Effect Of Gadget Use On Environmental Awareness At Children In East Jakarta

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Abstract

This article is focused on looking at the effect of gadget use on environmental awareness among children in East Jakarta. The research was conducted using Ex-Post Facto on a sample consisting of 158 class I elementary school children in the East Jakarta area. The results of this study were in line with the findings of previous research that the environmental awareness among children objectives by elementary school children with low intensity of gadgets usage was higher compared to those with high intensity. This, therefore, means low usage of gadgets has the ability to improve the environmental awareness of children due to the fact that they spend less time playing and focus more on the obligation to learn.

Keywords: Gadgets, environmental awareness, children

Article Received: 18 October 2020, Revised: 3 November 2020, Accepted: 24 December 2020

INTRODUCTION

Early childhood is a term usually used for children between the age range of 0-8 years. This period has been discovered to be the best time to learn certain things believed to only occur one time (Komala, 2017). It is also known as the Golden Age where a child has an optimal growth and development process.

Kids World is a world of play and this is one of the strategies employed as the learning activities for several developments including moral and religious value, language, cognitive, psychomotor and social-emotional aspects (Elfiandi, 2016; Setiawan, Suparno, Sahabuddin, Tasrif, & Ramadhan, 2020). Therefore, playing is one of the methods of learning for children due to the fact that it allows them to exhilarate with the surrounding environment.

There are several potentials hidden in children in early childhood (Akhirin, 2015; Wihardjo, Nurani, & Ramadhan, 2020). There is, however, the need for the right stimulus for the effective growth and development of these potentials such as cognitive, language, social, emotional, physical, moral, religious values, and art.

Some parents are less concerned and incomprehensive about stimulating the potential of their children and this is reflected in their attitudes of engaging in the forceful learning process of counting, writing and reading. It has, however, been reported that the lack of interest usually leads to boredom in learning and consequently ineffective growth and development of the child's potential (Siti & Sobandi, 2016). This means exciting and enjoyable learning activities are required to develop these hidden talents.

Quality is very important to the achievement of the learning outcomes in the scope of formal education, therefore, children factor is one of the elements needed to be considered in advancing the efforts towards improving the quality of education in Indonesia (Adib & Santoso, 2016; Ramadhan, Mardapi, Prasetyo, & Utomo, 2019). This also means learning achievement is a measurement standard to show a child's ability to understand the learning process.

Currently, environmental factors are one of the external issues influencing children's learning achievement and this is associated with the rapid advancement in technology and information. In addition to the positive influences of the gadgets produced from these technologies, several negative impacts have also been identified and this includes the problem associated with eye health due to excessive usage. An example of this is Eye Vision and high tension on the eyelid caused by being too focused while reading texts on the gadget (Iswidharmanjaya, 2014). Moreover, there are also the possibilities of the children opening negative contents such as pornography and violence which are recorded and stored in their brain memory which makes it difficult to be removed from their mind and this further leads to addiction (Iswidharmanjaya, 2014). The reports obtained

showed most children exhibit these negative aspects of gadget usage.

According to the Statistical Research Institute in the United States, 17% of children under eight years use gadgets daily mostly to play games and read e-books. Several other research institutes reported 38% of children under two years old are already familiar with this technology. For example, ComRes showed nearly half of teenage children currently rely on them and 47% of parents said their child spends most of the day in front of the screen while 43% others were reported by other studies to have claimed the children are emotionally bonded to the gadgets (Foresight, 2010). These studies showed the use of technological devices is not limited to adults but also mostly used by the children.

This means children use gadgets intensely to play instead of applying them to learning activities. Therefore, this research was conducted to determine the influence of the intensity of using gadgets on children's environmental awareness in East Jakarta area".

RESEARCH METHODOLOGY

The research was conducted at the state elementary school in East Jakarta using *Ex-Post Facto*. This involved retrieving data from respondents without treatment or manipulation. The method was considered effective due to the fact the use of gadgets is a free variable that cannot be directly controlled but that has previously happened. The population included all the children of National elementary school in East Jakarta while 158 class I elementary school children were selected as samples using the purposive sampling technique based on the intent and purpose of the research (Rumidi, 2004). This area was chosen because it has the number of children required and due to the fact previous studies have found most of the children to be playing with gadgets during their resting period, while waiting to be tutored, and in their homes.

RESULTS AND DISCUSSION

Description of Data

The data were obtained using questionnaires with 11 questions which were focused on the intensity of gadgets use among the respondents. The calculation was based on the maximum and minimum scores as shown in the following table:

Table 1. Description of Data usage intensity calculation results

Description	Calculation result
N	158
Maximum Value	11
Minimum Value	3
Mean	9.03
Mode	11
Median	10
Variance	5.84
Standard Devices	2.42

A total score was obtained and further sorted from the lowest to highest and divided into two groups including low and high-intensity usage groups with 79 children each.

The scores on the learning performance of those with low-intensity usage are presented in the frequency distribution table as follows:

Table 2. Performance frequency distribution learning with low-intensity use of gadgets

No	Class Interval	Lower limit	Upper Limit	Absolute frequency	Relative frequency
1	84 – 85	83,5	85,5	47	59%
2	86 – 87	85,5	87,5	16	20%
3	88 – 89	87,5	89,5	11	14%
4	90 – 91	89,5	91,5	5	6%
Amount				79	100 %

Moreover, those related to high intensity are present in the frequency distribution table as follows:

Table 3. Performance frequency distribution learning with high-intensity use of gadgets

No	Class Interval	Lower limit	Upper Limit	Absolute frequency	Relative frequency
1	73 – 74	72,5	74,5	6	7.59
2	75 – 76	74,5	76,5	21	26.58
3	77 – 78	76,5	78,5	36	45.57
4	79 – 80	78,5	80,5	16	20.25
Amount				79	100 %

Testing of Data analysis requirements

The data were first tested using the data analysis requirements to determine the statistical test, parametric or non-parametric, to be conducted. Moreover, normality was evaluated using *Liliefors test* and homogeneity using Test F (*Fisher*) while the hypothesis test was conducted using Test-T. The results are presented as follows.

Test normality

This is one of the essential statistical testing processes in analyzing research data usually conducted to determine the distribution of data. Liliefors test was applied and the criteria are said to be normally distributed if the Lcount price < Ltable and otherwise if Lcount > L table.

Data on learning outcomes for class I children with low-intensity use of gadgets

The calculation showed this criterion was 0.186 while the Ltable was 0.220 at a significant level ʌ of 0.05 for (n) 79 as shown in the following table. This means Lcount (0.186) < Ltable (0.220). It can be concluded that the data on the low-intensity use of gadgets were normally distributed.

Table 4. Normality test on the learning outcomes for elementary school children with low-intensity use of gadgets

N	Lcount	Ltable	Description
79	0,186	0,220	Normal

This means the data for the learning outcome of children with low-intensity use of gadgets were balanced on both the right and left sides as well as between the highest and lowest scores. Therefore, the mean, mode, and median have more or less the same value of 85.73, 84, and 85 respectively.

Data on learning outcomes of class I children with high-intensity use of gadgets

The calculation showed this criterion was 0.123 while the Ltable was 0.220 at a significant level ʌ of 0.05 for (n) 79 as shown in the following table. This means Lcount (0.123) < Ltable (0.220). It can be concluded that the data on the high-intensity use of gadgets were normally distributed.

Table 5. Normality test on the learning outcomes for elementary school children with high-intensity use of gadgets

N	Lcount	Ltable	Description
79	0,123	0,220	Normal

This means the data for the learning outcome of children with high-intensity use of gadgets were balanced on both the right and left sides as well as between the highest and lowest scores. Therefore, the mean, mode, and median have more or less the same value of 77.07, 78, and 77 respectively.

Homogeneity Test

This was conducted using the Fisher homogeneity test after the normality test has confirmed the population was normally distributed to determine the similarity of group variances to show they are homogenous or derived from the same population.

It was conducted by dividing the largest variance of data by the smallest. The variance of the population between the two equal groups at a significant degree of ʌ = 0.05 is said to be homogeneous if Fcalculate < Ftable and otherwise if Fcount > Ftable. The results obtained in this study are shown in the following table.

Table 6. Homogeneity Test

Largest variance	Smallest variance	Fcount	Ftable	Result
3, 49	2, 78	1, 26	2,48	homogeneous

The table shows the largest variance was 3.49 while the smallest was 2.78 and the Fcount calculated using these variables for the achievement (environmental awareness) of Class I Elementary School children was 1.26 while the Ftable was 2.48, therefore, Fcount < Ftable. This means the two groups can be compared because they have a homogeneous criterion or due to the fact the samples have the same character.

Hypothesis Test

This was also conducted after the data have been confirmed to be normally distributed. The hypothesis proposed was *"there is a difference between the environmental awareness of elementary school children with low- and high-intensity use of gadgets"*. Two independent sample t-test was applied with a significant level of ʌ = 0.05 and the testing criteria was that the hypothesis (H1) would be accepted if Tcount > Ttable and rejected (H0) if Tcount < Ttable.

The results showed the learning achievement (environmental awareness) score for the low-intensity use (Y1) and high-intensity use (Y2) were 1286 and 1156 respectively using the same number of respondents, 79, in each group. Moreover, the average calculated score for mean XA was 85.73 while mean XB was 77.07, therefore, the Tcount was 13.5 while Ttable was 1.701 at a significant level ʌ of 0.05, n at 158, and Degrees of freedom (df) at 28. The results are presented in Table 7 as follows:

Table 7. Two independent sample T-tests

Description	Tcount	Ttable
Two Sample T-test calculations	13, 5	1,701

The calculation process using test-T showed Tcount (13.5) > Ttable (1.701) at a significant level ʌ of 0.05. Therefore, the research hypothesis (H1) was accepted and this means there is an influence of the intensity of gadget use on the environmental awareness of elementary school children.

DISCUSSION

The hypothesis was tested using two independent samples test and the results showed the environmental awareness of Class I elementary School with low-intensity use of gadgets is different from those with high-intensity. This was confirmed by the Tcount of 13.5 which was observed to be more than the Ttable of 1.701 and based on the criterion of the test, the alternate hypothesis (H1) which states that the average learning achievement (environmental awareness) of grade I elementary school was higher for children with low-intensity usage of gadgets was accepted while H0 was rejected.

In line with the findings of Sharen Gifary and Iis Kurnia that the intensity of smartphone use affects communication behavior (Gifary, 2015), this study found the use of these devices to be highly frequent and for a longer duration as observed from respondent's responses. Moreover, they are being used for different things such as social networks, games, videos, photos, music, e-mail, SMS, phone

and online chatting based on the interests of the users. The respondents also acknowledged its effects on their communication behavior as reflected in their desire for new experiences, a response, and recognition in the society. Most of them assume smartphones have become an integral part of their lifestyle. Furthermore, another research conducted by Pratiwi (2017) reported the influence of gadget use intensity on the interest in learning for children between 6-7 years old using two different research groups – low and high-intensity usage.

Saputri (2015) also concluded that the intensity of social network usage significantly influences the social intelligence of children. This means the use of social networking applications, one of the most advanced features of smartphones, has the ability to reduce the children's social intelligence and this is reflected in the preference to communicate only on social media or through the virtual worlds only.

The three studies reviewed showed the influence of the intensity of gadget use on children, especially concerning their communication behavior, interest in learning, and social intelligence. However, this influence can either be negative or positive depending on how the gadget is used. A low-intensity usage in accordance with the rules and limitations is expected to have a positive effect for the child while high-intensity usage with non-compliance with the rules and restrictions is expected to negatively affect the child. This assumption is supported by the results of this research which showed the environmental awareness of children with low-intensity usage to be higher compared to those with high-intensity. This is mostly associated with the limited time of play and more time focused on learning observed with those using the gadgets with low intensity.

The term ‘intensity’ means the efforts directed towards a particular thing measured through the time expended on the situation or based on the repeated conduct of an act at a certain frequency. Children that are not intense using gadgets do not play repeatedly with their device for more than two hours due to their preference for other activities and obligations such as learning and this consequently improves their performance at school.

Learning achievements show to what extent a child has been able to master the assignments or subject matter learned within a certain period, and it is most times generally expressed in numbers or letters. In this case, the focus was on both the work and science and it is reflected in the maximum results provided by the teacher of each subject after the learning process has been completed.

The survey conducted on the 158 children showed most of them use gadgets not only for pleasure and entertainment alone but also as a learning medium. This means the majority of the respondent is using the devices with compliance with rules and restrictions while only some are non-compliant. This is significantly reflected in their school performance such that those with low-intensity usage were observed to be increasing their environmental awareness while those using the devices for play and entertainment are declining. Therefore, it is important to enforce time limits or restrictions on the use of gadgets to ensure children do not become an addict and while they socialize, they also focus on other obligations such as learning.

CONCLUSION

This study found that the average environmental awareness of class I elementary school children were higher with the low-intensity use of gadgets compared with the high-intensity usage. Therefore, parents need to understand the current technological developments and their benefits for children, especially with the focus on the suitability of the content to aid their development as well as the imposition of appropriate restrictions to avoid addiction. Moreover, teachers also have a crucial role to guide the use of excellent and correct gadgets by the children and to ensure the implementation of appropriate technology to make the learning process exciting and fun for them.

This research has some limitations and one of these is a problem with the generalization and this means the findings are only applicable to a population with the same characteristics as those used in this study. Moreover, the learning achievements (environmental awareness) of class I elementary school children are not only influenced by the free variables used such as the intensity of gadgets use but also by other variables such as peers, family, and environmental conditions.

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