CYBERBULLYING INFORMATION PORTAL

(C.B.I.P)

by

Che Saiful Hafiz Bin Che Mahtar

Dissertation submitted in partial fulfilment of

the requirements for the

Bachelor of Technology (Hons)

(Business Information System)

JANUARY 2014

Universiti Teknologi PETRONAS

Bandar Seri Iskandar

31750 Tronoh

Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

CYBERBULLYING INFORMATION PORTAL (C.B.I.P)

by

Che Saiful Hafiz Bin Che Mahtar

14316

A project dissertation submitted to the

Business Information System Programme

Universiti Teknologi PETRONAS

in partial fulfilment of the requirement for the

BACHELOR OF TECHNOLOGY (Hons)

BUSINESS INFORMATION SYSTEM

Approved by,

_____

(MS. MAZLINA BT MEHAT)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK,

JANUARY 2014

i

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the reference and acknowledgement, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

_____

CHE SAIFUL HAFIZ BIN CHE MAHTAR

ABSTRACT

Number of Cyberbullying cases reported in 2012 and 2013 shows significantly increase. 55.6 percent increased explained that this situation is at an alarming stage. Therefore, Cyberbullying Information Portal is develop aimed to study the awareness of teenager and parents and their perceptions on cyber bullying, thus an interactive web portal is developed to cultivate the awareness on cyber bullying based on the finding in previous objective and to study the effectiveness of the website in conveying the information on Cyberbullying. Methodology used in this research is web portal development methodology. This project is divided into 4 phases which are analysis, design, generation and implementation. From the study, it was found that 60 percent of the respondent could not differentiate between cyber bullying, cyber bullied and cyber victim. In addition, it was found that 55 percent of the respondent agreed that website is the best way to educate others on cyber bullying. Thus, it significantly shows the needs of development of web portal to conveying information on Cyberbullying. Once the web portal is available on the network, another study is carried out. The aim of study is to measure the effectiveness of the web portal in conveying information on Cyberbullying. It was found that the portal effectively conveying information on Cyberbullying where the number of respondents able to answer Cyberbullying related questions increased. 77.8 percent of respondents know about Cyberbullying. Moreover, 66.7 percent of respondent agreed that web portal is the effective medium in disseminating information related to Cyberbullying. Even though the web portal received constructive feedback from the users, web portal content should be constantly updated to ensure the relevancy of the content to present date. Nevertheless, more multimedia items and attractive item should be included to attract more visitor especially teenagers.

ACKNOWLEDGEMENT

I would to start with endless praising to God for giving me the spirit and strength to work and to complete this Final Year Project. I would like to take this opportunity to thank countless number of people who helped me to get through this phase without any major problem. It would not be a successful journey without the help and support from you.

My deepest appreciation to my supervisor, Ms Mazlina binti Mehat and my co-supervisor, Ms Subarna Sivapalan for their guidance and advice that gives a huge impact to my final year project. The supervision and their support helped the progression of my final year project. The help and guidance given by them time to time shall carry me a long way in the journey of life on which I am about to embark.

I also take this opportunity to than my fellow classmate for the valuable information and assistant provided by them. I am grateful for their cooperation and encouragement along the completion of Final Year Project. Nevertheless, I would like to thank all respondents for their valuable time in helping me to complete my Final Year Project.

Lastly, I thank my parents, my siblings and friends for their constant encouragement along the completion of this project.

Thank you.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF GRAPHS

CHAPTER 1

INTRODUCTION

1.1 Project Background

Bullying is not a new problem in Malaysia. Three secondary school students in Seberang Jaya questioned over bullying video (The Star, April 10, 2013), 18-year-old Malaysian student commit suicide due to bullying (The Star, March 01, 2013) are news' headline that show the seriousness of this problem. The two headlines mentioned above are few of the news headlines that are in front page of our national newspapers. Ex-Minister of Education, Dr Mohd Puad Zarkashi on 15 July 2011 during the launching of Portal E-Buli in Universiti Pendidikan Sultan Idris(UPSI) explained that the number of cases reported is decreasing from year to year but still at an alarming stage. 3107 cases were reported in 2008, 2889 cases were reported in 2009 and 2617 cases were reported in 2010.

Bullying is defined as a specific form of aggression which is intentional, repeated, involves a disparity of power between the victim and perpetrators (Wang and others, 2009). In short, bullying is a form of activities that leaves the victim with trauma as result of bullying. Bully can be done in few ways; verbal bullying and physical bullying. With the advancement of technology, kids nowadays are exposed to new form of bullying which is cyber bullying. Nowadays, kids as early as seven years old are exposed to new technology, which includes smart gadgets and social media networks. Social media sites such as Facebook, Twitter and Instagram are example of most common social interaction network among the teenagers. Features in these social sites that allow user to upload their picture will expose the kid to cyber bullying. More definitions and methods of cyber bullying will be discussed in detail in the following chapter.

Technology is everywhere. Government initiatives such as The Youth Communication Package, National Broadband Initiative and 1Million Netbook

Initiatives are among other governmental initiatives to improvise the technology availability in Malaysia. The government through its National Broadband Initiative that was launched in 2010 aimed to reach 50 percent of broadband penetration or about 3.2 million homes by the end of 2010. In this initiative, 1Malaysia netbooks, high speed broadband and community internet centres were developed to spread the initiative. Although this is a good initiative by the government, without proper education on the risk of cyber-crime, users will be highly volatile to the cyber – crime.

In the Malaysia cyber-crime context, Cyberbullying is new term for our community. Although there is no physical contact between the bullies and the victim, Cyberbullying will affect the victim's emotional health. This activity will lead the victim to depression and other emotional illness (Wang, Nanse & Iannotti, 2010). Therefore, preventive actions should be taken to create awareness of the Malaysian society to the term, Cyberbullying.

1.2 Problem Statement

Cybercrime is not a new issue in Malaysia. According to the Deputy Inspector-General of Police, Datuk Seri Mohd Bakri Zinin, Malaysia is ranked 6th globally in terms of cybercrime threat risks by US-based IT-security developer, Sophos in its 3 month security threat report this year (Borneo Post, 29 August 2013). Cybercrime is a big domain to discuss. Therefore, Cyber bully has been chosen as the topic of discussion for this project. (McCarthy & Weldon-Siviy, 2014) defined cyberbullying as a form of intimidation and harassment using electronic means such as email, text messages, chat rooms and social networking site. Deputy Science, Technology and Innovation Minister, Datuk Dr Abu Bakar Mohamad (2014) said the total numbers of Cyberbullying cases reported in 2013 were 389, a 55.6 percent increase from 2012 where 250 cases were reported. This shows that the Cyberbullying case in Malaysia

is at an alarming stage. Therefore, one of the preventive actions is to educate possible victims and parents.

Number of case reported in 2012 and 2013
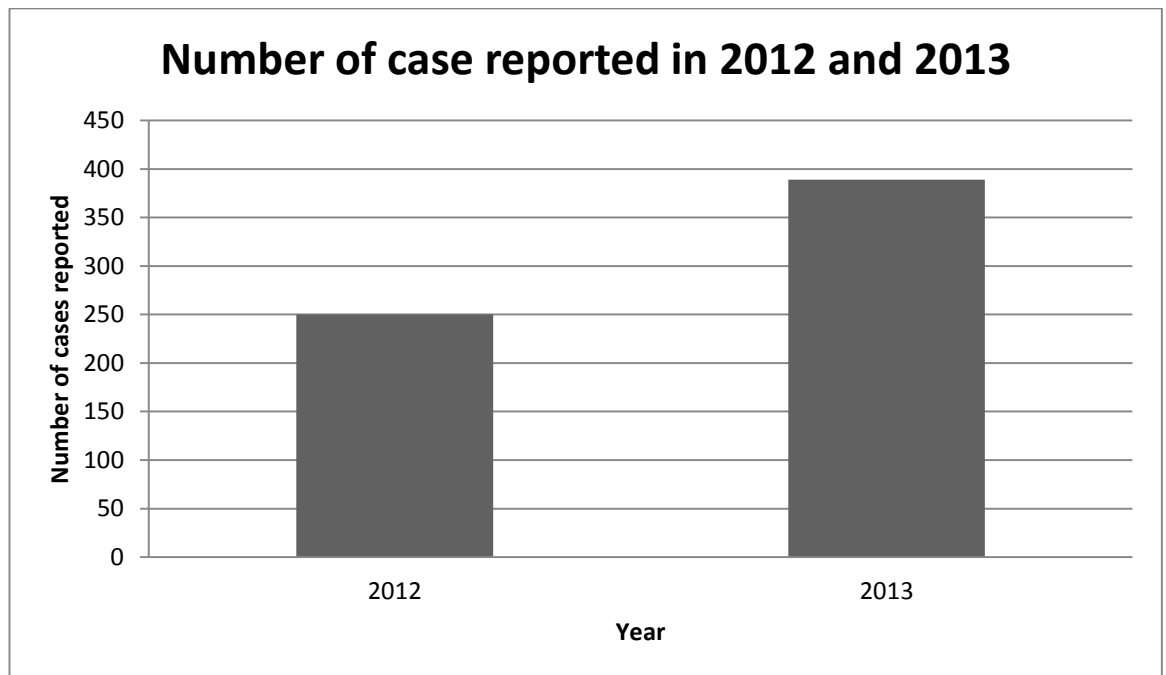
Graph 1: Number of Cyberbullying cases reported in 2012 and 2013

According to the CyberSecurity Malaysia Facebook page, a total of 5,592 cybercrime were reported on the first half of 2013. Although the number of cases for school bullying in general has shown some decreases, but the number of cybercrime especially Cyberbullying is increasing. 4.17 percent from total report is on cyber harassment or cyber bullying. In comparison with 2012, 233 cases were reported during the first half of 2013 while 173 cases were reported on 2012. This showed 35 percent increases from the previous year. If no preventive measures are taken into consideration, Cyberbullying will become of the biggest cybercrime threats in future. Therefore, this project is conducted to study the awareness of Malaysia community on cyber bullying by developing a website to which consist of the definition of Cyberbullying, the danger of Cyberbullying, ways of Cyberbuyllying attack, effect of Cyberbullying and suggested preventive measures to be taken in order to minimize the number Cyberbullying cases in future.

1.3 Project Objectives

Comprehensive steps are taken into consideration in order to create the awareness of the cyber bullying. This project is aimed to achieve three main objectives. The objectives are as follow:

1) **To study the awareness of parents and teenager and their perception on cyber bullying.**

    Parents and kids are two crucial elements in this project. The first objective is to study the awareness of parents and kids on cyber bullying. Parents and kids were chosen as the target group for this project mainly because teenagers are likely to be victims of this activity while parents are the best source to educate their children and to prevent this from happening. Therefore, this project will study their awareness and perception on Cyberbullying. Apart from what they know about cyber bullying, this project will also study their perception on Cyberbullying. Perception from the project's point of view is how these two groups perceive and thinks about Cyberbullying.

2) **To develop an interactive web portal to cultivate awareness on cyber bullying.**

    Nowadays, human and technology cannot be separated. In the past few years, technology has rapidly grows. Taking the advantage on the rapid growth of the technology, an interactive portal will be developed to cultivate the awareness on Cyberbullying issue. The web site is aimed to educate the society on Cyberbullying issue; steps need to be taken before, during and after being bullied. The content of the web portal will be based on the finding from the previous study done as mentioned from the previous objective. Results and findings from the survey in earlier is analysed and used to develop this interactive web portal.

4

3) **To study the effectiveness of the web portal in conveying information on the nature of cyber bullying, types of cyber bullying, recommended steps can be taken if we are the victim.**

This is post-implementation objective where this study is carried out after the portal is available on the internet. Once the study is carried out, the finding of the survey will helps to conclude either the web portal is the effective way to conveying information on Cyberbullying.

1.4 Scope of study

This project is focusing on two target groups which are teenager and parents. From this project definition, teenager is individual aged from 13 to 17 years old. The primary reason in choosing the teenager group is because this age group is most likely to be the victim of cyber bullying. Cyberbullying victim as suggested by iKeepSafe.org is children ages from 9-18 years old. Hence, the project decided to focus on teenager age range from 13 to 17 years old as there are in the range of possible victim. Therefore, by cultivating the awareness on Cyberbullying, it is hope that this victim can overcome Cyberbullying in a proper manner. On the other hand, parents are the best educator in the world. That is why parent is selected to be part of the study.

Apart from that, outcome from the survey is used to develop an interactive web portal. Essential information that will be included in the portal is the nature of the cyber bullying, common types of Cyberbullying, ways of handling the situation if we are the victim of Cyberbullying. Besides, this project will also analyse the current web portal and try to change any required information to adapt it to the Malaysian context. At this moment, there is limited number of portals developed focusing on cyber bullying.

1.5 Feasibility of Project

The feasibility study of this project is done based on three important aspects which are technical, time and cost. From technical aspect, this project is feasible to be done because it does not involve any high level programming. This project is to develop a web portal; therefore internet programming language such as HTML, CSS will be sufficient to develop this web portal. Prior to do this project, internet programming class had been attended to enhance skill in web site development. A part from that, this project must be completed in 20 weeks. With regards to the scope of the project, this project is expected to be completed within time frame. Most of the project time will be focusing on developing the web portal. Based on the project gantt chart provided in chapter 3, this project is expected to be completed in week 10 of Final Year Project (FYP 2). Besides, cost plays a big role in any project. This project does not require high costs; therefore it is feasible from the cost aspect. An open source tool was used to develop the web portal. This helps to minimize the project cost. Thus, this project is feasible from technical, time and cost aspect.

CHAPTER 2

LITERATURE REVIEW

2.1 Definition of traditional bullying and Cyberbullying

Bullying as defined by Donegan (2012) is an act which involves two people, a bully or intimidator and a victim. Donegan (2012) further elaborate it as activities where the bully abuses the victim through physical, verbal, or other means in order to gain a sense of superiority and power. Mishna et al. (2009) refer this act as traditional approach of bullying where modern bullying is cyber bullying. Mishna et al. (2009) found that some bully or intimidator does the act of bullying as a joke or they did not know how it feels to be bullied. Bullying is also defined as unwanted, aggressive behaviour among school aged children that involved a real or perceived power imbalance (www.stopbullying.gov website).

Dooley, Pyzalski and Cross (2009) define Cyberbullying as bullying using an electronic medium. They also make use of Cyberbullying definition given by Smith (as cited in Smith et al, 2008, p.376) which is aggressive, intentional act carried out by group or individual, using electronic forms of contact, repeatedly and over time against victim who cannot easily defend him of herself. Dooley et al. (2009) derived from definition given by Smith (as cited in Smith et al, 2008, p.379) that Cyberbullying must be an act that is aggressive, intentional, repetitive and with power imbalance. On the other hand, Steffgen and Konig (2009) defined Cyberbullying as deliberate and repeated harm inflicted through the use of computers, cell phones and other electronic devices, carried out as an aggressive act by a group of individual or a group, against victim who cannot easily defend him of himself. This definition supports the definition given by Dooley et al (2009).

7

2.2 Types of Cyberbullying

Steffgen and Konig (2009) found that cyber bullying might occur in various forms such as flaming, trolling harassment, cyber stalking, denigration, impersonation/identity theft, outing, photo shopping, exclusion, threatening with physical harm or happy slapping. There is not much different between traditional bullying and cyber bullying except Cyberbullying make use of the advancement of technology to do bullying activities. This is supported by Donegan (2012), where he suggests that bullying and Cyberbullying are often similar in terms of form and technique. Donegan (2012) also emphasizes on the difference between the traditional bullying and Cyberbullying. In addition, Cyberbullying allows the offender to mask his or her identity behind a computer. This unknown identity offers the offender a greater chance to attack their victim without the needs to see the victim physical response. Wang et al (2009) measure Cyberbullying using two important indicators which are bullying using a computer or e-mail messages or pictures and bullying using a cell phone.

2.3 Effect of cyber bullying and ways to overcome it

Wang, Nansel, and Iannotti (2010) found that depression was associated with bullying. Cyberbullying victim reported higher depression than bullies or bully-victims. Wang et al (2010) also suggested that further studies on Cyberbullying are important because its depression effect especially on the victim. The depression of the cyber bullying victim is totally different from the depression faced by traditional bullying victims. Bower (2011) suggested that victim of Cyberbullying will face sudden fear of technology, unexplained physical symptoms, including headaches, upset stomach, and trouble sleeping, lowered self –esteem, depression and anxiety, avoiding social or school events, change in school performance, attitude, dress and habits. In the worst case scenario, the victim will commit suicide.

The American Osteopathic Association website citing statement of Assistant Professor in the department of Family at Rowan University School of Osteopathic Medicine, Jennifer N. Caudle believes that interaction between the parents and kids one the best solutions to overcome this problem. In addition, she also believes that preventive action is better than cure. She advises parents to create a safe place for their children to get away from cyber bullying. Parents need to be regularly involved in their children's cyber lives. This will help their children from being cyber bullied.

2.4 Cyberbullying in Malaysia

The CyberSecurity Malaysia Facebook page shows significant increase in cybercrime especially in cyber bullying or cyber harassment. For the first half of 2012 (January 2012- June 2012) numbers of cyber harassment cases reported in Malaysia were 173 cases while for the first half of 2013 (January 2013- June 2013) a total of 233 cases were reported. This shows significant increases in number cases reported in the same period in 2012 and 2013. 35 percent increases in numbers show that if there is no action taken, this number will keep increasing. In addition, Deputy Inspector General of Malaysia Police, Datuk Seri Mohd Bakrin Zinin in his press conference on the 29 August 2013 mentioned that Malaysia was ranked 6th globally in terms of cybercrime threat risks by a US-Based IT-security developer in their three months security report on 2013 (Borneo Post, 29 August 2013).

Survey done by Microsoft in 2012 found that one third of children in Malaysia were subjected to Cyberbullying. It was found that thirty-two percent say they know a lot or some about online bullying while thirty eight percent are very somewhat worried about online bullying. From the survey, they found that eighty-four percent being bullied online or offline although most bullying is offline. Fifty percent admit to bullying someone else online, while forty-five admit to bullying someone else offline. Microsoft concluded that Malaysia children are twice as likely to be bullied online if the bully someone else online and more likely to be bullied online if they spend more than 10 hours per week on the internet.

2.5 Portal Development

2.5.1. Web Portal Definition

Kaur and Baba (2006) believe there is no unique definition of web portal. Kaur and Baba (2006) believe web portal is developed based on the three essential characteristic; Gateway to information, user centric, community based and multiple services to the community. To conclude, Kaur and Baba (2006) summarize web portal as a gateway to searchable and personalized information on the web and which also functions as communication centre for its target user. Besides, a web portal provides personal and content-related services to support the community its served (Kaur & Baba, 2006). Atlantic Web fitters (2013) defined web portal as medium to collect information from different sources and create a single access point to information. Both of definition agreed that web portal is source of information.

The ideal portal is based on eight functionality areas which are search and navigation, information integration, personalization, notification, task management and workflow, collaboration and groupware, integration of application and business intelligence and infrastructure functionality (Atlantic Web fitters, 2013). Atlantic Web Fitter also divide architecture of portal into two; horizontal Portal and vertical portal. Horizontal Portal targets the entire internet community while vertical portal is based on the specific objects and content. Kaur and Baba (2006) further classify vertical into 3 types which are enterprise information portal, knowledge portals and intranet portals. This project is mainly about knowledge therefore the focus here is on knowledge portal (vertical). Kaur and Baba (2006) believes that one of the knowledge portal types is education web portal.

Kaur and Baba (2006) defines educational portal as a portal that provide educational services to their users. Jafari (2003) defines educational portal as a web gateway environment that allows users with varied educational interests to access educational resources and information. Kaur and Baba (2006) divided educational portal into 3 categories which are networking education portals, organizational

education portals and resource-based education portals. Cyber Bullying Information portal is classified as networking educational portal because of definition given by Kaur and Baba (2006) where networking education portal is a central point from which to access various educational tools and facilities. In addition, it is also located at the centre of communication thus forming a network among different types of users.

2.5.2 Essential Elements of a Portal

There are 6 elements or key features of a portal which are security, access different data, transactions, search, publish content and personal content (Atlantic Web Fitter, 2013). Besides, Kaur and Baba (2006) lists 6 elements of networking education portals which are portal characteristic, features of networking educational portal, presentation and navigability information, Educational effectiveness, interaction and feedback and technical aspect. Kaur and Baba defines each element as follows:

- **Portal Characteristic**
  Satisfy the definition of web portal which gateway to information; contain multiple services for its community and community based.

- **Features of networking education portal**
  A web portal should contain common portal features such as member area, functional navigation menu, resources and references

- **Presentation and Navigability of Information**
  Content presented must successfully interacts with different types of user and system

- **Educational Effectiveness**
  Effectiveness measured based on the explanation, online learning content and learning process.

- **Interaction and Feedback**

Both interaction and feedback are very important to the web portal as part of effectiveness measurement.

- **Technical Aspects**

   An educational portal should consider technical aspect such as speed, reliability, availability and also security.

2.5.3 Elements of Effective web portal

Friedman (2008) suggests 10 principles of effective web portal design which are self-explanatory, keep user requirement as minimal as possible, manage to focus users' attention, strive for feature exposure, make use of effective writing, strive for simplicity, do not be afraid of the white space, communicate effectively with a visible language, follow users' expectations and test early and test often. On the other hand, Bain (2011) provides 6 elements of effective web design which are market research and business strategy, keyword research, site structure, data capture and marketing funnel, conversion rates and visitor tracking. In contrast, Glue Digital (2013) listed 10 elements that a web sites must have which are a clearly articulated goal, quality content, a well-organised site map, contact information, regular maintenance, contact information, quality inbound links, FAQ, security, good domain name and a good hosting package.

2.5.4 Available cyberbullying web portal in Malaysia
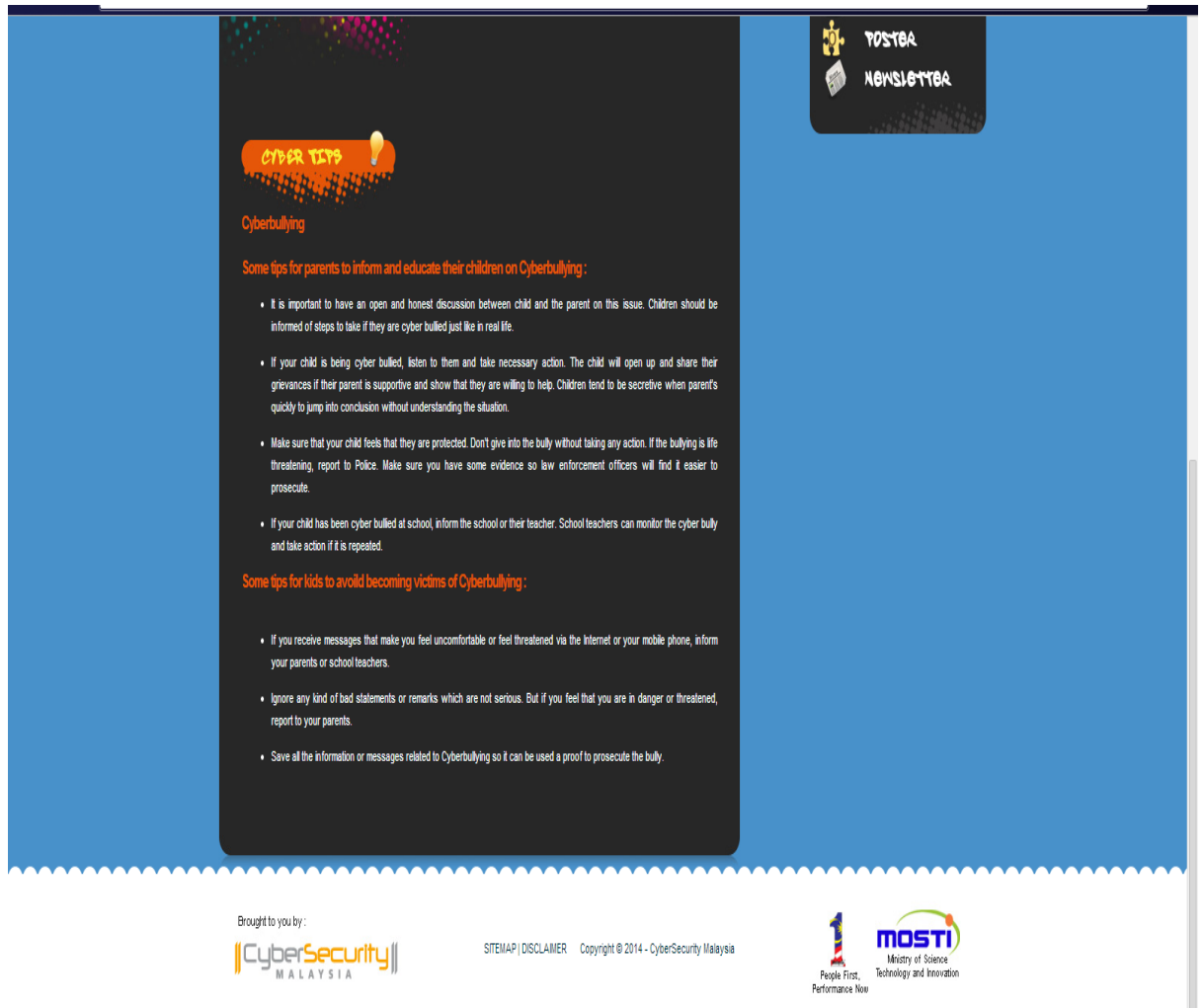
Figure 1: CyberSafe Website

One of the available Malaysia's website that is discussing on cyberbullying is CyberSafe Youth which can be retrieved from http://www.cybersafe.my/cyberyouths-tips-cyberbullying.html. This website is developed by CyberSecurity Malaysia in educating the youth of cybercrimes. The information that is available of this website is not focusing on Cyberbullying but focusing on the cybercrimes and cyber security. Thus, information of Cyberbullying

on this website is limited. This website is linked to the CyberSecurity main page. There are four subpages on this website which are cyber tips, videos, poster and newsletter.
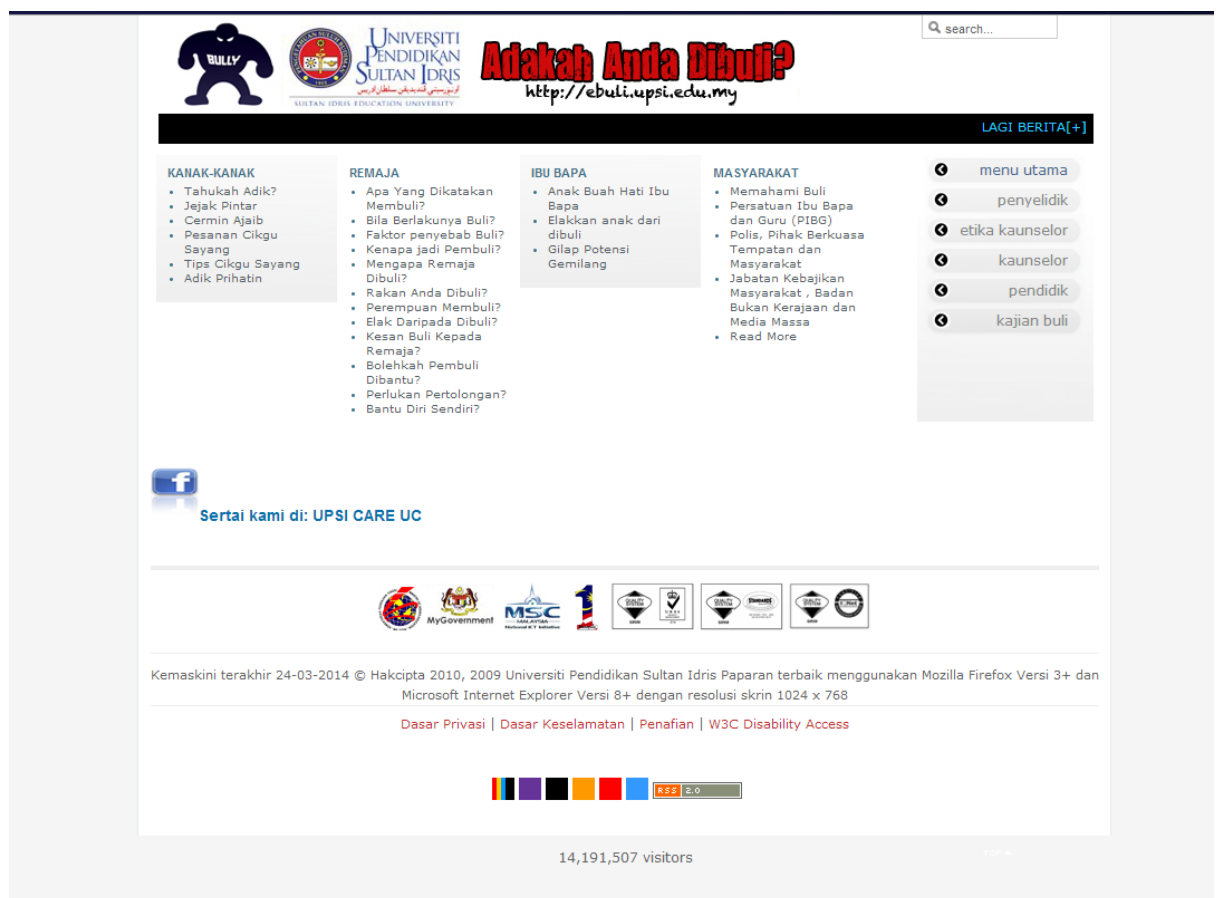
Figure 2: eBuli Website

Besides, there is another website that is discussing about bullying. This website is developed by a group of researcher from Universiti Pendidikan Sultan Idris (UPSI), Tanjung Malim, Malaysia. This portal developed to help bullying victim and to carter the bullying problem in Malaysia especially among the teenagers. Contradict to CyberSafe, this website is discussing on physical or traditional bullying. The features on this ebuli portal allows user to retrieve information regarding bullying as well as this portal provide the user with a medium

of interaction with counselling expert from UPSI itself. User can visit this portal using this link; http://ebuli.upsi.edu.my/.

CHAPTER 3

METHODOLOGY

3.1 System Architecture
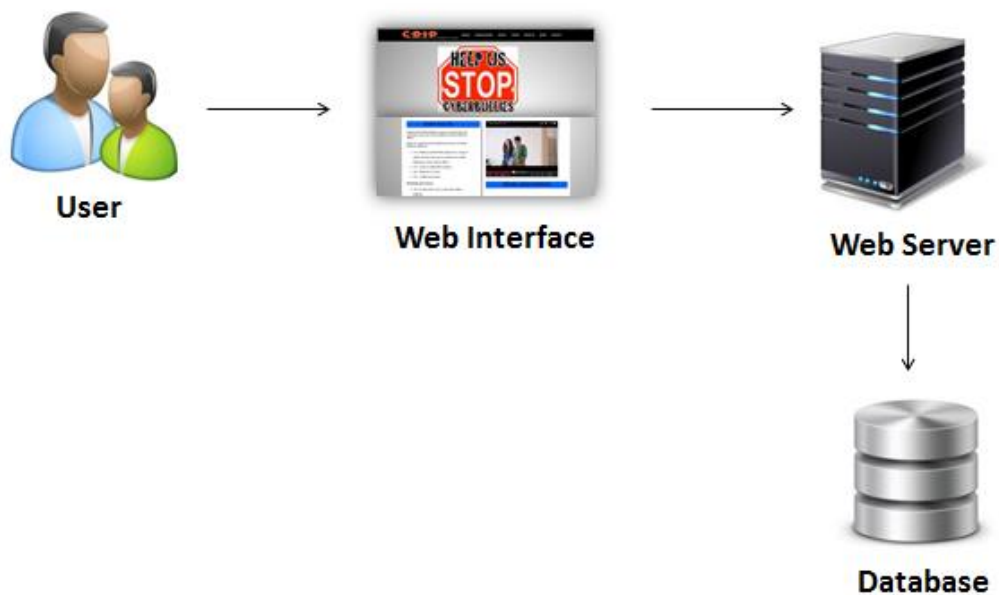
Figure 3: System Architecture

There are 4 essential elements for this web portal which are the user, the web interface, the web server and the database. There are three types of users for this web portal which are the two target groups and admin. The admin user will have privilege compared to the target groups' user. Admin will have to update and maintain the contents of the web portal while other users only have access to view the content of the web portal using the web interface. The target users for this website are parents and teenagers. The content of web interface is retrieved from the web server. Web server will then send the web interface for users' view. Information on the portal such as web page, images, and other elements of the webpage are stored in the web server which provided by the web-hosting provider. Besides, if any authentication

16

required, all data will be stored in the database. For example, the username and password of an admin, the data will be stored in the database.
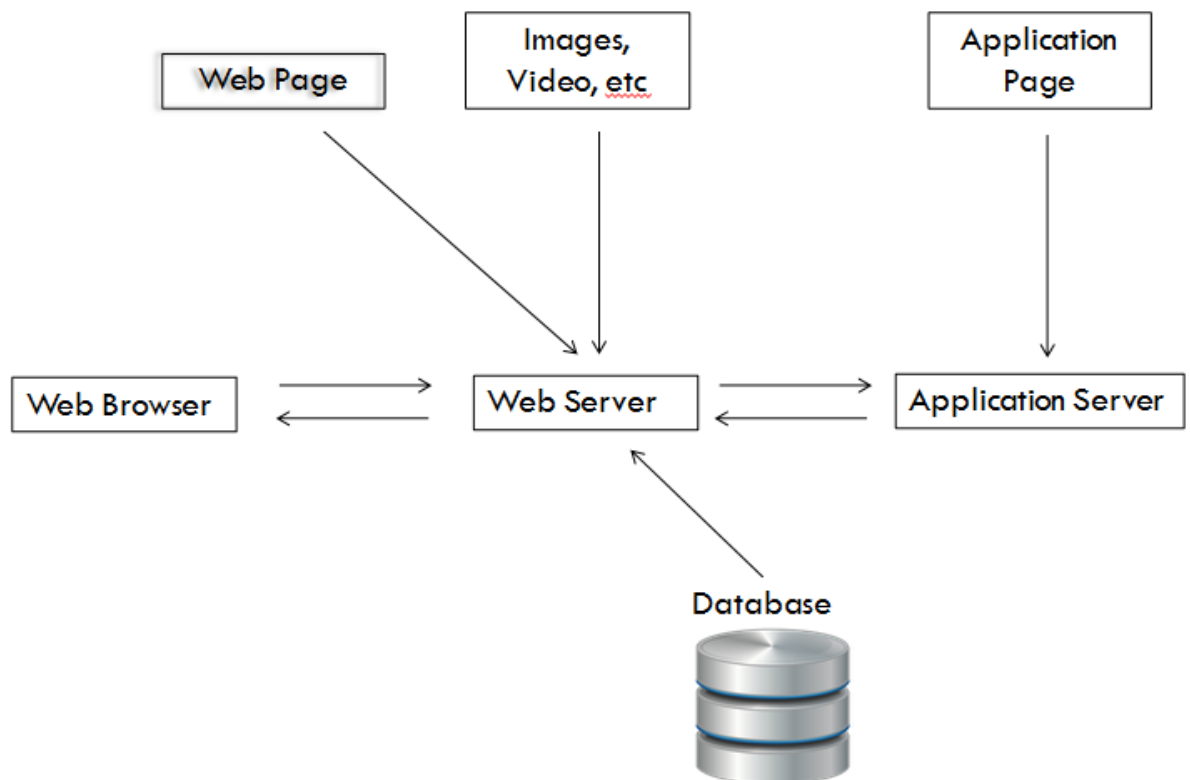
The physical view is the view of the system from a system engineer's point of view. It is the view of the topology on the system components on the physical layer and also physical connections between these components. It is also called the deployment view. In this project, the physical view of the system architecture is shown in Figure 2. It is more or less the same as the overview of system architecture as shown above. Kruchten (1995) states that the physical view represents the mapping of the component in the development view to the component in the environment. He also believes that web applications have a rich environment which contains web browser, web server, application server, and database.

3.2 Project Methodology

For this project, research and development of a web portal is applied. This methodology is divided into four phases and shown as below:

Phase 1
- Development of web strategy
- Defining objectives
- Objectives Analysis

Phase 2
- Design
- Design Testing

Phase 3
- Resources Selection
- Design Review
- Code Generation

Phase 4
- Implementation
- Maintenance
- Objective Review

Analysis

Design

Generation

Implementation
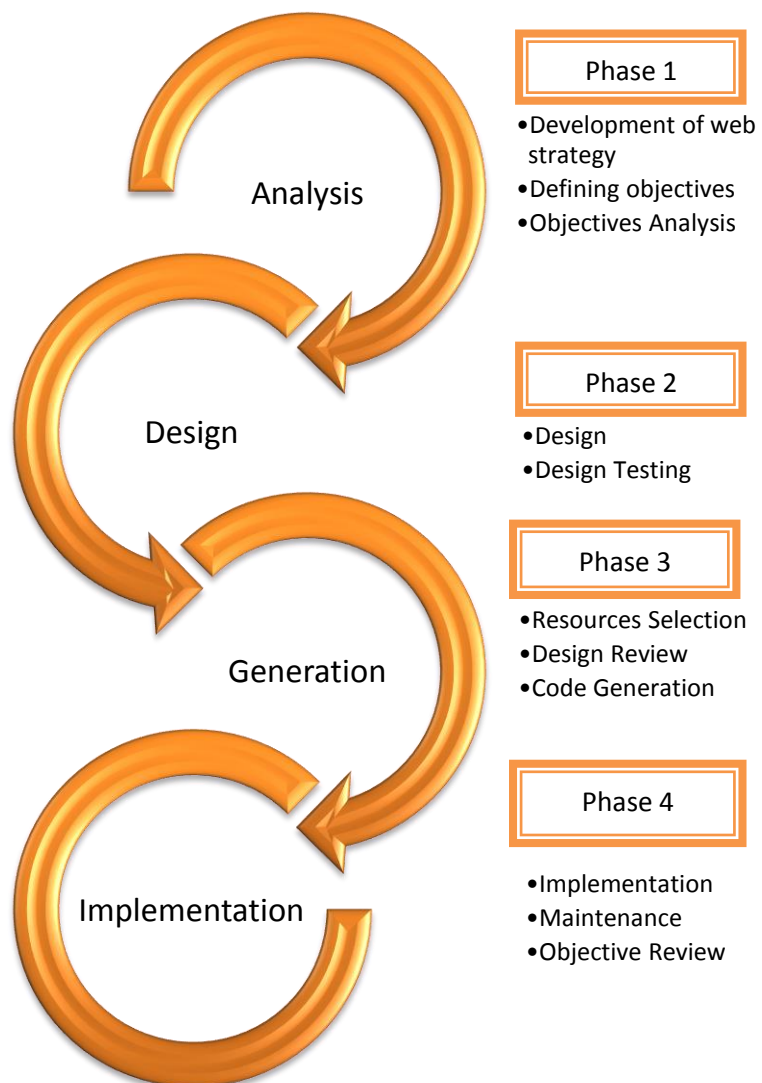
Figure 4: Research and development of web portal

3.3 Project Activities

The project is divided into four phases as follows:

1) Analysis

A survey is conducted to meet first objective. The purpose of the survey is to study the awareness of target groups namely teenagers and adults on the subject matter which is cyber bullying. A group of 20 respondents were identified and approached to do the survey. The group of respondent is from 2 target groups which are kids (age range from 13 to 16 years old) and parents (age range from 26 to 60 years old). The survey was divided into three parts, where the first part focused on the respondent background, while the second part covered the respondent perceptions and general knowledge on cyber bullying. The last part of the survey focused on the website, where respondents' opinion on interactive website is asked. The findings of the survey will be analysed and necessary information was gathered and used in the next phases. The findings were analysed and categorized based on the following criteria: 1) information analysis 2) User Analysis 3) Technology Analysis. This is one of the crucial parts of this project whereby this part is determining the content of the web portal afterwards.

2) Design

During this phase, few designs were drafted. The design was based on two important criteria as suggested by Howcroft and Carroll (2000) which are information design and graphic design. Information gathered from the analysis was used as information design where the information was carefully aligned to produce an interactive web page. Another important part is the graphic design. As mentioned above, few designs were drafted. Thus, focus on the graphic design was more on the interactive design and

usability of the web page. The layout of the web portal must be interactive and attractive to attract more visitors to this page. The web page needs to be easy to be used by any type of user.

3) Generation

The best design was selected from the previous phase. In reference to the design, html code will be generated. CSS coding was done to enhance the design of the webpage. The web page and its' element on the page must be compatible on different types of browsers. The ratio and resolution of the web page must be the same although it is viewed from different types of web browsers.

4) Implementation

In this phase, there are two crucial parts which are maintenance and objective review. The web portal must be available to the user every day and needs to be updated daily or weekly. This is to ensure the interactivity of the web page. The last part of the phase is the objective review. This part reviews whether the web page meets the objective defined in the first phase. In addition, another survey was carried out to study the effectiveness of this web portal in creating awareness on cyber bully. The survey take place before the visitor leave the landing page provided. The main objective of the survey is to study the effectiveness of the web page. Visitor feedback and comments are really important in producing user oriented web portal.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 To study the awareness of parents and teenager and their perception on Cyberbullying.

A study was carried out to study the awareness of teenager and parents on their perception towards cyber bullying. Respondents of this survey are from Bandar Universiti, Bandar Sri Iskandar, Tronoh, Perak. The survey was divided into three sections where section A is focus on the personal background of the respondent, while section B and section C focusing more on Cyber Bullying and interactive website respectively. The result of the survey is shown in the graph below:
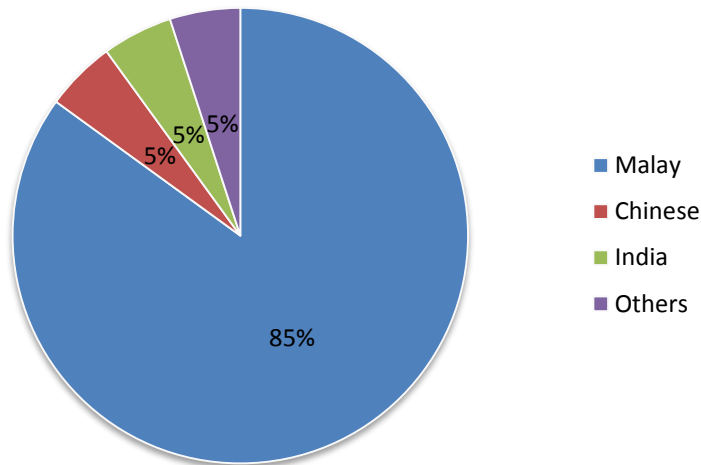
Graph 2: Breakdown of the respondents based on race

85 percent of the respondents are Malay and another 5 percent of the respondents are Chinese, India and Bumiputera respectively. Due to geographical factor, most of the respondents were Malay. Bandar Sri Iskandar is the home of two prestigious university; University Teknologi Mara (UiTM) and Universiti Teknologi PETRONAS (UTP). Besides from two universities, there are few villages nearby this area.
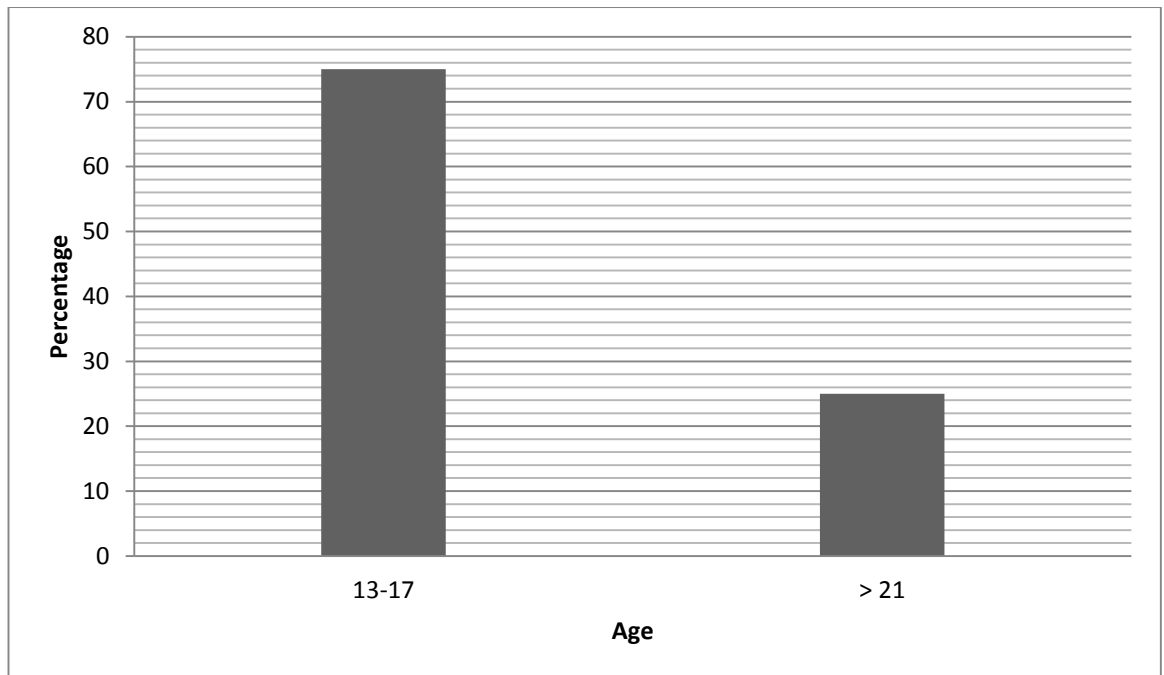
Graph 3: Age of respondents

Graph above shows the breakdown of the respondents' age. Since our target users are teenager and parents, therefore the survey is carried to that specific group where age of 13 to 17 years old represent the teenager while age greater than 21 represents the parents. This specific group response is crucial in order to meet the objective. This helps developer to focus on area that is believes to be important based on their feedback and answer.
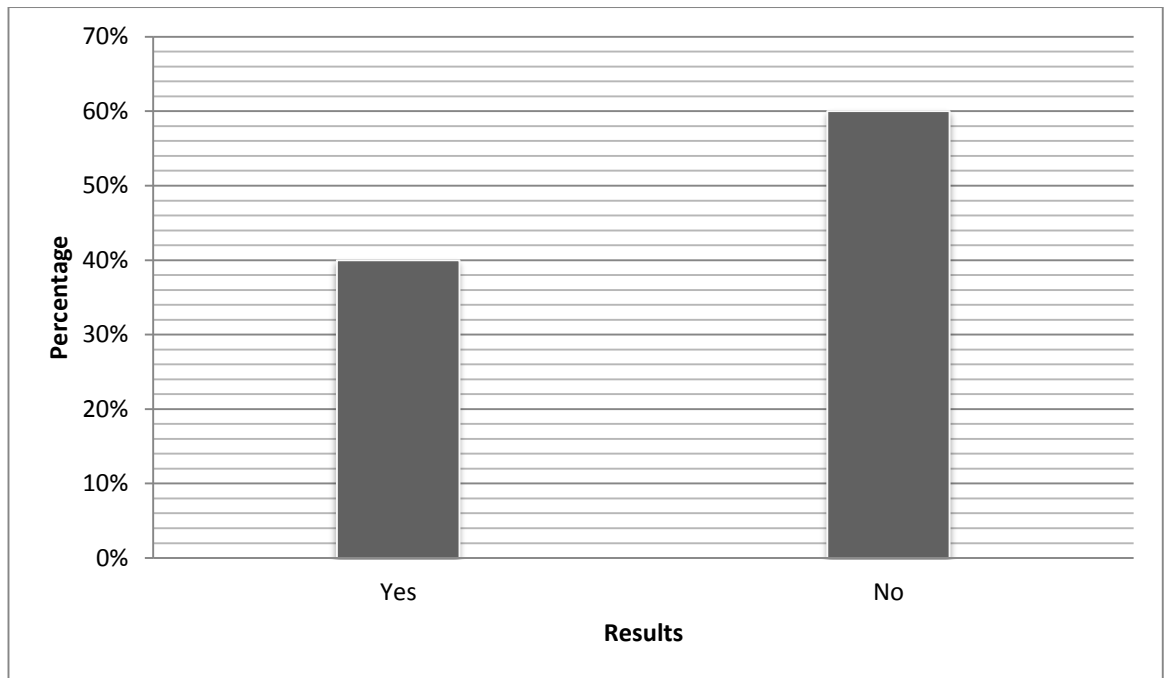
Graph 4: Knowledge on Cyberbullying

Section B is focused more on cyber bullying activities, being cyber bullied and becoming a cyber-victim. The first part of this section determined whether the respondents can differentiate between the term cyber bullying, cyber bullied and cyber victim. From the survey, it is found that 60% of the respondent unable to differentiate between these terms. This significantly shows there is a need of a medium to convey information related to cyberbullying. Thus, the portal that is developed can helps to educate target groups on cyberbullying.
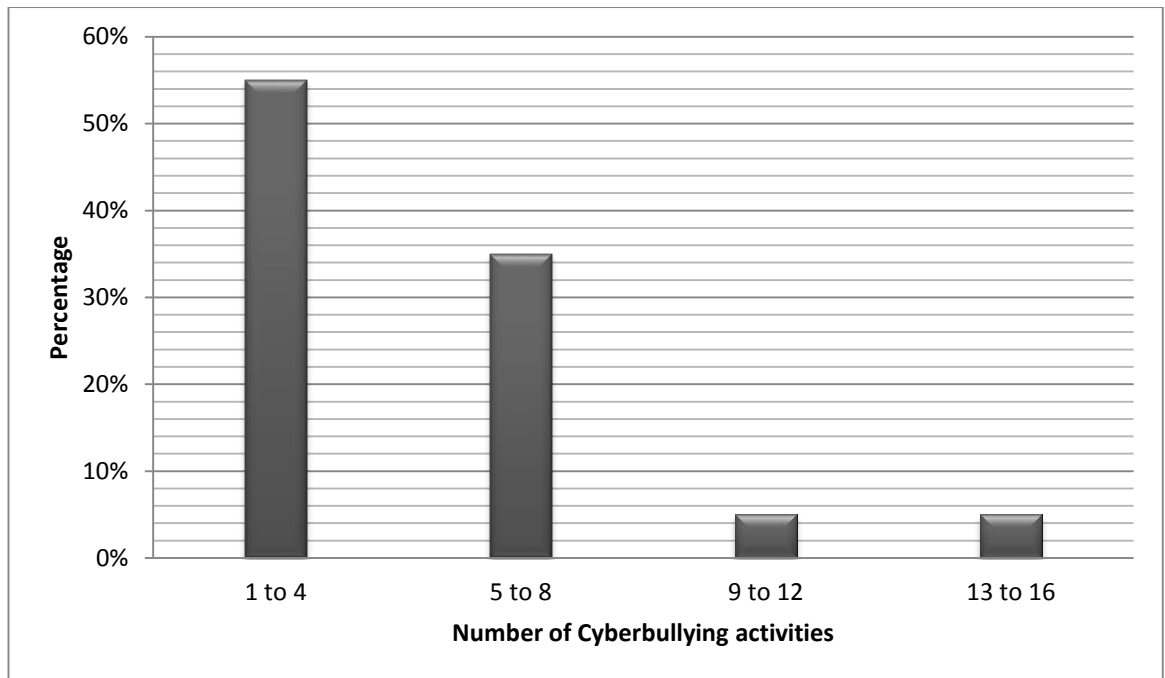
Graph 5: Activities leads to Cyberbullying

Graph 5 shows the percentage of respondents that can identify the types of cyber bullying. From the graph above, 55 percent of respondent can identify 1 to 4 types of cyber bullying that are listed in the questionnaire while 35 percent can identify 5 to 8 types of cyber bullying while only 5 percent that can identify 9 to 12 and 13 to 16 types of cyber bullying respectively. The findings show that the most important part of the web site is the types of cyberbullying. There are numerous types of cyberbullying and the user might be one of the victims of that particular activities. Exposing the user to types of cyberbullying might help to mitigate the risk of becoming one of the victims.
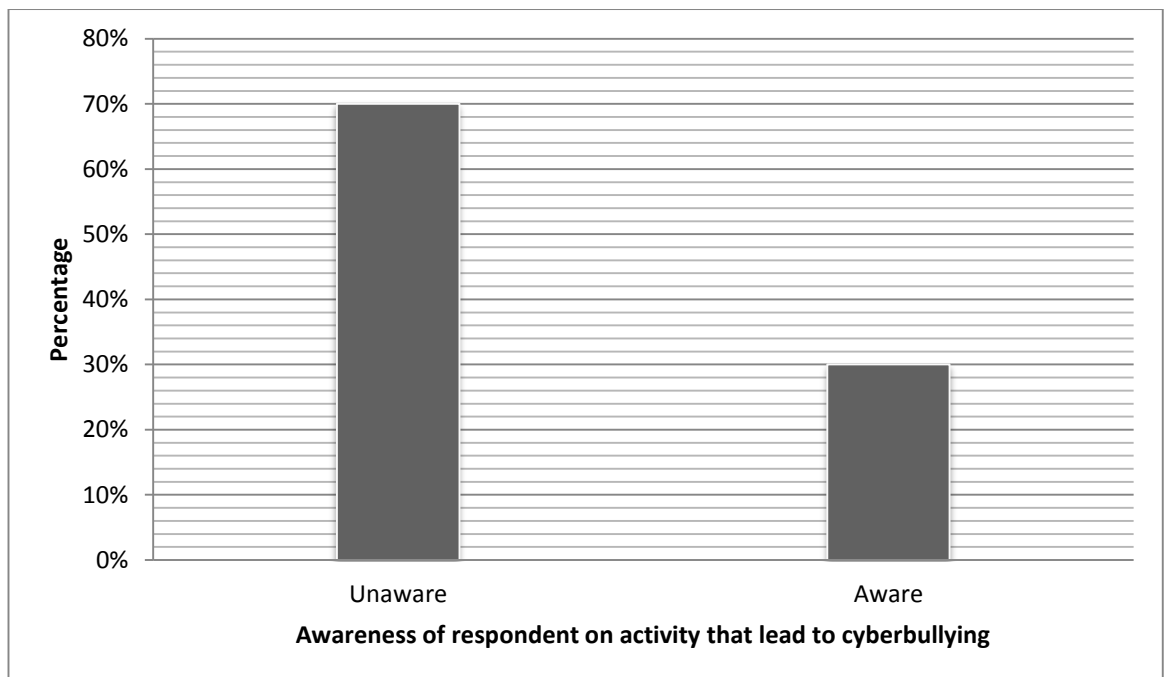
Graph 6: Awareness of respondent on activity lead to Cyberbullying

70 percent of the respondents were not aware that they were the cyber bullies. They were asked to tick whether they have done any cyber bullying activities. 70 percent of the respondents have done one or more activities listed on the questionnaire and they did not know that they are actually cyber bullying. Only 30 percent of the respondents were aware that they are cyber bullying.

Section C of the questionnaire focused on the web portal. Respondents were asked whether the web portal is the best way to educate other on cyber bullying. The results of the survey are shown in the graphs:
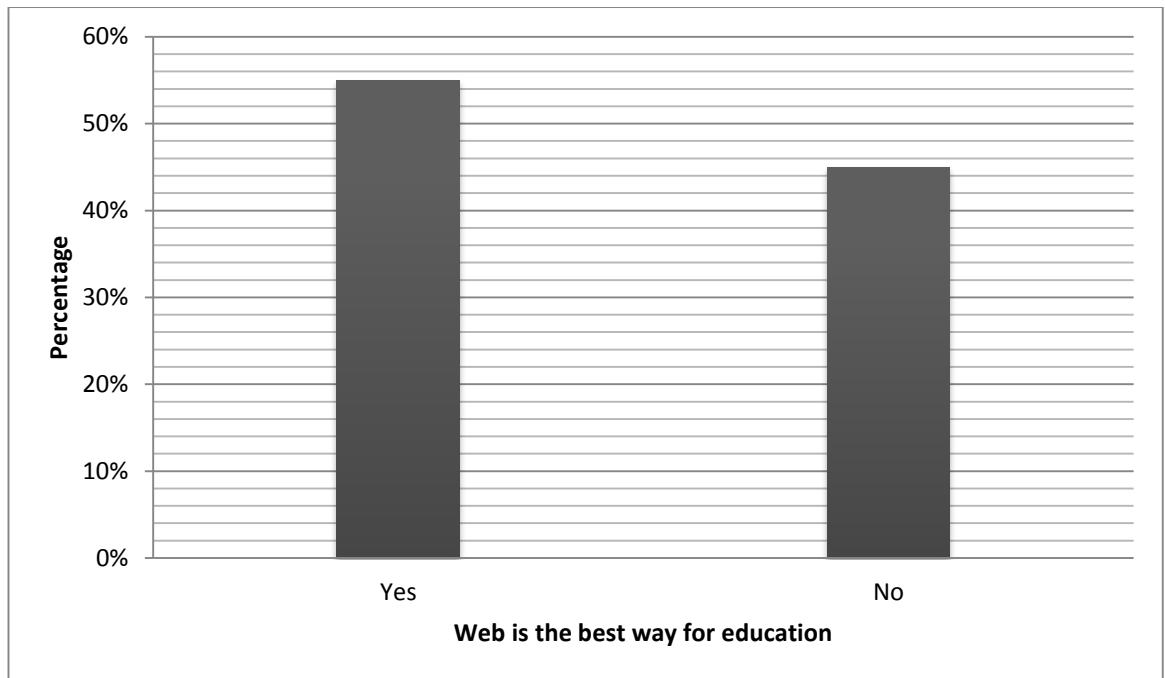
Graph 7: Web portal is the best way for education

55 percent of the respondents believed that a website is the best way to educate others on cyber bullying while others did not agree. 45 percent of the respondents answered No for this question. Most of the respondents believe that in order to make a website more attractive, elements of quiz and games should be included. Apart from that, the colour of the web page will attract the visitors to the page.

4.2 Web Portal

This web portal can be viewed using this link; msiaxcyberbullying.com.
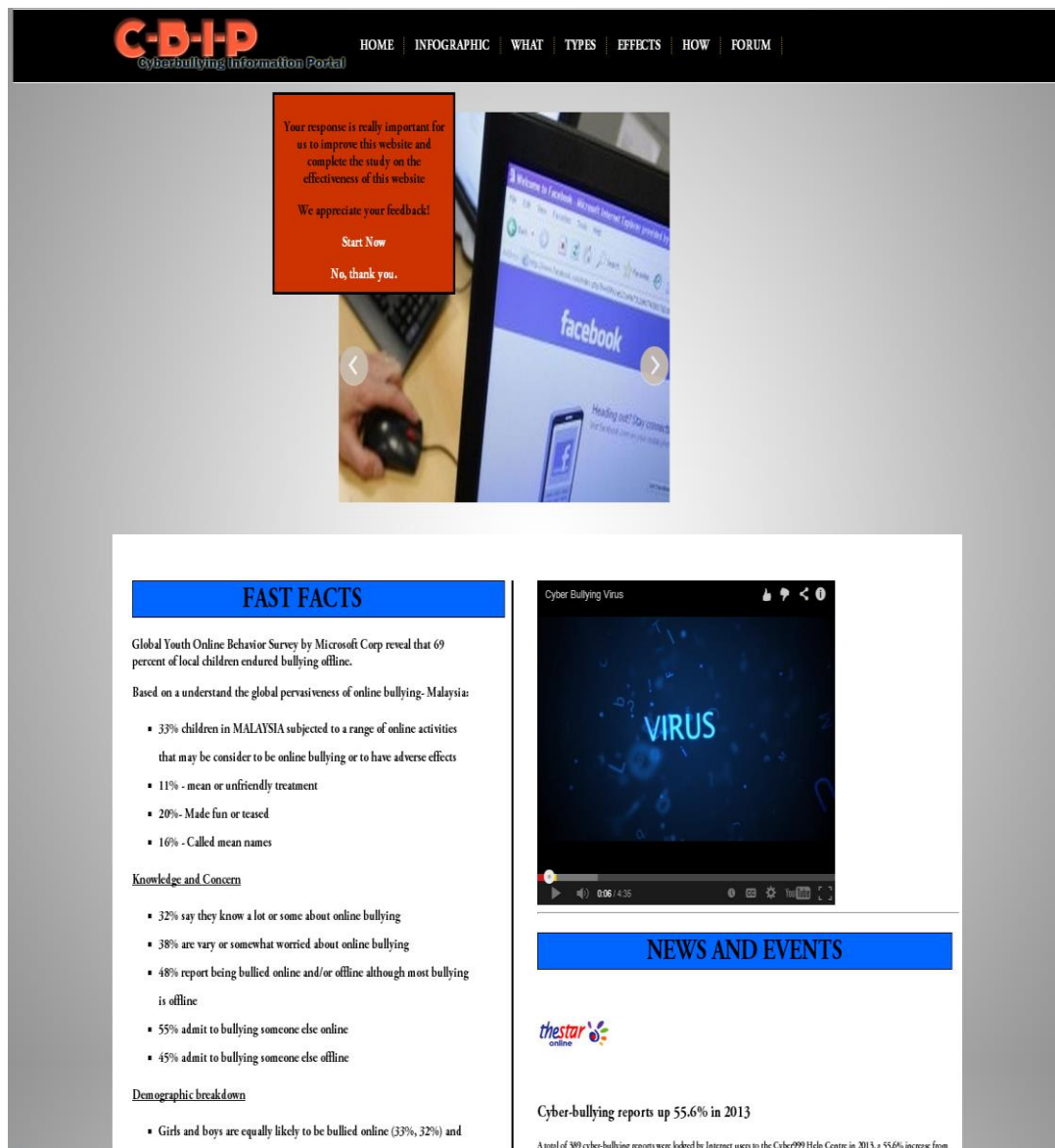
Figure 5: Homepage of Cyberbullying Portal

Figure 6: Infographic Page

Figure 7: What page

TYPES OF CYBERBULLYING

Flaming

Argument that take place in chat room, or by posts or comments in a forum, social network, blog or even in games. It is divided into two types: Public and Non-public.

Public: social media, and etc.

Non-public: email or instant message.

Cyber-harassment

Repeated, unsolicited, threatening behaviour by a person or group using mobile or Internet technology with the intent to bother, terrify, intimidate, humiliate, threaten, harass or stalk someone else .

Example: constant sending of harmful words from a cyberbully to a target through SMS or email .

In Canada, Cyber-harrassment also known as Cyberstalking.

Cyberstalking

Use of electronic communication as a medium to stalks their cyber-victim with repetitive harassing and threatening communication.

This includes sending a image or video that may be interpreted as variation of cyber harassment.

Impersonation

Figure 8: Type Page

30

Figure 9: Effect Page

Figure 10: How Page

Figure 11: Forum Page

The web portal as mentioned in the earlier chapter is to cultivate the awareness of parents and kids on the dangers of cyber bullying. Therefore, the web portal is designed to fulfil the needs and to educate these two targets group on the cyber bullying. Figure 5 shows the homepage of the web portal. Figure 6 to figure 11 show the subpage of the web portal. Table below summarize the function and contents available on the web portal.

Function/Content	Description
Home page	This is the main page of Cyberbullying Information Portal. This page is divided into 3 sections; 1) Header 2) Main 3) Footer. Header section provides user with navigation menu where user can be directed to any pages within the Cyberbullying Information Portal. (Refer to Figure 5). Main section contains multimedia slide show, video and fast fact about Cyberbullying in Malaysia. Apart from that, this page also provides user with useful links such as CyberSecurity Malaysia link, and CyberSafe Malaysia link. Moreover, Cyberbullying Information Portal provides user with a set of test for them to measure their online activity. Footer section contains information about the developer.
INFOGRAPHIC page	This page provides visual aids to user to understand better about Cyberbullying. Infographic shown here is gathered from different source and it is provides clearer picture of Cyberbullying. (Refer to Figure 6).
WHAT page	"What" page is an overview and brief explanation of what is Cyberbullying and definition of different terminologies used in Cyberbullying. In addition, this page provides user with interesting Cyberbullying statistic around the globe. (Refer to Figure 7).

TYPES page	Cyberbullying do come in different ways. Therefore, this page is designed to expose the user to different types of Cyberbullying activities. Simplified definition is used to give better understanding on Cyberbullying activities. (Refer to Figure 8).
EFFECTS page	Cyberbullying could bring harmful effects to its victim. Therefore, this page is created to expose user on the effect of Cyberbullying activities. Being exposed to the effects and risk of Cyberbullying can help the victim to mitigate the risk of Cyberbullying. (Refer to Figure 9).
HOW page	Aware about how to fight the Cyberbullying activites could help to minimize the risk of Cyberbullying. For this particular page, it is divided into 3 sections where the first section is on how to avoid and fight Cyberbullying activities. The second part of this page is discussing tips to carter Cyberbullying for victim. The third section of this page is discussing on tips for parents. In this part, user is exposed to the tips and symptoms if your child being Cyberbullied or your child is Cyberbully. (Refer to Figure 10).
Forum	This feature allows users to interact with each other and share their experiences. This can help other users who do not have any knowledge on Cyberbullying and help the user in case of them being bullied. (Refer to Figure 11).

4.3 To study the effectiveness of web portal in conveying information on the nature of Cyberbullying, types of Cyberbullying, recommended steps can be taken if we are the victim.

Another critical part of this project is to study the effectiveness of the web portal in conveying information on the nature of Cyberbullying, types of Cyberbullying, recommended steps can be taken if we are the victim. This is post-development research, where this research done after the web portal is available on the network. A survey link is provided at the homepage of the web portal. This is a method to study the effectiveness of web portal particularly in conveying information on Cyberbullying. Users were asked few questions that help developer to identify and study the effectiveness of the web portal. Findings of the study are as follow.
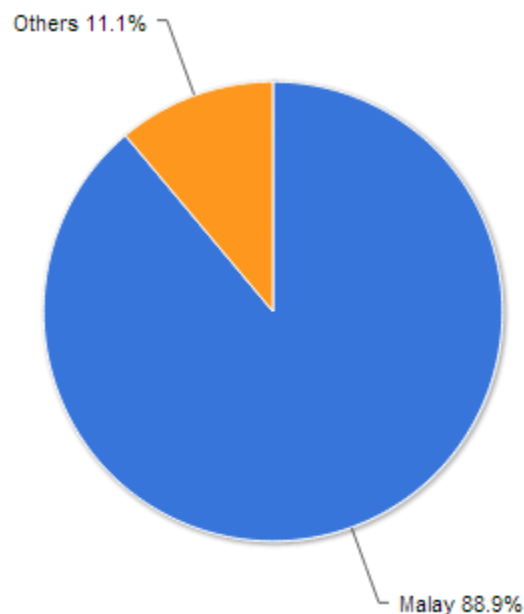
Graph 8: Breakdown of respondents based on race

The web portal link was distributed randomly on the network. A group of respondents give valuable feedback in order to improve the web portal and also help in completing the study on the effectiveness of the web portal in conveying information on Cyberbullying. From the group of respondents, 88.9% are Malay while the rest are from other races such as Indian and Chinese. This significantly shows this web portal able to capture the attention not only Malay, but also other races. Even though the number other race user is small, but it is a good starting point for the web portal. With more enhancement on the web portal, it is expected the web portal able to capture not only Malay user in the future. Nevertheless, this shows that Malaysian (not only Malay) is in the needs of information. Thus, this kind of information portal can helps to conveying information solely on Cyberbullying.
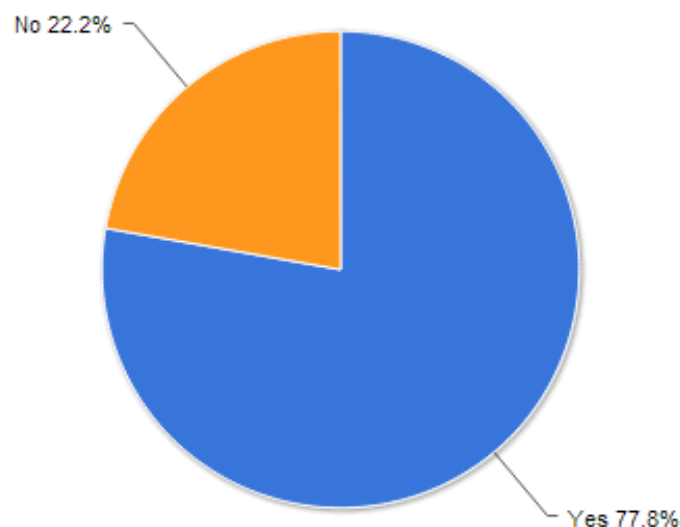
Graph 9: Knowledge on Cyberbullying after Web Portal was developed
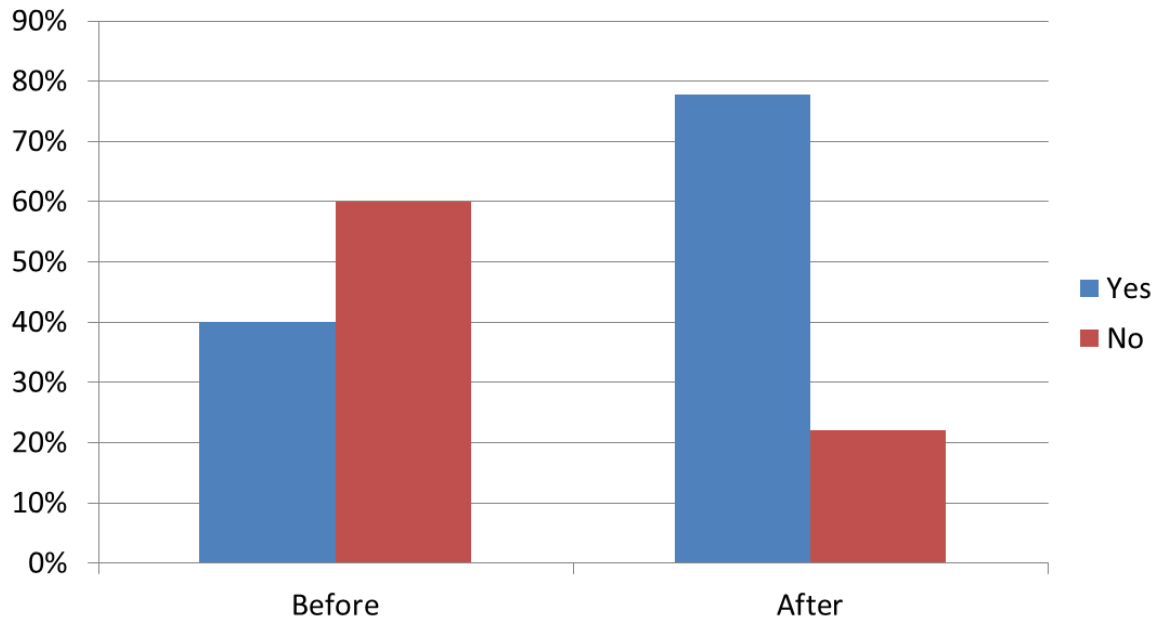
Graph 10: Comparison before and after the development of web portal

In measuring the effectiveness of the web portal, a comparison between knowledge on Cyberbullying before and after the development of the web portal is compared. It was found that there was a significant increase on user the knowledge in Cyberbullying field before and after the web portal is available on the network. 17.8 percent increase in the number of respondents who were able to answer question related to Cyberbullying before and after the web portal is developed. This result shows how effective the web portal in delivering the information related to Cyberbullying. From the study, it can be concluded that the portal is able to meet its solely aim which is to convey information on Cyberbullying to its target user. More studies should be carried out to study the effectiveness of this web portal in distributing information to its target users.
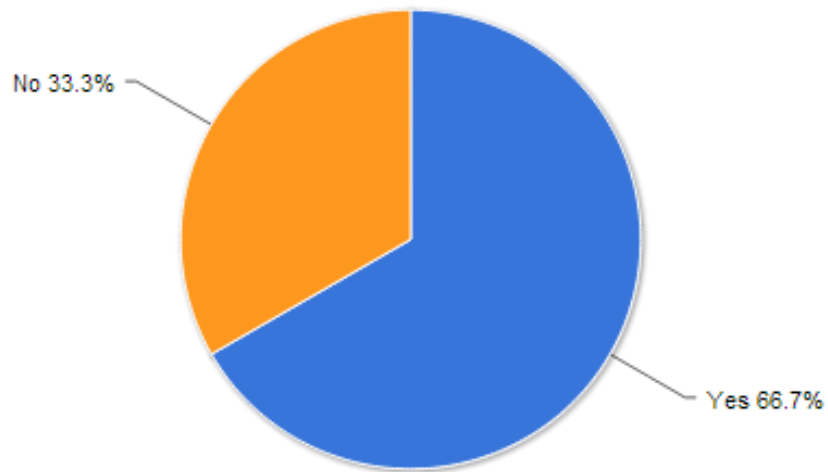
Graph 11: Web portal as one of the effective medium in conveying information
related to Cyberbullying

Another crucial part of the study is to get users' input on wether this web portal is one of the effective ways in conveying information related to Cyberbullying. 66.7 percent of the respondent agreed that this web portal as one of the effective medium in conveying information related to Cyberbullying. Rest of respondents strongly did not believe that web portal can effectively disseminate information especially on Cyberbullying. Thus, web portal still relevant in disseminating information especially on Cyberbullying in the growing era of mobile application. From 33.3 percent who did not agreed on web portal, one third of the respondents were suggesting the usage of mobile application, games and book respectively as the medium in conveying information on Cyberbullying. Refer to pie chart below.
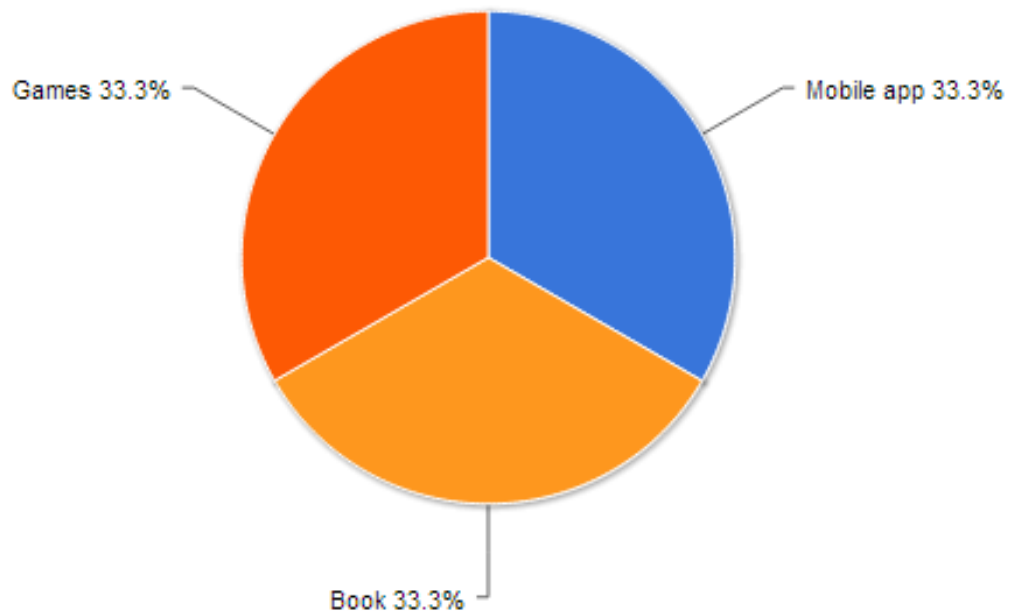
Graph 12: Alternative mediums of disseminating information on Cyberbullying

Getting user feedback and input can help in improving the web portal contents and also its design. Thus, on the last part of the study, users' feedback is gathered. From the users' feedback, 88.9 percent agreed that Cyberbullying Information Portal provides sufficient information on Cyberbullying. Refer to pie chart below.
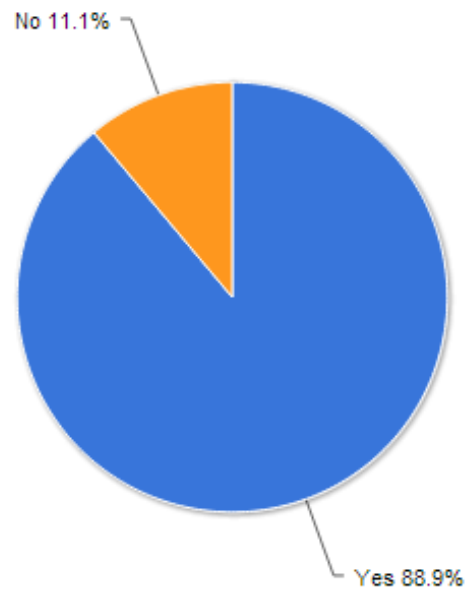
Graph 13: Cyberbullying Information Portal provides sufficient information on Cyberbullying

In order to further improve the content and attractiveness of Cyberbullying Information Portal, users' input is collected. 44.4 percent of the users' agreed that the design and content of the web portal should be enhanced in order to attract more visitors to the web portal. 11.1 percent of the respondents suggested other part of the web portal should be improved such as adding more multimedia and attractive facts on Cyberbullying as the content of the web portal. Refer to pie chart below. All users' feedback and input will be collected and will take into consideration as part of the future enhancement of this project especially on Cyberbullying Information portal. As conclusion of the study, it was found that the cyberbullying Information portal is effective in conveying information on the nature of Cyberbullying, types of Cyberbullying, recommended steps can be taken if we are the victim.
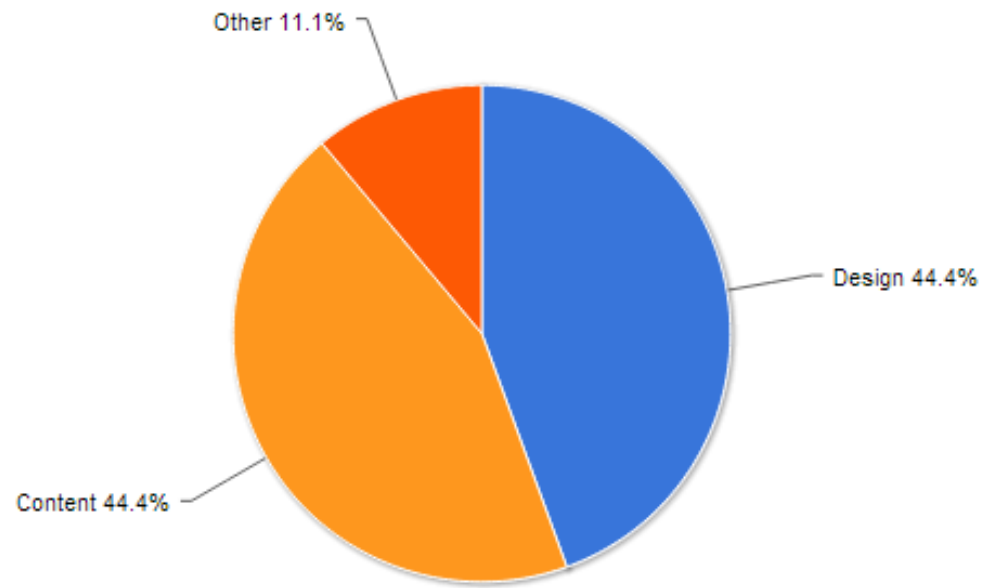
Graph 14: Users' feedback and input

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

The total numbers of cyberbullying cases reported in Malaysia in 2013 were 389, a 55.6 percent increase from 2012 where 250 cases were reported. This shows that cyberbullying cases in Malaysia are at an alarming stage. Learning on the nature of this activity can help to mitigate the risk of cyberbullying. With advancement and the availability of the technology today, website is one of the best medium to convey information on cyberbullying.

Thus, the Cyberbullying Information Portal (CBIP) is developed to meets its ultimate objective of conveying information related to cyberbullying. This project involved three main objectives which were a study on the awareness and perception of parents and kids on cyberbullying, developing an interactive web portal and studying the effectiveness of this web portal in conveying information about cyberbullying. These objectives are related to each other where findings in objective one help to develop the website while the third objective measures the effectiveness of the website.

As a continuation of this project, it is hoped that this project can be a first step in educating the community about cyberbullying. As a mobile application is one of the growing technologies nowadays, it is hoped that this project can be transformed into a mobile application to educate the community on cyberbullying.

REFERENCES

American Osteopathic Association. (2013) *Cyber-Bullying and its effect on our*

    Youth. Retrieved from http://www.osteopathic.org/osteopathic-health/about-

    your-health/health-conditions-library/general-health/Pages/cyber-

    bullying.aspx

Atlantic Web Fitters. (2013). What is a web portal? Retrieved from

    http://www.atlanticwebfitters.ca/CMS/WhatisaWebPortal/tabid/95/Default.as

    px

Bain, D. (2011). The essential elements of effective website structure. Retrieved

    from http://www.searchenginepeople.com/blog/effective-website-

    structure.html

Bower, M. (2011). What impact can cyberbullying have on its victims. Retrieved f

    rom http://curiosity.discovery.com/question/what-impact-cyberbullying-

    victims

Bernama. (2014, February 24). Cyber-bullying reports up 55.6% in 2013. The Star.

    Retrieved from http://www.thestar.com.my/News/Nation/2014/02/24/Cyber-

    bullying-up-55pc/

Bernama. (2013, August 29). Cybercrime a ticking bomb in Malaysia. Borneo Post.

    Retrieved from http://www.theborneopost.com/2013/08/29/cyber-crime-a-

    ticking-bomb-in-malaysia/

Bernama.(2011, July 15) Kes buli di sekolah catat penurunan 9.42 peratus. *The Borneo Post.*Retrieved from http://www.theborneopost.com/2011/07/15/kes-buli-di-sekolah-catat-penurunan-9-42-peratus/

Bully. Retrieved from http://www.thefreedictionary.com/bully

Cheng, N., Allison L., & Raman, A. (2013, March 1). 18-years-old Malaysia student commits suicide due to bullying. *The Star.* Retrieved from http://www.edvantage.com.sg/content/18-year-old-malaysian-student-commits-suicide-due-bullying

Cybersafe. (2014). Cyberbullying. Retrieved from http://www.cybersafe.my/cyberyouths-tips-cyberbullying.html

CyberSecurity Malaysia Facebook Page. Retrieved from: https://www.facebook.com/photo.php?fbid=10151892782169040&set=pb.28 3232114039.-2207520000.1383869480.&type=3&src=https%3A%2F%2Ffbcdn-sphotos-d-a.akamaihd.net%2Fhphotos-ak-prn2%2F1185971_10151892782169040_2112333759_n.png&size=960%2C 565

Dooley, J.J., Pyzalski, J., & Cross, D. (2009). Cyberbullying versus Face to Face Bullying: A Theoretical and Conceptual Review. *Journal of Pyschology.* 217. 182-188.

Donegan, R. (2012*).* Bullying and Cyberbullying: History, Statistics, Law,

Prevention and Analysis. *The Elon Journal of Undergraduate Research in Communication*. 3.

eBuli. (2009). Adakah anda dibuli? Retrieved from http://ebuli.upsi.edu.my/

Friedman, V.(2008). 10 Principles of Effective Web Design. Retrieved from http://uxdesign.smashingmagazine.com/2008/01/31/10-principles-of-effective-web-design/

Glue Digital. (2013). 10 Elements your web site must have. Retrieved from http://gluedigital.com.au/articles/getting-started/10-elements-your-web-site-must-have/

Howcroft, D.,& Carrol, J.(2000) A proposed methodology for web development. *Proceeding from 8th European Conference in Information System (ECIS)*, Vienna, Austria.

iKeepSafe.org. (2013). CyberBullying: How young does it start? Retrieved from http://www.ikeepsafe.org/be-a-pro/relationships/cyberbullying-how-young-does-it-start/

Jafari, Ali. & Sheehan, M. (2003). Designing Portals: Opportunities and Challenges. IRM.Press. USA

Kruchten P. (1995), Architectural Blueprints—The "4+1" View Model of Software Architecture. *IEEE Software*. 12 (6). 42-50.

Kaur, S., & Baba. M.S. (2006). Development of a Networking Education Portal for Secondary Education communities in Malaysia. Computing & Informatics, 2006. ICOCI '06. International Conference on. 1-6.

Mishna, F., Saini, M., & Solomon, S. (2009). *Ongoing and online: Children and Youth's Perceptions of Cyber Bullying*. Children and Youth Services Review. 31. 1222-1228.

Steffgen.G,. & Konig, A. (2009. 13th -15th May). Cyber bullying: The role of

traditional bullying and empathy. Paper presented at *The Good, the bad and the Challengging: The user and the Future of Information and Communication Technologies (COST Action 298)*. Copenhagen, Denmark.

Universiti Pendidikan Sultan Idris. *Memahami buli.* Retrieved from

http://ebuli.upsi.edu.my./index.php?option=com_content&view=article&id=729&Itemid=323&lang=ms

U.S. Department of Health & Human Services. (2013). *Bullying definition.* Retrieved from http://www.stopbullying.gov/what-is-bullying/definition/

Vinesh, D. (2013. April 10). *Three secondary school students in Seberang Jaya questioned over bullying video.* The Star Online. Retrieved from http://www.thestar.com.my/News/Nation/2013/04/10/Three-secondary-school-students-in-Seberang-Jaya-questioned-over-bullying-video.aspx

Wang, J., Nansel, T.R., & Iannotti, R.J. (2010). Cyber and Traditional Bullying; Diffential Association with Depression. *Journal of Adolescent Health*. 48. 415-417.

Wang, J., Nansel, T.R., & Iannotti, R.J. (2009). School Bullying Among Adolescents in the United States: Physical, Verbal, Relational and Cyber. *Journal of Adolescent Health*. 45. 369-375.

APPENDICES

Appendix 1: Gantt chart Final Year Project 1

Appendix 2: Gantt chart Final Year Project 2

Appendix 3: Questionnaire I

Appendix 4: Questionnaire II

Appendix 1 - Project Gantt chart FYP 1

Activity	Start Date	End Date	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
1. Project Title confirmation	11 Oct 2013	11 Oct 2013		⬢												
2. Analysis	11 Oct 2013	8 Nov 2013		▅	▅	▅	▅	▅	▅							
2.1 Web strategy development	11 Oct 2013	25 Oct 2013			▅	▅	▅									
2.2 Defining Objectives	25 Oct 2013	1 Nov 2013					▅	⬢								
2.3 Objectives analysis (Survey)	1 Nov 2013	8 Nov 2013						⬢	▅							
3. Submission of extended proposal	30 Oct 2013	30 Oct 2013						⬢								
4. Design	8 Nov 2013	29 Nov 2013								▅	▅	▅				
4.1 Information design	8 Nov 2013	15 Nov 2013								▅	▅					
4.2 Graphic design	15 Nov 2013	29 Nov 2013								⬢	▅	▅				
5. Proposal Defence	4 Dec 2013	4 Dec 2013											⬢			
6. Interim Report submission	18 Dec 2013	18 Dec 2013													⬢	

⬢ Project Milestone

Appendix 2 - Project Gantt chart FYP 2

Activity	Start Date	End Date	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
7. Generation	13 Jan 2014	28 Feb 2014	■	■	■	■	■	■	■							
a. Code generation	13 Jan 2014	7 Feb 2014	■	■	■	■										
b. Design review	13 Jan 2014	7 Feb 2014	■	■	■	■										
c. 'Go-live'	10 Feb 2014	14 Feb 2014					■									
d. Testing	10 Feb 2014	21 Feb 2014					■	■								
e. Maintenance	10 Feb 2014	28 Feb 2014					■	■	■							
8. Submission of Progress Report	10 Feb 2014	10 Feb 2014							■							
9. Implementation	28 Feb 2014	21 Mar 2014								■	■	■				
a. Objective review	28 Feb 2014	6 Mar 2014								■	■					
b. Survey	3 Mar 2014	14 Mar 2014									■	■				
c. Maintenance	3 Mar 2014	21 Mar 2014									■	■				
10. Pre-SEDEX	24 Mar 2014	24 Mar 2014										■				
11. Submission of Draft Report	31 Mar 2014	31 Mar 2014											■			
12. Submission of Dissertation	7 Apr 2014	7 Apr 2014												■		
13. Submission of Technical Paper	7 Apr 2014	7 Apr 2014												■		
14. Oral Presentation	22 Apr 2014	22 Apr 2014													■	
15. Submission of Project Dissertation	30 Apr 2014	30 Apr 2014														

Appendix 3 – Questionnaire I

Section A: Personal Background

Race : ☐ Malay ☐ Chinese ☐ India ☐ Bumiputera ☐ Others

Age : _____ Occupation: _____

Section B: Cyber bullying, Cyber bullied, Cyber Victim

1) Do you know what does cyber bullying means?

☐ Yes ☐ No

2) Is the following is type of cyber bullying?

Flaming	☐ Yes	☐ No
Trolling harassment	☐ Yes	☐ No
Cyber Stalking	☐ Yes	☐ No
Identity Theft	☐ Yes	☐ No
Photo Shopping	☐ Yes	☐ No
Physical Bullying	☐ Yes	☐ No
Masquerading	☐ Yes	☐ No
Outing	☐ Yes	☐ No
Exclusion	☐ Yes	☐ No
Pseudonyms	☐ Yes	☐ No
Anonymity	☐ Yes	☐ No
Physical Bullying	☐ Yes	☐ No
Verbal Bullying	☐ Yes	☐ No
Indirect bullying	☐ Yes	☐ No
Social alienation	☐ Yes	☐ No

51

Intimidation ☐ Yes ☐ No

3) Do you know what is Cyber bullied?

☐ Yes ☐ No

4) Do you know what cyber victim is?

☐ Yes ☐ No

5) Please tick if you have done any one of the following actions:
   - Have you ever posted rude comments about someone online ☐
   - Have you ever posted lies about someone ☐
   - Have you ever used someone else's password without their permission ☐
   - Have you ever used bad language online ☐
   - Have you ever posted pictures or information about someone on a website without their consent ☐
   - Have you ever forwarded an email without the permission of the other person ☐
   - Have you ever forwarded an email without the permission of the other person ☐
   - Have you ever signed someone else up for something online without their permission ☐
   - Have you ever teased or threatened someone online ☐
   - Have you ever impersonated someone online ☐
   - Have you ever signed on with someone else's screen name to gather info ☐
6) Do you know how to differentiate above action from cyberbullying activities and non-cyberbullying activities?
   ☐ Yes ☐ No

Section C: Effective website

1) Do you believe website is the best way to educate others on cyber bullying

   ☐ Yes ☐ No

2) Which of the following can attract you to a website (Rank 1-5)?
   Content ☐

   User Interface ☐

   Page Layout ☐

   Colour of the Page ☐

Games/Quiz ☐

3) Is multimedia/game/quiz is one of the elements to attract visitor to visit the page?

☐ Yes ☐ No

4) Do you think too many clicks on the website can reduce the website visitor?

☐ Yes ☐ No

5) What do you think that should be on the website to make it attractive?

_____

Appendix 4 – Questionnaire II

1. Age: _____

2. Race: Malay ☐   Chinese ☐   India ☐   Other ☐

3. Do you what is Cyberbullying?

☐ Yes

☐ No

4. Do you know what is the difference between cyberbullying, cyberbully and cyber-victim

☐ Yes

☐ No

5. Have you ever bully someone online?

☐ Yes

☐ No

6. Have you ever used bad language online?

☐ Yes

☐ No

7. If you are cyber victim, what is the recommended step?

☐ Ignore

☐ Respond

☐ Inform your parents

☐ Keep quiet

8. Have you ever posted rude comments about someonline?

☐ Yes

☐ No

9. Have you ever posted lies about someone?

☐ Yes

☐ No

10. Have you ever teased or threatened someone online?

☐ Yes

☐ No

11. Have you ever signed on with someone else account to gather info?

☐ Yes

☐ No

12. Do you think this web portal provides useful information related to cyberbullying?

☐ Yes

☐ No

13. Do you think this web portal is the most effective way in educating people on cyberbullying? If yes, proceed to question 15.

☐ Yes

☐ No

14. If not, what is the best way of educating community on cyberbullying nowadays?

☐ Mobile app

☐ Book

☐ Ebook

☐ Games

15. Do you think this web portal provides sufficient information to help you understand the nature of cyberbullying?

☐ Yes

☐ No

16. Which part of the web portal should be improved?

☐ Layout

☐ Design

☐ Content

☐ Other: _____

17. Do you think this project should be continues with more enhancements?

☐ Yes

☐ No

18. What should be added to make this web portal more interesting?

☐ Media

☐ Game

☐ Live Chat with expert

☐ Other: _____

19. Please rate this web portal

☐ Extremely bad

☐ Bad

☐ Average

☐ Good

☐ Excellent

20. Please provide your feedback on this web portal.

_____