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"Kebun Buah" Learning Media for Early Childhood Counting Ability

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Abstract
Children aged 5-6 years have four types of tasks in counting ability, which are to distinguish between bigger and smaller, calculations, number identification, and simple arithmetic. This study involved 22 children aged 5-6 years in Kindergarten, Sleman, Special District, Yogyakarta. This study used the quasy experiment method by using the experimental class and control class by giving different treatments. Children who participated in using interactive learning media by using a computer called Kebun Buah media and tested whether they can count various kinds of fruit. The results of research showed that Kebun Buah media affected counting ability on children aged 5-6 years, the results of post-test counting ability of children in the experimental class using Kebun Buah media increased to 88 in average while in the control class using a number card media obtained an average 78.9. This study was conducted by utilizing technology that can increase the implications of education in learning and improving counting ability of early childhood in the use of technological means in the classroom.

Keywords : *Counting ability, Interactive Learning Media, Experiment*

Abstrak
Anak usia 5-6 tahun memiliki empat jenis tugas dalam kemampuan berhitung yaitu membedakan lebih besar dan lebih kecil, perhitungan, indentifikasi angka, dan aritmatika sederhana. Penelitian ini melibatkan 22 orang anak usia 5-6 tahun di Taman Kanak-kanak Kecamatan Sleman Derah Istimewa Yogyakarta. Penelitian ini menggunakan metode *quasy experiment* dengan menggunakan kelas eksperimen dan kelas kontrol dengan memberikan *treatment* yang berbeda. Anak-anak berpartisipasi dalam menggunakan media pembelajaran interaktif dengan menggunakan komputer yang disebut dengan media kebun buah dan diuji apakah mereka dapat berhitung berbagai macam buah. Hasil penelitian menunjukkan bahwa media kebun buah mempengaruhi kemampuan berhitung pada anak usia 5-6 tahun terlihat hasil *post-test* kemampuan berhitung anak pada kelas eksperimen menggunakan media kebun buah lebih meningkat dengan rata-rata 88 sedangkan pada kelas kontrol menggunakan media kartu angka memperoleh rata-rata 78,9. Penelitian ini dilakukan dengan memanfaatkan teknologi yang dapat meningkatkan implikasi pendidikan dalam pembelajaran dan meningkatkan kemampuan berhitung anak usia dini dalam penggunaan sarana teknologi di kelas.

Kata Kunci : *Kemampuan Berhitung, Media Pembelajaran Interaktif, Eksperimen*

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INTRODUCTION

The early childhood education prepares the readiness of children in entering the further step of education through the giving of stimulation in order to help the growth and development of children's physic and mentality (Fakhrudin, 2010; Partini, 2010; Suyadi, 2010). Every child has different ability and potency. Ability is very essential for children. The appropriate thing in developing children's ability for their future is mathematic ability. The increasing of children's mathematic ability was factored by social-economic status of family whether having low or high income. Besides that, motivation from teacher, family, or environment is the factor essentially needed to achieve better ability of children (Aunola, Leskinen, Lerkkanen, & Nurmi, 2004). Mathematic is very important for the daily life and also for the future of children, if mathematic is introduced early so children will have ability in knowledge and skill in solving the problem which they face later (Susanto, 2011). For that reason, the children's ability in mathematic should be stimulated with various learning models, learning methods and effective learning media. Children's mathematic learning process will be more interesting if it is conducted with playing by using the things around children and technology which triggers children's curiosity (Nikiforidou[a] & Pange, 2010), so children will be more active and get new experience. The children's mathematic learning activity which is conducted appropriately will train children's brain to be developed and cause the knowledge and information becoming more meaningful and directed if it is integrated to the daily life and experience of children. The early childhood study and understand the concept and basic skill of mathematic through the exploration, interactive experience with the subject material, parents, and teachers in preparing mathematic activity. Mathematic learning should be accompanied with interesting media, then the material and mathematic concept taught should be adjusted with the ability and the thinking stage of children (Ismayani, 2010; Nikiforidou[a] & Pange, 2010); Suryana, 2016).

Mathematic learning, if it is conducted through playing, so the learning process will be more interesting and enjoyable by using the concrete things and media. Besides using the things around children, technology also can be utilized as an alternative learning facility (Ismayani, 2010). The rapid development of technology cannot be avoided and prevented. Its presence becoming a positive input for life especially for the education of early childhood. One of the technologies which can be used is computer or laptop. Computer or laptop is considered as an important tool which can improve the learning and the utilization of computer or laptop as a learning media which can give many benefits if it is appropriately utilized. (Ismayani, 2010; Nikiforidou[a] & Pange, 2010; Partini, 2010).

One of the mathematic abilities which can be developed in the early childhood education is the counting ability (Ismayani, 2010; Susanto, 2011; Suyanto, 2008). The curriculum of early childhood education in the level of children developmental achievement standard (STPPA) which is related to the counting ability as mentioned in the Regulation of Ministry of Education and Culture No 137 Year 2014 states that the level of children developmental achievement standard (STPPA) in the early childhood in the age of 5-6 years old in the aspect of cognitive development especially in the scope of symbolical thinking such as the ability to recognize, mention, and use the numerical concept. The research shows that early childhood has 4 kinds of task in the counting ability, they are: differentiate which was bigger and smaller, calculation, number identification, and simple arithmetic (Räsänen, Salminen, Wilson, Aunio, & Dehaene, 2014; Dehaene, 2009). Children's counting ability has some stages. When in the age of 5 years old, children are still in the early counting stage with some things from their surrounding, an delightful situation of playing. In the age of 6 years old, children are starting to develop and

recognizing the concept of quantity until the improvement in the ability of knowing the quantity, the concept of quantity related to the addition and subtraction (Susanto, 2011). In fact, the counting ability of children still faces some problems. The problem is seen when children are counting, in the beginning children count fluently but when teacher shows the numerical symbol in the front of the class or by using numerical card, many students cannot show and mention the number displayed by teacher. Besides that, it is seen when teacher gives tasks to students, many students cannot count with things and numerical numbers. Students meet the problem in counting. It is clearly seen that students understand the numbers asked by teacher, but when teacher displays the numerical numbers in front of the students in the class, students cannot recognize them (Sarnecka & Lee, 2009). Then, children face problem when counting and predicting the numerical numbers given by teacher.

In a research conducted by (Landerl, Bevan, & Butterworth, 2004) the problem found was the slowness of basic number recognition of children. Where children still do not know the number, still do not know how to differentiate numbers for example children still cannot differentiate number 6 and number 9, children only pronounce and count the order of number without knowing its symbol. A research conducted by (Martin, Cirino, Sharp, & Barnes, 2014) found 4 mistakes often occurred in children calculation in counting , they are: abstract (only one object which is counted), one by one correspondence (double in counting the object), calculation order disorder (inappropriateness between final counted quantity and response to the question "how many object").

Another research conducted by (Aunio & Niemivirta, 2010) found that children in the age of 3 years old can mention numbers, but not in the right order, and they not always start from one. When children in about 4 years old, they can mention numbers in the right order and show directly to the object, but the number and object showed are not coherent. About 5 years old, when children can mention numbers appropriately starting from one, and in understanding the things which can be counted and the things should be marked once and the last number show the quantity of the object correctly. About in five and a half years old, they can recognize numbers until five and can count more than those numbers.

The problem faced not only found in children, but also the problem of counting can occur when the learning method and learning media used for children are less effective and the counting lesson given for children is not appropriate with their age. As the research conducted by Hong (1996) that many early child education in Korea is traditionally criticized in the way its learning process occurs and how the counting lesson is taught to the children, the lesson given in counting depends on the workbook and the worksheet. Hence, the counting lesson is monotone and boring for children.

It is in line with the research conducted by Sonnenschein *et a*l (2012) in (Napoli & Purpura, 2018) which found that parents of early child preschool and kindergarten students report and practice more skills of basic mathematic with their children for example in identifying shape, whereas the parents from the older students are reported to be more involved in teaching addition/subtraction and writing the numbers by using workbook. Then, there is negative relation between the environment and children's counting ability. Because parents not always understand the most appropriate counting activity for their children. This research also show that the using of computer becomes intervention in the low children's counting ability (Räsänen et al., 2014).

The recent study examines whether the early childhood's counting ability can be optimally developed by using an interactive learning media which is called as *Kebun Buah*. This interactive learning media is called *Kebun Buah*. Although the development models of counting ability gives new idea in the way to develop children's counting ability. In this article, it

is presented an interactive learning media which is interesting and enjoyable for the learning of children aged 5-6 years old. In the interactive learning media *Kebun Buah*, there are some menus in developing early child's counting ability. This media is based on the ideas of counting which is different in the process.

METHODOLOGY

The study among subjects was conducted in the kindergarten at Sleman Regency, Yogyakarta. Early childhood (N = 22) in the age of 5-6 years old, participate in the game based on computer of laptop for developing the counting ability. This research used *quasy experiment* method. This research used two groups of class, they were experiment class (N=11) and control class (N=11). The treatment given in the control class was using number card media. Whereas, the experiment class was given the treatment by using *Kebun Buah*. The *Kebun Buah* learning media was made using *Adobe Flash CS 6* and there were some menus in this media. This learning media had some levels. If students had already passed the first menu, then they continued to the next menu and so on. Those menus were in the form of number, addition and subtraction. There were picture, sound, and colour in this media which made the learning more enjoyable and students leant actively.

In the number menu, there were numbers started from 1-20. In this menu students recognized and mentioned numbers 1-20. If students already recognized and mentioned the numbers correctly, so students continued to the next menu. The next menu was counting menu. In this menu, there were fruits and numbers, students counted the quantity of fruits and matched them with the provided numbers. In the counting menu, if students accomplished the task and counted appropriately, then students obtained five stars. If students were succeed in counting menu, then students continued the game to the addition menu. In the addition menu, there were two numbers that should be operated. In this menu, students were given the instruction of how to add those two numbers. If students were succeeded in this menu, then they should continue to the subtraction menu. In the subtraction menu, there were two numbers which should be subtracted and there were instructions in how to operate them.

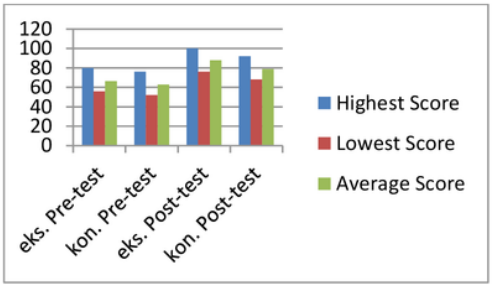
RESULT AND DISCUSSION

Based on the research conducted in August-October 2018, the result of pre-test of children's counting ability in the experiment class was obtained the average score 66,5 and in the control class was obtained the average score 62,9. Based on the result of the conducted data analysis showed that t_{count} was **1,306** compared to α 0,05 (t_{table} = **2,085**) with the degree of freedom $(N_1-1)+(N_2-1)=20$. Then, t_{count} t_{table} which was 1,306 < 2,085, so it meant that the hypothesis of H_a **was rejected** or H_o was accepted. The conclusion was there was no significant difference between children's counting ability in the experiment class and in the control class. Based on the result of children's counting ability in the experiment class and the control class in *post-test* was obtained the average score of experiment class which was 88 and the average score of control class which was 78,9.

Based on the result of data analysis, it was obtained that t_{count} was **2,734** compared to α 0,05 (t_{table} = **2,085**) with the degree of freedom $(N_1-1)+(N_2-1)=20$. Subsequently, $t_{count} > t_{table}$ was 2,734 > 2,085, then it meant that the hypothesis H_a **was accepted** or H_o was rejected. It was concluded that there was significant difference between the children's counting ability in the experiment class by using *Kebun Buah* learning media and control class which used number card media in the kindergarten.

Table 1. The Comparison of the Counting of Pre-Test and Post-Test

Variable	Pre-test		Post-test	
	Eksperiment	Control	Eksperiment	Control
Highest Score	80	76	100	92
Lowest Score	56	52	76	68
Average	66,5	62,9	88	78,9



Graphic 1 The comparison of Pre-test and Post-test results to the students' counting ability in experiment class and control class

Based on the graphic 1 above it can be seen that the result of the average *pre-test* of experiment class was 66,5 and the average score of control class was 62,9. After the treatment given, it was seen that the result of *post-test* of children's counting ability in the experiment class used *Kebun Buah* learning media was more increase with the average score 88 while in the control class used number card media with the average score 78,9. Therefore, it can be concluded that there was a comparison of the results of *pre-test* and the result of *post-test* in the counting ability in the experiment class and control class. There was significant difference between the result of students' counting ability in the experiment class using Kebun Buah learning media and the control class which used number card media.

DISCUSSION

Every child had different abilities, the ability which they had was very essential to stimulate the ability in children to be more improved and preparing the children for their future. The ability is the availability inside someone which can be produced from the genetic factor and also can be obtained through the trainings which support someone in solving their tasks (Susanto, 2011). One of the ability possessed by early childhood is the counting ability.

Early age is an effective age to develop various potencies of children. The development can be conducted with some ways, one of them is through counting. Counting in kindergarten was not only related to the cognitive ability, but also the social and emotional mental availability, because in its implementation teacher should conduct the learning process with an enjoyable activity for children. Counting is a part in mathematic, it is needed to grow the counting ability of children which is very important for the daily life, mainly the concept of numeric which is also the basic for the development of mathematical ability or the availability to study in basic education level (Depdiknas, 2007). Counting is an enjoyful way to study and understand the concept of number. Counting loudly or counting while singing is a good activity to be done when teaching students for counting and recognizing numbers (Ismayani, 2010).

The students' counting ability can be developed by using interesting media for children. The counting ability is very essential for students, because by the counting ability, students will know the numbers, addition, subtraction and numeric symbol (Suryana, 2016). By the counting ability, students will learn about how to compare or differentiate the numerical symbols, can predict and can count the different quantities (Reid, 2016).

It is very important to develop the counting ability in the early childhood. The counting ability of the early childhood can be improved through the game and by using

the approriate media for children, because early childhood still count in simple and basic way. Therefore, in supporting the development of the early childhood especially in the counting ability, by giving the appropriate teaching and learning when children enter the school period.

One of the principles of early childhood's learning is the utilization of technology and information, where the implementation of the stimulation in early childhood can utilize technology to held an effective learning, such as tape, television, and computer (Trianto, 2011). Utilizing technology in the learning activity is aimed to ease children in fulfilling their curiosity. In the learning process, teacher can also utilize technology as a learning media which can stimulate early childhood's ability in exploring and discovering their potency optimally, creatively, innovatively, and delightfully so it can trigger students' motivation in learning, and finally can improve students' counting ability.

The computer based learning media can stimulate early aged students' learning interest (Partini, 2010). One of technologies which can be utilized for the learning process of early childhood is computer (Morrison, 2012). This research focused on the using of computer as the learning media for students in kindergarten especially in literacy and counting. It seemed that children were improved in the literacy and counting after using computer based learning media. The benefit of the using of this leaning media was seen from the improvement of letters, numbers, forms and explorations of students' concept (Dhingra, Sharma, & Kour, 2009).

Similar with the previous research, (Clements, 2002) researches an empirical study of the technology using in the development of children's ability on counting through various kinds of computer activity, including the training and practice and also the exploration of shape, pattern, and number relationship through the software. The proof on the field showed that computer was able to improve the counting ability, such as the exploration of the shape, relation, size, special relation, numerical relation, geometric form, calculation, classification, addition and subtraction.

From the result of the research, it was found that there was significant difference between the result of students' counting ability in the experiment class which used *Kebun Buah* learning media and the control class which used number card media. The result of students' counting ability in the experiment class was better than the result of the students' counting ability in the control class, it was seen from the average score of students in experiment class which was higher than the average score of students in the control class. The benefit of *Kebun Buah* learning media was its appropriateness to be implemented in the class with early aged students, especially in range of age 5-6 years old. *Kebun Buah* learning media was a media especially made for the students' counting ability and also there were numbers there, then this media was made in the garden situation. In this media, students counted the fruits in the garden such as apple, strawberry, watermelon, orange, and other kinds of fruit.

This media aimed to give a concrete learning media through the creation of the imitation of the experience which was closed to the real situation. The using of playing equipment or learning media to develop the students' counting ability was by focusing the numbers and the interestingness of the learning media. Therefore, students would be more enthusiastic and became more excited to follow the learning process in the class, especially in the counting lesson. So, it can be concluded that the using of *Kebun Buah* learning media affects more to the students' counting ability, also giving the knowledge of numerical symbol, numerical concept, and cause the students to think logically through the observation of the concrete things.

The media which uses computer can provide new perspective in early childhood education and improves the learning process of students when it is used with the proper procedure and the appropriate development for the children so it can

improve students' counting ability (Nikiforidou[a] & Pange, 2010). As a computer based manipulative makes possible to the transition from the direct experience to the abstract learning (Papert Seymour, 1980). The technological equipment should be integrated in the class of early childhood to complete and enrich the education procedure.

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REFERENCES

Aunio, P., & Niemivirta, M. (2010). Predicting children ' s mathematical performance in grade one by early numeracy. *Learning and Individual Differences*, *20*(5), 427–435. https://doi.org/10.1016/j.lindif.2010.06.003

Aunola, K., Leskinen, E., Lerkkanen, M., & Nurmi, J. (2004). Developmental Dynamics of Math Performance From Preschool to Grade 2, *96*(4), 699–713. https://doi.org/10.1037/0022-0663.96.4.699

Clements, D. H. (2002). Computers in Early Childhood Mathematics, *3*(2).

Dehaene, S. (2009). Origins of Mathematical Intuitions The Case of Arithmetic, *259*, 232–259. https://doi.org/10.1111/j.1749-6632.2009.04469.x

Depdiknas. (2007). *Pedoman Pembelajaran Permainan Berhitung Permula Di Taman Kanak-kanak*. Jakarta: Depdiknas.

Dhingra, R., Sharma, N., & Kour, M. (2009). Relationship between Parental Perception and Young Childrens ' Usage of Computers, *28*(3), 167–170.

Fakhrudin, A. . (2010). *Sukses Menjadi Guru TK/PAUD*. Yogyakarta: Bening.

Hong, H. (1996). Effects of Mathematics Learning Through Children's Literature on Math Achievement and Dispositional Outcomes. *Early Childhood Research Quarterly*, 11, 477-494.

Ismayani, A. (2010). *Fun Math With 2 Children Mengenalkan Matematika Kepada Anak Usia 2 Hingga 6 Tahun Melalui Beragam Aktivitas*. Jakarta: PT Alex Media Komputindo.

Landerl, K., Bevan, A., & Butterworth, B. (2004). Developmental dyscalculia and basic numerical capacities : a study of 8 – 9-year-old students, *93*, 99–125. https://doi.org/10.1016/j.cognition.2003.11.004

Martin, R. B., Cirino, P. T., Sharp, C., & Barnes, M. (2014). Number and counting skills in kindergarten as predictors of grade 1 mathematical skills. *Learning and Individual Differences*, *34*, 12–23. https://doi.org/10.1016/j.lindif.2014.05.006

Morrison, G. (2012). *Dasar-dasar pendidikan Anak Usia Dini (PAUD) Edisi Kelima. (Terjemahan Suci Romadhona & Apri Widiastuti)*. Jakarta Barat: PT Indeks.

Napoli, A. R., & Purpura, D. J. (2018). Journal of Experimental Child The home literacy and numeracy environment in preschool : Cross-domain relations of parent – child practices and child outcomes. *Journal of Experimental Child Psychology*, *166*, 581–603. https://doi.org/10.1016/j.jecp.2017.10.002

Nikiforidou[a], Z., & Pange, J. (2010). " Shoes and Squares ": A computer-based probabilistic game for

preschoolers, *2*, 3150–3154. https://doi.org/10.1016/j.sbspro.2010.03.480

Papert Seymour. (1980). *Mindstorms Children, Computer, and Powerful Ideas*. New York: Basic Book.

Partini. (2010). *Penghantar Pendidikan Anak Usia Dini*. Yogyakarta: Grafindo Litera Media.

Permendikbud Republik Indonesia. (2014). *Tentang Kurikulum 2013 Nomor 137. Pendidikan Anak Usia Dini Pedoman Pengembangan Kurikulum Tingkat Pendidikan Anak Usia Dini*. Jakarta: Permendikbud Republik Indonesia.

Räsänen, P., Salminen, J., Wilson, A. J., Aunio, P., & Dehaene, S. (2014). Cognitive Development Computer-assisted intervention for children with low numeracy skills, *24*(2009), 450–472. https://doi.org/10.1016/j.cogdev.2009.09.003

Reid, K. (2016). Changing Minds : Discussions in neuroscience , psychology and education Counting on it : Early numeracy development and the preschool child.

Sarnecka, B. W., & Lee, M. D. (2009). Journal of Experimental Child Levels of number knowledge during early childhood. *Journal of Experimental Child Psychology*, *103*(3), 325–337. https://doi.org/10.1016/j.jecp.2009.02.007

Suryana, D. (2016). *Pendidikan Anak Usia Dini Stimulasi & Aspek Perkembangan Anak*. Jakarta: Kencana.

Susanto, A. (2011). *Perkembangan Anak Usia Dini Penghantar dalam Berbagai Aspeknya*. Jakarta: Kencana.

Suyadi. (2010). *Psikologi Belajar PAUD Pendidikan Anak Usia dini*. Yogyakarta: Pedagogia.

Suyanto, S. (2008). *Strategi Pendidikan Anak*. Yogyakarta: Hikayat.

Trianto, I. B. A. (2011). *Desain Pengembangan Pembelajaran Tematik Bagi Anak Usia Dini TK/RA & Anak Kelas Awal SD/MI Edisi Pertama* (1st ed.). Jakarta: Kencana.

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