

Volume 8 Nomor 1, Februari 2023, Page 170 - 180.

The Effectiveness Of Three Dimentional Shapes Learning Media Android Based On Students Of SDN 43 Takkalala After Covid-19 Pandemic

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ABSTRACT

Students' learning motivation is greatly influenced by the Covid-19 pandemic. This can be seen in student motivation which has greatly decreased during the Covid-19 pandemic, this has had an impact on student learning outcomes. The achievement of effective learning can be seen from the means used by educators in conveying material, namely learning media. One suitable media to use is Android-based learning media. In this study, the aim was to provide an explanation and description of the effectiveness of using instructional media. The learning media that has been developed before is a mathematics learning media on Android-based *three dimentional shapes*. In this study, the type of research used was quantitative research using a one-shot-case-study design. The method used to provide an overview of effectiveness is the method of collecting data using learning achievement tests, questionnaires, and direct observation. The indicators of the effectiveness of learning mathematics that will be measured are 1) Teachers' Ability to Manage Learning, 2) Student Activities, 3) Completeness of Student Learning Outcomes, 4) Student Responses. Data obtained from 21 research subjects involved in this study were analyzed descriptively qualitatively. The results of the research and analysis of the data obtained are based on indicators of effectiveness, namely 1) The results of the analysis of the teacher's ability to manage learning in the classroom are in the good category with a percentage of 83%, 2) The results of the analysis of student activities are in the very good category with a percentage of 85%, 3) The results of the Analysis of Learning Outcomes are in the good category with a percentage of 86%, 4) The results of the Student Response Analysis are in the good category with a score of 4.1. Based on the results of the analysis of all aspects of effectiveness that meet the good category. The results of the analysis of the data obtained show and provide conclusions that the use of Android-based geometric learning media in mathematics lessons is effective to apply.

Keywords : Android, Effectiveness, Mathematics, Learning Media

ABSTRAK

Motivasi belajar siswa sangat dipengaruhi oleh pandemic Covid-19. Hal tersebut terlihat pada motivasi siswa yang sangat menurun selama pandemi Covid-19 berlangsung hal ini berdampak pada hasil belajar siswa. Pencapaian pembelajaran yang efektif dapat terlihat dari sarana yang digunakan oleh pendidik dalam menyampaikan materi yaitu dengan media pembelajaran. Salah satu media yang cocok digunakan adalah media pembelajaran berbasis Android. Pada penelitian ini mempunyai tujuan untuk memberikan paparan dan gambaran mengenai efektivitas penggunaan media pembelajaran. Adapun media pembelajaran yang telah dikembangkan sebelumnya adalah media pembelajaran matematika materi bangun ruang berbasis Android. Pada penelitian ini, jenis penelitian yang digunakan, yaitu penelitian kuantitatif dengan menggunakan rancangan one-shot-case-study. Metode yang digunakan untuk memberikan gambaran efektivitas yaitu dengan metode

pengumpulan data menggunakan tes hasil belajar, angket/kuisisioner, dan observasi langsung. Indikator keefektifan pembelajaran matematika yang akan diukur adalah 1) Kemampuan Guru Mengelola Pembelajaran, 2) Aktivitas Siswa, 3) Ketuntasan Hasil Belajar Siswa, 4) Respon Siswa. Data yang diperoleh dari 21 orang subjek penelitian yang terlibat pada penelitian ini dianalisis secara deskriptif kualitatif. Hasil penelitian dan analisis data yang diperoleh berdasarkan indikator keefektifan, yaitu 1) Hasil Analisis Kemampuan Guru dalam Mengelola Pembelajaran di kelas berada pada kategori baik dengan presentase 83%, 2) Hasil Analisis Aktivitas siswa berada pada kategori sangat baik dengan presentase 85%, 3) Hasil Analisis Hasil Belajar berada pada kategori baik dengan presentase 86%, 4) Hasil Analisis Respon Siswa berada pada kategori baik dengan skor 4,1. Berdasarkan hasil analisis semua aspek keefektifan yang memenuhi kategori baik. Hasil analisis data yang diperoleh menunjukkan dan memberikan kesimpulan bahwa penggunaan media pembelajaran bangun ruang berbasis Android pada pelajaran matematika efektif untuk diterapkan.

Kata kunci: Android, Efektivitas, Matematika, Media Pembelajaran.

How to Cite: Akramunnisa, A., Jumarniati, J., Ekawati, S. (2023). The Effectiveness Of Three Dimensional Shapes Learning Media Android Based On Students Of SDN 43 Takkalala After Covid-19 Pandemic. *Mathline: Jurnal Matematika dan Pendidikan Matematika*, 8(1), 170 - 180.

DOI: <https://doi.org/10.31943/mathline.v8i1.348>

PRELIMINARY

After the Covid-19 pandemic, there have been many very significant changes. This can be seen from current government policies and community activities where previously activities were carried out very limitedly, such as the school learning system, which was usually face-to-face, now being replaced by an online system. Currently, all sectors in government are slowly starting to improve themselves, one of which is the education sector. The Secretary General of the Ministry of Education and Culture (2022) stated that all policy stakeholders who are specifically in the world of education should always support activities related to the restoration of educational services. One of the ways taken is by directing them to immediately carry out face-to-face learning activities (PTM) in schools. The Secretary General of education explained that in the recovery of the learning process there are several things that need attention, namely 1) encouraging 100 percent safe face-to-face learning activities, 2) restoring the implementation of the learning process in schools, 3) Utilizing information and communication technology in education services, and 4) As well as providing support to elements of education such as local governments, educational units, and students. It is hoped that this will affect the process of better education services due to the impact of the Covid-19 pandemic.

The development of the times and the progress of science and technology which is increasingly rapidly affecting the pattern of life and the development of human life. The efforts made to be able to compete and keep abreast of developments, one of which has the

greatest impact is the development of technology. Technological developments in the field of information have an impact on various fields. Included in education, especially in the development of learning media (Akramunnisa, 2021).

The government's appeal to restore education after the Covid-19 pandemic was due to a decrease in student learning motivation during the pandemic where the learning process was carried out online. The pandemic has an impact on learning, this was revealed by Febrianti, (2022) in the results of his research, data was obtained which explained that the learning motivation of students and students had greatly decreased during the pandemic. Furthermore Khoir et al. (in Susanti, 2021) said that one of the breakthroughs that can be made to increase motivation and learning outcomes is to choose the right learning media. The learning tools used in this case the learning media show the implementation of effective learning achievements. Learning media influence student motivation and learning outcomes. Through the use of learning media can help students carry out learning activities, help educators to carry out the delivery of material, and help the effectiveness of learning.

Learning media is a visualization tool that is used to provide an overview of material concepts, increase interest and motivation to learn, facilitate explanation of material, and can clarify abstract concepts to become more concrete and simple. Sutanto (2013) explains that the characteristics of elementary school children are those who like to play, have a great curiosity, are easily influenced by the environment, and like to form peer groups. So that learning Mathematics in Elementary Schools requires interactive media in the introduction of material. One suitable media to use is Android-based learning media which is one way to overcome learning loss in elementary school students. Plane shapes are mandatory math material at all levels of education. However, students still often make mistakes in understanding it. In understanding this topic, students must have critical thinking skills (Ashari, Ikram & Dani, 2022). Therefore, to teach students about geometry we need a media that is friendly to elementary school children.

Android-based mathematics learning media have been developed by several researchers. Like the research conducted by Anas (2021) who designed interactive learning media with flat-sided geometrical elements where the results of his research explained that based on the validity test that learning media was feasible to use and in a limited test the response of students and teachers was very high. In addition, there is media The learning used for Three dimentional shapes material in Android-Based Mathematics subjects. The use of this media will be seen to what extent the effectiveness of the media in increasing

student motivation has an impact on learning outcomes. So that in an effort to increase student motivation and learning outcomes, an appropriate and well-planned strategy is needed. So in order to answer the problem of answering the problems mentioned above, a study was designed with the title *The Effectiveness Of Three Dimentional Shapes Learning Media Android Based On Students Of SDN 43 Takkalala After Covid-19 Pandemic*.

METHODS

The type of research used in this research is quantitative research. The method used to provide an overview of effectiveness is the method of collecting data using learning achievement tests, questionnaires, and direct observation. The research design uses a one-shot-case-study design. According to Arikunto (2002), a one-shot-case-study is an experiment without an initial test and its implementation without a comparison group. The research uses a one-shot-case-study design, the data collection process is only done once and carried out through certain treatments. Provision of a certain treatment given to research subjects and will then be accompanied by measurements. The measurement results are the result caused by the treatment carried out on the research subject. The purpose of the treatment carried out using learning media is to provide an overview of the effectiveness of learning with the use of learning media that has been developed in the form of Android-based three dimentional shapes learning media in mathematics.

This research was conducted on fourth grade students at SDN 43 Takkalala. This research was conducted for 2 weeks with 4 face-to-face meetings. In this study there are stages of research. The research stages are divided into four parts, namely 1) the preparation stage, 2) the implementation stage and research data collection, 3) the research data analysis stage, and 4) the report writing stage. While the method used to provide an overview of effectiveness is the method of collecting data using learning achievement tests, questionnaires, and direct observation and observation in class. This study involved 2 observers for three meetings in the face-to-face learning process in class. The instruments needed in this study were teacher activity observation sheets containing the teacher's ability to manage learning, student activity observation sheets, learning achievement test questions, and student response questionnaires. The data obtained in this study were analyzed and processed using quantitative analysis. The indicators of the effectiveness of learning mathematics that will be measured are 1) Teacher Ability in Managing Learning, 2) Student Activities, 3) Completeness of Student Learning Outcomes, 4) Student

Responses. Data analysis of the four aspects of effectiveness in the use of Android-based spatial learning media can be described as follows:

1. Analysis of Teacher Capability in Managing Learning

On the aspect of the teacher's ability to manage learning using observation sheets carried out by 2 observers. Data analysis was carried out by calculating the average value of each category on the observation sheet in the form of teacher activities in managing learning and the implementation of the learning process using mathematics learning media based on Android-based three dimentional shapes. Then calculate the percentage of the total average value for all indicators at all meetings classified based on the criteria in the following table.

Table 1. Classification of Teacher Capabilities in Managing Learning

Interval	Criteria
$p \geq 90\%$	Very Good
$80\% \leq p < 90\%$	Good
$70\% \leq p < 80\%$	Enough
$p < 70\%$	Lack

Source: Nasiroh (in Lutfiyah, 2019)

2. Analysis of Student Activity

Data analysis carried out on student activities while participating in learning was obtained based on the results of observations using observation sheets in the form of student activity questionnaires carried out by 2 observers. The data obtained was analyzed by calculating the average value of each category on the observation sheet in the form of a student activity questionnaire while participating in learning. Then calculate the percentage of the total average value for all indicators at all meetings classified based on the criteria in the following table.

Table 2. Classification of Student Activities

Interval	Criteria
$p \geq 90\%$	Very good
$80\% \leq p < 90\%$	Good
$70\% \leq p < 80\%$	Enough
$p < 70\%$	Lack

Source: Riduwan (in Lutfiyah, 2019)

3. Analysis of Student Learning Outcomes

Data analysis was carried out on student learning outcomes by administering a learning achievement test after using Android-based three dimentional shapes learning media in mathematics. Student learning outcomes are calculated based on the percentage

of students who have met the Minimum Completeness Criteria. The percentage of learning outcomes will be classified based on the criteria in the following table.

Table 3. Classification of Student Learning Outcomes

Completeness	Classification
$90\% < X \leq 100\%$	Very good
$80\% < X \leq 90\%$	Good
$65\% < X \leq 80\%$	Enough
$55\% < X \leq 65\%$	Bad
$X \leq 55\%$	Very Bad

Source: Nasiroh (in Lutfiyah, 2019)

4. Student Response Analysis.

Student response data obtained by observation sheet with four predetermined aspects. Data analysis was carried out by calculating the average value of each category on the observation sheet in the form of student responses to the use of Android-based mathematical learning media. The average student response results based on the questionnaire are classified based on the criteria in the following table.

Table 4. Classification of Assessment of Student Response Effectiveness

Interval	Classification
$X < 4,2$	Very good
$3,4 < X \leq 4,2$	Good
$2,6 < X \leq 3,4$	Enough
$1,8 < X \leq 2,6$	Bad
$X \leq 1,8$	Very bad

Source: Nasiroh (in Lutfiyah, 2019)

5. Analysis of the Effectiveness of Learning Using Mathematical Learning Media Android-Based Three Dimentional Shapes Materials.

The effectiveness of learning mathematics learning through the application of learning media mathematics learning materials based on Android is effective for use if the results of data analysis obtained provided that student learning outcomes must meet good criteria and fulfill at least three of the four aspects of effectiveness that have been carried out and have reached the good category . (Sabarata, in Lutfiyah, 2019).

RESULTS AND DISCUSSION

The results of the research carried out after applying Three Dimentional Shapes Learning Media to Android-Based Mathematics subjects will be seen for their effectiveness. After carrying out the research and collecting data using the test,

questionnaire and direct observation methods, the results obtained after carrying out the learning are:

1. Analysis of Teacher Capability in Managing Learning

The results of the data analysis of the teacher's ability to manage learning carried out during the learning process with the use of Three Dimentional Shapes Learning Media in Android-Based Mathematics Subjects can be seen in the following table:

Table 5. Results of Teacher Ability Analysis to Manage Learning

Meetings	Observer		Average
	1	2	
I	81%	76%	79%
II	78%	86%	82%
III	84%	91%	88%
Average			83%

Sources: Data (2022)

Analysis of the data in table 5 shows the final average percentage of the process of implementing the learning process, it can be seen that the results of the teacher's ability to manage learning based on student questionnaires reach 83% based on predetermined criteria indicating that the results of data analysis of the teacher's ability to manage learning are in the good category .

2. Analysis of Student Activity Data

The results of data analysis from student activities when participating in the learning process with the use of Three Dimentional Shapes Learning Media in Android-Based Mathematics Subjects can be seen in the following table:

Table 6. Results of Student Activity Analysis

Meetings	Observer		Average
	1	2	
I	79%	84%	82%
II	84%	89%	87%
III	86%	90%	88%
Average			85%

Source: Data (2022)

Data analysis in table 6 shows the final average percentage results from the results of data analysis of student activities during the learning process. It can be seen that the

results obtained are 85% based on predetermined criteria indicating that student activity in class during the learning process uses Build Learning Media Three Dimensional Shapes on Android-Based Mathematics Subjects is in the very good category.

3. Analysis of Student Learning Outcomes

The results of data analysis of student learning outcomes at the end of the learning activities carried out on 21 students after participating in the learning process with the use of Three Dimensional Shapes Learning Media in Android-Based Mathematics Subjects can be seen in the following table:

Table 7. Results of Analysis of Student Learning Outcomes

Description	Amount	Percentage
Students Who Fullfil KKM	18	86%
Students Who Do Not Fullfil KKM	3	14%
Total	21	100%

Source: Data Processing Results (2022)

Data analysis in table 7 shows the percentage results that there were 18 students who achieved completeness scores according to KKM with a percentage of 86% based on predetermined learning outcome criteria indicating that the data analysis of student learning outcomes using Three Dimensional Shapes Learning Media in Android-Based Mathematics Subjects was in the good category.

4. Student Response Analysis

The results of the analysis of student response data to the use of Three Dimensional shapes Learning Media in Android-Based Mathematics Subjects can be seen in the following table:

Table 8. Results of Student Response Analysis

Aspect	Average
The use of media	4,0
Interest	4,1
Material Suitability	4,0
Benefit	4,2
Average	4,1

Sources: Data (2022)

Data analysis in table 8 shows that the average student response to learning using Android-based three dimensional shapes learning media is 4.1. based on predetermined criteria shows that student responses are in the good category.

5. The Effectiveness of Learning Mathematics Using Three Dimentional Shapes Learning Media in Mathematics Subjects Based on Android for Grade IV Students at SDN 43 Takkalala After the Covid-19 Pandemic.

Based on the results of the analysis of the data obtained in this study, namely on the four aspects of effectiveness, namely: Teacher's ability to manage teacher learning, student activity, student learning outcomes, and student responses. The teacher's ability to manage learning based on student questionnaires reaches 83% in the good category. student activities in class during the learning process using Three Dimensional Shapes Learning Media in Android-Based Mathematics Subjects 85% are in the very good category. The predetermined learning outcomes criteria show that the average student learning outcomes data analysis is 86% in the good category. The average student response to learning using Android-based geometric learning media is 4.1. based on the criteria are in the good category. From the results of the analysis of the data obtained, it shows that it fulfills the 4 indicators of effectiveness and the average is in the good category. These results are in line with the notion of Learning Media which is a communication tool used in the learning process to convey information in the form of teaching materials from teachers to students so as to create a more interesting and interactive learning atmosphere. Based on the student response questionnaire, the student activity obtained showed that students enjoyed learning using the Media Three Dimensional Shapes Learning Media in Android-Based Mathematics Subjects and had an impact on their learning outcomes. So that the use of Three Dimensional Shapes Learning Media in Android-Based Mathematics Subjects in class IV students at SDN 43 Takkalala can effectively be used to improve student learning outcomes and motivate students in learning mathematics.

CONCLUSION

Based on the research that has been done, it can be concluded that the effectiveness of learning using Three Dimensional Shapes Learning Media in Android-Based Mathematics Subjects can be shown as follows, namely 1) Results of Analysis of Teacher Ability to Manage Learning are in the good category with a percentage of 83%, 2) Results of Activity Analysis students are in the very good category with a percentage of 85%, 3) The results of the Analysis of Learning Outcomes are in the good category with a

percentage of 86%, 4) The Results of Student Response Analysis are in the good category with a score of 4.1. So that the effectiveness criteria for the four predetermined aspects are met. This shows that the Three Dimensional Shapes Learning Media in Android-Based Mathematics is effectively applied to Grade IV Students of SDN 43 Takkalala After the Covid-19 Pandemic. Based on the results obtained, the effectiveness criteria for the four predetermined aspects have been fulfilled. This shows that Building Spatial Learning Media in Android-Based Mathematics is effectively applied to Grade IV Students of SDN 43 Takkalala After the Covid-19 Pandemic and can motivate students in learning mathematics.

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