MOBILE ED[PERPUSTAKAAN UMP \FETY FOR KIDS

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ABSTRACT

An application that is suits for mobile is commonly developed in order to make the task easier to do and to get something that users needed. Knowledge can be gained through various kinds of way, not to mention games. This application is for Android users. Using Adobe Flash 6 and Adobe Photoshop CS6 as parts of the development tools, this project is about developing a standalone mobile edutainment games which is able to help the kids aged four to six to understand and being exposed to the importance of the road safety. In case the kids are not familiar with the application, parents and teachers can play the role to show how the application will runs. The objectives are to create awareness and to improve the understanding of road safety amongst kids. The existing campaigns through television, radio and flyers were not so close to the kids. The application starts with the learning session first and then it continues with the games session as the activities to sharpen kids' memory. Few of informal interview sessions regarding road safety awareness had been done in order to get direct feedback from the kids. The application is expected to fulfil the aims and objectives claimed in this project. Kids will be able to be on the road, independently and safely and the number of accidents involving kids will slowly decrease.

ABSTRAK

Suatu aplikasi yang sesuai untuk mudah alih biasanya dibangunkan untuk mempermudahkan suatu tugasan dan untuk mendapatkan sesuatu yang diperlukan oleh pengguna. Ilmu boleh diperolehi melalui pelbagai cara, tidak terkecuali melalui permainan. Aplikasi ini hanya boleh digunakan oleh pengguna Android. Dengan menggunakan Adobe Flash 6 dan Adobe Photoshop CS6, projek ini adalah berkisar tentang membangunkan sebuah aplikasi permainan edutainmen mudah alih yang dapat membantu kanak-kanak yang berumur empat hingga enam tahun untuk memahami dan terdedah kepada kepentingan keselamatan jalan raya. Sekiraya kanak-kanak tidak biasa dengan aplikasi tersebut, ibu bapa dan guru-guru hendaklah memainkan peranan untuk menunjukkan bagaimana aplikasi itu akan berfungsi. Objektif-objektif bagi projek ini adalah untuk memberi kesedaran dan meningkatkan pemahaman keselamatan jalan raya di kalangan kanak-kanak. Kempen-kempen yang sedia ada melalui televisyen, radio dan risalah tidak begitu dekat atau mesra dengan kanak-kanak. Aplikasi ini bermula dengan sesi pembelajaran dan kemudian ia diteruskan dengan sesi permainan sebagai aktiviti untuk mengasah ingatan kanak-kanak. Beberapa sesi temuduga secara tidak formal berkaitan dengan kesedaran keselamatan jalan raya telah dilakukan dalam usaha untuk mendapatkan maklum balas secara langsung daripada kanak-kanak. Aplikasi tersebut dijangka dapat memenuhi matlamat dan objektif yang disenaraikan di dalam projek ini. Kanak-kanak akan dapat berada di jalan raya, secara berdikari serta selamat dan bilangan kemalangan yang melibatkan kanak-kanak secara perlahan-lahan akan dapat dikurangkan.

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PART 1

INTRODUCTION

1.1 Introduction

The road has provided so many benefits to its users ever since the first time it was built. It makes things became easier in so many ways especially in term of distance. The main purpose of building the road is to shorten the distance from one place to another. Since the people that using the road are increasing, the road became crowded and it needs to be monitored in order to avoid accident. So, that is why the rules of the road traffic was invented.

The history showed that the first traffic lights were installed outside the British Houses of Parliament in London on 10th December 1868 which was to control the traffic in Bridge Street, Great George Street and Parliament Street. The one who promoted them was the railway engineer, J. P. Knight and the railway signal engineers of Saxby & Farmer were the ones who constructed them.[1] Then, it was followed by Lester Wire, who had developed the first electric traffic light in 1912.[1] The traffic light technology keeps growing since then. Yet, accident still happens on the road no matter how much the campaigns are done or conducted.

There are a lot of factors why accidents still happening around such as human factor (drivers, riders and pedestrian), road conditions, climatic factor and vehicles factor. Nevertheless, one of the factors that needed to be pointed out is that people are unable or failed to comply with traffic rules.

Taken from *Utusan Online* dated 07th June 2012, statistics revealed by the *Malaysian Institute of Road Safety Research* (MIROS) show 414.421 of road accidents

were reported in 2010 compared to 265.175 in 2001, while the number of road deaths has increased from 5.849 cases in 2001 to 6.872 cases in 2010.[2]

Not only that, MIROS also stated that road accidents in this country had sacrificed 410 lives of children aged between 1 and 15 years, while 2.797 children are lightly and seriously injured in 2008.[3] Based on the statistic, it can be concluded that kids are also involves in this matter.

This scenario happens because lack of awareness amongst the parents to educate and teach their kids about how important the road safety might be to them. Unfortunately, the campaigns done are not effective enough to teach the kids about this matter. Thus, the parents should also play their part in this matter in order to get their kids exposed to the important of knowing the road traffic and its rules so that they will be able and ready to be on the road.

1.2 Problem Statement

In connection of road safety, there are a lot of campaigns regarding the road safety awareness were done in these past few years and even now. These campaigns were done through many ways such as commercial break on radio and television, advertisement in magazines and newspapers, talk, seminar, and even computerized by both government and non-government agencies. Meanwhile, *Malaysians Institute for Road Safety* (MUFORS) has done few activities in order to increase the awareness over road safety such as Pledge to Save Lives (2009), Vote to Save Lives (2010) and currently they are doing "Respect Your Limits" Education Campaign and Road Shows.

Besides that, flyers, free stickers and helmets were given away to road users during other road safety campaigns. Moreover, other government agencies, like *Jabatan Kerja Raya Malaysia* (JKR), *Jabatan Pengangkutan Jalan* (JPJ) and *Polis DiRaja Malaysia* (PDRM) *Cawangan Trafik* have also take part in running the campaigns. For instance, *Ops Sikap* is usually done during the festive season.

Unfortunately, these kinds of approaches seem to be not so compatible to kids because the way of the information being given is not suitable with their age. In other words, these kinds of approaches are not so close to the kids and it makes kids lost their interest to find out or learn more about it.

Furthermore, the current system of campaign is believed to be not so close to the kids. This thing happened because of the gap between the kids and the campaign itself. Hence, it should be known that kids' and adults' thinking way is totally different. Thus, the real message is not clearly conveyed to the kids. Not only that, some of the campaigns done were failed to attract the kids or even adults since it is not that interactive and inefficient.

1.3 Aims

Here are the aims for this project;

i. To develop an application (edutainment games) that will expose and educate the kids about the basic road traffic rules.

ii. To be one of the learning materials to teach and at the same time to create awareness amongst kids regarding the importance of knowing basic road traffic rules.

iii. To prepare the kids with the road safety knowledge to be independent on the road.

iv. To reduce the number of road accidents involving kids.

1.4 Objectives

The objectives of this project are shown below;

i. To develop an edutainment game as a teaching and learning material for road safety.
ii. To produce an interactive and more friendly application for kids.
iii. To create an educational application that apply the 'play and learn' concept.

1.5 Scope and Limitations

The scope for this project are stated as below;

i. The target users are kids (four to six year old), parents and teachers.
   - Firstly, the target users for this project can be divided into three parts; kids, parents and teachers. For the kids, it is only focusing on kids aged 4 to 6 year old whom is basically the pre-schoolers.

ii. This application (games) is a mobile based (Android).
   - This application is a mobile based application. As a mobile based application, there will be a few of platforms that can be used such as iOS, Symbian and Android. In this project, Android will be used as the platform to run the application. Android is known to be a Linux-based operating system which is designed and developed by Android Inc. for touchscreen mobile devices like smartphones and tablet computers.

iii. This application needed to be downloaded and installed on the mobile or tablet.
   - In order for the user to be able to use this application, the users need to download and then install the application on the preferred mobile or tablet devices.

iv. This application is a standalone application.
   - This application can be classified as a standalone application because it does not require any software other than the operating system itself to run.

v. This application will be in fully Bahasa Melayu.
   - Since there is a lot of application already in English, this application will be developed in Bahasa Melayu.

However, there are some limitations of this application which are stated as follows;

i. The application only focus on the basic rules regarding road traffic.
   - In this application, there is only a few rules that will be exposed to the users. For example, road signs like Stop and Do Not Enter, traffic light for road and pedestrians, what to do when riding a bicycle, and what should and should not be doing while being in the car.

ii. This application cannot notify the users once there is latest version available.
   - The users need to check the latest version that is available by themselves.

1.6 Literature Review

1.6.1 Mobile Games

Any kind of video game that is played on a feature phone, smartphone, PDA, tablet computer, portable media player or even calculator is called a mobile game. However, games played on dedicated handheld video game systems such as Nintendo 3DS or PlayStation Vita did not included as mobile game. Apparently, mobile games are usually downloaded via the mobile operator's network, but in some cases games are also loaded in the mobile handsets when purchased, via infrared connection, Bluetooth, or even memory card. In addition, there are four ways of how mobile game can be distributed which are;

i. Over the Air (OTA) - A game binary file (usually BREW or Java) is delivered to the mobile device via wireless carrier networks.[4]
ii. Sideloaded - A game binary file is loaded onto the phone while connected to a PC, either via USB cable or Bluetooth.[4]
iii. Pre-installed - A game binary file is preloaded onto the device by the original equipment manufacturer (OEM).[4]
iv. Mobile browser download - A game file (typically Adobe Flash Lite) is downloaded directly from a mobile website.[4]

Lastly, The popularity of mobile games has increased in the 2000s, as over $3 billion USD worth of games were sold in 2007 internationally, and projected annual growth of over 40%. The ownership of a smartphone alone increases the likelihood that a consumer will play mobile games. For the record, there is over 90% of smartphone users play a mobile game at least once a week.[4]

1.6.2 Edutainment

Basically, edutainment is a neologism which is similar to infotainment that expresses the combination of education and entertainment in a work or presentation such as a television program or even a Web site. In other words, edutainment refers to any entertainment content that is designed to educate as well as to entertain. Not only that, any content with a high degree of both educational and entertainment value is known as edutainment.[5] Thus, the most educationally effective children's programs on television such as Sesame Street and The Electric Company could be classed as edutainment.[6]

1.6.3 Road Safety

Any methods or measures that have been used in order to reduce the risk of users of the road network being killed or getting seriously injured is what best describe as road safety. Basically, pedestrians, cyclists, motorists, their passengers, and passengers of on-road public transport, mainly buses and trams are all classified as the persons who are using the road. According to *International Transport Forum* which was held on October 2008, the best-practice road safety strategies focus upon the prevention of serious injury and death crashes in spite of human fallibility. [7] In addition, the basic strategy of a Safe System approach is to ensure that in the event of a crash, the impact energies remain below the threshold likely to produce either death or serious injury. This threshold will vary from crash scenario to crash scenario. But, it is depend on the level of protection offered to the road users involved.[7] Consequently, *World Health Organization* (WHO) has reported that more than a million people are killed on the world's roads each year.[8]

1.6.4 Kids or Children

The legal definition of "child" generally refers to a minor, otherwise known as a person younger than the age of majority.[9] Biologically, a child is anyone between birth and puberty or in the developmental stage of childhood, between infancy and adulthood.[9] Plus, kids or children generally have fewer rights than adults and are classed as unable to make serious decisions. Hence, kids legally must always be under the care of a responsible adult. Otherwise, anything they do might turn upside down.

PART 2

REPORT BODY

2.1 User Requirements

In order to define the user requirements, a questionnaire and interview had been done. Generally, all of the questions asked are focusing on the road safety. Below are the user requirements for parents, teachers and kids;

2.1.1 Parents and Teachers Requirements

Basically, for parents and teachers, a set of questionnaire consists of six close-ended questions and one open-ended question. The questions will be rate by 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree. The questions that included in the questionnaire are shown as below;

i. Children / kids are aware of road safety.
ii. *Existing campaigns are good enough to make children / kids aware about road safety.
iii. Existing campaigns are close (friendly) to children / kids.
iv. Children / kids are interested to learn more about road safety.
v. Children / kids are familiar about basic traffic rules (traffic light and signboards).
vi. Existing campaigns are interactive enough for children / kids to learn more about road safety.
vii. Which one do you prefer?
Playing game on Smartphone ☐

Playing game on Tablet/Tab ☐

viii. Do you have any suggestion that should be added to the existing campaigns of road safety? *(If yes, please state your suggestions.)

*Existing campaigns: Seminar, Talks, Advertisement, Commercial break on radio / TV.

To make it simple and easier to see, the pie chart is used to show the final results of the questionnaire. The results are shown in the following figures;

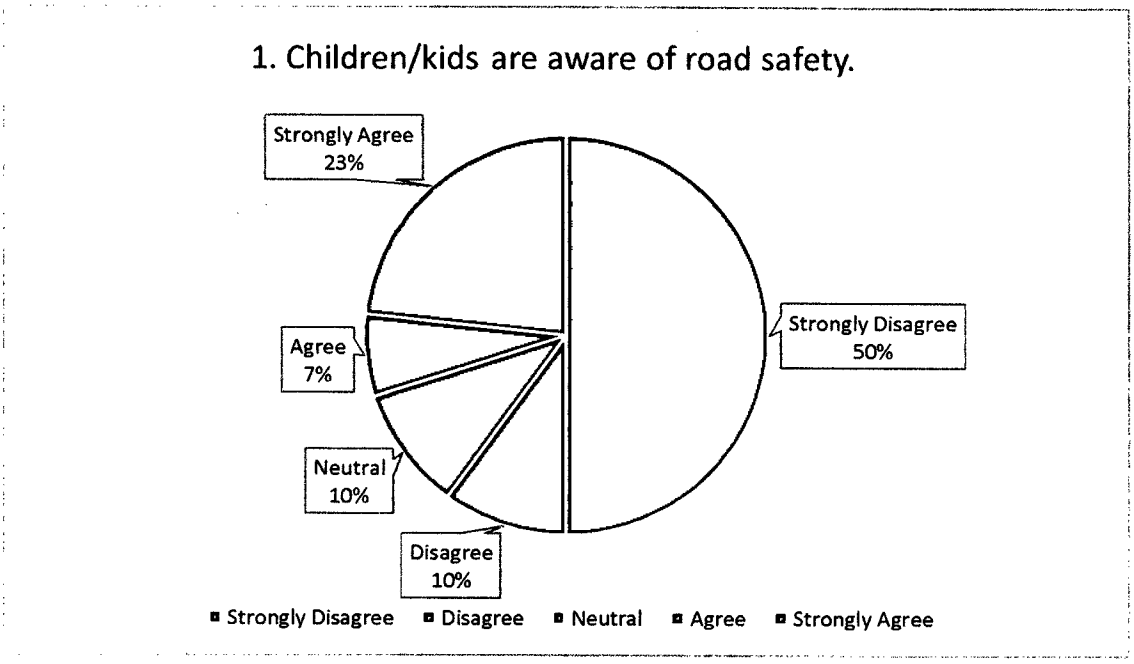

Figure 2.1: Results for "Children/kids are aware of road safety.

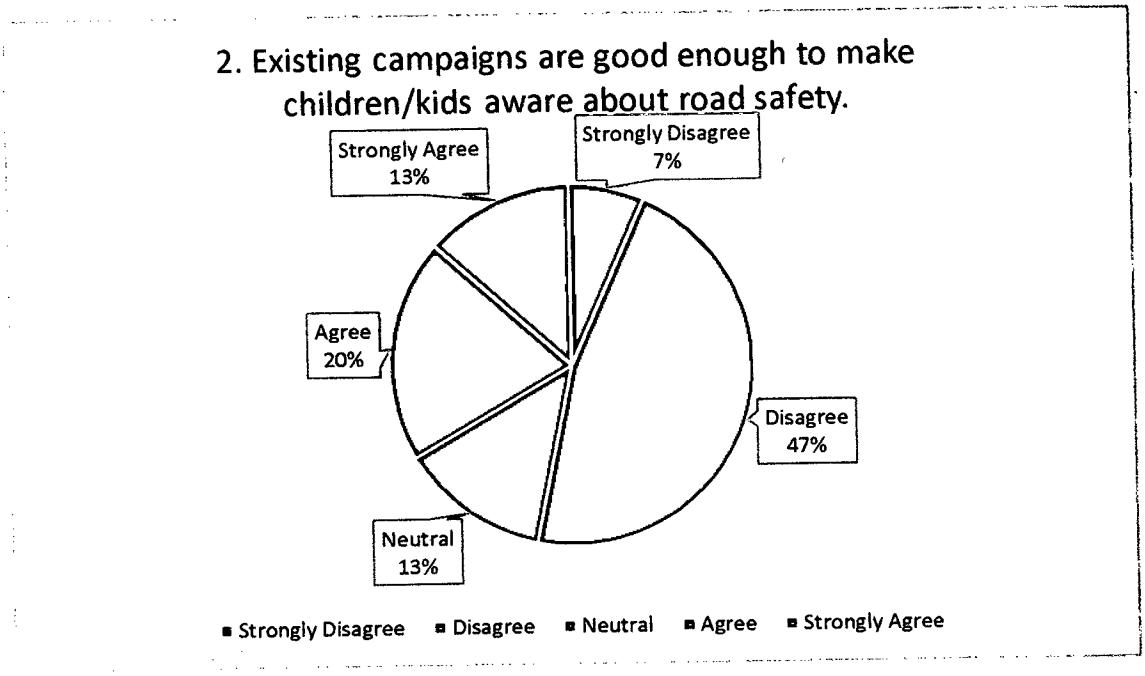

Figure 2.2: Results for "Existing campaigns are good enough to make children/kids aware about road safety."

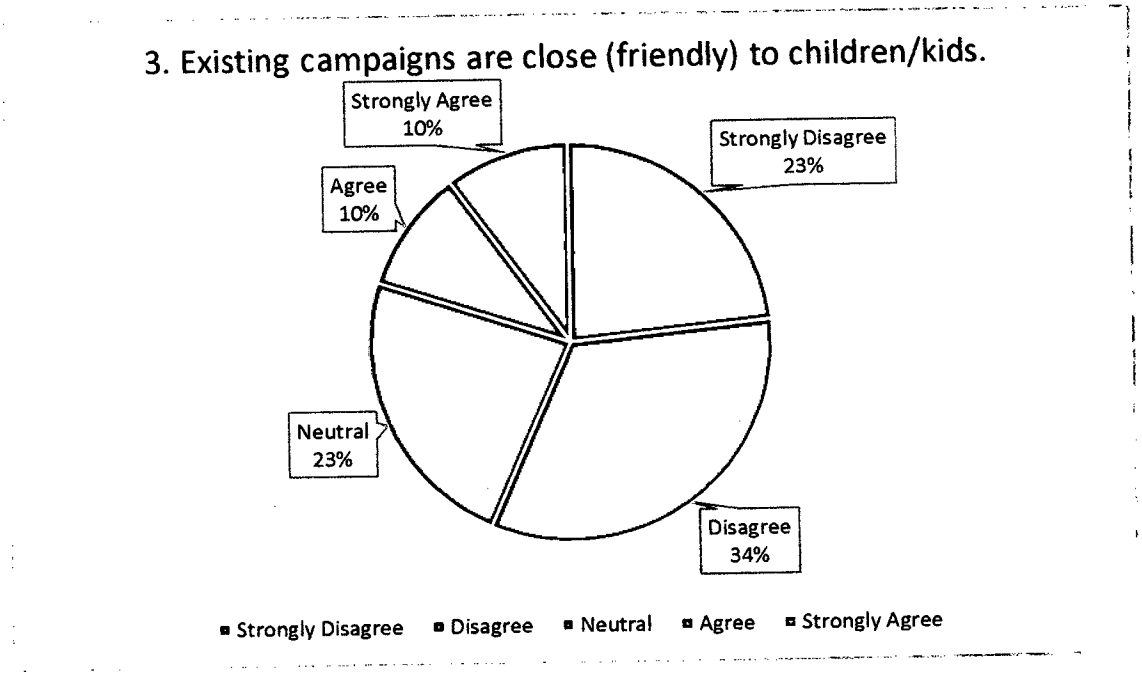

Figure 2.3: Results for "Existing campaigns are close (friendly) to children/kids."

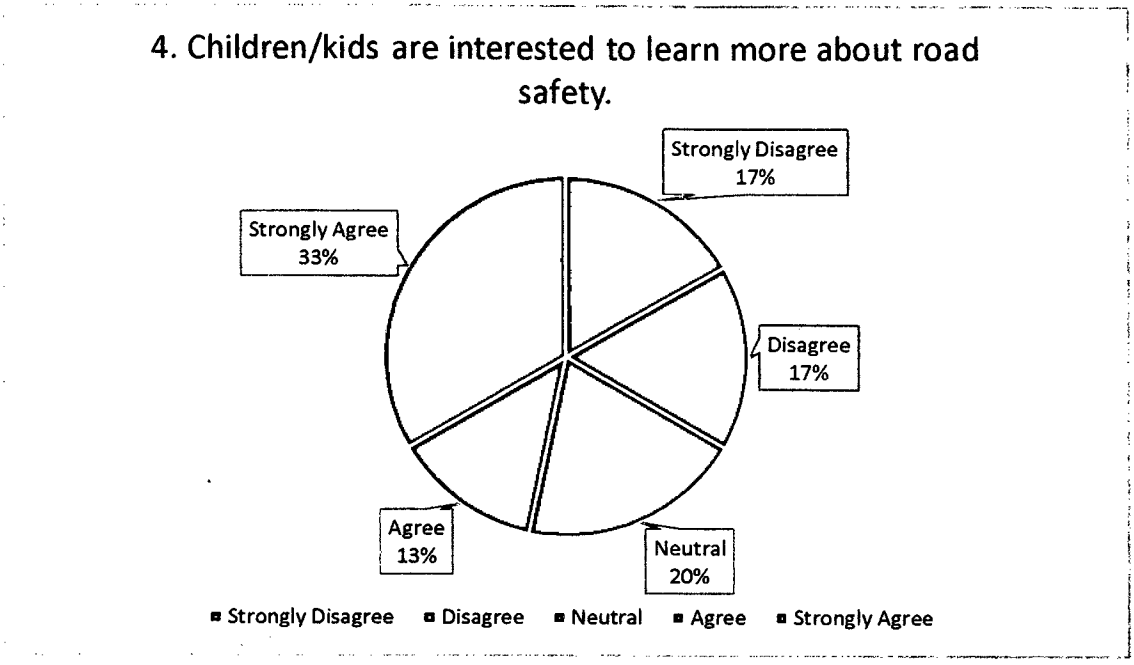

Figure 2.4: Results for "Children/kids are interested to learn more about road safety."

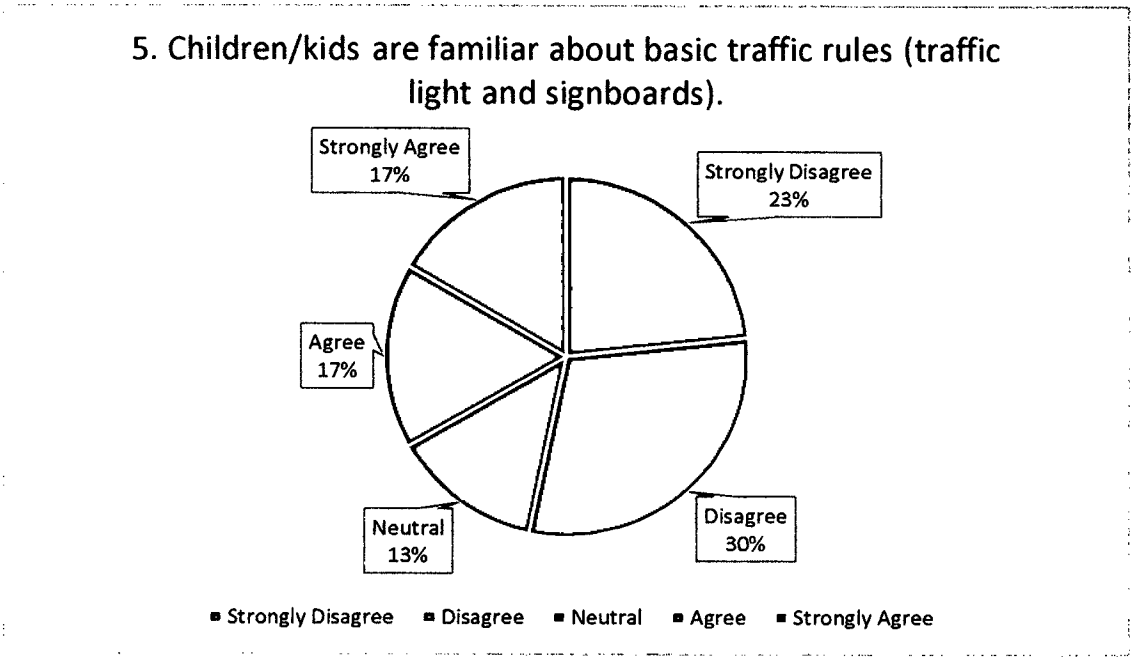

Figure 2.5: Results for "Children/kids are familiar about basic traffic rules (traffic light and signboards).

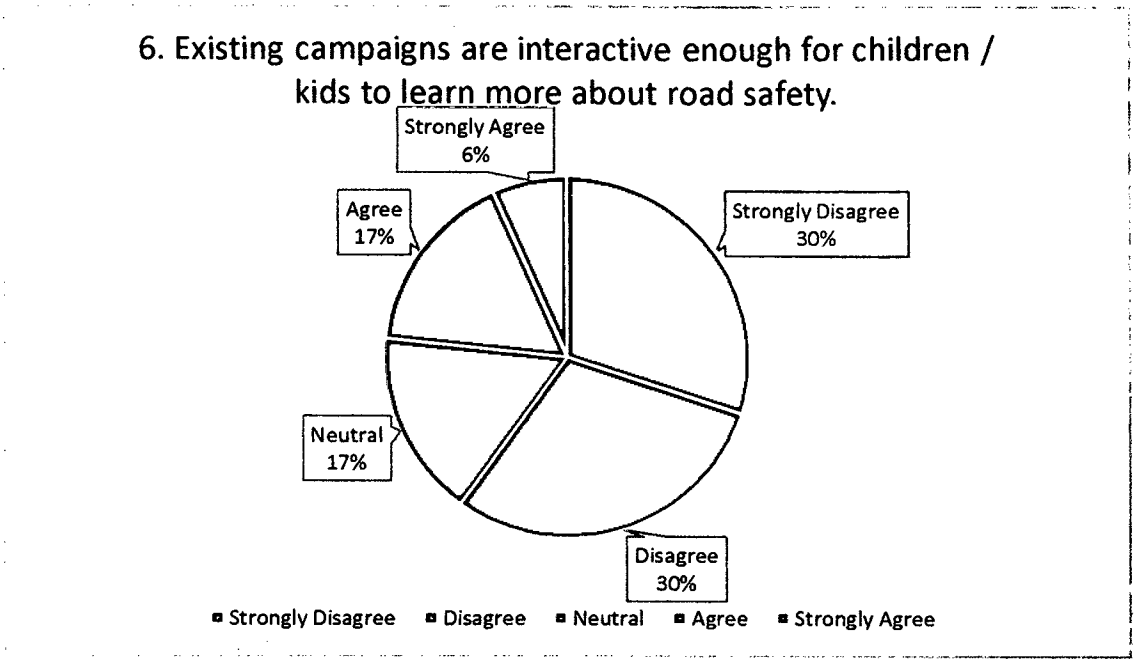

Figure 2.6: Results for "Existing campaigns are interactive enough for children/kids to learn more about road safety."

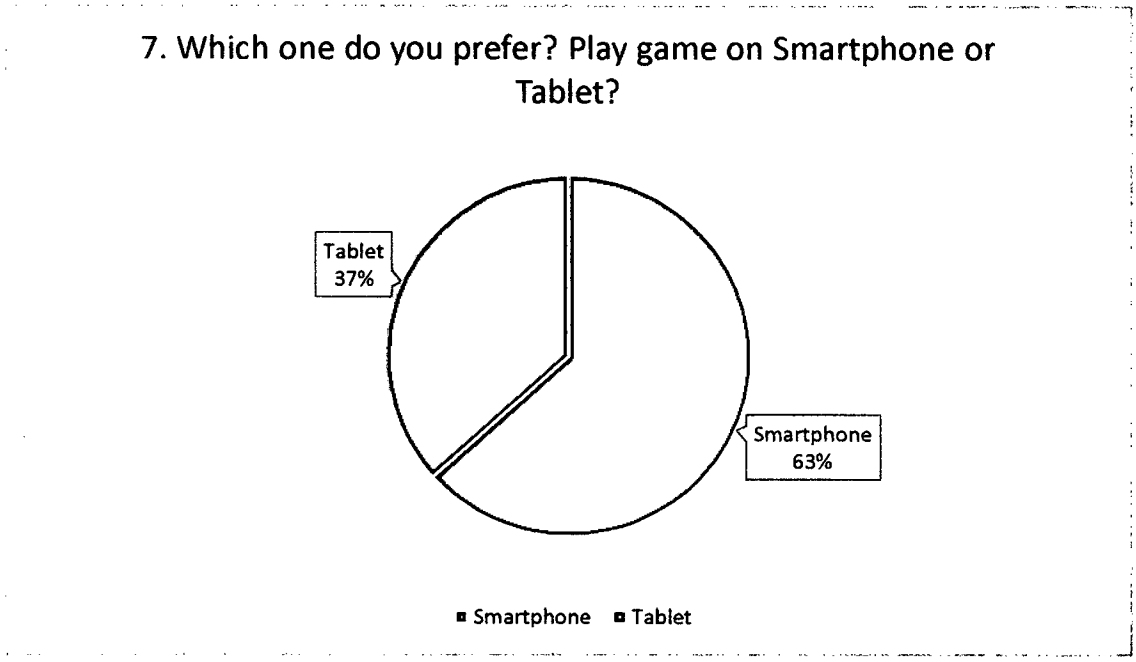

Figure 2.7: Results for "Which one do you prefer? Smartphone or Tablet."