KnE Social Sciences

ICTSD 2018
International Conference on Technology for Sustainable Development 2018
Volume 2019

Knowledge E
enriching | engaging | empowering

Conference Paper

Computer-Based Application As A Social Media To Improve Safety Traffic Knowledge Of Junior High School Students (Case Study Of Smp N 1, Smp N 4 And Smp N 5 Ciamis)

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Abstract

Road traffic safety education through campaigns and counseling has often been carried out by Politeknik Keselamatan Transportasi Jalan (PKTJ) Tegal as an educational institution that focuses on safety. The campaigns were given to students who are in kindergarten to high schools/ vocational high schools and also the general public by Computer Based Application (CBA). The most difficult campaign was done for Junior high school students. This study aims to make CBA as a medium of campaign in improving understanding of traffic safety. The method used is an experiment with One Group Pre test-Post test. Data collection technique was Purposive Sampling. The research samples were 82 students who come from three different junior high schools. Data collection used test methods (Pre-test and Post-test). The results show that there was an increasing result from i.e; from the low category to high, so that it can be concluded that CBA improves understanding of traffic safety in students of class VIII SMP N 1, N 4 and N 5 Ciamis.

Keywords: Computer Based Applications (CBA), Campaign, Traffic Safety, Junior High School Students

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Received: 20 July 2019
Accepted: 22 August 2019
Published: 29 August 2019

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the ICTSD 2018 Conference Committee.

1. Introduction

Road traffic safety indicators can be seen from the number of accidents and violations. Based on the Indonesian Data Portal, in 2017, the number of accidents was 105,374 with total traffic violations were 7,420,000. The research area is Ciamis Regency. Based on Ciamis Traffic Police data, accidents during 2016 to 2017, as many as 622 incidents have involved 1,131 road users. The young age group of 16-30 years is the highest number of accident involvement. In 2017, the young age group dominated by 41.31% of the total accidents, as many as 214 of the 518 people involved in the accident. One factor of accidents occurence is the existence of traffic violations. Data from Ciamis Regional Police, in 2016 showed that there were 20,517 violations, and in

2017 increased to 26,498 violations. Frequent violations are wearing no helmet, high speed driving, violating markings, and jaywalking. Road traffic safety education through campaigns and counseling has often been carried out by the PKTJ and related agencies to various targets. The success of the campaign depends on the process of identifying and selecting targets and the campaign media. The extension program that has been done is going to be the target to PAUD, SD, SMP, and SMA / SMK and the general public. Based on this experience the most difficult is to conduct counseling to junior high school students.

The research locations were SMP N 1, SMP N 4 and SMP N 5 Ciamis. These schools are close one another and are passed by urban roads. This urban road connects Tasikmalaya and Ciamis, a lot of road equipment will be met by students when leaving or going home from school. Social media has become a friend for junior high school students, especially with the presence of multimedia extracurricular activities can help and support the operation of campaign media. Based on the problems and opportunities above, it is very important to do research to find the right media for junior high school students in conducting road traffic safety campaigns. The purpose of this study was to determine the level of traffic safety knowledge in junior high school students before getting traffic safety campaign using computer-based application media, designing a design of traffic safety campaign using computer-based application media and knowing the level of traffic safety knowledge in students Middle School after getting campaign of traffic safety using computer-based application media.

2. Literature Review

Law No. 22 of 2009 concerning Traffic and Road Transportation defines that Traffic Safety and Road Transportation is a condition of avoidance of everyone from the risk of accidents during traffic caused by human, vehicle, road and/ or environmental factors. According to data from Traffic Corps of National Police Headquarter (*Korlantas Mabes POLRI*) the highest cause of accidents from the aforementioned factors is human factor, with a percentage of 65.67%. This generally occurs due to driver negligence, wrong driving techniques, not adhering to driving ethics and also physical and spiritual health factors. Accidents are not only caused by one factor alone, more often due to a combination of several factors but usually preceded by human factors, such as traffic violations.

To accelerate the reduction of accidents, there must be intervention in the behavior of the community, especially novice motorists. Public awareness campaign of Safety

Traffic is very important especially for students. Submission of the campaign material to millennial generation must adjust to their preferences and habits. They are very familiar with handphone and computers as a medium for self-existence and information sharing.

In order to have smooth campaign, it is necessary to identify existing problems beforehand, to determine the priority scale and why campaign activities must be carried out as well as to determine targets, media and communication strategies.

Computer-based public campaign is an option because for teenagers (millennial generation) this is very interesting. Therefore it is expected that the purpose of the campaign is to provide knowledge so that it can influence the behavior of respondents as road users and increase awareness of things related to road safety.

3. Methods

This research was conducted at SMPN 1, SMPN 4 and SMPN 5 Ciamis. The following is a picture of the research flow chart:

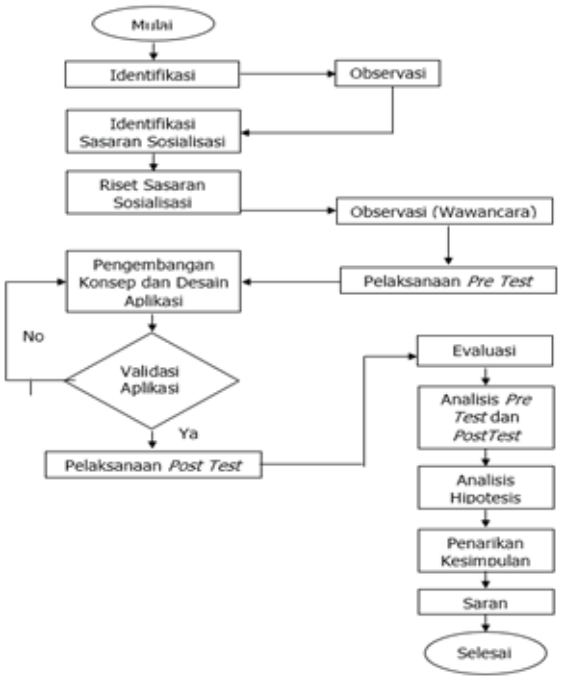

Figure 1: Research Flow Chart.

Data was collected through interviews, observations during the campaign, the results of the pre-test and post-test and documenting each activity. Data were analyzed after validation. Using the Product Moment formula as follows:

$$r_{xy} = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{|(\sum X^2) - (\sum X)^2|n(\sum Y^2) - (\sum Y)^2}}$$ (Arikunto, 2006)

Information

rxy = Product correlation coefficient

Moment

X = score of item

Y = total score

n = number of test participants

Determination of categories of instrument validity which refers to classification of validity stated by Guilford as follows:

0.80 - 1.00: very high validity

0.60 - 0.80: high validity

0.40 - 0.60: moderate validity

0.20 - 0.40: low validity

0.00 - 0.20: very low validity

Then the reliability test was carried out with the Alpha formula:

$$r_{11} = \left[\frac{k}{k-1}\right]\left[1 - \frac{\sum \sigma_b^2}{V_t^2}\right]$$ (Arikunto, 2006)

Information:

r11 = instrument reliability

k = number of questions

Vt2 = total variant

The criteria of a research instrument are said to be reliable by using this technique, if the reliability coefficient (r11)> 0.6 or compared to r table (Product Moment). If the Alpha Cronbach reliability value is greater than r table, it is said to be reliable, and vice versa. Determination of the categories of instrument validity that refers to the classification of validity proposed by Guilford are as follows:

0.80 - 1.00: very high reliability

0.60 - 0.80: high reliability

0.40 - 0.60: moderate reliability

0.20 - 0.40: low reliability

0.00 - 0.20: very low reliability

One-Sample Normality Test KolmogorovSmirnov was carried out using a significance level of 0.05. Data is stated to be normally distributed if the significance is greater than 0.05.

The hypothesis proposed is; Ho: there is no difference between before and after the treatment and Ha: there is a difference between before and after the treatment. Decision making criteria use significant value / P-Value. If the value is significant / P-Value> 0.05; then Ho is accepted. If the value is significant / P-Value <0.05; then Ho is rejected. Effectiveness parameters are divided into three categories, including:

Good: If the value of effectiveness is 76% -100%

Enough: If the value of effectiveness is 56% -75%

Less: If the value of effectiveness is 40% 55%

3.1. Validity test

Analysis of the validity of the item question is done by using SPSS 16.00 calculation by entering the score of each item. Based on a trial conducted on 20 items on the question instrument, obtained 16 valid items and 4 invalid items. This item is declared valid because it has a calculated r value> 0.3246.

3.2. Reliability Test

The result obtained is alpha reliability coefficient of 0.750. A value of 0.750> 0.6, thus it can be said that the instrument has a high level of reliability and is suitable for use in research.

3.3. Normality test

The results of the Shapiro-Wilk test were 0.613 for the pre-test and 0.797 for the post-test. The values of 0.613 and 0.797 are greater than 0.05, thus the distribution of data is in normal conditions.

3.4. Hypothesis

Probability value or Sig. (2-tailed) is 0,000. Decision making criteria using significant value / P-Value:

If the value is significant / P-Value> 0.05; then Ho is accepted

If the value is significant / P-Value <0.05; then Ho is rejected

Value of 0,000 <0,05, Ho is rejected or Ha is accepted.

Therefore it can be concluded that the use of computer-based applications as a medium of campaign can increase the knowledge of traffic safety for eighth grade junior high school students in SMP N 1, 4 and 5 Ciamis.

4. Results and Discussion

4.1. Level of Knowledge of Traffic Safety for Middle School Students Before Getting Traffic Safety Information

The level of traffic safety knowledge for junior high school students before getting campaign can be seen based on the results of the pre-test given to students of class VIII SMP N 1, 4 Ciamis and 5 Ciamis. Pre-tests were conducted on 82 students with 16 questions. All questions given use pictures so as to make it easier for students to understand the question.

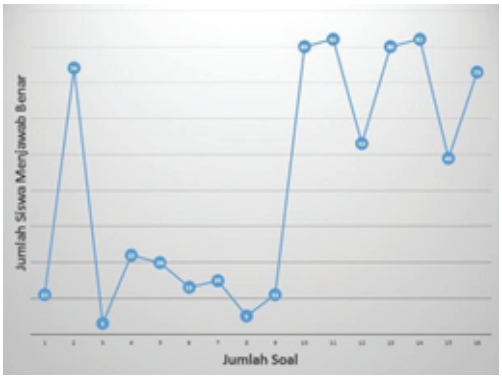

Figure 2: Number of Students Answering Correctly.

Based on the level of knowledge level of Arikunto, 2006 it can be seen that as many as 82 junior high school students have an average score of 51 and are included in less categories. Thus it can be said that junior high school students have a low level of knowledge of basic traffic safety from the total of all seventh grade students from N 1, 4 and 5 Junior High School Ciamis.

4.2. Planning Design of Traffic Safety Campaign Using Computer Based Application Media

The display of the application program is designed by considering the design aspects so that it is interesting and also user friendly (user friendly) meaning that the user

becomes clear in using the application program created. Designing the display must also consider the screen size and specifications of the Visual Basic 6.0 application. The following is a Visual Basic 6.0 display.

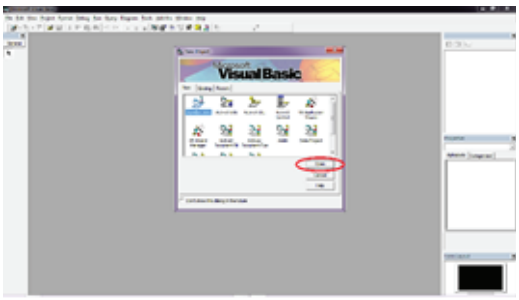

Figure 3: Initial Display of Visual Basic 6.0 and New Project.

At the initial stage, click Open to open a new project window that will be used to create computer-based applications. Previously prepared designs or themes for

Fill in the application background using the help of Photoshop 4.0 software to design application background themes. After clicking Open, a new project window will appear as follows. Can be seen for the new project will be named Project 1 and followed by Form 1. This form 1 functions for the application creation background

computer based.

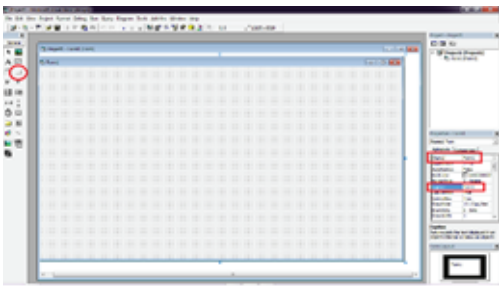

Figure 4: Menu Display in the Project Window and Menu Display Command buttom New Visual Basic 6.0.

Then in the menu view, select the Command bottom menu to make the options menu in the application view. This selection menu will be function as the choose button on the application. The Command bottom menu will include programming or coding languages. The coding can be seen in Appendix 3.

Then input the background design through the project menu which is pictured with the bitmap type. Here are the results of the background theme that has been inputted in the project window. In line all big the views on this computer based application, have almost the same method and coding.

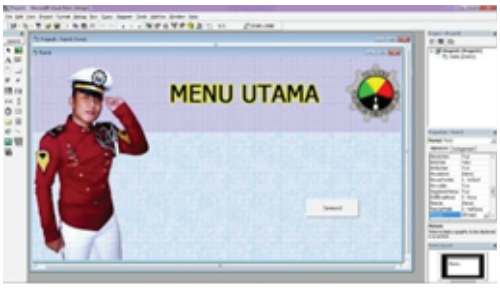

Figure 5: Display Picture Menu in the New Visual Basic 6.0 Project Window.

4.3. Level of Knowledge of Middle School Traffic Safety After Getting Traffic Safety Information

The level of traffic safety knowledge for junior high school students after getting campaign can be seen based on the results of the post-test given to students of class VIII SMP N 1, 4 and 5 Ciamis. Post-test was carried out on 82 students with the same number of questions as 16 post-test. All questions given use pictures so as to make it easier for students to understand the question.

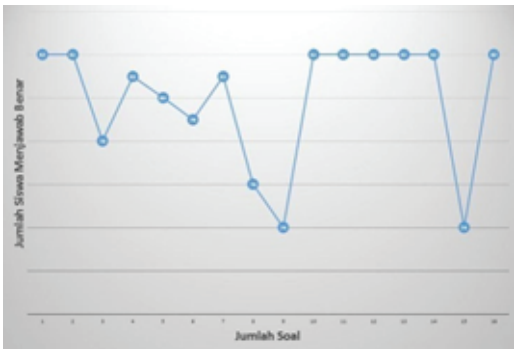

Figure 6: Number of Students Answering Correctly.

The average value of junior high school students after getting campaign using computer-based applications is 98. Based on the category of knowledge level of Arikunto, 2006 can be seen that a total of 82 junior high school students entered in good category. Thus it can be said that junior high school students have a high level of basic traffic safety knowledge from a total of all grade VII students from SMP N 1, 4 and 5 Ciamis.

4.4. The Effectiveness Level of Campaign Using Computer Based Applications for Junior School Students

The level of effectiveness of campaign using computer-based applications for junior high school students can be seen through an increase in knowledge about traffic safety. The

level of knowledge is measured through the pre-test and post-test stages. The table below will explain the comparison of the level of knowledge of junior high school students before and after being given campaign.

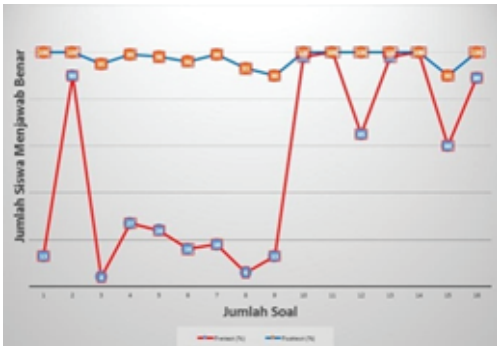

Figure 7: Comparison Chart of Safety Knowledge Level.

The results of the pre-test and post-test scores from 82 junior high school students, the average score was 51 (pre-test) and 98 (post-test). Based on the results of the pre-test, junior high school students seemed to have little understanding of the questions given which caused students difficulty in choosing answers, different when the test is given after using computer-based application learning. And there are several questions that can reach 100% truth scores because the problem is very easy because it has been given an understanding through the application. Based on the results of the pretest and post-test there is an increase in scores, this is because junior high school students at post-test understand more about traffic safety than during the pre-test. So learning to use a computer-based application will affect the value that will be obtained. The increase in the results of the pre-test and post-test reached 98% based on the results of categorization of traffic safety knowledge in junior high school students, this shows that computer-based applications have a good level of effectiveness used as a medium of campaign of traffic safety in junior high school students. Learning / campaign using computer-based applications regarding traffic safety can be seen as a form infestation. The importance of education and development through existing technologies is not only beneficial for students concerned, but also benefits for families who can share about understanding traffic safety.

5. Conclusion

Based on the results of the analysis and discussion, it can be concluded that the level of traffic safety knowledge of students of SMP N 1, 4 and 5 Ciamis before getting traffic safety campaign using computer-based application media is included in the low

category with an average value reaching 51. Planning design of traffic safety campaign using computer-based application media made through Visual Basic 6.0 Software with a coding system equipped with audio visual. In the implementation of campaign carried out in three stages, namely the pre-test stage, the application phase of computer-based applications and the post-test stage. The level of safety knowledge passed by students of SMP N 1.4 and 5 Ciamis after obtaining campaign of traffic safety using computer-based application media included in the high category. The average score obtained by 82 students reached 98 and entered the high category. Based on the results of the research, there are several suggestions that can be given that campaign should not be carried out only at one time, but there are several stages in a sustainable manner so that students can get more knowledge. The campaign material can be inserted in the learning of junior high school students. The material in the application is still in a simple scope, it is expected that development can be carried out for further research by providing additional material.

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