Application Of The CAI Method Of Learning Signs-Traffic Signs For Early Childhood Based On Android

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Abstract

Traffic signs are part of road safety equipment that contains symbols that serve to convey messages to road users or traffic in an effort to bring order, make it comfortable and safe for road users and the activities of the people around them. Obeying traffic signs for safety and traffic order is very important to avoid accidents and violations of traffic rules. Learning and awareness of the importance of traffic signs needs to be instilled in the community from an early age. Learning is more interesting with the CAI method, which makes early childhood happy in learning the material presented. Early childhood is able to understand the signs presented in the android application.

Keywords: CAI Method, Learning, Traffic Signs.

INTRODUCTION

There are many traffic rules and traffic prohibitions in the form of objects or signs or signs such as traffic signs. Traffic signs are pieces of road equipment that come in the shape of symbols, letters, numbers, phrases, and/or combinations of these that serve as warnings, prohibitions, commands, or directions to drivers and passengers on the highway. Secondary data on the causal factors and motorcycle traffic accidents in the city of Semarang has not been studied epidemiologically by the police and previous researchers[1]. Many accidents that occur today are caused by a lack of public understanding of traffic signs[2]. The low level of public awareness about the importance of obeying traffic signs improves driving safety[3]. In this phase, children tend to be easier to absorb values, including traffic knowledge, because in the future they will always interact with the traffic system[4]. The game is not only to test insight, players can also get to know various signs in Indonesia[5]. Orderly traffic does not seem to have been reflected in the personalities of the Indonesian people. This can be seen in the number of accidents and traffic violations that still occur. Lack of knowledge of the meaning of traffic signs is the main trigger for accidents and traffic violations.

Learning media is an inseparable element of the learning process and is already a part of the integration of the learning techniques that are being utilised [6]. The CAI (Computer Assisted Instructions) style of learning is basically a new product in the realm of educational technology. Computers as a medium will assist students in discovering new and more fascinating topics than they would otherwise discover via more traditional techniques that are more teacher-centered [7]. CAI or computer-assisted learning, is the

development of integrated information technology, namely communication (interactive), audio, video, and image display (image) which are packaged as multimedia technology[8].

Early childhood learning that is integrated with the capacity to perceive and interpret the visual and spatial environment correctly (carefully). Visual refers to pictures, while spatial refers to things that are linked to space or location [9]. In addition, it becomes a solution for the learning process that is effective, engaging, and more enjoyable while also facilitating the student learning process, which are all advantages of using this learning medium [10]. The implementation of CAI is to obtain research results that show that the pedagogic competence possessed by a [11]. In order for the teaching and learning process of traffic signs to be more effective and efficient, an application that can be used anytime and anywhere is needed. Therefore, the author built an Android mobile-based learning application for traffic signs by applying the Computer Assisted Instruction (CAI) method.). One way that can solve the learning problem above is the CAI (Computer Assisted Instructions) method, which is essentially a new offering in the way of learning[12].

METHODS

Android Application

The application comes from the word application, which means ready to use, which is designed to carry out a function for other users or applications and can be used by the intended target. The application of this application is used to design the application of traffic signs. Learning artificial intelligence courses with the use of m-learning goods is deemed viable and may be implemented. This suggests that instructors and students may utilise it as a substitute for traditional teaching methods. [13].

Understanding Traffic Signs

Traffic signs, often known as signs, are a kind of road sign that is supplementary to other road signs and is represented by symbols. The introduction of these signs aims to make early children understand the meaning of the symbols that appear on the signs. This educational type game aims to provoke people's interest in learning about educational content while playing "games", so that, with a happy feeling, it is hoped that people can more easily understand the subject matter presented[14].

CAI Learning Method

A Computer-assisted teaching program (CAI) is a form of using computers in teaching. Many studies show that learning using CAI is more effective than using other tools. important aspects of CAI program planning[15]. Some of the aspects referred to are as follows :

1. Feedback
Is the response given to the child when answering the question true or false?.
2. Branching
Children who answer correctly can continue to the next level, and children who answer incorrectly will be given a warning to repeat the question.
3. Evaluation
Each time a correct question is answered, a score will appear, so that the children's progress graph can be controlled.
4. Progress Monitoring
Each material that appears will appear two models of the material before and the material that will come, so that material that has not been understood can be repeated again.
5. Instruction

This application menu contains instructions for existing problems, making it easier for children to understand when a problem occurs.

The display on the application is designed as attractive as possible to encourage children's willingness to learn to increase.

RESULTS & DISCUSSION

Main course

The main menu is the initial display of the application the first time it is run. The main menu displays several buttons that have their respective functions. The buttons are Tutorial, Simulation, Practice, Game, and About.

Figure 1 : Main Menu Display

Tutorial Menu

The tutorial menu will appear when the Tutorial button is clicked on the main menu. The tutorial menu also displays several buttons that have their respective functions. The buttons are: Warning Signs, Prohibition Signs, Command Signs, and Directional Signs.

Figure 2 : Tutorial Menu

Tutorial Category

The tutorial category view will appear when the user selects a button on the Tutorial menu. In this menu there are many choices of types of images of traffic signs that have been selected. Where each image has a function that will display the meaning and function of the image that has been clicked.

Figure 3 : Tutorial Category

Simulation Menu

In this menu there are option buttons. Each button that will be clicked will display a simulation of the button that was clicked.

Simulation Category

The display on the application is designed as attractive as possible to encourage children's willingness to learn to increase. The simulation category display is an imitation display of the use of traffic signs on the highway, which will be simulated in the form of animated cartoons. The simulation category display will appear when the user selects an option on the Simulation menu. In this menu there are many choices of types of traffic signs to choose from. Where each image has a function that will display a simulation with a car-shaped object that will move according to the clicked sign command.

Figure 4 : Simulation Category

Exercise View

The Workout Menu appears when the Workout button in the main menu is clicked or selected. The Exercise menu will display several questions and answers, where the answers have a score for each choice. After all the practice questions are answered, the final score will appear based on the selected answer.

Figure 5 : Display of Practice and Final Score

Game View

The game view appears when the game button on the main menu is clicked or selected. The user will shift or lift the sign to the place that has been provided, and the object will move according to the order of the sign that has been selected.

Figure 6 : Game Menu Display

The tutorial contains materials that will explain the meaning of several types of traffic signs. In the tutorial section will contain some material, namely as follows:

1. Traffic Warning Sign

Useful for giving warnings to road users or traffic that there is a possibility of dangerous and potentially dangerous conditions, so that drivers or road users are careful in operating their vehicles.

Table 1 : Traffic Warning Signs

Traffic signs	Caption
Sharp turn to the left
Turn right
Sharp turn to the left
Sharp turn to the right
Double Turn, first turn to the left

2. Traffic Command Sign

Command Signs are signs that are used to communicate instructions to road users that must be followed to the letter. This Command Sign is intended to require road users and certain traffic movements to follow the signs that have been installed.

Table 2 : Traffic Command Signs

Traffic signs	Caption
You Must Follow Directions To The Left
You Must Follow Directions To The Right
It is obligatory to follow the designated direction.
It is obligatory to follow the designated direction.

3. Traffic Signs

In the context of road users, directional signs are signs that are used to provide information about roads and other circumstances as well as directions to cities, locations, arrangements, and other amenities.

Table 3 : Traffic Signs

Traffic signs	Caption
The forerunner sign indicates the direction of the intersection in front
The leading sign for the direction of the direction that shows the direction of the area
The forerunner sign of the direction of the direction that determines the direction
Directional directions that state the direction to reach a place

4. Traffic No Sign

Prohibition signs are signs that are used to inform road users of activities that are not permitted on the road.

Table 4 : Traffic Prohibition Signs

sTraffic signs	Caption
It is forbidden to continue walking. You must stop for a moment and continue the journey after getting certainty that it is safe from traffic in other directions.
No entry
Prohibition of entry for four-wheeled motorized vehicles
Prohibition of entry for three-wheeled motorized vehicles

Exercise

In the exercise section, there are or contain several practice questions to improve the skills and speed of thinking of early childhood in learning traffic signs. The form of practice questions in this application is in the form of true-false multiple choice.

The practice questions that will be designed for the application of learning traffic signs are as follows:

1. Which sign is a command sign?

2. Which sign is the "Must follow the direction to the right" sign? "

3. The sign, which is a "Slippery Road" sign, is ?

4. The sign, which is a "Traffic control light" sign, is ?

5. Signs that are "No entry for pedestrians" signs are ?

CONCLUSION

The conclusion from the discussion of this thesis research is as follows: The teaching and learning process about traffic signs in early childhood is currently less effective because of the frequent limitations of time, books, and distance in teaching and learning. CAI is the use of computers as a tool in the world of education and teaching that involves teachers and students playing an active role. Learning media in the form of android applications can make it easier to use applications and can be accessed in various places so as to make early childhood easier and often accessible.

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