, video, text, images and animation, which makes it easier for students to learn independently in this covid-19 era. This study aims to explore student participation in the use of Android-based interactive multimedia in learning mathematics in post-covid-19 elementary schools This study used survey research using questionnaire tools involving 53 elementary school students in Buluspesantren Subdistrict. From the data, the student experience in using android-based interactive multimedia shows 91% of students have never used and 9% have ever used android-based interactive multimedia. Student perception data in media use shows that 85% of students choose to use interactive multimedia, 9% of students choose to use audio-visual media, and 6% of students choose to use visual media. From the results of the study, it will be used as a reference to apply learning using android-based interactive multimedia in learning mathematics in elementary school. Android technology has a very reliable potential as a means of playing a learning role, namely in giving assignments, as well as explaining the material. With interactive multimedia based on Android, students can learn not only in theory but also in practice because multimedia contains elements of audio, video, text, images, and animation, which makes it easier for students to learn independently in this covid-19 era. This study aims to explore student participation in the use of Android- based interactive multimedia in learning mathematics in post-covid-19 elementary schools This study used survey research using questionnaire tools involving 53 elementary school students in Buluspesantren Subdistrict. From the data, the student experience in using android-based interactive multimedia shows 91% of students have never used and 9% have ever used Android-based interactive multimedia. Student perception data in media use shows that 85% of students choose to use interactive multimedia, 9% of students choose to use audio-visual media, and 6% of students choose to use visual media. From the results of the study, it will be used as a reference to apply to learning using android-based interactive multimedia in learning mathematics in elementary school.

Keywords: Android Based Interactive Multimedia; Mathematics learning; Elementary Schools

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1 Introduction

In the 21st century, technology is experiencing rapid development. The development of technology has changed the lives of the public, especially in the education sector that the utilization of technology can help create a creative learning experience so that it will produce quality graduates. Quality Human Resources (HR) can understand their knowledge, apply that knowledge in life and benefit themselves and the surrounding community and have more creative, critical, and professional abilities (Gravemeijer et al., 2017). Interactive multimedia is an integration in the use of learning technology. Multimedia can make one of the devices that can improve the quality of learning. According to Leow & Neo (2014), learning media can provide experiences to students in order to explore learning activities. The use of Android-based media is a learning style application in the 21st century (Calamag et al, 2014). This makes multimedia get a lot of attention from researchers who began to use multimedia as a medium in a learning environment to get the benefits of cognitive excellence.

The Covid-19 pandemic has plagued the globe for almost two years, causing students not to be allowed to study in school 100% and replaced with online learning at home. In online learning, teachers and students must be able to adapt to change the learning system, so that various ways are done by teachers so that students can continue to learn at home. In addition, teachers require to have skills in teaching as developing learning media to fit the current learning conditions. In the current covid-19, students still gain knowledge teachers can use zoom media, Google Meet, WhatsApp, Google Classroom, YouTube, and others. Multimedia is a tool to create interactive, creative, and innovative media because there is text, animation, graphics, audio, and visuals.

The interactive multimedia is still going on online because android-based interactive multimedia is appropriate to support mathematical learning. The results of student surveys that currently need a learning media that helps learners in mathematics learning in the covid-19 pandemic are interesting, fun, and the material taught can be absorbed. It was supported by the research of Dasilva et all (2019) that android- based interactive learning media can improve student learning positively. In addition, the student's response to learning with android-based interactive learning media applications is fun.

2 Literature Review

Android-Based Interactive Multimedia

Rapid technological development in society can encourage the use of ICT in the education sector. Multimedia education is very important in teaching and learning activities. Interactive multimedia is the combination of text, graphics, animation, audio, and video that we can see and hear in everyday life (Vaughan, 2011). Andresen & Brink (2013) mentions multimedia characteristics consisting of elements of text, graphics, animation, video, and sound that can be arranged and presented differently. Interactive multimedia is effectively used in learning to develop guidelines in designing designs (Yuksel Arslan, 2012).

Teachers not only take advantage of interesting learning media but can also provide space to imagine and engage effectively throughout the learning cycle (Brown and Green 2016) (Kholisho, Marfuatun, and Lutfi, 2020).

Mathematic

Mathematics is a medium for developing logical concepts and structured ideas (Hudojo, 2005: 35). Mathematics is very important to learn. The data has the qualifiedness of logical, critical, systematic, and creative thinking because mathematics can compete in the field of education and technology. Mathematics is a compulsory subject at every level of education. Its believed because mathematics is a tool to find solutions to various problems of everyday life.

3 Research Methods

This research aims to find out students' perception of android-based interactive multimedia in mathematics learning. This study was conducted in public elementary schools in Buluspesantren Subdistrict. The participants of this study were grade V elementary school students with a total sample of 53 students.

This study uses descriptive research that describes a particular situation by existing facts. Descriptive research is more concerned with what than how and why something happens (Nassaji, 2015). The data collection method used is a survey method. At the data collection stage, researchers used questionnaires distributed to students and then analyzed the results. This research focuses on students' perception of android-based interactive multimedia in elementary school math learning. The questionnaire is made of questions about the learning type of media that is used to students during math learning and the student experience of android-based interactive multimedia. Once the data is collected, it is then quantitatively analyzed by percentage.

4 Results and Discussion

This research will discuss the types of media used in math learning, the student experience in using android-based interactive multimedia and, student perception in Using Android-Based Interactive Multimedia in Mathematical Learning.

3.1 Types of Media Used in Math Learning

In this discussion, researchers will explain the types of media used in math learning during online learning. As in the picture below, some examples of media that have been used by teachers in explaining math materials to elementary school students include audio, visual, audiovisual media.

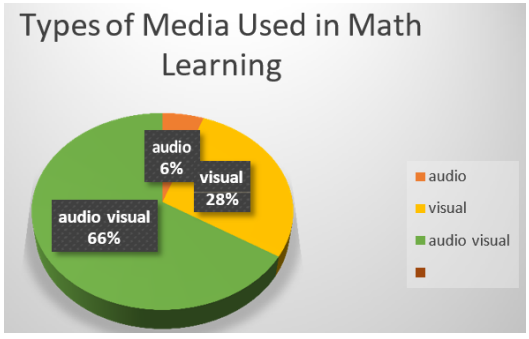

Fig 1. Types of Media Used in Math Learn

In figure 1, it is seen that 66% of teachers use audiovisual in explaining learning materials, 28% use visual media, and 6% use audio media. There are several studies that show that audio-visual media can have a positive effect on elementary school math learning. As research conducted by Dewi, Suarni, and Japa (2020), shows that audiovisual media has a significant influence on the mathematical learning outcomes of elementary school students.

From the results of student interviews, during the covid-19 pandemic teachers have utilized technology in math learning, but students sometimes feel bored and confused because the media used by teachers is not suitable to explain the material. A suitable medium used in math learning during the covid-19 pandemic is interactive multimedia. Because interactive multimedia displays are very interesting and easy to understand.

Students' Experience of the Android-Based Interactive Multimedia

In figure 2 below, researchers will discuss the student experience in using android-based interactive multimedia.

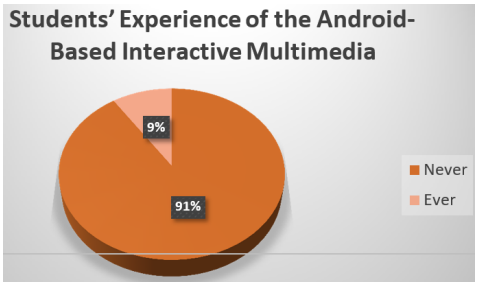

Fig.2. Students' Experience of the Android-Based Interactive Multimedia

In this discussion, researchers will explain the student experience in using interactive multimedia. In figure 2, it shows that 91% of students have never used Android-based interactive multimedia and 9% of students have ever used Android-based interactive multimedia. Students admit to ever using android-based interactive multimedia such as Rumah Belajar Kemdikbud and Ruang Guru. During the covid 19 online learning conditions, teachers must be able to use android-based interactive multimedia for mathematics learning to be successful. Student Perception of the Use Android-Based Interactive Multimedia in Mathematical Learning.

In this discussion, researchers will explain the student experience in using interactive multimedia based on android during the covid-19 pandemic. From the results of the box that has been given that 85% of students choose interactive multimedia, 9% of students choose to use audiovisual media, 6% of students choose to use visual media, and 0% use audio.

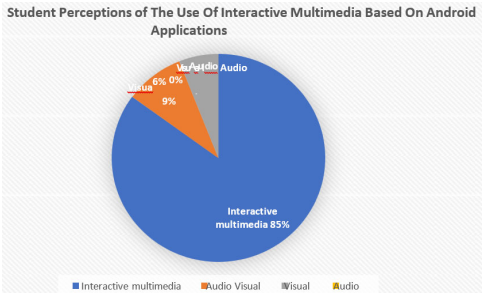

Fig.3. Student Perception of the Use Interactive Multimedia Based on Android

According to students, android-based interactive multimedia is interesting, easy to understand, and fun. Android-based interactive multimedia more complete display compared to other media. The use of interactive multimedia in mathematics learning has a great impact on students' understanding as students become better at achieving and understanding mathematics (Nurmawati et al. 2020). 9% of students choose to use audiovisual media because it is faster and shorter in its delivery compared to multimedia that must be open one by one. 6% of students choose to use visual media in math learning because it is faster and more efficient.

Meanwhile, audio media get a 0% score because students do not understand the material taught. In addition, the use of android-based interactive multimedia was chosen because learning is still 50% online and face-to-face 50% so that android-based interactive multimedia is considered appropriate to support the math learning of elementary school students.

4 Conclusion

In general, researchers try to describe students' perceptions of android-based interactive multimedia in math learning. According to research data on the types of media used by teachers in math learning, 66% of teachers use audiovisual media, 28% visual, and 6% use audio media. The data of student experience research for using android-based interactive multimedia shows that 91% of students have never used and 9% have never used it. Of the student perception data in media use 85% of students choose to use interactive multimedia in online learning, 9% use audiovisual media, 6% choose to use visual media (images), and 0% use audio media. The use of android-based interactive multimedia potentially improves

The quality and effectiveness of mathematical learning in the covid-19 pandemic. From the results of this research, it is expected to be a consideration in the process of multimedia development in learning. Some research proves that the utilization of interactive multimedia has a positive impact on mathematical learning. In its implementation, the availability of supporting resources is needed to facilitate teachers in creating optimal learning. In addition, teachers should be accustomed to using technological tools to transfer science and understanding of students' concepts. This research is based on narrow observations, so more research needs to be done.

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