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## Educational Knowledge: Games to stimulate growth in children among mothers of toddlers

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### Abstract

**Background:** Factors that help achieve child growth and development are through proper stimulation. The role of parents, in this case the mother has a big enough contribution in the successful process of child development.

**Purpose:** To find out the increase in mothers of toddler knowledge about the benefits of games that stimulate children's growth

**Method:** The form of this research design is pre experimental design (One-Group Pretest-Posttest) with purposive sampling technique and the research population is mothers of under five children in Gondoriyo Semarang. Processing techniques and analysis of quantitative data using the analysis the t test (test T).

**Results:** The normality test, it shows that the Sig value in the Shapiro-Wik column for the mother's knowledge variable before and after being given an educational game is less than 0.05 so it is declared not to have a normal distribution. So to find out whether there is a difference in the average knowledge of mothers regarding educational games, an analysis of the Wilcoxon Signed test was carried out. Based on the results of the Wilcoxon signed test, it was found that the asymp sig (2-tailed) value was  $0,000 < 0,05$  so it can be concluded that there is a difference in the average knowledge of toddler mothers before and after being given educational games stimulating growth and development.

**Conclusion:** Mother's knowledge increases about the benefits of providing educational games to stimulate child growth and development

**Keywords:** Educational; Games; Stimulate Growth; Children; Knowledge; Mothers of Toddlers

### INTRODUCTION

Children are assets and future pillars for families and nations, therefore the growth and development of children is something that needs more attention, especially for children aged 2-3 years. The reason is, this phase is a golden period of child development and a period that is vulnerable to negative influences. The golden period occurs from the beginning of pregnancy until birth and the child is 2 years or 1000 days old (Riyanto, Herlina, & Islamiyati, 2021). According to Reniyas, the first 5 years of a child's life (toddlers) is the fastest growing period for the human brain and is a very sensitive period for a child's brain to receive

various inputs from their environment (Harsono, Astuti & Rinayati, 2023). One of the factors that helps children grow and develop and achieve optimal abilities is through proper stimulation because proper stimulation will stimulate the toddler's brain so that the development of movement, speech and language skills, socialization and independence in toddlers takes place optimally according to the child's age (Wahyuni, 2018). Stimulation is an activity to stimulate the basic abilities of children aged 0-6 years so that children grow and develop optimally (Ministry of Health of the Republic of Indonesia, 2016).

The role of parents, in this case the mother has a

very large role in the successful process of child development so that a good level of mother's knowledge is needed about child growth and development, especially in children aged 2-3 years. The level of mother's knowledge about stimulating child growth and development can be obtained through information from the mass media, the internet and counseling from cadres or health workers (Kuswanti, 2022). The results of the research presented at the Simpang Baru Health Center stated that parents' knowledge about stimulating child growth and development was still lacking, namely 1.3% had high knowledge, 34.4% had moderate knowledge and 64.3% had moderate knowledge (Zukhra & Amin, 2019). Other similar research states that mother's knowledge about stimulation is still lacking as much as 13.3% (Kurniawati & Hanifah, 2015).

One means that can be used as a medium to increase mother's knowledge about stimulating child growth and development is through the media of educational games stimulating child growth and development. Similar research conducted in Pemenang District, North Lombok Regency regarding the effect of education using simulation games on mothers' knowledge about stunting stated that the counseling method using simulation games was an effective counseling method in increasing mother's knowledge about stunting (Hermawati & Sastrawan, 2021). As well as research conducted in Bukuan Village which stated that the combination of game and demonstration methods increased mother's knowledge about stunting which concluded that the combination of methods was effective in increasing the knowledge of mothers who have babies and toddlers about stunting prevention (Ifroh & Permana, 2021).

The purpose of this study was to determine the effectiveness of educational games on growth and

development stimulation on the level of knowledge of mothers who have toddlers in the Gondoriyo Semarang village area.

## RESEARCH METHOD

The type of research design used is descriptive quantitative research with a longitudinal data collection time approach because measurements are taken before and after mothers of toddlers are given the application of educational games stimulating child growth and development. Quantitative methods are used to evaluate and measure the effectiveness of educational games for stimulating growth and development before and after being used by mothers of toddlers. The form of research design is pre-experimental design (one-group pretest-posttest design), which is a research design that only measures one group of objects before and after giving treatment (Fitrianingsih & Musdalifah, 2015).

The population in this study were mothers who had toddlers in the Gondoriyo Ngaliyan Semarang village area in February 2023 as many as 300 people with a research sample of 35 mothers of toddlers who were taken using purpose sampling technique. Data collection is done through the distribution of online educational game links to mothers of toddlers, with the educational game link, mothers of toddlers play the game twice, namely pre and posttest. The results of the pre and post games recorded in the application were then analyzed using T test analysis through the SPSS application. The T test is used to test the effect of each independent variable used in this study on the dependent variable partially (Ghozali, 2018), the t test is a temporary answer to the problem formulation, which asks about the relationship between two or more variables (Sugiyono, 2018).

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## RESEARCH RESULTS

Table 1. Tests of Normality (N=35)

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
<b>Pretest</b>	.169	35	.013	.884	35	.002
<b>Posttest</b>	.414	35	.000	.600	35	.000

a. Lilliefors Significance Correction

Hypothesis  $H_0$ : knowledge of mothers of toddlers in the Gondoriyo village before being given educational games stimulating child growth and development is normally distributed,  $H_1$ : knowledge of mothers of toddlers in the Gondoriyo village after being given educational games stimulating child growth and development is not normally distributed. Alpha 5% confidence level, with test statistics if the Sig value < Alpha research (0.05) then  $H_0$  is rejected  $H_1$  is accepted and if the Sig value > Alpha research (0.05) then  $H_0$  is accepted  $H_1$  is rejected.

Based on table 1 shows that the Sig value in the Shapiro-Wilk column for the variable knowledge of mothers of toddlers in the Gondoriyo village before (pretest) is given an educational game to stimulate child growth and development of  $0.002 < 0.05$ , then  $H_0$  is rejected and  $H_1$  is accepted. Thus, the knowledge of mothers in the Gondoriyo village before being given educational games to stimulate children's growth and development is not normally distributed. While the Sig value in the Shapiro-Wilk column for the variable knowledge of mothers of toddlers in the Gondoriyo village after (posttest) given educational games stimulating child growth and development shows a result of  $0.000 < 0.05$  then  $H_0$  is rejected and accepts  $H_1$ , so that the knowledge of mothers of toddlers in the Gondoriyo village after being given educational games stimulating child growth and development is not normally distributed. Because  $H_0$  is rejected and  $H_1$  is accepted, it can be concluded that the knowledge of mothers of toddlers in the Gondoriyo village before (pretest) and after (posttest) is given an educational game to stimulate child growth and development is not normally distributed so that to find out whether there is a difference in the average knowledge of mothers of toddlers in the Gondoriyo village before and after being given an educational game to stimulate child growth and development, testing is carried out using the Wilcoxon signed test analysis.

Tabel 2. Uji Wilcoxon Signed Test Ranks (N=35)

	N	Mean Rank	Sum of Ranks	Statistics Test <sup>d</sup>	
				Z	Asymp. Sig. (2-tailed)
<b>Posttest - Pretest</b>					
Negative Ranks	0 <sup>a</sup>	.00	.00	-4.792 <sup>e</sup>	0.000
Positive Ranks	29 <sup>b</sup>	15.00	435.00		
Ties	6 <sup>c</sup>				

a. Posttest < Pretest

c. Posttest = Pretest

e. Based on negative ranks

b. Posttest > Pretest

d. Wilcoxon signed ranks test

The interpretation of the results based on table 2 (rank table) shows that the negative rank or the difference between the results of the knowledge of mothers of toddlers in the Gondoriyo Semarang sub-district before (pretest) and after (posttest) given the

child growth stimulation education game is 0 both in the N value, Mean rank and Sum rank, so this shows no decrease (reduction) from the pretest value to the post test value. Positive rank or the difference (positive) between the results of the knowledge of

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mothers of toddlers in the Gondoriyo Semarang village before (pretest) and after (posttest) given the educational game stimulation of child growth and development there are 29 positive data (N) which means 29 respondents there is an increase in knowledge from pre and posttest values. The mean rank or average improvement is 15.00 while the sum of positive rank or Sum of Rank is 435.00. Ties are the similarity of pre and posttest scores showing a value of 6 respondents so that it can be interpreted that the same value between pre and posttests is 6 respondents.

Interpretation of results based on statistics test, hypothesis  $H_0$ : there is no difference in the average knowledge of mothers of toddlers in Gondoriyo village before and after being given educational games to stimulate child growth and development,  $H_1$ : there is a difference in the average knowledge of mothers of toddlers in Gondoriyo village before and after being given educational games to stimulate child growth and development. Alpha 5% confidence level with test statistics if the Asymp Sig. (2-tailed) value < Alpha research (0.05) then  $H_0$  is rejected and  $H_1$  is accepted and if the Asymp Sig. (2-tailed) value > Alpha research (0.05) then  $H_0$  is accepted and  $H_1$  is rejected. Based on statistics test shows that the Asymp Sig. (2-tailed) value is 0.000 < 0.05 so that  $H_0$  is rejected and accepts  $H_1$ . Because  $H_0$  is rejected and  $H_1$  is accepted, it can be concluded that there is a difference in the average knowledge of mothers of toddlers in the Gondoriyo village before and after being given educational games to stimulate child growth and development.

## DISCUSSION

The game is a way of eliminating fatigue by carrying out an activity that is traversed by using intelligent thoughts and strategies and which must be used to interact with a conflict system that is deliberately engineered to generate excitement in playing (Sandy & Hidayat, 2019). The types of games are Action, Role Playing Games, Strategy, Racing, Sports, Puzzles and Word Games (Linderoth, 2011; Lemmens, & Hendriks, 2016). There are 4 learning procedures in games namely Main Menu, Program Instructions, Game Content and Evaluation (Abdulahak

& Darmawan, 2017). Educational games are games that are packaged to stimulate thinking including increasing concentration and problem solving (Rahman & Tresnawati, 2016). Stimulation is an activity to stimulate the basic abilities of children aged 0-6 years so that children grow and develop optimally (Kim, Lillie, Gallis, Hembling, McEwan, Opiyo, & Baumgartner, 2021).

This study presents information that based on the analysis of the Wilcoxon signed test, the Asymp Sig. (2-tailed) value is 0.000 < 0.05 so that  $H_0$  is rejected and  $H_1$  is accepted. Because  $H_0$  is rejected and  $H_1$  is accepted, it can be concluded that there is a difference in the average knowledge of mothers of toddlers in the Gondoriyo Semarang village before and after being given educational games to stimulate child growth and development.

Similar research that has been done before shows that there are significant differences after and before children play educational games. Games in the form of children's educational games have a significant influence on children's ability to understand learning material. In addition, children are also smarter at using gadgets according to their use, not only for playing games and watching YouTube videos (Widoretno, Setyawan, & Mukhlison, 2021). Another similar study conducted in the working area of the Poasia Community Health Center, Kendari City, concluded that in testing the effectiveness of using the one group pretest-posttest design method, which was carried out twice, namely before and after using the game, it showed that educational games had an impact on increasing the understanding of respondents who had used the game (Pratiwi, 2018).

There is another study that has similar research results, regarding the effectiveness of using smartphone educational games on learning outcomes and learning motivation of STKIP Yapim Maros Biology Education Students which concludes that smartphone educational games have a significant effect on student learning outcomes and motivation (Riyanti & Rusdi, 2018). Research conducted on food-secure Indian rural families states that community-based educational interventions can increase food intake, body length (CFG) and mental development (RCF&PG) for children under 2 years (Vazir, Engle, Balakrishna, Griffiths,

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Johnson, Creed-Kanashiro, Rao, Shroff, & Bentley, 2013).

## CONCLUSIONS

The results of the study concluded that the provision of educational games to stimulate children's growth and development was effective in increasing the knowledge of mothers of toddlers in the Goindoriyo Semarang area. This is shown based on the results of the Wilcoxon signed test analysis conducted states that the Asymp Sig (2-tailed) value of  $0.000 < 0.05$  so it can be concluded that there is a difference in the average knowledge of mothers of toddlers in the Gondoriyo Semarang village before and after being given educational games stimulating child growth and development.

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