The Effectiveness of Get Skado App (Gadget Srabut Kelapo Dorong) to Increase Traffic Knowledge In Children

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Abstract

Increasing knowledge about traffic is one solution to reduce the number of traffic accidents, especially for children. This research aimed to examine the effectiveness of Get Skado App to increase traffic knowledge in children. The method used was a quasi-experiment with a pre-post control group design. The population of this research consists of 18 kindergarten students who were split into an experimental group and a controlled group. The experimental group was given get skado treatment—the traffic knowledge scale used in the pretest and posttest. The result was analyzed using an independent t-test and paired t-test samples. The result of the research showed that there was significant traffic knowledge between pretest and posttest scores within the experimental group. Meanwhile, within the controlled group, no significant traffic knowledge was found. It can be concluded that Get Skado app can increase the traffic knowledge in children.

Keywords: *traffic* knowledge, Children, get skado.

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Introduction

Accidents are the second leading cause among people aged 5-29 years worldwide. It is estimated that 3247 people pass every day due to accidents (Gopalakrishnan, 2021). Indonesia is experiencing very rapid growth in inland transportation, which contributes to the increase in traffic accidents (Sopandi, 2018). Traffic accidents impact victims to suffer material and immaterial losses due to accidents. Negligent drivers can be charged with the applicable law ((Wati, 2017).

One of the prerequisites for motorcyclists is to be at least 17 (seventeen) years old or older and have a driving license. Drivers who do not have a driver's license have been prohibited by law because they are vulnerable to traffic accidents (Wati, 2017). Traffic violations of minors are punishable by a

maximum of 7 (seven) years and are still subject to punishment for acts committed in accordance with the juvenile criminal justice law (Lurus et al., 2020).

Empirically, underage motorcyclists are still found on the streets. Parents are considered to be neglecting or giving minors permission to drive and making it fair for these underage drivers to use vehicles without taking into account the risks (Nurlia et al., 2018; Sopandi, 2018).

The number of accidents that occurred in Jambi is quite a lot; some have physical disabilities and deaths caused by road accidents. The data on victims of traffic accidents at the Jambi Police are described in table 1.

Table 1.
Road Accidents Victims Data Year 2018-2019

Year	Number of Accidents	Number of Accident Victims			Material Loss
		Passed Away	Seriously Injured	Minor Injuries	
2018	455	55	1	713	Rp. 363.050.000,-
2019	457	45	1	661	Rp. 449.650.000,-

Source : Unit Laka Lantas Polresta Jambi

Based on the age of the number of victims of traffic accidents, most of them are young, ranging from 0-to 30 years, with a total number of 346 victims in 2018, while in 2019, there were 350 people. That is described in table 2.

Table 2.
Road Accidents Victims Data by Age Year 2018-2019

	Number of Accident Victims					
Year	0-9	10-15	16-30	31-40	41-50	51 and older
2018	35	66	246	94	68	100
2019	42	69	239	90	70	84

Source: Unit Laka Lantas Polresta Jambi

Most traffic accidents occur due to human error (human error) (Santoso, 2013). Indiscipline or lack of discipline in driving is the highest factor that causes traffic accidents and often results in death or at least lifelong disability. Disobedience in traffic, such as breaking through a red light, overtaking from

the left, or overtaking the vehicle in front without paying attention to the vehicle in front of it, can result in an accident (Rumbadi, 2017).

Efforts to control violations have been carried out by the traffic police (Polantas) through technical and administrative activities such as raids, and scientific discussions (Desril et al., 2018). Another goal in controlling traffic is expected to encourage the growth of motorist discipline to obey traffic signs, road markings, traffic signaling devices, and speed limits when driving (Fatmaningsih et al., 2018) to minimize accidents, especially for children under age.

Strengthening knowledge, attitudes, and disciplined behavior in traffic is not only the task of the traffic police, but it requires a multidisciplinary approach carried out by psychologists, engineers, doctors, sociologists, vehicle experts in designing traffic planning, road design, and road safety programs (Gopalakrishnan, 2021). Researches oriented toward improving orderly traffic rules are also very useful for further study so that the results of these researches can be more implemented in the community (Gopalakrishnan, 2021).

Studies on attitude and behavior simulation in traffic safety education are more effective in modifying attitudes and behaviors related to traffic safety (Renaud & Suissa, 1989). Children aged 5 (five) years who participated in simulation games containing behavioral triggers (modeling and training) scored higher than children who were given simulation games containing only attitude triggers (Renaud & Suissa, 1989).

Rosmah's study (2019) has succeeded in showing that it is easier for students to understand traffic signs that encourage the presence of children's characters to be careful on the highway and obey traffic signs through fun playing and learning through the BOLANTAS play method. Furthermore, through their research, Wijaya et al. (2013) succeeded in introducing traffic signs to children aged 5-6 years through a board game that contained information about signs, markings, and traffic lights. This board game becomes exciting information to add insight to children in knowing more about traffic signs.

Many studies that emphasize technological elements related to traffic safety have been carried out. Digital-based simulations that emphasize the element of someone's involvement in games called serious games seek to change game applications and game technology not only for educational, health, and other purposes, but these games must be interesting and motivating, and useful in developing skills and abilities related to traffic (Backlund et al., 2007).

Furthermore, a digital-based simulator traffic safety simulation study as a learning tool has been shown to improve learning in driving education (Backlund et al., 2010). This study shows that there are differences in skills and attitudes between gamers and non-gamers in terms of the capacity to share attention and the ability to handle situations that require quick decisions (Backlund et al., 2010).

The study of Li & Tay (2014) shows that providing knowledge of the rules of the road increases playing knowledge and helps a person retain that knowledge. The development of digital games in teaching road safety rules, in general, can be arranged in four stages, namely brainstorming, design, prototyping, and implementation. The collaboration of students, researchers, and game designers can simplify the game design process more effectively and efficiently following the objectives of game preparation (Li et al., 2012)

Get Skado app (srabut kelapo dorong gadget) is a modification of traditional games developed through digital technology. The get skado research was compiled based on the results of previous research that developed local wisdom in several studies; traditional game literature (Ekawati & Saputra, 2018; Saputra & Ekawati, 2018), assessment of children's basic abilities measurement (Saputra & Ekawati, 2017), storybook application book series of traditional games (Saputra & Ekawati, 2019), models of educational game tools (APE) based on local wisdom (Ekawati & Saputra, 2019). Get Skado aims to provide knowledge and traffic skills by using traditional game props as one of the important elements in the game. This study is different from other studies that stimulate traffic knowledge instead of traditional game tools.

The urgency of this applied research is to answer the government's need to reduce the number of accidents in minors, namely with the bit of police program, traffic ambassadors, while growing the

character values contained in traditional games, as well as increasing the existence of traditional games that can be designed into digital applications, as an alternative to strengthening learning programs in schools regarding local wisdom. Furthermore, the results of this study are expected to improve the quality of family strengthening through collaborative play and learning activities between parents and children.

Method

Design

The method used was a quasi-experimental design with a pre-post control group design. Table 3 shows a quasi-experimental design.

Table 3
Research Design

Group	*Pretest*	Treatment	*Posttest*
EG	O1	X	O2
CG	O1	-	O2

Description:
EG = Experiment Group
CG = Control Group
O1 = *Pretest*
O2 = *Posttest*
X = *Get Skado* Treatment

This study consisted of several stages, namely the pretest, the treatment, and the posttest. First, a pretest was conducted to determine each participant's traffic knowledge score by giving both groups a scale: the experimental and control groups. Second, the treatment was carried out only in the experimental group, while the control group was not administered. The Get Skado app treatment was carried out by trainers trained for three days to implement Get Skado games for children with approximately 85 minutes for all sessions. Third, the posttest treatment was performed by measuring the scores obtained on each participant's traffic knowledge scale both the experimental and control groups.

Participants

The participants were kindergarten students aged 4-6 years. Most of them were six years old (60%) and female (40%). The participants were divided into an experimental group of 9 students and a control group of 9 students. Research-informed consent was given to parents to participate before the pretest was conducted. Informed consent contains information about the need of the research for the participants, including the risk in research, and researcher's responsibility for the negative impact which was obtained, and the distribution of compensation to the participant within the research process.

Data Collection Instrument

The data collection modifies the traffic knowledge sub-indicator (Fatmaningsih et al., 2018; Susiyah & Subawi, 2019). Consists of 1) recognizing traffic signs, 2) understanding and being aware of the system of rules for simply obeying traffic rules, and 3) being orderly in traffic rules, which has been tested on early childhood kindergarten students in the Telanaipura area. The traffic knowledge scale has reliability between 0.52-and 0.82. It generated 24 valid items with a Cronbach alpha. The reliability was 0.89

Get Skado (Gadget Srabut Kelapo Dorong) Application

The application (Apk) is software that can be installed and run on Android and other mobile devices (Burgers et al., 2016; Liu et al., 2014). Get skado app that is arranged in an application that has the scope of srabut kelapo dorong games (Saputra & Ekawati, 2018). The application was developed using the Smart Apps Creator (SAC) application, as a digital interactive media used to build multimedia content for mobile devices. It is compatible with all devices and touch monitors (smartappscreator.com). The product's design as an app should make the Get Skado app simpler and more environmentally friendly (paperless).

The pictures in this get skado are arranged with illustrations that are easy for children to understand, use colors that match the child's reading and are accompanied by scenarios regarding events that can occur in everyday life. The image design is described in Figure 1 below :

Figure 1. Get Skado Application Prototype

Professionals have validated the Get Skado application. The validators were selected purposively, namely psychologists, parents, teachers, and traffic police. The results of the validation assessment are shown in table 4.

Table 4.
Validator Assessment

Sub-Activity	Aims	description of the content and form of activities	Validators 1	2	3	4	Total Value	∑s	V	Validity Level
Get Card	Children know the types of traffic signs.	Children are asked to open a virtual card containing various types of traffic signs (prohibition signs, guide signs, command signs, warning signs).	4	5	4	4	17	13	0.65	High
	Child recognizes traffic symbols	Children are asked to open a virtual card consisting of traffic sign symbols	5	4	4	4	17	13	0.65	High
Get Skalantas	Child applying traffic symbols	Children are asked to open a virtual card that contains a route that must be followed. Each track has four different road	3	5	3	3	14	10	0.5	Moderate

		colors: red, which means traffic signs, yellow, questions about traffic, blue contains opportunities to play; and gray has no meaning.								
	Children can show emotion in obeying the rules when playing	Children are asked to open travel route cards and can patiently wait for their turn to play, happy when answering questions correctly	3	4	4	4	15	11	0.55	Moderate
Get Travelling	Children know how to behave while driving	The child is asked to open a virtual card containing the travel route that must be passed and to show an attitude when faced with certain situations (accidents, traffic violations).	5	4	5	3	17	13	0.65	High
	Children apply how to obey traffic signs	Children are asked to traverse the required route and obey the traffic rules that are on the track	3	5	3	3	14	10	0.5	Moderate
	Children understand the impact or consequences of traffic accidents	Children are asked to traverse the route according to their destination with the principle of safety (be careful and not careless when driving	4	5	4	3	16	12	0.6	High

Study Procedure

This study consists of several stages, including pretest, treatment, and posttest.

Pretest

Before the treatment, the pretest was carried out to determine the participants' traffic knowledge.

Treatment

In the experimental group, the treatment was only carried out in the form of a Get Skado app for children for three days. The treatment was carried out every day for about 85 minutes. Figure 2 shows three Get Skate sessions.

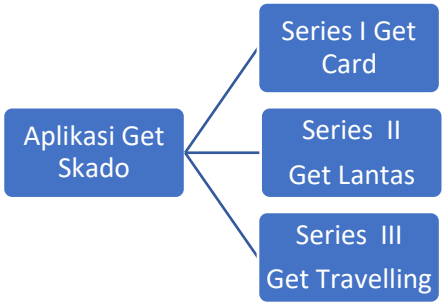

Figure 2. Get Skate Session

Posttest

After the treatment, a posttest in the form of data collection on traffic knowledge was carried out in the experimental and control groups. The data collection instrument at the posttest was the same scale as the pretest

Data Analysis

The t-test on independent samples and the paired t-test were used to test hypotheses with the SPSS 16 program. The paired t-test tested the difference in pretest and posttest scores in both groups, while the independent sample t-test tested the difference in pretest and posttest scores between groups.

Result

The statistical description of the results, including the mean and standard deviation of the pretest and posttest scores in the experimental and control groups, is shown in table 5.

Table 5

Statistical Overview

Group	Score	Mean	Standard Deviation
Experiment	Pretest	51.33	6.3
	Posttest	53.11	6
Control	Pretest	48.22	4.2
	Posttest	48.33	3.4

Figure 3 shows the difference between the average pretest-posttest scores of the experimental group compared to the control group. In the experimental group, an increase in the average score from pretest to posttest was found, while in the control group, the average score is relatively the same compared to the pretest.

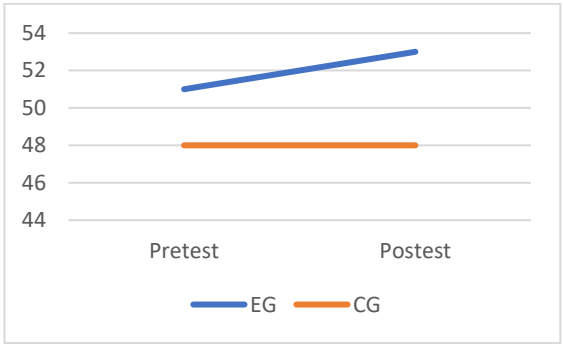

Figure 3. *The mean difference between experimental group and controlled group*

Table 5 shows the results of the data analysis. Based on the paired t-test, there was a significant difference between the mean pretest and posttest scores between participants in the experimental

group. These results indicate that the mean score of the posttest is higher than the pretest. Therefore, traffic knowledge increased in the experimental group after receiving the Get Skado treatment. In contrast, there was no significant difference between the mean pretest and posttest scores between participants in the control group. This result means that in the control group, participants' knowledge of traffic remains the same even though there is a slight increase in score.

Based on the t-test of the independent sample, there was a difference in the pretest score between the experimental and control groups. These results indicate that the traffic knowledge of the experimental group was different before the Get Skado app was offered. Moreover, the mean posttest scores in the experimental and control groups were significantly different. The mean posttest score among participants in the experimental group is higher than the control group.

Table 5
The t-test Results

T-Test	Variable	T Value	Exact Sig (2-tailed)
Paired Sample T-Test	Pretest EG dan Posttest EG	-2.399	0.043
	Pretes CG dan Posttest CG	-0.229	0.824
Independent Sample T-Test	Pretest EG dan Pretest CG	1.229	0.237
	Posttest EG dan Posttest CG	2.061	0.056

Keterangan :
EG : Eksperimen Group
CG : Control Group

Discussion

This research aimed to examine the effectiveness of Get Skado App to increase traffic knowledge in children. The result of the research showed that there was significant traffic knowledge between pretest and posttest scores within the experimental group. Meanwhile, within the controlled group, no significant traffic knowledge was found.

This study indicates that the get skado application can increase traffic knowledge in children. The Get Skado app (srabut kelapo dorong) has been successfully presented as one of the android applications used to stimulate traffic knowledge in children. The get skado application is structured by describing knowledge about traffic in a board game setting with traffic regulations covering traffic signs, traffic lights, and traffic symbols.

This application material is compiled through the results of previous research (Saputra & Ekawati, 2017). This Get Skado app utilizes multimedia elements such as sound instruments and virtual card features. This is expected to increase children's interest in being exposed to this get skado. This get skado application has been assessed by validators, namely psychologists, parents, teachers, and traffic police. This application is included in the valid criteria. The validity criteria are in the medium and high categories in each assessment criteria.

The illustrations displayed in virtual cards and board games are arranged to include natural images, text, shapes, and color perspectives that seem colorful, meaning fun and flexibility for children playing (Kordaki & Gousiou, 2017). This is in accordance with the child's development, making this application and board game more enjoyable for children to play. If children are interested in playing, it is not impossible to explain that the get skado application is expected to be a medium for delivering relevant messages to children (Bayeck, 2020).

This Get Skado research supports research (Rohmah, 2019; Wijaya et al., 2016), which tries to introduce traffic signs using the play method for children, especially using a board game containing information about traffic signs and lights. Furthermore, this study also emphasizes the use of technology elements to strengthen the information obtained by children, especially by providing images in the form of virtual cards, which are expected to motivate and improve children's skills and abilities in traffic and can maintain this knowledge.

Furthermore, this study also emphasizes the use of technology elements to strengthen the information obtained by children, especially by providing images in the form of virtual cards, which

are expected to motivate and improve children's skills and abilities in traffic and can maintain this knowledge. This is in accordance with research conducted by (Backlund et al., 2007; Li & Tay, 2014).

This get skado app is expected to be able to present and disseminate traditional game literature, which is limited to in-game media. It is hoped that the Get Skado app can be accessed by anyone and anywhere because the concept of digital media is in great demand by the public in today's era. The use of gadgets that can be accessed by everyone, not only parents but also children, makes this application provide opportunities for the development of information regarding knowledge of traffic to become more comprehensive.

Conclusion

The Get Skado App, with three sessions, has successfully stimulated traffic knowledge in children. The display of virtual cards and board games, which include natural pictures, text, shapes, and color perspectives that seem colorful, has the meaning of fun and flexibility that encourages children to be interested in playing this game. Participants' experience in the get skado game reinforces information about traffic signs, and information about behavior in obeying simple traffic rules and traffic rules. Therefore, this get skado application can be a useful tool in increasing traffic knowledge which is expected to build and develop children's skills to obey traffic rules.

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