International Journal of Research and Applied Technology

2(1)(2022) 151-157
Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

E-learning Media for the Ability to Recognize and Count Numbers in Kindergarten Students

Fikri Andika Putra Mulyana[1], Asep Bayu Dani Nandiyanto[2*], Tedi Kurniawan[3]
[1]Departemen Pendidikan Matematika, Universitas Pendidikan Indonesia, Indonesia
[2]Departemen Kimia, Universitas Pendidikan Indonesia, Indonesia
[3]Community College of Qatar, Qatar

Email: *nandiyanto@upi.edu

Abstract. The Covid-19 pandemic causes learning activities to be carried out online, causing teachers to be able to utilize technology-based learning media. This study aims to determine whether there is a significant difference between the ability to work on kindergarten students' numeracy questions before and after being given learning through YouTube media. The method that will be used is descriptive quantitative to 19 kindergarten students. The results show that the data processing of the Wilcoxon test results is 0.449> α =0.05. From these results, we can conclude that the YouTube learning media has no significant effect on the ability to recognize numbers and do arithmetic problems. This is because (i) the research time is short, (ii) the instructional video is only given once, (iii) some parents do not provide learning videos to students, and (iv) there are still many students who have difficulty writing numbers correctly. But of course, the experience of students learning to use YouTube can still be useful to help students continue their education to the next level.

Keywords: Counting, Covid-19 Pandemic, Kindergarten, Numbers, Youtube

1. Introduction

The Covid-19 pandemic is not over yet. It has been almost two years since the coronavirus first appeared in the world, but things have not returned to the way they were when the virus did not exist. The impact of this prolonged pandemic has greatly affected various fields, one of which is education. Education that is forced to be carried out online causes students, teachers, and even parents to be able to adapt to school activities from their respective homes. Not a few students and parents find it difficult to adapt, but this is still normal because we have just faced a situation like this [1].

YouTube is one of the social media that is widely used today, without exception for kindergarten school-age children. Children who are currently undergoing school in kindergarten are the alpha generation, namely the generation born after 2010. The alpha generation is very closely related to the rapid development of technology and information. Since they were born, they are already familiar with internet facilities so that they are claimed to be the smartest generation compared to previous generations [2]. However, the use of

International Journal of Research and Applied Technology

2(1)(2022) 151-157

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

YouTube as a learning medium is still considered lacking because children use gadgets more for playing games. In fact, the impact of using YouTube media includes increasing knowledge and learning motivation [3]. The positive impact that children can get from YouTube cannot be separated from the role of parents in introducing early literacy that is adjusted to the level of child development [2].

The importance of the concept of recognizing numbers and counting for children is so that it is easier for children to follow the process of further education, especially mathematics. Until now, there are still many students who avoid mathematics because they have difficulty understanding advanced material caused by various factors, one of which is the lack of understanding of the concept of numbers. In fact, mathematics is very useful in everyday life. The introduction of the concept of numbers must be given from an early age and the ability to do arithmetic problems must be improved. Because children at the age of 0-6 have rapid growth and development, it is known as the golden age [4].

From various studies, [1] said that one of the learning media that was deemed appropriate to be used in this pandemic situation was in the form of video. It is also supported by [5] which states that the YouTube learning media has proven to be effective in early childhood education. Because videos on the YouTube platform can have a positive impact on early childhood online learning activities [6]. The video is an audio-visual medium. One of which can be used for the ability to recognize numbers for children aged 5-6 years [7] proves that there is a significant difference between the ability to answer numeracy questions for the group of children who are taught using learning videos and the group of children who are taught using blackboard media (conventional). Moreover, if the video is an animated video because it is based on research conducted by [8] getting test results from subject content experts and test results from learning media experts get a very high category value, so animated video learning media is very feasible to use. But no one has done this research using quantitative descriptive methods.

Based on the description of the background of the problem above, it is necessary to carry out a study that aims to determine whether there is a significant difference in the ability to do arithmetic questions for kindergarten students before and after being given learning using YouTube media.

2. Theoritical Framework

2.1. Learning Media

Media is an intermediary or delivery of messages and information and is one component in the learning system. Because as a component, the media must be in accordance with the overall learning process. Learning media is anything or a tool and is used as an intermediary for messages or information so that a purposeful, controlled, or intentional learning process can occur as a result of the stimulation of students' attention and interest in learning and learning objectives can be achieved effectively and efficiently [9].

According to [10]; examples of learning media are divided into three, namely (i) visual media, such as charts, diagrams, graphs, posters, pictures; (ii) audio media, such as cassettes and radio; and (iii) audio-visual media, such as television and the internet.

2.2. Early Childhood

International Journal of Research and Applied Technology

2(1)(2022) 151-157

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

Early childhood is the initial stage of childhood aged 0-6 years which is in a stage of growth and development that has unique characteristics and has differences with later age stages. Therefore learning mathematics for early childhood must be fun and use the help of simple objects that are liked by children and those around children. In accordance with the nature of early childhood playing while learning, so the games that are carried out should contain learning so that children are not aware that they are learning [11].

2.3. Numbers and Counting

Numbers are symbols of objective things (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) which have certain symbolic meanings and meanings and are widely known, both in form and system [12].

The introduction of the concept of counting is a very important part of the development of children's cognitive intelligence. Children who are intelligent in the field of arithmetic can develop many things, one of which is in solving problems. The introduction of counting concepts given to children must be done in an interesting way and cannot be done forcibly [13].

3. Method

This study uses quantitative methods. Where it was carried out on RA Al-Wahid students in Kindergarten B class as many as 26 students. First, students are given pre-test questions via a google form. Then the students were given treatment in the form of learning videos via YouTube. After that, students were given post-test questions via a google form.

After the pre-test and post-test results are obtained, then data processing will be carried out. First of all, a normality test is carried out on the resulting data. If the data is normally distributed, it is followed by paired t-test to show whether there is a significant difference between the results of the pre-test and the results of the post-test. If the data is not normally distributed, then it is continued with the Wilcoxon test for the same purpose.

Paired t-test is a method of testing hypotheses in which the data used are in pairs [14]. This means that the data is taken from the same individual but given different treatments. In this case, before being given a learning video through YouTube and after being given a learning video through YouTube. Meanwhile, the Wilcoxon test is a non-parametric test that does not require data to be normally distributed and is used for paired data so that it can be an alternative test when the data is not normally distributed [15].

4. Results and Discussion

4.1. Demographics

First of all, socialization was carried out to the principal of RA Al-Wahid and the teachers who teach TK B class on Friday, August 27, 2021. After explaining the background, objectives, and technical research that will be given, then I was given information about the condition of students in the Kindergarten class. B that most students already know and can mention numbers at least 1-20 and work on additional operations problems with the help of pictures of objects around. However, some students still have difficulty in writing numbers both when counting the number of objects and writing the sum results. The condition of students' parents also supports that this research is carried out online, there are no problems if the questions are given via google forms and learning videos via YouTube.

Furthermore, socialization was carried out to parents of students on Monday, September 30, 2021. In this socialization, parents were encouraged to always accompany and guide students at every stage in the research. On Monday, August 30, 2021, at noon, students are

International Journal of Research and Applied Technology

2(1)(2022) 151-157

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

given pre-test questions via a google form which will be assisted by their parents in filling out the questions but will not be assisted in answering these questions. Then in the afternoon, students are given treatment in the form of giving learning videos via YouTube according to the type of questions that have been and will be given. While being accompanied by parents of students so that students focus on paying attention to the learning videos provided. Furthermore, on Tuesday, August 31, 2021, students were given post-test questions using the google form again and were guided by their parents.

4.2. Data Analysis

After the students did the pre-test and post-test, a score was given to the correctness of the answers and how to write numbers correctly. Of the 26 students, only 19 students took the pre-test and post-test so that data on students who only took one of them were not included. The test results data before and after giving learning videos through YouTube can be seen in Table 1.

Then the normality test was carried out for each data in Table 1 using the help of software. The test results can be seen in Table 2 and Table 3.

Table 2 shows the test results of 0.002. With a value of α =0.05; because 0.002 < α then the data from the pre-test results are not normally distributed. Then Table 3 shows the results of 0.000 and 0.001, where a value of α = 0.05 both are less than α then the post-test result data is also not normally distributed. Since the two data are not normally distributed, the Wilcoxon test will then be carried out with the results in Table 4.

Table 1. Pre-test and post-test result data.

Students	Pre-test	Post-test
A	87,5	100
B	90,625	87,5
C	100	90,625
D	100	96,875
E	100	100
F	100	100
G	100	100
H	84,375	93,75
I	100	100
J	90,625	93,75
K	87,5	87,5
L	90,625	100
M	96,875	100
N	87,5	84,375
O	100	87,5
P	96,875	100
Q	100	100
S	93,75	93,75
T	87,5	100

Table 4 shows the test results of 0.449. With a value of α =0.05; because 0.449> α then there is no difference in the ability to work on kindergarten students' arithmetic problems before

International Journal of Research and Applied Technology

2(1)(2022) 151-157

Journal homepage: https://ojs.unikom.ac.id/index.php/injuratech

and after being given learning using YouTube media. Based on the average results of the pre-test and post-test, it can be seen in Figure 1, that there is an increase from 94.4 to 95.6.

Table 2. Test of normality data pre-test.

Kolmogorov-Smirnov			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.255	19	.002	.819	19	.002

Table 3. Test of normality data post-test.

Kolmogorov-Smirnov			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.
.315	19	.000	.776	19	.001

Table 4. Wilcoxon test.

	Postest - Pretest
Z	-.758
Asymp. Sig. (2-tailed)	.449

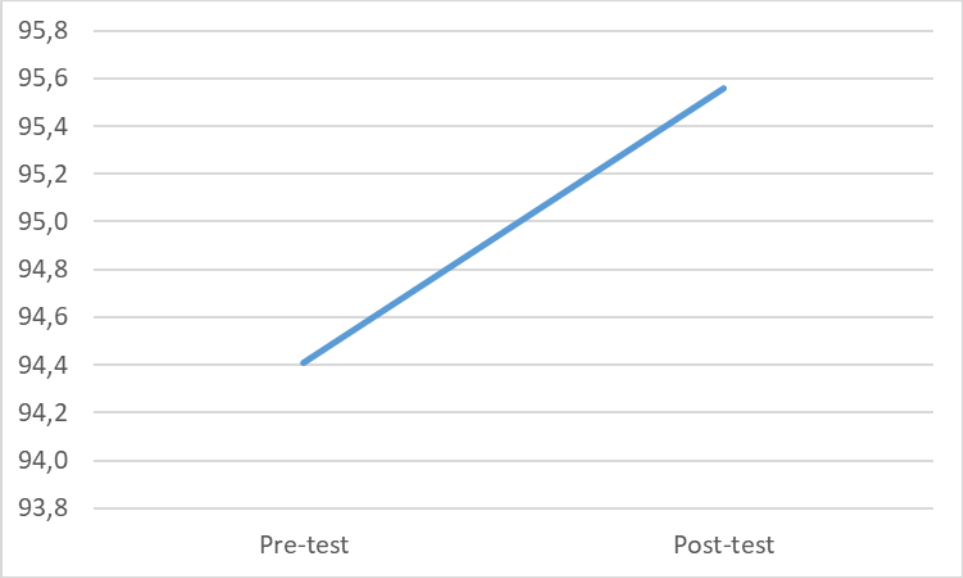

Figure 1. The average increase in the results of pre-test and post-test.

4.3. Discussion

The increase in the average pre-test and post-test results can occur because it is in line with research that video can be used for the ability to recognize numbers for children aged 5- 6 years.

However, some factors cause the insignificance of the provision of YouTube learning media to increase students' ability to recognize numbers and answer arithmetic questions including:

(i) The research time is short, only two days. The first day of the pre-test and the provision of learning videos continued on the second day of the post-test.
(ii) Giving a one-time learning video.
(iii) some parents do not provide learning videos to students according to the directions.

(iv) Most students can count and answer the questions, but some students still write numbers that are not appropriate, which is upside down.

So this is not in accordance with the research [5] which states that the YouTube learning media has proven to be effective in early childhood education. As well as research [7], there is a significant difference between the ability to answer numeracy questions for the group of children who are taught using learning videos and the group of children who are taught using blackboard media (conventional). And also research [16] which states that the development of children's numeracy skills is influenced by the use of animated videos.

However, videos on the YouTube platform can have a positive impact on early childhood online learning activities, according to research [6] because they can be useful to help students continue their education to the next level. In line with research [4] that basic abilities for early childhood are crucial basic abilities because they will continue their education to the elementary school level.

5. Conclusion

It can be concluded that although there is an increase in the average results of the pre-test and post-test, there is no difference in the ability to recognize numbers and do math problems for kindergarten students before and after being given learning using YouTube media.

6. Acknowledgement

We acknowledged Bangdos, Universitas Pendidikan Indonesia. We thank to Neni Hartati from RA Al-Wahid. This study is a part of community service (Program: KKN Tematik Literasi 2021 (August-Sept 2021) kel 21) Lembaga Penelitian dan Pengabdian Masyarakat (LPPM), Universitas Pendidikan Indonesia. We also thank to Kantor Jurnal dan Publikasi, Directorate of International Affairs, Universitas Pendidikan Indonesia. We thank to Nissa Nur Azizah, Dwi Fitria Al Hussaeni, Muktiarni, S.Pd., M.Pd., Rina Maryanti, S.Pd., M.Pd., and Asri Wibawa Sakti, M.Pd.

7. Authors' Note

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

References

[1] Nanda, H. I., Pratiwi, E. C., Fadila, I. R. N., Maharani, N. A. B., and Ardono, V. A. P. (2020). Media edukasi siswa usia dini di masa pandemi. *Suluh: Jurnal Abdimas*, 2(1), 41-51.

[2] Salehudin, M. (2020). Literasi digital media sosial youtube anak usia dini. *Jurnal Ilmiah Potensia*, 5(2), 106-115.

[3] Baihaqi, A., Mufarroha, A., and Imani, A. I. T. (2020). Youtube sebagai media pembelajaran pendidikan agama islam efektif di smk nurul yaqin sampang. Edusiana: *Jurnal Manajemen dan Pendidikan Islam*, 7(1), 74-88.

[4] Novianti, R. (2015). Pengembangan permainan roda putar untuk meningkatkan kemampuan berhitung angka anak usia 5-6 tahun. *Jurnal Educhild: Pendidikan dan Sosial*, 4(1), 56-63.

[5] Kristiawan, M., Aminudin, N., and Rizki, F. (2021). Optimalisasi pembelajaran daring berbasis aplikasi online bagi calon guru pendidikan anak usia dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(2), 1905-1914.

[6] Putri, D. R., Nursanti, S., and Nayiroh, L. (2021). Dampak youtube pada kegiatan belajar daring anak usia dini di tengah pandemi covid-19. *Jurnal Interaksi: Jurnal Ilmu Komunikasi*, 5(2), 169-181.

[7] Yuliani, D., Antara, P. A., and Magta, M. (2017). Pengaruh video pembelajaran terhadap kemampuan berhitung permulaan anak kelompok b di taman kanak-kanak. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 5(1), 96-105.

[8] Dewi, N. W. U. R., Asril, N. M., and Wirabrata, D. G. F. (2021). Meningkatkan kemampuan berhitung permulaan pada anak usia dini melalui video animasi. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 9(2), 99-106.

[9] Nurrita, T. (2018). Pengembangan media pembelajaran untuk meningkatkan hasil belajar siswa. Misykat: *Jurnal Ilmu-ilmu Al-Quran, Hadist, Syari'ah dan Tarbiyah*, 3(1), 171-210.

[10] Gunawan, I., Suraya, S. N., and Tryanasari, D. (2014). Pengaruh supervisi pengajaran dan kemampuan guru mengelola kelas terhadap motivasi belajar siswa. Ilmu Pendidikan *Jurnal Kajian Teori dan Praktik Kependidikan*, 41(1), 44-52.

[11]. Amalina, A. (2020). Pembelajaran matematika anak usia dini di masa pandemi covid-19 tahun 2020. Jurnal Obsesi: *Jurnal Pendidikan Anak Usia Dini*, 5(1), 538-548.

[12]. Dewi, B. S. (2013). Imajinasi angka. *Jurnal Imaji Maranatha*, 5(1), 218285.

[13]. Novira, N., and Jaya, I. (2021). Analisis metode bercerita menggunakan boneka tangan dalam meningkatkan kemampuan berhitung anak usia 5-6 tahun. Edukatif: *Jurnal Ilmu Pendidikan*, 3(1), 84-91.

[14]. Montolalu, C., and Langi, Y. (2018). Pengaruh pelatihan dasar komputer dan teknologi informasi bagi guru-guru dengan uji-t berpasangan (paired sample t-test). *D'cartesian*, 7(1), 44-46.

[15]. Auliyah, A., and Flurentin, E. (2016). Efektifitas penggunaan media film untuk meningkatkan empati siswa kelas VII SMP. *Jurnal Kajian Bimbingan dan Konseling*, 1(1), 19-26.

[16]. Ramli, C. P., and Zulminiati, Z. (2021). Pengaruh video animasi terhadap kemampuan berhitung anak di tk pertiwi iv talawi. Edukids: *Jurnal Pertumbuhan, Perkembangan, dan Pendidikan Anak Usia Dini*, 18(2), 117-123.