



Safety Road Signage Application for Kids

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ABSTRACT

The research was done since the increasing of road accident among the children. An average of 19 persons killed in road accidents every day in Malaysia, road accidents constitute a serious public health challenge to the nation. Almost every day there is news regarding kid's accidents. Referring to this situation, the studies is done based on Malaysian road signage that suitable for kids between 4 to 7 years old to understand the meaning of the signage that used on the road in Malaysia. The purpose of this research is to develop appropriate application that can educate the children to understand the purpose of signage used regarding safety road in Malaysia. The application includes the picture of signage used at road side over Malaysia. The analysis being done by preparing a questionnaire that was distributed to 200 participants and the feedback receive is about 100. The question includes demographic variable and survey followed by their understanding the usage of signage, extent of knowledge and awareness of parents regarding road safety issues involving children and the development of application for children to learn about road signage. The result show a positive feedback from participant regarding road safety and they also agree the development of application over smart mobile are needed to support them in giving education about road signage and safety to their kids. The application is known as "Safety road for Kids". Parent and children need to raise their awareness about road safety.

Key words: Application, Awareness, Road Signage.

1. INTRODUCTION

Traffic management and accident management is very important for human in congestion city in order to provide comfortable lifestyle and safety. By having this system, people will have real-time information on traffic condition around the city, which can avoid from stuck on traffic jam. At present, ground-based solution are widely used to monitor traffic condition in a small and fixed coverage area which is stationary and short view sight.

Traffic accidents nowadays can be characterized as a major public health concern, considering that this phenomenon associated with a high number of deaths and injuries every year, around the entire world and in different groups of population [1,2]. The road safety education (or traffic safety education), regarding its breadth, and that it takes place during the complete process of life of individuals, is considered as a key determinant of road safety behaviors and a relatively lower road risk [3,4], essentially for road users with more and diverse high risk factors which may explain the occurrence of road accidents, such as small kids. Therefore road safety has been among participant in Global Ministerial Conference on Road Safety during United Nation Conference 2010 that led to a declaration of a decade Global Action for Road Safety [5]. According to (Road safety plan of Malaysia 2014-2020), more than 3500 people are killed and 137,000 injured in road crashes worldwide every day. In Malaysia 6,915 fatalities from road accidents was recorder in 2011 representing design estimated loss of RM9.0 billion to the national economy. With an average of 19 persons killed in road accidents every day in Malaysia, road accidents constitute a serious public health challenge to the nation [6]. Therefore, we can say that, around the world, there is a manifest need for the education and the prevention. There are lots of news regarding kids' accidents. The studies has taken not about this problem and decided to develops application that can teach children between 4 to 7 years old aware about road signage available in Malaysia. Nowadays most of the kids has been expose to use smart mobile. With this scenario the parents should get the application that can tough their children especially 4 to 7 years old about road signage of Malaysia. Smart mobile application is software that design to run on smart phone and other mobile devices. The application are known as "Safety road for Kids". The invention and studies was created since the application available is suitable for young's and adults. Meanwhile other application that available is from oversea and they are using their country signage. Within that situation the studies is done regarding Malaysian road signage that suitable for kids between 4 to 7 years old to understand the signage used on the road in Malaysia. In literature there are numerous application available for traffic safety, transportation emission quantification, transportation data collection and navigation (data) [7].

Purpose of this study

The general study of this research are because of the increment towards road accident among the children. There was a campaign being done by many companies and the government. But the knowledge about road signage is ended after the event. Furthermore, lack of road signage education among parents give a difficulties to educate their children. In other words the research being done is to identify appropriate tools that should be develop in a process of educating the children especially ages between 4 to 7 years old. They must understand the signage used regarding safety road in Malaysia. Unfortunately, the tools to teach about road safety for kids at this ages is not many and this give a difficulties to educate the children in Malaysia. Based on our observation the appropriate tools for this ages usually related to games and gadget. Since nowadays most of the parents allow their children to play with gadget that is an option to educate about road safety for children in Malaysia. In other situation, the understanding towards the meaning of the symbols is very important in order to ensure that they able to follow the rules. Different countries have different signage that based on the environmental of the countries. In this research selection of signages was done by referring to basic signages that can be seen at public places such as hospital, hypermarket and airport. The collection of signages will contribute to the development of road safety application in Malaysia. The application will concentrate on children's age 4 to 7 years old. In order to ensure that the application suitable to be develop the investigation regarding parents perception has been investigate through questionnaire.

2. METHODOLOGY

Questionnaire

Participant selected was part of this research which refer to parents. The sample used consist of 200 participant which selected randomly. The groups of participant ages that involve are between 20 to 50 years old. About 60% female and 40% male. Since the questions was distribute through online survey, the selected parents are those who able to used computer or gadgets. The survey that completed from 200 participants have received respond rate approximately 80% through online. While 20% did not give any feedback.

Procedure and design: The questions was developed using quantitative methods. The questions started with general question such as selection of ages from 20 to 50 years old. Followed by gander refer to female or male. This question are required to identify the group of ages and ganders that aware about children road safety in Malaysia.

Road signage: In order to identify the awareness of signage used over the road in Malaysia, the questions was develop based on parents' awareness about road safety. The question begin by identifying parents' knowledge regarding road safety signage in Malaysia. Including also their awareness in teaching their children about road signage in Malaysia. Followed by questioning parents whether their children

understand the road signage used in Malaysia. All the question required parents to make selection such as 'Yes' or 'No'.

Agree have Support tools: For this category of questions, liker skill (1-5) is used which begin with number 1 – very not agree to number 5 – very agree. The questions asked parents' weather they need supported tools to educate their children about road safety. Added with question asking whether it is necessary to develop appropriate tools to help them teach their children about basic road signage that available in Malaysia. Continue with the question on development of application using gadget. This question is to identify the suit abilities of this application use by children age 4 -7 years old. Parents also being asked about their opinion in having a tools that can taught their children about road safety in Malaysia. Besides that, parents also being asked whether they have search for application that can taught their children about road signage in Malaysia. This question was asked to identify if they aware about giving knowledge regarding road safety in Malaysia.

Data Processing

Based on this case, the question was develop using google survey and was distribute through online. The feedback by participant also through online. In other words the questions was process automatically and the feedback was generate automatically using the same software where the questionnaire was prepared. The data that has been process show the percentage for all the questions through appropriate graphs such as bar chart. In this paper the result has be compiled and display in a table. The result of this study are referring to the percentage shows by this system.

3. RESULTS

Although it should be understood that road safety education is a holistic process and it training take place throughout the life therefore all the people should aware about children safety when using a road side. From the analysis being done, Table 1, shows that almost 75.4% of the participant from age 30 to 40 years old. Follow by 20 – 30 years old 13.8% and 10.8% from age 40-50 years old. Based on gander it shows that female has given 53.8% feedback compare to male 46.2%. The gap of both gander is quite close it shows that parents are concern about road safety among the children. Meanwhile, 100% said that they aware about road safety.

Table 1: Percentage of Age and Gender of Participant

| Variable | Percentage % |
|----------|--------------|
| Age | |
| 20 - 30 | 13.8 |
| 31 – 40 | 75.4 |
| 41 – 50 | 10.8 |
| Gander | |
| Male | 46.2 |
| Female | 53.8 |

At Table 2, shows that 98.5% of the participant did remind their children about road safety. Only 2.5% forgot to aware their children about road safety. Even though the percentage of not reminding their children about road safety is small the consideration still have to figure why this situation happened. One of the reason is they do not understand the safety signage used in Malaysia. From the feedback shows that 47.7% does not understand the signage used for safety road. The percentage is quite large and something should be done. Anyway, about 52.3% of the participants said that their children recognize the signage of road safety in Malaysia. This group of children might learn from school campaign. But usually after the campaign they forgot about the signage and road safety.

Table 2: Awareness of Road Safety

| Variable | Percentage % | |
|--|--------------|------|
| | Yes | No |
| Aware about road safety | 100 | 0 |
| Aware the children about road safety and signage | 98.5 | 2.5 |
| Children understand the signage of road safety | 52.3 | 47.7 |

To recover this problem, the cumulative percentage of agree to disagree has been total up. Table 3 shows the total cumulative of agree and disagree. 86.1% of the participant agree that they should have support tools for children to help them understand and educate them about the signage of road safety in Malaysia. While 13.8 disagree with this opinion. 89.3% of the participant agree that application should be develop to educate their children about road signage. Only 10.8% disagree. In this study the suggestion of the application will be apply to mobile platform. 66.1% agree gadget such as smart mobile are needed to support them in giving education about road signage and safety. Only 33.9% disagree. Meanwhile, 63% agree that they have difficulties in finding specific application for children to learn about road safety in Malaysia. Only 37% disagree with this statement.

Table 3: Supporting Tools

| Variable | Percentage % | |
|--|--------------|----------|
| | Agree | Disagree |
| Supporting tools for children | 86.1 | 13.8 |
| Application to helps children understand the signage | 89.3 | 10.8 |
| Application on Mobile | 66.1 | 33.9 |
| Difficulties finding application | 63.1 | 37 |

Prototype

Referring to the feedback by the participants, the prototype of application was developed in a steps to overcome the problem occur. The application was develop based on mobile apps. The application only support by android operating system.

The application was develop by using mesmerizing graphical interface with the aid of colorful theme and enjoyable graphics define the way of attraction to the kids towards this application. This application itself able to attract the kids to stay and learn the symbols of road signage and the definition of each symbols. A simple interface shows at Figure 1 where the implementation is believe to promote this Safety Road Signage through mobile application as self-learning for the kids.



Figure 1: Introduction Interface

Meanwhile in Figure 2, the familiar road signage which always had been displayed at the side of the road in Malaysia were taken to be first start up in this mobile application. The road signage is also considered to be seen regularly by the kids in the school area. The twenty (20) road signage also can assist parents in helping their children to do the revision together in a car while passing through this signage along the road. As Figure 2 also demonstrates the road signage that organized to fit in mobile screen and the road signage image shown to the user (especially kids) can be accessed through a single touch. It then will direct to the next page where at this page the meaning of each road signage will be shown.



Figure 2: Road Signage

Refer to Figure 3, the application was designed with road signage's picture and its name. Figure 3 depicts as well, each signage was group together with its own name, picture and its simple explanation. The application had described the details in one page. The explanation is also attached with the objective to let the kids know and understand better what the road signage is all about. The designation would not forget about the other attraction towards this application; the sound. The attractive and fun sound is embedded within the application so that it will eliminate the feel of dullness and bored.



Figure 3: Meaning of Signage

4.DISCUSSION

The general result overall from the survey being done shows that the most important about this studies is giving education towards road safety signage used in Malaysia. Parents aware about signage of safety road. Most of the parents did explain to their children about safety road side. But unfortunately most of parents and children did not aware or understand the signage used over road safety in Malaysia. Besides, most of the parents agree that they need a support tools that could help them educate their children about road signage used in Malaysia. Within this situation the ideas to develop a basic application on mobile platform was design. In other countries realizing the potential of the applications in transportation area several transportation agencies have implement a mobile application to the community. Parent and the community aware about road safety. The application that was develop concern on the signage use on at the road in Malaysia should be taught to the kids 4 to 7 years old. Todays this groups of children already being exposed to the usage of gadget since parents are busy at works. In order to educate this children about road signage this application will be beneficial to the children to play with. This also will become a solution for most of the parents who busy at work. Nowadays most of the parents expose their children to verity of gadgetavailable in the market. This situation can beneficial if the children being expose to more valuable knowledge that can apply to the real world of life. The application that produce from this study is a basic introduction of application regarding road signage used in Malaysia. The children can learn together with their parent about all the symbols that shows in the application. The application provide a sound and the meaning of the symbols. Therefore, the application that was develop is based on the requirements from the survey. The basic knowledge of this application hopefully can help parents and also their children to understand the symbol use over Malaysian road. Besides the children also might remind their parents about the signage they have learn when they are over the road side.

5.CONCLUSION

Road safety is a very big issues throughout the world especially to our children. Based on this research, it shows that every parent are concern about their children road safety. Especially when listen to the news regarding accidents among children lately. Based on the survey parents did taught their children about safety road. It is not enough. They should be expose from early age such four to seven years old. This is because our road side is often being upgrade every year especially to community who leave in the capital of the city. Therefore, they must have a support tools that can explain and taught them about safety road especially by knowing the symbols of the road in Malaysia. This matter is not a big issues but when the accident happened it required people to think about it. Besides, this is not a new issues and required a steps to be taken such as development of application which can helps children to identify and learn the symbols of road

safety in Malaysia. The earlier the awareness being expose the situation happened might be decrease. Furthermore, the children will be more precaution when they were at the road side. They might also safe other people life by understanding the road safety signage used in Malaysia.

REFERENCES

1. JabatanKeselamatanJalanraya. 2014. PelanKeselamatanJalanraya Malaysia 2014-2020. JabatanKeselamatanJalanraya(JKJR), KementerianPengangkutan Malaysia.
2. Saunders, E. and Miller, A. 2009. Principle for School Road Safety Education: A Research Summary. Government of Western Australia, School Drug Education and Road Aware, Western Australia
3. KementerianPendidikan Malaysia. 1992. CermatTibaSelamat. Boston: Jones and Bartlett.2756.
4. Kee Man Chuah, Chwen Jen Chen and Chee SiongTeh. 2009. ViSTREET: An Educational Virtual Environment for the Teaching of Road Safety Skills to School https://doi.org/10.1007/978-3-642-05036-7_37
5. Springer Preece, J., Rogers, Y. Sharp, H 2002. Interaction Design Bey
6. MohdGhazaliMasuri, KhairilAnuarMd Isa, MohdPoziMohd Tahir, 2012 Children, Youth And road Environment: Road Traffic Accident
7. SaidiSiuhi, Judith Mwakalonge,2016, Opportunities and challenges of smart mobile application in transportation <https://doi.org/10.1016/j.jtte.2016.11.001>