

## THE EFFECTIVENESS OF SCRABBLE, SYSTEM KEYBOARD AND WHITEBOARD LITERACY ON EARLY CHILDHOOD FINE MOTOR MOVEMENT ABILITY

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**Abstract** : The era of disruption is developing faster and faster so that teachers have difficulty choosing the right media in teaching early childhood reading. The purpose of the study was to determine the effect of the use of scrabble media, system keyboards and whiteboards on fine motor movements in early childhood. The experiment was carried out during August as many as 8 times the research process with a 2x2 factorial design. The sample is the total student population of PELITA Hati Jeli and PAUD Cempak with experimental quasi techniques totaling 34 people using scrabble media, 32 through whiteboards, 31 with system keyboard media and 10 children from control class results. Variance analysis (ANOVA) and the Tukey Test were used to test hypotheses at significance  $\alpha=0.05$ . The results showed that 1) perception of fine motor movements is high, scrabble literacy media is better than early childhood whiteboard literacy with results ( $Q_0 = 0,501 > Q_t = 0,05$ ), 2) perception of medium fine motor movements, whiteboard literacy media is better than that of the early childhood system keyboard with results ( $Q_0=0,133 > Q_t = 0,05$ ), 3) perception of low fine motor movements, the use of system keyboards for early childhood with results ( $Q_0= 0,082 > Q_t= 0,05$ ), 4) overall in the total population showed that the average significance value was different i.e. ( $0,00 < 0,05$ ). The conclusion of the study is that the media that have a significant effect based on the post-hoc test on the Tukey test are scrabble literacy 79,96, whiteboard literacy 70,97 and system keyboard literacy 57,81.

**Keywords** : Scrabble Literacy; System Keyboard; Whiteboard; Fine Motor Motion.

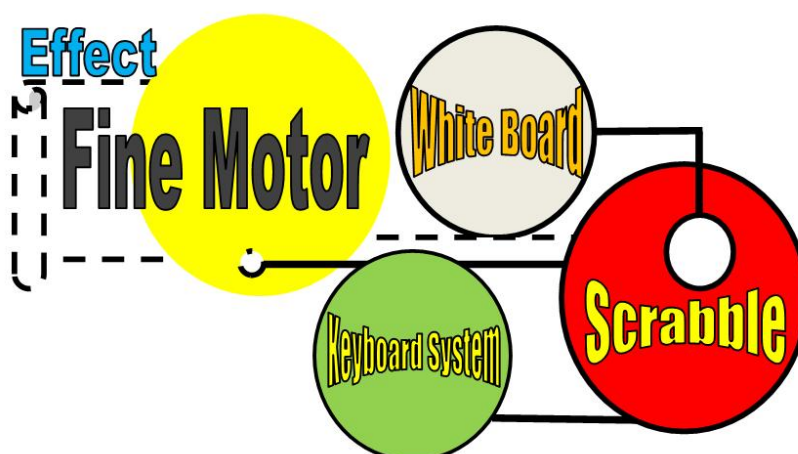
### A. INTRODUCTION

Fine motor movements are often associated with early childhood (Wandi & Mayar,2020: 351). Early childhood is often influenced by peers in carrying out actions in the learning process. They are receptive to information and are active in accepting the movements taught by people around them with a relatively short time limit (Sari, Wijayanto and Syaifuddin,2022:13). Fine motor is a skill with limited movements that comes from small muscle parts of the fingers such as writing, cutting, typing, drawing and holding things using the thumb and forefinger (Primayana,2020:92). Early childhood are those aged 0 to 8 years based on a birth certificate or family card. Early childhood is a child with a very rapid growth process so that fine motor movements cannot be controlled properly (Rismayanti, 2013:65). The government's efforts to regulate early childhood growth by providing guidance through school gardens at the primary level. Early childhood education is quite important in realizing an intelligent generation by emphasizing the laying of foundations in physical, linguistic, social, emotional, self-concept, art, moral and religious values (Nurhayati,2020:64).

The age level of child development includes aspects of religious and moral values, physical-motor, cognitive, language, social emotional and artistic (Patlung, Ismawati, Herawati and Ramadani, 2019:26). These aspects of development are combined in the field of development of behavioral formation through habituation consisting of: moral and religious values, social emotional, independence and the development of basic abilities consisting of: language, physical or motor, artistic and cognitive (Jamil,2017:1). The age period under 9 years is a very decisive period for the development and growth of children, The age period under 9 years is a very decisive period for the development and growth of children, when in the process of completing the task the student will use a variety of strategies so that the assigned task can be completed properly and correctly (Syaifuddin and Wijayanto,2022:51). The ability that will develop rapidly is fine motor ability so that the role of the educator determines the percentage of skill improvement that will be possessed by students at the elementary level.

The development of early childhood motor movements is also due to educators who are proficient in demonstrating various learning media (Sari, 2012:2). Educators who are not so proficient in using learning media make children's psychomotor skills low (Muskania and MS, 2021:159). The factor of decreasing fine motor movements is that the strategies used by teachers are not appropriate and the media prepared has not been effective in achieving learning objectives (Trsinawati, Alamsyah and Kurniawati,2017:1-10). Teachers in the millennial era are trying to find contextual media that are easy to carry and able to influence children's psychomotor movements so that the emergence of Scrabble. Scrabble media is a learning media that has been used by several educators at the elementary level. Scrabble media is useful for sharpening children's brains because they are required to find answers to problems that have been prepared by educators in the classroom (Rahmawati, Sulaiman and Siswoyo,2018:15). The purpose of the scrabble is to collect the value of the written word from each set of boxes that the educator has prepared. This game is a word game on a 17-column and 17-line board using 97-tile letter pieces. Players use letter pieces to form words horizontally or in descending manner just like playing crossword puzzles. The scrabble game is an educational game that is simple and energy efficient because it is played traditionally. Media that also has traditional nuances is whiteboard media.

The whiteboard is a medium that is always in the classroom so that its existence cannot be eliminated in the learning process. Generally, whiteboards are used to write down information by educators in the classroom, but when the blackboard is used as a learning medium, students are given the authority to write down the information obtained after studying magazine books that have been given by educators in the classroom. Based on the three media (scrabble, whiteboard and system keyboard) it can be synthesized into the following image:



Picture 1. Research Design

Along with the development of technology, media is often considered unimportant, so many schools have reduced the portion of the use of whiteboards to be more modern in the form of LCDs and even digital televisions. Various efforts have been made and one of them is utilizing

information technology and communication (ICT) (Warsihna,2013:239). More than 10 educators in different places mentioned that the use of whiteboards done correctly and appropriately can improve student learning outcomes with a note of being willing to develop towards the modern direction. One of the media that is now starting to be developed in the millennial era is the system keyboard. Keyboard is a digital equipment on a computer or laptop as a means of supporting in entering numbers, writing, special characters and a means of giving commands from its users through the keys that have been provided. The design above explains that between the system keyboard, white board and scrabble are media that need to be analyzed to find out the influence caused when used in the classroom. The purpose of the study was to analyze the influence of the significance of each medium (scrabbel, whiteboard and keyboard system) in improving fine motor movements in early childhood.

## B. METHODS

This research uses quantitative methods through inference statistics, which is a method that includes the relationship of part or all of the population by generalizing normal data (E. Carolin,2019: 3). Experimental quasy techniques are added to find out causation, controlling events on an interaction in the experimental class and control class at a certain level (Winarno, 1989: 149). The design used is a 2 x 2 factorial by looking for the influence of two or more free variables. The main influence in this study is the degree of significance between free and bound variables, while the influence of interactions of more than one free and bound variable is referred to as the influence of interactions (Borg and Gall, 1984: 274). Research Design is presented in the following table:

**Table 1. 2 x 2 factorial research design**

Fine Motoric (Y)	Experimental Class (X)			Control Class
	Scrabble (X1)	White board (X2)	Keyboard System (X3)	
Paud Pelita Hati (Z1)	X1 Y Z1	X2 Y Z1	X3 Y Z2	X1 X2 X3 Y Z1 Z2
Paud Cempaka (Z2)				

Description in the formulation of the problem:

X1 Y Z1 = How does scrabble literacy affect fine motor skills in Pelita Hati Preschool?

X2 Y Z1 = How does blackboard literacy affect fine motor skills in Lamp of the Heart Preschool?

X3 Y Z2 = How does keyboard system literacy affect fine motor skills in Paud Cempaka?

X1X2X3YZ1Z2 = How does scrabble literacy, whiteboard and system keyboard affect fine motor skills in Pelita Hati Preschool and Cempaka Preschool?

The purpose of the study was to analyze the effect of the use of scrabbel media, system keyboards and whiteboards on fine motor movements of early childhood. The research was conducted in Jeli and Tulungrejo Villages, Karangrejo District, Tulungagung Regency. The experiment was carried out during August as many as 8 times the research process with a factorial design of 2x2. The sample was the total population of students of PAUD Pelita Hati Jeli and PAUD Cempaka which amounted to 34 students with experimental quasy techniques totaling 34 using scrabble media, 32 through the whiteboard, 31 with system keyboard media and 10 children from the results of the control class.

## C. RESULT & DISCUSSION

The prerequisite test shows that: 1) each group of data on normally distributed variables is correct, 2) each group of data on each variable is declared homogeneous so that a final analysis can be carried out in the form of an ANAVA test. Variance analysis (ANAVA) and the Tukey Test were used to test hypotheses at significance  $\alpha=0.05$ . All data comes from the results of research while at PAUD Pelita Hati and PAUD Cempaka. The following are the results of research that has been carried out during August 2022:

**Table 2. Reliability Test**

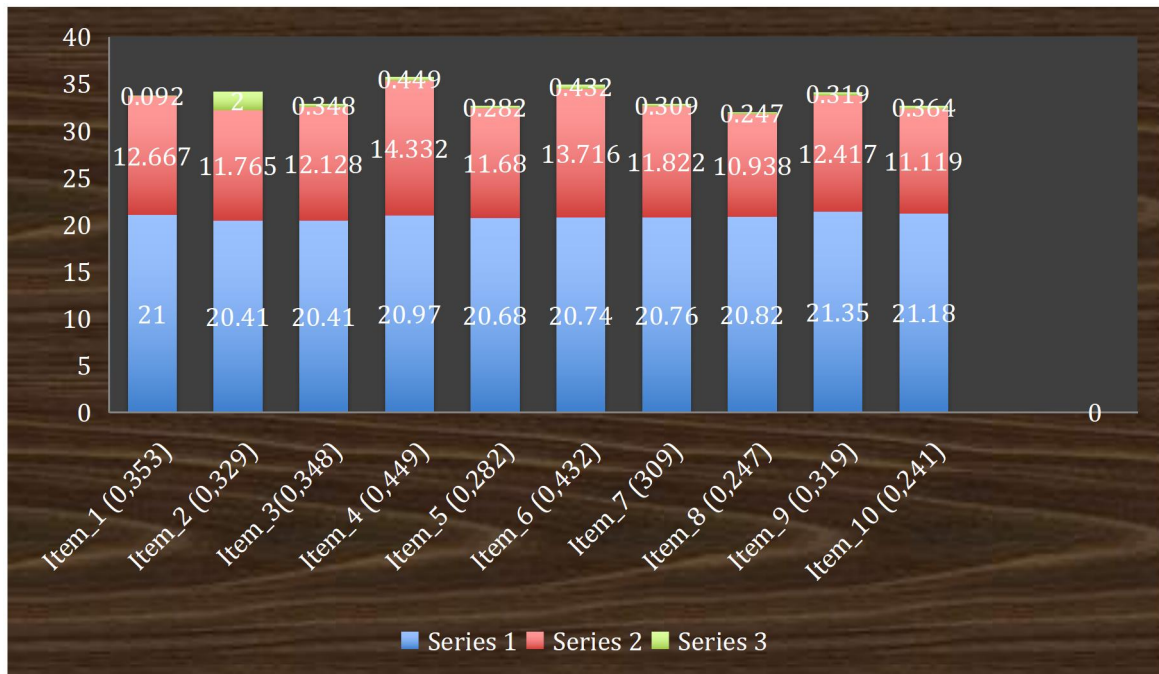
		N	%
Cases	Valid	34	100,0
	Excluded	0	,0
	Total	34	100,0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
,360	10

The table above is the result of a preliminary survey related to the validity of the questions (questionnaires) that will be used as research instruments. Reliability tests were conducted using SPSS IBM 20 based on guidelines on the SPSS Indonesia link in google. Data emerging from reliability tests by comparing sig values. (2-tailed) with a probability of 0.05 is  $0.360 > 0.05$  so the data is said to be reliable.



**Picture 2. Reliability Test**

The second data is to test the validity and the value in each question is 0.353; 0,329; 0,348; 0,449; 0,282; 0,432; 0,309; 0,247; 0,319; 0,241. The ten data were declared reliable and valid because the probalitiias value was more than 0.05. The data taken for subsequent studies is the normality test of kolmogorov smirnov.

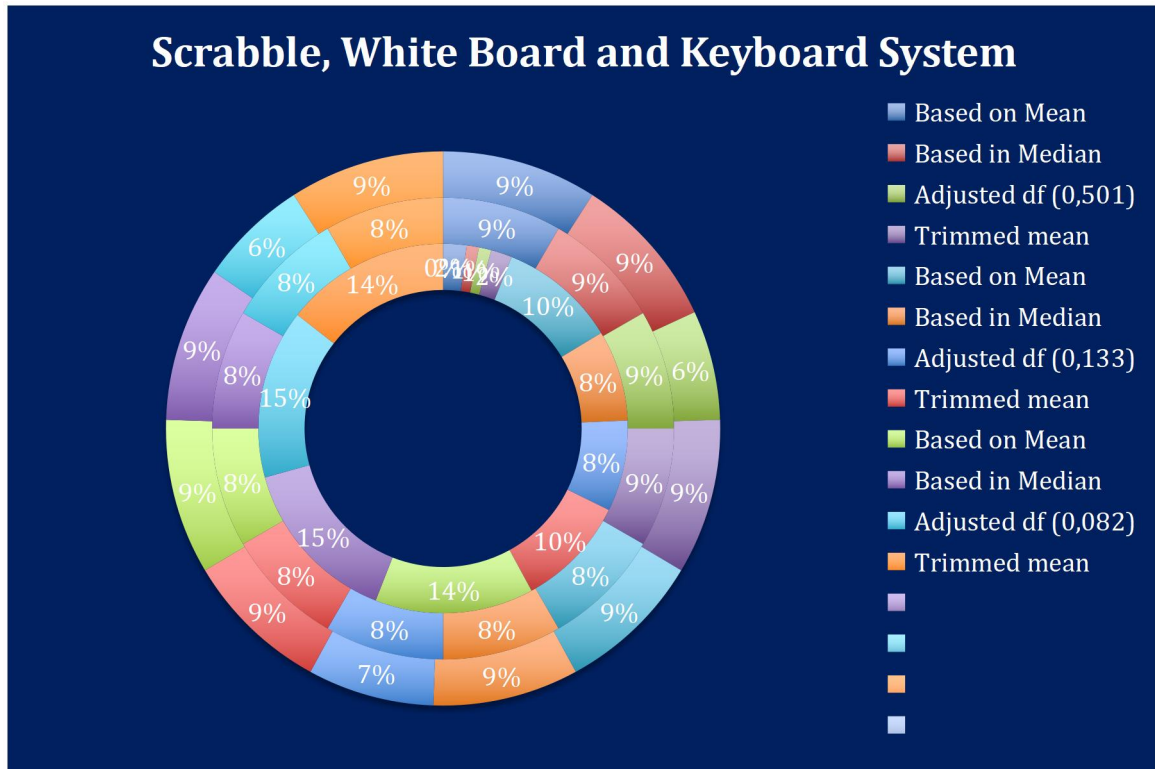
The kolmogorov smirnov normality test is data that will show the values of the normally distributed or non-normally distributed experimental test. The table showing the normality of data after being entered into THE IBM 20 SPSS is as follows:

**Table 3. Normality Test**

		Understandardiz ed Residual
N		31
Normal Parameters	Mean	0E-7
	Std. Deviation	13,27885493
	Absolute	,073
	Positive	,073
	Negative	-,054

<b>Kolmogorov-Smirnov Z</b>	,405
<b>Asymp.Sig. (2-tailed)</b>	,997

Asymp. Sig. (2-tailed) is the normality value of the data that has been tested. It can be seen that the data that appears is  $0.997 > 0.05$  so that the research data is distributed normally and can be continued to the homogeneity test stage. The table showing the results of the homogeneity test is as follows:



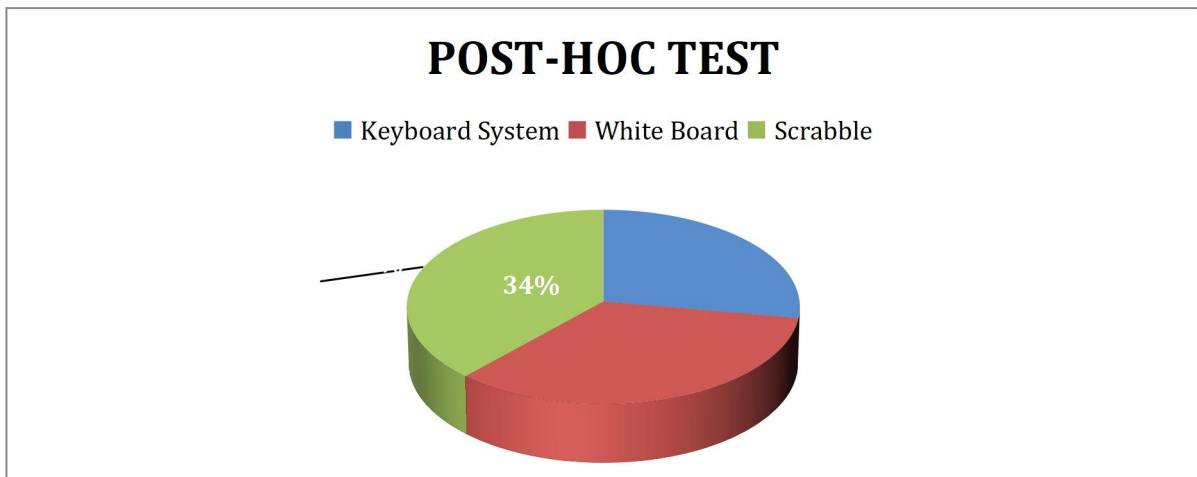
**Picture 3. Homogeneity Test**

The above data shows that the based on mean of the scrabble media homogeneity test is  $0.501 > 0.05$  so the value is homogeneous. The above data shows that the based on mean of the whiteboard media homogeneity test is  $0.133 > 0.05$  so the value is homogeneous. The above data shows that the based on mean of the whiteboard media homogeneity test is  $0.082 > 0.05$  so the value is homogeneous. The final prerequisite test of the study is ANAVA and the post-hoc test which has been included in the following table:

**Table 5. ANAVA Test**

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	7878,755	2	3939,378	30,639	,000
<b>Whitin Groups</b>	12085,925	94	128,574		
<b>Total</b>	19964,680	96			

The significance value of the anava test table is  $0.00 < 0.05$ , so the average between the media that has been used as a study has an influence on each media has a level of different effectiveness. Anava is a research analysis to find out and see the difference in average through testing the variance. In the anava in question it is not its average but its variance. Anava also makes it possible to be able to see the influence of the free changer and the changer of control, either separately or together, on the changer's bond. the step taken to find out the final average is to find out the data using post hoc analysis. The step taken to find out the final average is to search for data using a post hoc analysis that shows the following results:



**Picture 6. Tukey Post-Hoc Test**

The results of the post-hoc test based on the table above are  $79.76 > 0.05$ ;  $70.97 > 0.05$ ;  $57.81 > 0.05$  so that the studies carried out had a significant influence in every medium used to improve fine motor movements in early childhood.

#### **Discussion**

The data on the prerequisite test results stated that the coefficient of reliability was 0.360 which showed 10 questions were normally distributed after being tested on 34 students in the initial test. The questions tested are found in the 2013 curriculum book that has been provided by the school in reading and writing words. The study was conducted in two schools in Karangrejo sub-district, namely a school for early childhood. A significant influence can be seen from the large number of fine motor movements performed by children who were given pretests and postes in the experimental class using scrabble media with a final number of scores of 2712 in the experimental class and 1986 in the control class. Theoretically, the scrabble medium is played by searching for a series of words in a box that has been provided so that it is possible to influence fine motor movements for the students. Effectiveness in the control class must go through several stages of variable testing first and understand that the media used is homogeneous and normally distributed, therefore calculations are carried out using a variance analysis which is finally valid and can be continued to the final analysis test in the form of a post-hoc tukey test. The results of the Tukey test stated that there were differences in the comparison of the influence of the use of scrabble media, whiteboard media and system keyboard media in the control class and experimental class. The data can be seen from observations based on portfolio instrument tests. The use of scrabble media is carried out by providing word media that has been provided in a box which is then selected by students in groups. They will arrange words according to the direction and guidance of the educator so that the words compiled can become good and correct sentences. The preparation of the scrabble is assisted by parents who are waiting for their children in the classroom, this is because some students are still not used to meeting strangers when outside the home so that the learning process in the classroom still needs help. At the beginning of the use of scrabble media, it was carried out with a long process because the media was small in number so that the word sought could not be immediately found by students. Unlike the case with the use of control classes that are directly given directions to write letters without using scrabble media. Those in the class without any treatment took longer than the experimental class to use scrabble media.

The second hypothesis test showed that the use of whiteboard media was effective in making students able to write letters independently in front of the class. The influence caused is no more efficient than the scrabble medium due to the fine motor movements that appear only

for a few children who are willing to come to the front of the class. Those who don't want to tend not to pay attention and play alone by drawing in a notebook or scribbling on a bench that feels more attractive than the blackboard media. For them the use of interesting media is a game by using colorful media such as scrabble. The stages of working on the task are carried out by providing a portfolio of postes in the experimental and control class. The result of data analysis that emerged from the calculation of postes in the experimental class and the control class was 0.133.

Testing the third hypothesis showed that the system keyboard medium had little effect on fine motor movements within the classroom. The meager media makes them less interested in listening to the directions explained by the educator in front of the class. The motor movements produced from fine motor skills are only the speed of the finger type, so the other motor roles are less efficient in an education. The postes test was used to determine the effect of using the system keyboard media before and after being given media in the experimental class and control class with data analysis of 0.082. Students who have a high interest in technological advances feel interested in trying it, in contrast to those who are afraid to use the system keyboard media because the location of different letters makes them confused and choose to stay on their respective benches.

The fourth hypothesis test showed that there were significant differences before and after being given scrabble media, whiteboards and system keyboards by 79.96%, 70.97% and 57.81%. Before being given the media, students learn to memorize letters slowly because they are silent without giving motion responses when given lessons in the classroom. The increase in fine motor movements is seen when students are given media to support literacy so that the fine motor movements caused become more active and developed.

#### **D. CONCLUSION**

Based on the results of testing the research hypothesis, it can be concluded that 1) scrabble literacy media is better than early childhood whiteboard literacy. Scrabble becomes more influential because the energy produced to play the media is able to increase fine motor movements greater than other media. The resulting fine motor is the movement of the hands in choosing the correct letters to be arranged into solid words and sentences, the movement of the feet in running to find the scrabble part that is in the other group and the mouth that moves to read the writing on the scrabble. 2) whiteboard literacy media has the influence of fine motor movements that are in the intermediate or moderate stages. Writing on the blackboard influences fine motor movements in the form of skills in compiling words that are still in the mind and then written on the blackboard media. The fingers of the hand are able to move in writing them down in front of the class so that fine motor movements can improve in the experimental class. 3) The system keyboard media has little effect in improving fine motor movements. The slight increase is because students are not very mobile in playing it, but through the keyboard the system is actually able to open insights for early childhood in accessing the whole world on a computer. 4) An overall significant influence on the total population states that the use of scrabble literacy media is worth 79.96; whiteboard literacy media 70.97 and system keyboard literacy 57.81.

The advice that emerged from the research that has been carried out is First, scrabble literacy media is good for early childhood to play, but its small size makes it difficult for students to find every word they are looking for so that it is hoped that the size will be enlarged so that the benefits produced will be better in the future. Second, the medium of blackboard literacy has actually been used by teachers all over the world, but in order for students to dare to write on the blackboard, they must be given the spirit of colorful chalk or markers to attract their interest in writing. Third, the system keyboard media is good, but its use requires expensive media in the form of laptops or computers so that schools that do not have to have to borrow from other places. The role of the system keyboard actually has a good influence on the advancement of educational technology, but it needs to be rethought regarding efficiency in introducing literacy in early childhood. Fourth, overall PAUD Pelita Hati and Paud Cempaka are schools located in rural areas, so the use of media has a significant effect when practiced in the classroom. The

findings in the follow-up research are expected to be able to add references to conduct research related to literacy and psychomotor movement for early childhood in the future.

## REFERENCES

- Carolin, E. 2019. *Quantitative Methods*. (Surabaya: Media Sahabat Cendekia).
- Winarno, S. 1989. *Introduction to Basic Scientific Research Methods and Techniques*. London: Tarsito.
- Borg, Walter R., & Gall, Meredith D. 1984. *Educational Research An Introduction, Fourth Edition*. New York: Longman, Inc., 32(3), 274.
- Jamil, Ibrahim M. 2017. Faktor-Faktor Yang Mempengaruhi Prestasi Belajar Anak. *Jurnal Ilmiah Pendidikan Anak*. 1(1).
- Muskania, Ricka Tesi & MS, Zulela. 2021. Realita Transformasi Digital Pendidikan di Sekolah Dasar Selama Pandemi Covid-19. *JPDN: Jurnal Pendidikan Dasar Nusantara*. 6(2). DOI: <https://doi.org/10.29407/jpdn.v6i2.15298>
- Nurhayati, Raden. 2020. Pendidikan Anak Usia Dini Menurut Undang-Undang No. 20 Tahun 2003 dan Sistem Pendidikan Islam. *AL-AFKAR:Journal For Islamic Studies*. 3(2). DOI: [https://doi.org/10.31943/afkar\\_journal.v3i2.123](https://doi.org/10.31943/afkar_journal.v3i2.123)
- Patlung, Dahlia., Ismawati, Herawati & Ramadhani, Suci. 2019. Deteksi Dini Capaian Perkembangan Anak Usia 3-4 Tahun Berdasarkan Standar Nasional Pendidikan Anak Usia Dini. *NANAEKE: Journal of Early Childhood Education Indonesia*. 2(1). Doi:// <https://doi.org/10.24252/nananeke.v2i1.9223>
- Primayana, Kadek Hengki. 2020. Improving Collage Media-Assisted Fine Motor Skills In Early Childhood. *PURWADITA: Journal of Religion and Culture*. 4(1). Doi: <https://doi.org/10.55115/purwadita.v4i1.544>
- Rahmawati, Putri Novia., Sulaiman & Siswoyo Andika Ananda. 2018. Pengembangan Media Permainan Scrabble Berbasis Macromedia Flash Untuk Materi Menulis Karangan Sederhana Bahasa Indonesia Kelas III SDN Beting. *Widyagogik*. 6(1). DOI: <https://doi.org/10.21107/widyagogik.v6i1.4559>
- Rismayanti, Cerika. 2013. Developing Basic Motion Skills as Motor Stimulation for Kindergarten Children Through Physical Activity. *Indonesian Journal of Physical Education*. 9(1). Doi: <https://doi.org/10.21831/jpji.v9i1.3065>
- Sari, Yulia. 2012. Improving Early Childhood Science Skills through Demonstration Methods in Tri Bina Payakumbuh Kindergarten. *Journal of Early Childhood Charms*. 1(1). Doi: <https://doi.org/10.24036/1689>
- Sari, Evi Ambar Setiana Darma., Wijayanto, Adi., & Syaifuddin, Ahmad. 2022. Traditional Games: How It Effects On Basic Level Dinamic Balance. *Semar Journal: Educational Studies*. 3(1). Doi: <https://doi.org/10.37638/semar.3.1.9-18>
- Syaifuddin, Ahmad & Wijayanto, Adi. 2022. Bagaimanakah Google Classroom dan Grup Whatsapp Terhadap Keterampilan Berfikir Kritis. *Prosiding Seminar Nasional Kesehatan, Sains dan Pembelajaran*. 1(1). <https://proceeding.unpkediri.ac.id/>
- Trisnawati, Elly., Alamsyah, Dedi., & Kurniawati, Asriani. 2017. Faktor yang Mempengaruhi Perkembangan Motorik Pada Anak Stunting Usia 3-5 Tahun (Studi Kasus Di Wilayah Kerja Puskesmas Kedukul Kabupaten Sanggau). *Jumantik: Jurnal Mahasiswa dan Penelitian Kesehatan*. 5(1). DOI: <https://dx.doi.org/10.29406/jjum.v4i2.1274>
- Wandi, Zherly Nadia., & Mayar, Farida. 2020. Analysis of Fine Motor Abilities and Creativity in Early Childhood Through Collage Activities. *Journal of Obsession: A Journal of Early Childhood Education*. 4(1). Doi: <https://10.31004/obsesi.v4i1.347>
- Warsihna, Jaka. 2013. Utilization Of Information And Communication Technology (ICT) For Education In Remote, Undeveloped and Frontier Area. *Journal Teknodik*. 17(2). DOI: <https://doi.org/10.32550/teknodik.v0i0.82>