

Making Use of Multimedia in Learning Alquran for Early Childhood

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Manuscript received 12 Dec. 2021 revised 25 Feb. 2022 accepted 14 Mar. 2022 Date of publication 22 Mar. 2022

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Abstract

The study aims to design and analyze the effects of multimedia use on the Quran study for young children. Research takes place through two stages. First, using the method of Research and Development (R & D) to design the media to be used. Second: A quantitative method with a type of correlation to see how the use of media to learners in the study of the Koran will affect them. To produce properly functional and operational media products, the author tests the validity of two experts in each field. Next, to note the effects of the media use produced, observation was made during the learning process in the class and on the test sheets of the learner's work. Research shows that, first, the resulting media can function and operate properly as a Koran learning medium. Second, the resulting multimedia use has affected learners' learning, which is shown by the increased value of post-test participants to 2.73 from a previously pre-test score of 2.07. Even the sharpness of the learning result reached 80%, indicative of a significant increase of 0.66. Referring to the results of this study, the multimedia produced could be used as one of the alternatives for teachers in the Quran study for young children.

Keywords: *Multimedia, Quran learning, early childhood*

Abstrak

Penelitian ini bertujuan untuk mendesain dan menganalisis efek penggunaan multimedia dalam pembelajaran Alquran untuk anak usia dini. Penelitian dilakukan melalui dua tahapan, pertama; menggunakan metode Research and Development (R&) untuk merancang media yang akan digunakan, kedua; metode kuantitatif dengan jenis korelasi untuk melihat bagaimana efek penggunaan media terhadap peserta didik dalam belajar Alquran. Untuk menghasilkan produk media yang dibuat berfungsi dan operasional dengan baik, penulis melakukan uji validitas kepada dua pakar yang ahli pada bidangnya masing-masing. Selanjutnya untuk melihat efek penggunaan media yang dihasilkan, dilakukan observasi pada saat proses pembelajaran di kelas dan tes lembar hasil kerja peserta didik. Hasil penelitian menunjukkan bahwa, Pertama; media yang dihasilkan dapat berfungsi dan operasional dengan baik sebagai media pembelajaran Alquran. Kedua; penggunaan multimedia yang dihasilkan telah berpengaruh terhadap hasil belajar peserta didik, hal tersebut terbukti dengan meningkatnya nilai post-tes peserta didik menjadi 2,73 yang sebelumnya nilai pre-test rata-rata 2,07. Bahkan tingkat ketuntasan hasil belajar peserta didik mencapai 80% menunjukkan peningkatan yang signifikan sebesar 0,66.

Merujuk kepada hasil penelitian ini maka multimedia yang dihasilkan dapat dijadikan sebagai salah satu alternatif bagi guru dalam pembelajaran Alquran untuk anak usia dini.

Kata kunci: *Multimedia, pembelajaran Alquran, anak usia dini*

Introduction

In the last few months, the public has been shocked by the presence of the coronavirus (COVID-19), especially in Indonesia. The impact of the coronavirus itself on the world of education is the issuance of learning from home or online. The emergence of covid-19 in 2019 seemed to accelerate the implementation of the industrial era 4.0 in all aspects of human life, including the world of education (Ambarita et al., 2020; Kaputra et al., 2021) WHO has announced that the virus that started in the city of Wuhan is a global pandemic (Elvina, 2020). As a result, almost all countries in the world experience deep sadness because of the many victims who died (Mahase, 2020; Stankovska, 2020; Wu, 2020; Goveas, 2021).

Early Childhood institutions in Wonosobo Regency because of the increasing spread of the coronavirus (Sher, 2020; Hyland, 2020). For educators themselves, this learning situation is a big challenge, because early childhood is still in the learning stage by playing, and learning depends on the mood (Pyle, 2017; Jennings, 2015; Ma, 2016). So, the teacher in providing this virtual learning must look for creative ideas so that children are interested in learning, especially learning the Qur'an (Al Rawashdeh et al., 2021).

Early childhood is a unique figure who is the dream of parents, hopes to grow and develop into pious and pious humans as the hopes and desires of all parents, children who are obedient in worship and become child figures with character are instilled from an early age (Sarinastitin, 2019; Elkhaira et al., 2020). Children's character is developed through habituation and example the efforts of parents from an early age to place children in early learning to memorize short verses (Yuni, 2019; Cahyaningrum et al., 2017).

However, not all early childhood children get the opportunity to take basic Qur'anic education from an early age even since toddlers get Qur'an education, many factors can cause this, although as a motivating factor in children, namely the

cultivation of Islamic values. from an early age inculcating character according to the perspective of the Qur'an Hadits (Fitri, 2018; Syafril et al., 2021; Nurhayati, 2016).

The Qur'an is the holy book of Muslims that must be studied by every Muslim, learning the Qur'an can be done anywhere, including in Islamic boarding schools (Muhiyatul, 2017). The Qur'an must be taught to children so that children are able to read and know the meaning of the Qur'an for the provision of his life later. Educating children is the responsibility of parents because learning the Qur'an can be done from an early age with a concept that has been prepared and can clearly be applied (Atikah, 2019; Islamiah et al., 2019).

Learning the Qur'an from an early age and toddlers is a program that places children from an early age to be able to recognize the Qur'an, an important factor is sincere intentions and prayers in memorizing the Qur'an into early childhood education that is appropriate to be taken by the method according to the child's growth and development (Hidayah, 2018), pay attention to several ways in memorizing the Qur'an, namely by adding memorization and repeating memorization (Susianti, 2017), inseparable from teacher guidance and assistance by parents in order to obtain maximum results and to achieve learning objectives, the methods used in the teacher's way of exemplifying how to pronounce *makharijul huruf* or where the letters are issued, the teacher can also model the sounds of the hijaiyah letters so that all children who learn tahfidz can immediately imitate the letters or verses of the Qur'an.

To support the success of children learning the Qur'an, of course, it cannot be separated from the guidance of parents or the role of parents, as well as the motivational factors of children, children must be encouraged to have intention and sincerity in learning the Qur'an. The motivational factors are important for children, namely: with early awareness children learn, the process and the final result; informing children about the learning efforts they have made and showing the direction of children's activities and motivation is an effort to give children more enthusiasm in learning and finally how to guide children about a continuous learning journey.

Emotional and social motivation in children are important factors in children's success in learning, the role of parents' motivation in learning the Qur'an in early childhood, children's learning motivation during the Covid-19 pandemic, in the end, there are disturbances in learning (Nurianna & Nurhafizah, 2020). The learning process causes several changes that affect students' learning motivation where the new conditions that must be faced by these students have an impact on students' learning motivation (Cahyani et al., 2020).

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Learning the Qur'an for Early Childhood is "A learning designed in such a way as to shape the character of students in accordance with the teachings of the Qur'an, who are devoted to His Lord, who are intelligent and have the skills of students who have character but believe in Allah SWT. Learning the Qur'an in early childhood is meant to provide stimulation for children to learn the Qur'an with appropriate

methods. Introducing the Qur'an to children from an early age is referred to as Optimizing intelligence is possible if from an early age the child has received the right stimulation for brain development. Colina & Listiana (2021), as for the purpose of learning the Qur'an in early childhood, this can be related to the purpose of Islamic education is to instill piety and morals and uphold the truth in order to form virtuous human beings according to Islamic teachings. The learning implemented during the COVID-19 period has answered the demands of the industrial era 4.0 or the digital era which is marked by the use of technology (Joenaiddy, 2019).

The use of technology (science and technology) has been widely used to solve problems in people's lives, including problems in the field of education (Ambarita et al., 2020). However, the research conducted by Iskarim said that the progress of science and technology was considered unable or not widely used to grow the morale of its users (Iskarim, 2017; Engkizar et al., 2018). This statement is further strengthened by Ningrum who says that technological advances are very much abused by teenagers (students) for things that are less useful (Ningrum, 2015).

Learning using interactive multimedia PowerPoint by using interesting animations for early childhood in learning the Qur'an, with fun games for children in it introduces children related to recognizing and mentioning hijaiyah letters, short hadits, which are designed to be fun through multimedia so that children happy and easy to get information. Based on previous research that children's understanding of learning the Qur'an is only memorizing and imitating using audio-visual media, it is significantly better when compared to groups of children who are taught by conventional learning. Therefore, using media that makes children happy and Interesting activities will make children quickly accept new knowledge, one of which is using interactive multimedia (Putri, 2019).

The development of technology today is very influential on the development of the child's brain. Learning methods are all computerized, easy to use, more interesting for children, and can be applied as a tool for teaching and learning activities (Kurniawan, 2018; Yusnita et al., 2018). Learning about the universe still uses

conventional and less interesting methods so that children get bored and do not understand what is being said. be delivered.

According to Mulyaningsih, teachers should always increase their role in the teaching and learning process by increasing knowledge, understanding, and experience by applying more creative learning methods with interesting materials so that they will motivate children to take part in the learning (Bennett & McWhorter, 2021). Gradually it is necessary to apply to learn using modern technology, even though at home each child has been introduced to gadgets first, so the teacher just needs to hone the child's abilities through learning applications (Mulyaniasih, 2015; Engkizar et al., 2018; Damirovich et al, 2021).

Mentioned that with the widespread use of the internet, children get to know more of its users at a young age, while there is an increasing number of teachers designing learning activities that utilize internet services. In this direction, teachers need practical examples learning activities (Fesakis et al., 2011). The activity is intended to teach preschool children geometric concepts using communication tools from the internet that are adapted to developmental stages. In Kindergarten education, several studies have been conducted that state that well-designed digitalization of education for educational activities can be an important educational tool for effective and efficient learning, especially in the area of early literacy skills (Athanasios et al., 2014; Goveas et al., 2021; Hai, 2017; Hyland et al., 2020; Stankovska et al., 2020).

Through computers based on children's tasks with real-world simulations, using cognitive mechanisms gradually build knowledge because technology provides situational and visual cues that allow children to think, work, interact, collaborate, create, and ultimately learn (Kokkalia et al., 2019). From this, we can understand that the use of the internet without adult assistance will cause children to access sites that are not useful for children and tend to damage children's morale. Thus, it is necessary to increase the role of adults to control internet use. This research is important to do in addressing the development of learning methods using more modern learning technology (Anggilia et al., 2021; Ariannejad et al., 2021; Colina & Listiana, 2021).

In relation to efforts to achieve learning objectives, learning media has a very important role. Learning media is a means that can help the learning process because it is related to the senses hearing and sight. Learning media can help teachers bring the outside world into the classroom. That way, ideas that are abstract and foreign (remote) are concrete and easy to understand by students. The problem that occurs in the field is that many educators have not been able to optimize existing technology to realize learning that involves technology-based learning media such as computers (Wibawanti, 2017). By utilizing Microsoft PowerPoint which is a default application on laptops and computers, educators can create interesting learning media that can be used in learning systems like today so that children do not get bored in learning (Binanto, 2010). This research is important to do in responding to the development of learning methods using more modern learning technology, especially in learning the Koran in Early Childhood (Al Rawashdeh et al., 2021; Al-Kumaim et al., 2021).

The Qur'an is the first source of knowledge and life guidelines for Muslims which is used as a legal reference. The main points of the Shari'ah that relate between creatures and their creator and the rules of every aspect of social life, the relationship between humans and themselves, humans or other humans and the environment, are all contained in the Qur'an (Abuddin., 2012). Sticking to the Qur'an can lead people to happiness in the world and the hereafter because the Qur'an is able to guide people on the right path (Kodir, 2014). The awareness of some parents about the importance of controlling the development of learning and the ability to read the Qur'an and learn hadits from an early age is currently decreasing, this is due to busyness, environmental factors, peers, the influence of gadgets, and the inability of parents which are used as reasons for relinquish responsibility and surrender entirely to the school (Ekyana et al., 2021; Keskin, 2019; Ma et al., 2016; Chairilisyah, 2020; Sher, 2020).

On the other hand, the process of learning the Qur'an by utilizing media in the form of interactive games is rarely used by PAUD teachers because the learning is still conventional memorization. Based on this phenomenon, creates anxiety for teachers and parents so the authors are interested in developing an interactive game "Abatasa" which is used in learning the Qur'an in early childhood. The use of interactive game

media is used as a supporting tool in the process of memorizing the Qur'an in early childhood. One of the media that can be used is an interactive game that is designed with an attractive appearance in terms of colors, images, and fun for children. Learning media is a medium or something that is used to convey messages or lesson content raises curiosity, and attention, and triggers students' abilities so that they can help the learning process (Ibrahim, 2003; Mustajab et al., 2021; Jennings, 2015).

The development of fun learning media can create educative interactions between educators and students, so as to achieve learning goals that pay attention to the emotions of students and can foster student creativity in learning, a fun learning approach called interactive games to Quran learning for early childhood. A fun learning process will be easier to implement, especially by juxtaposing a learning process that utilizes media with entertainment. Learning methods that are all-computerized, easy to use, more interesting for children, and can be applied as a tool for teaching and learning activities one of which is learning the Qur'an and hadits (Kurniawan, 2018). High, each education unit applies distance learning in order to maintain and break the chain of the spread of the Covid-19 virus. All habits change, as well as lessons that must be applied and of course, must continue so that school children can still learn and improve their academic abilities (Maryanti et al., 2020).

All children who attend school have the same right to continue to receive learning activities provided by the teacher (Tanaka, 2012; Crul et al., 2019). Even at the PAUD level, during the Covid-19 virus emergency pandemic, it is very possible to continue to carry out distance learning (Osman, 2020; Ali, 2020). With the increasingly sophisticated technology, IT-smart teachers and parents are increasingly following IT developments (Mangione, 2012; Tariq et al., 2019; Aktan et al., 2021). PAUD children also have the right to continue to participate in learning activities during the Covid-19 virus pandemic because they are also part of compulsory education, and of course so that parents who send their children to PAUD institutions have their rights fulfilled (Garbe et al., 2020; Pramling et al., 2020). It is not an easy thing, but it is very possible to carry out learning for PAUD children (Setiawan & Rasyidi, 2020).

Literature Review

Education is the most important part of life which at the same time distinguishes humans from other creatures. Animals also "learn" but animals are determined by their instincts, while humans through learning mean a series of activities leading to maturity in order to lead a more meaningful life. Through education, humans can be educated, nurtured, and develop their potential (Anwar, 2014). So, education serves to prepare students to face the increasingly rapid technological developments that require reliable human resources, who have the ability and skills as well as high creativity.

Education plays an important role in human life, namely the Qur'an, because the Qur'an is one of the lessons that teach how to behave in accordance with the teachings of Islam. Another thing that is no less important is that the Qur'an provides basic lessons and guidance related to worship (*hablum minallah*), and relationships with fellow human beings (*hablum minannas*) (Majid, 2019; Aizid, 2016). To create an effective and efficient Qur'an there must be management good education. Learning activities in schools should ideally lead to the independence of students in learning, learning will run well if the interaction process between educators and students goes well (Nugroho, 2017; Tri et al., 2021). The Qur'an is a conscious and planned effort in preparing students to recognize, understand, and believe, pious and have a noble character in practicing the teachings of Islam from the main source of the holy book Al-Qur'an and Al-Hadith, through mentoring teaching, training, and the use of experience (Nerubasska et al., 2020; Pyle & Danniels, 2017).

Accompanied by demands to respect adherents of other religions in relation to inter-religious harmony in society so that national unity and unity are realized (Majid, 2019; Siregar et al., 2020; Tambak et al., 2021). In an effort to prevent the spread of Covid-19, WHO recommends temporarily stopping activities that have the potential to create a crowd (Vu et al., 2019). For this reason, conventional learning which gathers many students in one room needs to be reviewed for its implementation. Learning is carried out with scenarios that are able to minimize physical contact between students and other students, or students and educators (Firman & Rahayu, 2020; Muis, 2019).

It is emphasized in many writings and good religious advice, that an activity to study the Qur'an is not only done by adults but can be done by all ages, even early childhood, and toddlers. Therefore, children need to be taught, introduced, and guided by the Qur'an from an early age because the Qur'an is a basic guideline as a foundation that is implanted so that later in life, children have the power of religious basics that are not easily provoked and carried away. By immorality and sin even the bad development of the world (Wu, 2020; Darlan et al., 2021; Kistoro, 2021).

In addition to the above, it should also be emphasized that in order to maintain the sustainability and purity of the Qur'an in this world, it is by presenting and printing the memorizers of the Qur'an, as stages of AUD character education the role of parents in instilling AUD character, character education in early childhood (Huliyah, 2017; Fitri, 2018; Sarinastitin, 2019; Kasmar et al., 2019; Aisyah et al., 2021).

In learning to memorize in early childhood and even toddlers, it must use the right media, as in previous research that the media has an important role in learning especially in developing reading skills for early childhood, the use of media in memorizing al- Qur'an (Awwaliya & Ismet, 2019; Saudah, 2020). In the implementation of distance learning, there are some children who are still not used to memorizing and doing assignments so they don't want to do it the use of multimedia in learning can be applied with good to see the capabilities and user experience on multimedia (Salehudin et al., 2020; Putra et al., 2020; Rakhman & Alam, 2020).

Method

This research approach is a Research and Development (R&D) approach, namely development research as a systematic study of the design, development, and evaluation of programs, processes, and learning products that must meet the criteria of validity, practicality, and effectiveness. The development procedure used in The ADDIE model has five stages to create a product, namely Analyze, Design, Develop, Implement, and Evaluate (Branch, 2009; Abdul, 2014; Hanafi, 2017; Putri et al., 2020). At each stage of the procedure, there are provisions that must be carried out, each stage in ADDIE cannot be skipped or does not follow the step procedure. The stages in ADDIE must be carried out in a coherent manner (Jaafar et al., 2020).

Data collection techniques in this study, included i) Through interviews with teachers to find out more in-depth things about the difficulties in delivering Qur'anic learning materials; ii) Data collection at the time of observation was obtained through observations made by researchers and teachers using the instrument checklist model observation sheet; iii) Documentation is a record of events, can be in the form of writing, photos, audio or video recordings (Ma'unah, 2018; Eriyanti et al., 2020) .

Data analysis techniques used in this study are as follows: i) Knowing how to learn Islamic Religion Alqur'an and Hadits which have been carried out using observation and interview guides; ii) Formulating an interactive game model "Abatasa" using a PowerPoint program using moving animation and supporting applications in it; iii) Knowing how effective the interactive game "Abatasa" is in learning the Qur'an in early childhood using descriptive and quantitative analysis techniques with rubrics and score scores; iv) The test is to determine the level of children's understanding of the learning material that has been delivered, the test is carried out using Worksheets Children (LKA) which contains material that is suitable for learning.

Findings and Discussions

The research yielded the following findings; first, interactive multimedia design for learning the Qur'an for students. The advantage of this media is that early childhood can be more active through sounds, pictures, videos and interactive questions. Through the existing facilities, early childhood is required to do the tasks in stages. The preparation of interactive multimedia learning media formats includes determining software applications, basic layouts, backgrounds, color selection, font types, animations, sounds, images, and videos.

The type of software used in operating this interactive multimedia is power points with interesting animations for students. When this interactive multimedia application is opened, the opening page contains the sub-themes of Learning the Qur'an and the types of games or games, when clicked on one of the sub-themes a game or activity will appear that students will do consisting of guessing pictures,

puzzles with hijaiyah letters and hadits, looking for traces of places of worship, compiling and mentioning hijaiyah letters, with fun designs so that the visual aspects of children develop because of early childhood what the child sees he will do.

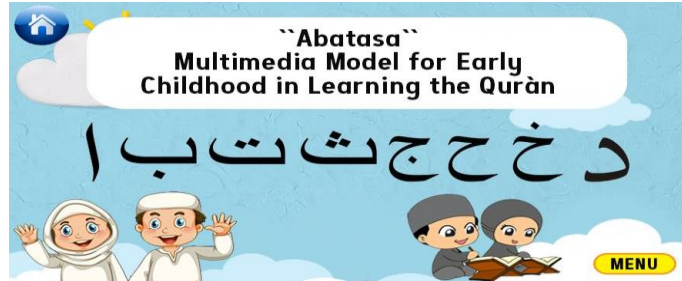


Fig 1. Multimedia cover design

This multimedia is arranged based on the theme of learning to the Qur'an for early childhood, namely the letters hijaiyah and dah hadits which are packaged in an interactive game.



Fig 2. Choice of Alquran learning themes and menu

In this interactive multimedia, there are three (3) game options, namely maze, selecting images, and puzzles by pressing the desired image which will go directly to the intended game choice. students choose to continue the next game menu.

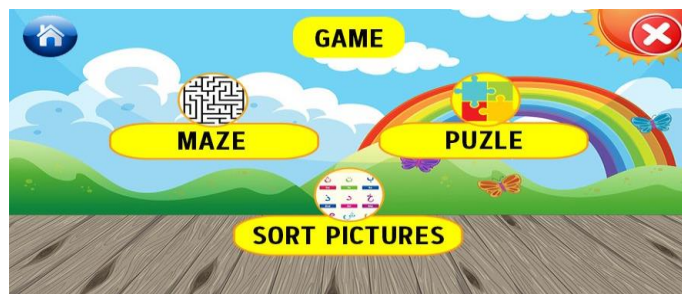


Fig 3. Games option menu

The game menu choices consist of looking for traces, students help show the way to the place of worship.



Fig 4. Display of Game Options Looking for Traces

Students operate multimedia games looking for traces, when students succeed, they will get a reward in the form of a "Wow, you're cool" display.



Fig 5. when students succeed will get a reward

On the other hand, if it is not correct, you will get an "Oops, try again" image display, and so on with other types of games.



Fig 6. When students have not succeeded

Display Options Multimedia Interactive Game Guess and Say Hijaiyah letters



Fig 7. Hijaiyah letter game

The display of the hijaiyah letter puzzle game by the way the child chooses and then clicks on the column that matches the example so that it becomes the perfect hijaiyah letter arrangement.

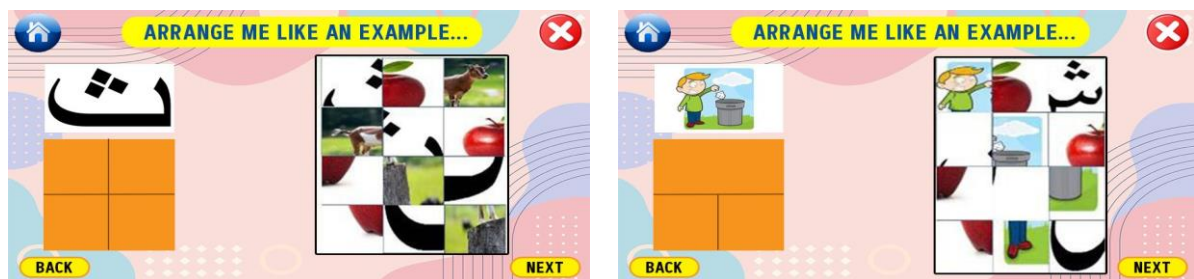


Fig 8. Hijaiyah letter puzzle game

The display of the game sorts the procedures for the sequence of ablution by means of the child choosing the sequence of ablution activities on the image by clicking.



Fig 9. Hijaiyah letter puzzle game

The second finding is that the implementation of interactive multimedia in learning the Qur'an is effective in improving the learning process in the classroom. This is indicated by the level of mastery of students' concepts is better. Calculations to determine the effectiveness of learning outcomes between learning before developing

interactive multimedia learning media (pre-test) and after being developed (post-test) for learning the Qur'an by percentage so that it is known the comparison of success before and after developing interactive multimedia learning media.

Table 1. Comparison of pre-test and post-test results

Theme	Values	Category	Amount Learners	
			Pretest	Post-test
Qur'an Learning	***	Very Well Developed	5	12
	**	Growing As Expected	6	2
	*	Start Growing	4	1
	#	Undeveloped	0	0

Based on Table 1, it is known that after the post-test, children are able to understand the learning of the Qur'an by exceeding the target. There is a child with a low score because the child did not complete the lesson so he did not understand the task given due to crying in class.

Based on the results of the T-test, the following data were obtained

Table 2. Test results average T-Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	2.07	15	.799	.206
	Pos	2.73	15	.594	.153

Based on Table 2, it can be explained that the average value for the pre-test is 2.07 and the post-test is 2.73 from a total of 15 respondents with a standard deviation of 0.799 for the post-test and 0.594 for the pre-test.

Table 3. T-Test test results

Table 5: T-Test test results									
		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Pair 1	pre-pos	-.667	.724	.187	-1.067	-.266	3.568	14	.003

Based on Table 3, it can be explained that the value of count (3.568) > table

(1.75) so it can be concluded that there is a difference in influence between the post-test and pre-test.

The results of research on learning the Qur'an at early childhood education institutions in Wonosobo are, with an attractive appearance through interactive multimedia presenting images or animations so that children are more interested and make it easier for children to understand and participate in learning activities. Learning the Qur'an using interactive games makes learning fun for children. The results of the study obtained that the average pre-test score of students' learning outcomes was 2.07 from a maximum score of 3.0. While the average post-test score of student learning outcomes is 2.73 from a maximum score of 3.0 after testing its effectiveness through calculations in order to test the effectiveness of the difference in learning outcomes between pre-test and post-test, the low category is 6.6%, the medium category is 13.3%, 80% high category. These data indicate that there are differences in learning outcomes between learning with interactive multimedia and before developing interactive multimedia. The data from the pre-test results from 2.07 to 2.73 in the post-test value, indicating a significant increase.

The utilization of information and communication technology also needs to be done to improve the efficiency and effectiveness of learning. Çalık, (2013) research shows that the use of technology in learning is able to increase the effectiveness of learning because it can make students more active and confident in learning. The utilization of technology-based learning media is very useful to facilitate students in learning and make learning more interactive, effective, and interesting (Munir, 2010).

Learning media with interactive multimedia is in the form of games that contain programs that can interact with users with the help of computers or laptops. Learning the theme of the universe in early childhood uses one of the learning media to make it easier for students to understand the message conveyed by using interactive multimedia. This interactive multimedia-assisted learning seeks to make students better understand, understand, be active, and apply it in everyday life. Manikowati in her research concludes that by using multimedia teachers become more professional. Communication between teachers and children can be established well. Children

become more focused, enthusiastic, and interested in learning. Children can express ideas and feel happy with objects displayed in learning multimedia.

The results of interactive multimedia-assisted learning in the Qur'an learning process at early childhood education institutions in Wonosobo are: 1) Early childhood is easier to remember learning content when shown certain images and sounds that attract attention. Audio-visual services in interactive multimedia will help students to form long-term memory images in their minds; 2) Learning media with interactive multimedia in the Alqur'an learning process provides new variations for students, namely being more active in participating in learning; 3) Interactive multimedia can help form interactive responses in the learning process because every student gets the opportunity to be responded to directly in interactive multimedia games.

Conclusion

The interactive multimedia game design "Abatasa" in learning the Qur'an produced in this study is in the form of a game that can be stored on a computer or laptop. The implementation of the interactive multimedia game "Abatasa" results in improving the learning process of the Qur'an in the classroom. This is indicated by the level of mastery of students' concepts is better. Calculations to determine the effectiveness of learning outcomes between learning before developing interactive multimedia learning media are indicated by a value (pre-test 2.07) and after being developed it produces a value (post-test 2.73) with complete learning outcomes reaching 80%.

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