ISSN:3026-0442

Proceedings of the 1st International Conference on Education, Science Technology And Health (ICONESTH 2023 Universitas Bina Bangsa Getsempena, Dec 12-14, 2023, Banda Aceh, Indonesia)

IMPLEMENTATION OF MULTIMEDIA-BASED LEARNING MEDIA TO STIMULATE THE ABILITY TO RECOGNIZE GEOMETRY CONCEPTS IN KINDERGARTEN FKIP UNSYIAH

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ABSTRACT

Introducing geometric shapes in early childhood is the ability of children to recognize, point, mention and collect objects around based on geometric shapes by using geometry game applications on android. Introducing geometric shapes in early childhood starts from building geometric concepts, namely by identifying the characteristics of geometric shapes. Before identifying geometric shapes, in children's cognitive development according to Bloom's theory there are six levels of processes in thinking, including knowing, understanding, applying, analyzing, evaluating, and creating. The purpose that will be carried out in this study is at the level of the ability to know, recognize, and apply with geometry game applications that have been downloaded on the playstore on Android. In this study, researchers wanted to see how children's knowledge about recognizing geometric shapes and how to improve the ability to recognize geometric shapes in children.

Keywords: *android, geometry, implementation, learning media, stimulating.*

INTRODUCTION

The era of the industrial revolution 4.0 is known as the rapid creation of information and communication technology that is used to achieve maximum efficiency, so that the resulting information and communication technology can

innovate to create a new digital-based model. The rapid development of technology and communication at this time, encourages teachers and the world of education to adjust and create new technology-based learning media models. Very rapid technological advances can help teachers and students in carrying out learning activities to be effective and efficient. Making new technology-based learning media makes teachers must have the ability to manage technology and creativity in making learning media. The use of learning media is something important so that the learning process is not too abstract and has variations. Media is a component of various types used in the student environment as a tool to stimulate their abilities in learning activities (Abdullah, 2017).

The use of learning media must pay attention to various aspects so that learning objectives become well directed. Puadah, G. N., &; Rustini, T. (2022) revealed explicitly that learning media includes tools that can be physically used as support in delivering messages or subject matter content which includes books, videos, tape recorders, films, copy-dia, images, computers, television, and graphics. The use of learning media must be in line with the subject matter to be implemented. The selection of learning media that is in harmony with the subject matter will make the process of learning activities run efficiently and effectively. In addition, media selection must pay attention to several aspects, namely the purpose of use, the target of media use, media characteristics, time, cost, and availability. (Angraini, R. (2017).. Rapid technological development encourages education to be demanded in line with technological advances. Android is an operating system that is widely used because there are features that are easily understood by users. In addition, Android itself is an operating system used for Linux-based mobile devices which includes operating systems, middleware, and applications (Irsan, M., Forkas, T. S. B., & Husain, A. (2023). Technology is not something new in the current era. The use of mobile devices such as smartphones or tablets is a technology that can be said to be very close to students. Based on the results of market share in 2013 shows that gadget presentation has been mastered by Android-based mobile devices by 81.3% (Marhadini et al., 2017, p. 29). The rapid use of Android in that era is because in Android there are prices that are affordable by the public and also features that are easily understood by users. These technological advances make the education sector must immediately adjust and improve the quality of education quality with ongoing technological developments.

Nurrahmawati, E. (2018), the preoperational phase in kindergarten-aged children includes three aspects, namely symbolic thinking, egocentric thinking,

and intuitive thinking. Symbolic thinking is the ability to think about objects and events even though they are not visible in the child's life (abstract). Egocentric thinking is a way of thinking about right or wrong, agree or disagree based on his own views, therefore children are not yet able to put their views on other people's points of view. Intuitive thinking is a phase of thinking in the ability to create something, think creatively such as drawing, arranging blocks, forming something interesting, but children do not know with certainty the reason for doing it. Piaget is one of the most famous psychologists on his theory of cognitive development saying that cognitive development is the combined result of the maturity of the brain and nervous system, as well as adaptation to the environment. According to Piaget (Rita Eka Izzaty et al, (2008: 34-35), using five terms in describing the dynamics of cognitive development, namely:

a. Scheme, the scheme shows the mental structure, the mindset that a person uses to cope with certain situations that exist in the environment.
b. Adaptation, is the process of adjusting thinking by incorporating new information into individual thinking.
c. Assimilation, i.e. inserting new information into existing knowledge. In the assimilation of the already existing scheme does not undergo changes.
d. Accommodation, including adjustments to existing schemes to the inclusion of new information, in accommodation changes in existing schemes.
e. Equilibration, is compensation for external interference. Intellectual development becomes a continuous progress that moves from one structural imbalance to a new, higher equilibrium structure.

METHODS

This research method is a qualitative descriptive method with interview techniques. Descriptive qualitative is a technique that describes and describes the actual situation through data that has been collected and processed to obtain a real picture of the actual situation (Azhari, 2023). The object of this study is an android-based learning application on exposition text material and reviews as well as student assessments of the android-based learning application. This research data will explain how Android-based learning application products as a variety of learning media used in exposition text material and also reviews and student assessments of Android-based learning applications (review), so

that the results of the study will be considered for Android-based learning applications.

RESULTS AND DISCUSSION

At the analysis stage, researchers made observations, teacher interviews and distributed questionnaires to children in FKIP Unsyiah Kindergarten regarding the learning process, children's understanding and the learning media used. Based on the results of observations and interviews with class teachers, it was found that the media used in the learning process in the classroom is still conventional, namely still using lecture and book methods as learning media. Science and technology-based learning media have been used, but game-based learning media has never been applied during the learning process The design stage is carried out to follow up the analysis stage by making Finding Geometry game designs, use case diagrams, activity diagrams, sequence diagrams, flowchart designs, storyboard designs. At this stage, the genre and rules of the game are also determined and the features available in the Finding Geometry game. At the development stage of educational games, Finding geometry is developed by applying the design of the game framework that has been made to become an application.

In order to improve the ability to recognize geometric shapes, the introduction of learning material about geometric shapes is carried out gradually and repeatedly at each learning meeting. The introduction of geometric shapes is introduced by showing an educational video containing visual and audio material about geometric shapes. This educational video is always shown at the start of every lesson and the teacher explains it repeatedly so that children's knowledge of geometric shapes increases at each meeting. Repetition of learning material with educational videos gives children the opportunity to receive maximum learning stimulation through their sensors, namely hearing and sight. This is in accordance with the principle of learning in early childhood that children learn through their sensors. Children gain knowledge through their senses, namely touching, smelling, hearing, seeing and feeling. The child's sensory organs will respond to the stimulants they receive (Sofia Hartati, 2005: 32).

After introducing geometry through video, children are given an understanding by playing educational games that have been downloaded on Android. This game is also participated in by parents so that parents can accompany their children in playing this educational game. The following is a display of educational games to recognize geometric shapes.


0%
ATTEMPT 22


2
BACK ON TRACK
NORMAL MODE
14%
PRACTICE MODE
0%
DOWNLOAD THE SOUNDTRACKS


1
STEREO MADNESS
NORMAL MODE
48%
PRACTICE MODE
0%
DOWNLOAD THE SOUNDTRACKS

CONCLUSION

Based on the results of the research and discussion, it can be concluded as follows:

1. The ability to recognize geometric shapes of group B children at FKIP Unsyiah Kindergarten was proven to increase after action was taken by implementing multimedia-based learning in the form of educational videos. Learning with educational videos presents geometric shape material in the form of visuals, text, audio and moving animations which are able to attract children's attention so that children become more interested in participating in learning to recognize geometric shapes. The learning steps are: 1) Children watch educational videos that are shown and listen to the teacher's classical explanation; 2) Questions and answers on geometry material between teachers and children classically and individually; 3) Children apply the material using plasticine, straws and disassembling puzzles; 4) Children do assignments (children's worksheets).

2. The introduction of geometric shapes with educational videos is given gradually and repeatedly at each meeting with the help of straws, plasticine and puzzles in cycle II to apply the learning material so that children's memory of geometric shapes material becomes strong and children's knowledge about the geometric shape is increasing compared to before the action was taken. To measure the extent of the child's level of understanding, observation guidelines are used on the children's worksheets which are adjusted to the observation indicators.
3. In cycle I, the average understanding of children in recognizing geometric shapes was 47.22%, where of the total of 24 children, 11 children (45.84%) received good criteria for the indicator of grouping geometric shapes based on color and shape, then 10 children (41.67%) were able to distinguish the characteristics of geometric shapes and 13 children (54.16%) were able to name geometric shaped objects. The average percentage of understanding geometric shapes in this cycle is better than the pre-cycle stage but has not yet reached the success indicator so the research continues in cycle II.
4. In cycle II, the average percentage data for understanding geometric shapes was 76.39%, where of the total of 24 children, 18 children (75%) obtained good criteria for the indicator of grouping geometric shapes based on color and shape, then 18 children (75%) were able to differentiated the characteristics of geometric shapes and 19 children (79.17%) were able to name geometric shaped objects. Thus, the child's understanding had reached the predetermined indicator of success, namely 70%, so the research was stopped in II.

REFERENCES

Abdullah, R. (2017*). Learning from the perspective of teacher creativity in the use of learning media*. Lantanida Journal, 4(1), 35-49.

Angraini, R. (2017). *Characteristics of appropriate media in learning citizenship education as values education. Journal of Moral and Civic education*, 1(1), 14-24.

Azhari, M. T., Al Fajri Bahri, M. P., Asrul, M. S., & Rafida, T. (2023). *Quantitative research methods*. PT. Sonpedia Publishing Indonesia.

Clements, D. H., & Sarama, J. (2011). *Early childhood teacher education: The case of geometry*. Journal of mathematics teacher education, *14*, 133-148.

Irsan, M., Forkas, T. S. B., & Husain, A. (2023). *Socialization and Utilization of Android Smartphone Based Kindergarten and Early Childhood Education Learning Applications in RT Environments*. 04/01 Kp. Berkat Kalisuren. Jurnal Informasi Pengabdian Masyarakat, 1(2), 169-176.

Kuntoro, A. Y., & Hermanto, H. (2020). *Design and Build a Child's Learning Room Application, in Increasing Learning Motivation Based on Android*. Jurnal Mantik, *4*(3), 1788-1796.

Novita, R., Putra, M., Rosayanti, E., & Fitriati, F. (2018, September). *Design learning in mathematics education: Engaging early childhood students in geometrical activities to enhance geometry and spatial reasoning*. In *Journal of Physics: Conference Series* (Vol. 1088, No. 1, p. 012016). IOP Publishing.

Nurrahmawati, E. (2018). *The Role of Teachers in Developing Cognitive Early Childhood*. al-athfaal: jurnal ilmiah pendidikan anak usia dini, *1*(1), 83-99.

Puadah, G. N., & Rustini, T. (2022). *Visualization of Printed Learning Media as a Supporting Power for 21st Century Learning in Lower Grades in Elementary Schools*. NUSANTARA: Jurnal Ilmu Pengetahuan Sosial, 9(5), 1769-1773.