

**Design of Web Intervention to Change Youth Behavior towards Online Video
Games Addiction (A Preliminary Research)**

by

Kajendra Ganeson

Dissertation submitted in partial fulfillment of

the requirement for the

Bachelor of Technology (Hons)

(Business Information Systems)

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Universiti Teknologi PETRONAS

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CERTIFICATION OF APPROVAL

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Business Information Systems Programme
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in partial fulfillment of the requirement for the
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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 references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



KAJENDRA A/L GANESON

ABSTRACT

PC or video games are an electronic game that has been made famous among teens way back in the 80's era. It has been a source of entertainment and stress relief for an after school or holidays activity. Massively multiplayer online games (MMOG) were made possible with the growth of broadband Internet access in many developed countries, using the Internet to allow hundreds of thousands of players to play the same game together. As UTP (Universiti Teknologi PETRONAS) which has 24 network accesses, students are able to play online games among themselves via the local area network. This online video games abuse will end up as an addiction and causes negative effects towards their academics, physical and mental health as well as isolation from social activities with family members and friends. The objective of this project is to design a web to change youth behavior towards online game addiction. This report contains the background of the study, the literature review and the methodology in conjunction of completing the project. The theories that have been studied and chosen to be applied in the design of the web are Cognitive Dissonance, Gagne's Learning Theory and Situated Learning. As for the methodology, the information for development of web by John December is selected. The expectation of this project is that UTP students with serious game addiction can be reached out and ensure that they do not abuse video games. The intervention purpose is to determine level of addiction of UTP students and change their behavior towards online games addiction to become a more useful person for themselves, family and community.

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CHAPTER 1

INTRODUCTION

1.1 Project work background

With today's cutting edge technologies, video games have more realistic interface and features and involves player with much more complex and implicated situation. By just having one person as the host, hundreds of students are permissible to play the same game together. With this sort of privileges, youth are taking advantage by playing games for an extended period of time until they get exhausted or bored. All this features draws in youth to spend ample of time playing games until it becomes a serious addiction.

This project is created mainly to help out those youth who are addicted to online video games. The website will provide the problems and effects of online video games addiction with visual and word expressions. Solutions (intervention) using behavioural theories are endowed with in order to help those teens that have no sense of control towards playing online games. Therefore the outcome of this project is to ensure teens are no longer affected by online video game abuse instead focuses more on academic and social activities.

1.2 Problem Statement

1.2.1 Problem Identification

No one can really control the time youth waste on excessive game playing especially in varsities as they live on their own with 24 hours network access. Therefore teens that are addicted would rather spend their free hours on video games than completing assignments or going for sports. The teens mentioned here who are also the target audience of the project are the students of Universiti Teknologi PETRONAS (UTP). With the free internet access provided, students are

able to create a server (host) so that anyone can join and play the online games. The games that are very popular are Counter Strike and Dota Warcraft. Students tend to play over and over again as long as they have their buddies online to join them. This will lead to serious addiction that leads to many tribulations. Academic wise, the result will be assignments being copied, pay poor attention in class and eventually skip classes. As for their health, there will be lack of sleep, headaches, black eyes and not having proper appetite. Apart from that, they will also be lacking of social activities as they rather be sitting in the room and play games all day than attend any sports or social events.

They will also start to feel depressed, angry or easily irritated when not involved with video games.

1.2.2 Significance of the Project

The significance of this project is to help students with online video games addiction to develop into a person who can achieve his/her goals in life.

1.3 Objectives

The main objective of this project is to:

- Design a web intervention to change youth behavior towards online game addiction.

In order to achieve this main objective, the following objectives have to be attained:

1. Identify social psychology and behavior modification theories.
2. Determine the level of addiction – low, moderate and high level.

1.4 Scope of Study and limitations

The project focuses on creating a web intervention to change youth behavior towards online video games addiction. The primary focus is to conduct a preliminary research to help UTP students out there with excessive online games addiction to reduce and switch to other healthy activities. Therefore the study will be on finding out reasons how students are drawn to play online video games for hours and the effects to them academically and health wise. Also, study will be conducted based on interfaced related

theories which are learning, instructional and behavioural theories. The most suitable theory will be chosen and implemented in the system for online games addiction intervention. The project is not meant to make student to actually quit but to have a self control towards playing video games. This project is assigned to be completed within two semesters.

CHAPTER 2

LITERATURE REVIEW

2.1 Definitions

Online Games Addiction

Online game is a game played using a computer over a network or internet access. Online games can range from simple text based games to games incorporating complex graphics and virtual worlds populated by many players simultaneously. Online games can range from simple text based games to games incorporating complex graphics and virtual worlds populated by many players simultaneously [6].

Many online games have associated online communities, making online games a form of social activity beyond single player games. One advantage of online games is the ability to connect to multiplayer games, although single-player online games are quite common as well. To be more specific about the online games played by the target audience of the project whom are the students of UTP is the Massively Multiplayer Online Games (MMOG).

Wikipedia (11th March 2009)

“Massively multiplayer online games were made possible with the growth of broadband Internet access in many developed countries, using the Internet to allow hundreds of thousands of players to play the same game together”. In MMORPG players assume the role of a fictional character (often in a fantasy world), and take control over many of that character's actions. MMORPGs are distinguished from single-player by the number of players, and by the game's persistent world, usually hosted by the game's publisher, which continues to exist and evolve while the player is away from the game [19].

In an MMORPG, like any RPG, the user controls a character represented by an avatar, which he directs to fight monsters for experience, interact with other characters, acquire

items, and so on. [18] MMORPGs have become extremely popular since the wider debut of broadband Internet connections, now with millions of subscribers from hundreds of different countries. Some MMORPGs have as many as a million subscribers.

Through MMOG and the availability of 24 hours internet access, UTP students are able to play anytime and no matter how long they desire to. This is one of the reasons that will lead to games addiction. An example of an MMORPG game is shown below:

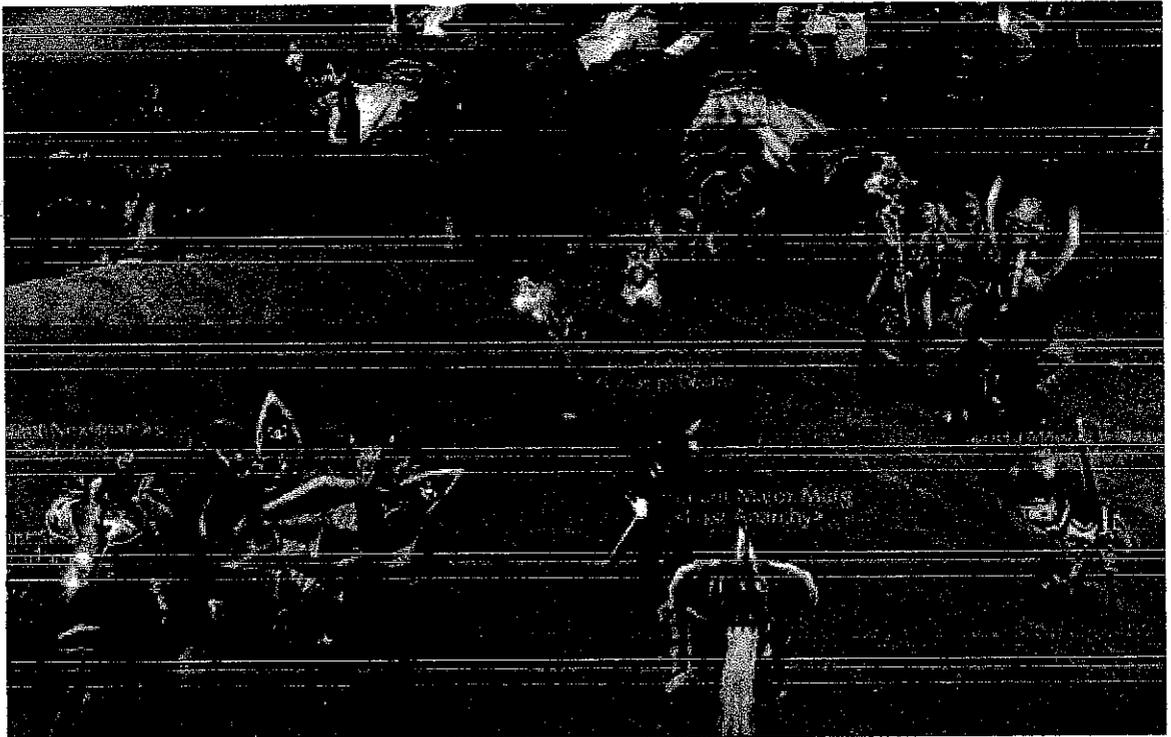


Figure 1: Example of MMORPG game [19]

This brings to the definition of addiction.

Wiktionary (11th March 2009)

“A habit or practice that damages, jeopardizes or shortens one's life but when ceased causes trauma.”

Historically, addiction has been defined with regard solely to psychoactive substances (for example alcohol, tobacco and other drugs) which cross the blood-brain barrier once ingested, temporarily altering the chemical milieu of the brain [26].

“However, "studies on phenomenology, family history, and response to treatment suggest that intermittent explosive disorder, kleptomania, pathological gambling, pyromania, and trichotillomania may be related to mood disorders, alcohol and psychoactive substance abuse, and anxiety disorders (especially obsessive-compulsive disorder).[20]””

Therefore online games addiction can be described as person playing online games on the computer continuously for hours. Precious time is wasted by playing games nonstop which can jeopardize their health and academic performance. Students who are too addicted with online games rather skip meals, classes and sport activities.

2.2. Web Intervention

Intervention911.com is website with programs offered for intervention is conducted by experts in the field. The drawbacks on the other hand is that it is an American based website whereby it does not solely focus on intervening video games addiction but also on drugs, smoking, alcohol and other addictive activities and available to American citizens only.

Plus, in order to get a complete intervention, one has to enroll with a program which costs money. This is not suitable for students as they are in education industry. Thus, this project has a better advantage over the current system since it focuses only on online video games addiction intervention and also it does not cost any money what so ever. Another website that can be compared to with this project is Intervention [15]. This website is different from Intervention911 as it is categorized according by group interventions like family and employees. Basically it is how family or employee can help the addict overcome their problem and addiction. Another advantage is that the website is founded by an expert who trains addiction and other mental health professionals in how to conduct interventions to maximize the chances for success and to minimize the chances of doing harm. There are workshops that allow them to learn:

- Replace frustration and despair with hope and action.
- Identify who should participate and learn how to invite them.
- Handle "difficult" participants, such as those who themselves drink, or who don't believe there is a problem.
- Determine what "bottom-lines" or "consequences" are appropriate and realistic, if any.
- Avoid the 5 common mistakes that may cause harm.
- Determine when and how a participant should be disinvited, and when an entire intervention should be aborted.
- Keep control of the intervention regardless of how the intervenee reacts.
- Give all participants the sense that the intervention was worthwhile no matter what happened.

But the drawback is that it does not help people with online games addiction but just computer addiction in general. Therefore it does not have one main addiction to focus on.

2.2.1 Web Development

Wikipedia (2009)

“Web Development is a broad term for any activity related to developing a web site for the World Wide Web or an intranet”.

The website is used as the medium of intervention because it will be available 24 hours a day as long as one has an internet access. Since the project is aimed at teens that are addicted with video and online games, using the web is the most essential and influential way to reach out to them as they are most likely to be on the computers most of the time. December, John (2008)

“Web developers need a broader, more process-oriented approach in order to articulate the information content they wish to convey.”

Therefore for this project more attractive and flashy visualization content will be implemented to keep the audience drawn in with website and gain benefit from it. Also audio and video files will be used to give more impact to the audiences rather than just word expression.

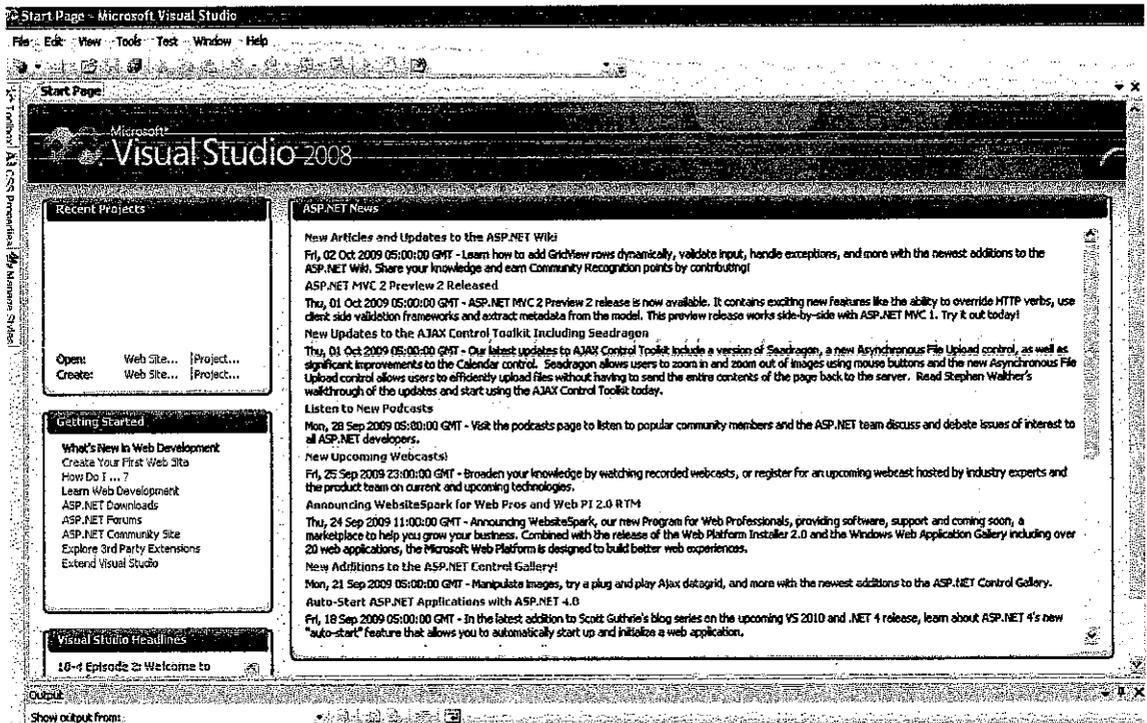


Figure 2: Web Developing using Microsoft Visual Studio Professional 2008

2.2.2 Interfaced Related Theories

The other element which is the main ingredient of this project, are the interfaced related theories. These theories will be used to influence the addicted teens for a positive behavioral change. There are three types of main theories which will be studied and one of it used in this project. The theories are discussed as below:

Instructional Theory

This theory consists of minimalism, GOMS (Goals, Operators, Methods, and Selection) model, and model-centered instruction and design layering.

Minimalism theory

The Minimalist is a framework for the design of instruction, especially training materials for computer users. The theory suggests that all learning tasks should be meaningful and self-contained activities, learners should be given realistic projects as quickly as possible, instruction should permit self-directed reasoning and improvising by increasing the number of active learning activities, training materials and activities should provide for error recognition and recovery and, there should be a close linkage between the training and actual system. [13]

The critical idea of minimalist theory is to minimize the extent to which instructional materials obstruct learning and focus the design on activities that support learner-directed activity and accomplishment. Carroll feels that training developed on the basis of other instructional theories (e.g., Gagne, Merrill) is too passive and fails to exploit the prior knowledge of the learner or use errors as learning opportunities [18].

GOMS Model theory

On the other hand GOMS model focuses on cognitive skills involved in human-computer tasks. It is based upon an information processing framework that assumes a number of different stages or types of memory with separate perceptual, motor, and cognitive processing.

Model-centered instruction and design layering theory

Model-centered instruction and design layering theory is a set of principles to guide instructional designers in selecting and arranging design constructs, so it is appropriately called a design theory. It favors designs that originate with and maintain the priority of models as the central design structure. Instructional theory can be considered to be used in the project perhaps during the development of the website and how the content should be presented.

Learning theory

This theory consists of structural learning, condition of learning, situated learning and experiential learning.

Structural Learning theory

According to structural learning theory, what is learned are rules which consist of a domain, range, and procedure. Also, it prescribes teaching the simplest solution path for a problem and then teaching more complex paths until the entire rule has been mastered.

Condition of learning theory

Condition of learning theory specifies that there are several different types or levels of learning.

According to Gagne, Briggs & Wager, (1992),

“Gagne identifies five major categories of learning: verbal information, intellectual skills, cognitive strategies, motor skills and attitudes. Different internal and external conditions are necessary for each type of learning.”

For example, for cognitive strategies to be learned, there must be a chance to practice developing new solutions to problems; to learn attitudes, the learner must be exposed to a credible role model or persuasive arguments.

Situated Learning theory

Brown, Collins & Duguid (1989) emphasize the idea of situated learning:

“Cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity. Learning, both outside and inside school, advances through collaborative social interaction and the social construction of knowledge.”

Basically what author understands from this explanation is that situated learning is a general theory of knowledge acquisition. It has been applied in the context of technology-based learning activities.

Experiential learning theory

Experiential learning can be a highly effective educational method. It engages the learner at a more personal level by addressing the needs and wants of the individual. Experiential learning requires qualities such as self-initiative and self-evaluation. For experiential learning to be truly effective, it should employ the whole learning wheel, from goal setting, to experimenting and observing, to reviewing, and finally action planning. Learning theories could be used for identifying the causes of online games addiction based on different individuals and how it affects them eventually.

Behavioral theory

Behavioral theories consists of attribution, cognitive dissonance, cognitive flexibility, social learning and drive reduction theories.

Attribution theory

Attribution theory is concerned with how individuals interpret events and how this relates to their thinking and behavior.

Heider, Fritz. (1958)

“Attribution theory assumes that people try to determine why people do what they do, in example attribute causes to behavior. A person seeking to understand why another person did something may attribute one or more causes to that behavior.”

Cognitive Dissonance theory

According to cognitive dissonance theory, there is a tendency for individuals to seek consistency among their cognitions in examples beliefs and opinions.

Festinger, L. (1957)

“When there is an inconsistency between attitudes or behaviors (dissonance), something must change to eliminate the dissonance. In the case of a difference between attitudes and behavior, it is most likely that the attitude will change to accommodate the behavior.”

Dissonance theory applies to all situations involving attitude formation and change. It is especially relevant to decision-making and problem-solving.

Cognitive flexibility theory

Cognitive flexibility theory focuses on the nature of learning in complex and ill-structured domains. Spiro & Jehng (1990, p. 165) state:

"By cognitive flexibility, we mean the ability to spontaneously restructure one's knowledge, in many ways, in adaptive response to radically changing situational demands...This is a function of both the way knowledge is represented (e.g., along multiple rather than single conceptual dimensions) and the processes that operate on those mental representations (e.g., processes of schema assembly rather than intact schema retrieval):"

Social Learning theory

The social learning theory of Bandura emphasizes the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others.

Bandura (1977) states:

"Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action."

Drive Reduction theory

Hull developed a version of behaviorism in which the stimulus (S) affects the organism (O) and the resulting response (R) depends upon characteristics of both O and S (Hull, 1993). In other words, drive reduction theory is about intervening variables that affected behavior such as initial drive, incentives, inhibitors, and prior training (habit strength)[13]. Like other forms of behavior theory, reinforcement is the primary factor that determines learning.

Behavioural theories are very vital in this project. This theories will be used as a medium for the content of the website as well as the design of it and perhaps not abuse the privilege given by UTP which is the 24 hour internet access but put it to better usage, for example doing their assignments and projects.

CHAPTER 3

METHODOLOGY

3.1 Project Methodology

The methodology that will be implemented to complete this project will be the information development methodology for web. The steps will be shown below in Figure 1 involving six processes.

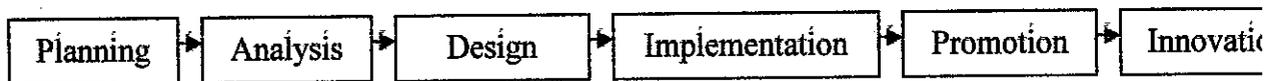


Figure 3: Information Development Methodology for Web

Planning

The planning phase involves gathering information about the audiences in this case who are the teens that are addicted to video games. Their background, characteristics and concerns should be put into consideration in this phase.

Also in this stage is to define the purpose of developing the website which is helping out teen's addiction of video games and providing them a behavioral change.

Analysis

The analysis phase will be gathering data and information based on the objectives mentioned above. The information obtained will be examined whether it is all factual and correct. Apart from that, the technical structure of the web will also be checked. Information's like the behavioral theories will be evaluated and analyzed in order to choose the most suitable theory.

Also conducted is a set of questionnaire to determine how frequent UTP student play online games and it affects them mentally, academically, health wise and social circle.

Design

The next phase is designing the web. As mentioned by December, John (13 February 2008)

“To design a web, you should have a thorough grounding in hypertext, multimedia, Java, and other programming possibilities as well as knowledge about how particular web structures affect an audience.”

December, John (2009)

Because of the porous quality of a web, you need to consider how a variety of audiences might find different "ways into" your information. Hypertext can provide alternate views of information and alternative routes for users to follow based on their needs and interests. A good way to provide this flexibility is to separate information into manageable page-sized chunks and then provide cues for the reader about the web's information structure and contents, context, and navigation [1][2]. A Web designer thus creates an overall link architecture for a web--specifying page contents and the hyperlinks among these pages to connect information along the routes of user needs [2]. A rough draft of the website is created along with a storyboard included in the result and discussion.

Implementation

Then, it would be the implementation stage. In this stage, the HTML files will be created using web development tools which in this case author will be using Microsoft Visual Basic Professional 2008. Also required is to ensure that the web created is compatible with most common used browsers.

December, John (2009)

A web implementor creates hypertext markup language (HTML), Common Gateway Interface (CGI) programs, and/or Java scripts and/or applets. The implementation process resembles software development because it involves using a specific syntax for creating hypertext structures in HTML or writing programming language code statements in computer files.

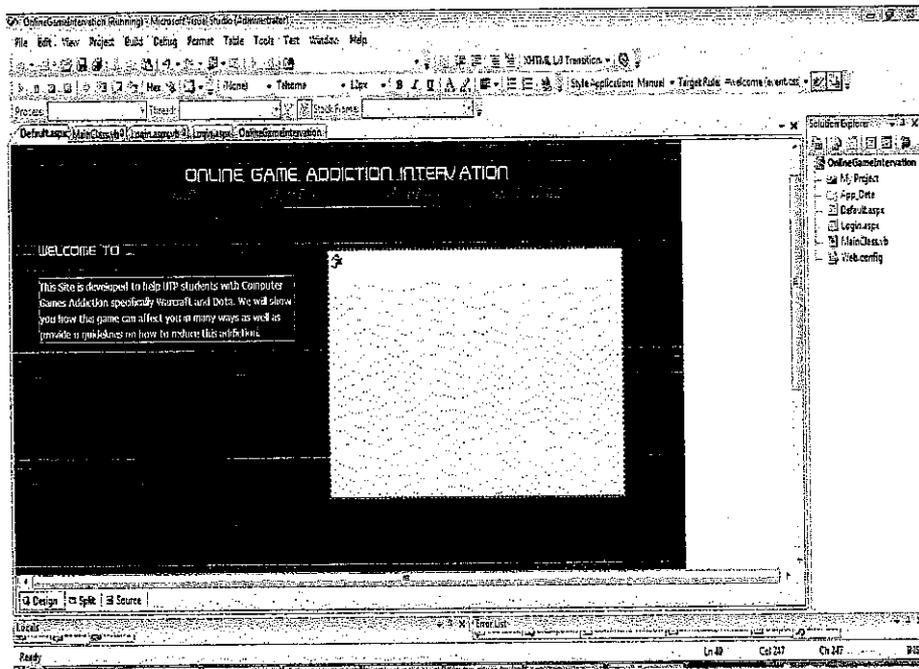


Figure 4: Creating HTML/XML files using Microsoft Visual Basic Professional 2008

Promotion

Next phase is promoting the website. Once the website is completed, there various ways to aware people of its existence by promoting it in online social networking websites like facebook and myspace, collaborating with bloggers whose audiences are similar with this website and also use emails as a medium but avoid spamming.

Innovation

Finally will be the innovation phase. This phase is an ongoing process as the web will be continuously updated and modified for improvement. Because a web is a round-the-clock, interactive service, developers should expect feedback from users and anticipate their changing needs. Ultimately the goal of innovation is to continuously improve the quality of a web by making sure that the processes of planning, analysis, design, implementation, promotion, and innovation are ongoing.

This is a very straight forward methodology to use for a web development. It is almost as similar to software engineering processes in developing a system. Therefore the

reason why this particular methodology is used is because in order to develop a broader perspective of Web, author can draw on many existing concepts from technical communication and software engineering practices. Also another motive using the information web development methodology would be as stated below.

December, John (2009)

“With the expanding technical options for communication on the Web, developers might be tempted to focus only on issues such as hypertext markup language (HTML) syntax, page layout, or the latest and flashiest technologies. However, Web developers need a broader, more process-oriented approach in order to articulate the information content they wish to convey. Developers also need to pay close attention to the characteristics and qualities of the Web as a medium for communication so that they don't merely duplicate practices intended for paper or other media.”

3.2 Gantt Chart

Refer to appendix A

3.3 Tools

These are a listing of expected tools and software to be used. There may be addition to this list as the project progress if deems appropriate.

1) Microsoft Visual Studio Professional 2008 and ASP.net

- Design and create websites
- Edit XML features

2) Microsoft SQL Server Express Management 2008

- Act as http server
- To enable server scripting scripts i.e. PHP

3) Macromedia Flash and Adobe Photoshop

- Graphic design and visual expressions (aids).

CHAPTER 4

RESULT AND DISCUSSION

This section will be focusing on the findings, data gathering and analysis and also a storyboard of the project. Firstly is the study and research done on the interfaced related theories which is to use as medium of intervention of online games addiction. Next is the survey carried out to find out what user think of the use of a web intervention towards computer games addiction in UTP. And thirdly is a design of website using Microsoft Visual Basic Professional 2008 with the storyboard.

4.1 Findings and Data Analysis

From the three main theories from the interfaced related theories which are Instructional, Learning and Behavioural theories; two theories were chosen from the Behavioural theories based on the study done which consist of Cognitive Dissonance Theory, Social Learning Theory(Gagne's and Bandura's).

Cognitive Dissonance Theory

Dissonance can be described as inconsistency between the beliefs one holds or between one's actions and one's beliefs which brings to cognitive dissonance definition where it is an instance of such inconsistency or disagreement [16]. This is the feeling of uncomfortable tension which comes from holding two conflicting thoughts in the mind at the same time.

Dissonance increases with [21]:

- The importance of the subject to us.
- How strongly the dissonant thoughts conflict.
- Our inability to rationalize and explain away the conflict.

Cognitive dissonance is a very powerful motivator which will often lead us to change one or other of the conflicting belief or action. The discomfort often feels like a tension between the two opposing thoughts. To release the tension we can take one of three actions [21]:

- Change our behavior.
- Justify our behavior by changing the conflicting cognition.
- Justify our behavior by adding new cognitions.

According to Leon Festinger (1957), the principles of cognitive dissonance theory are:

- Dissonance results when an individual must choose between attitudes and behaviors that are contradictory.
- Dissonance can be eliminated by reducing the importance of the conflicting beliefs, acquiring new beliefs that change the balance, or removing the conflicting attitude or behavior.

Examples of having cognitive dissonance are:

- Smokers find all kinds of reasons to explain away their unhealthy habit. The alternative is to feel a great deal of dissonance.
- Gamer's keeps saying they feel great when playing online games non stop although realizing that it is not doing any benefit to them.

Therefore, this theory will be very suitable as the medium of intervention in this project. Cognitive dissonance is central to many forms of persuasion to change beliefs, values, attitudes and behaviors. The tension can be injected suddenly or allowed to build up over time. People can be moved in many small jumps or one large one [12].

Social Learning Theory

As mentioned in the literature review, the social learning theory of Bandura emphasizes the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others.

According to Bandura (1977), the principles of social learning theories are:

- The highest level of observational learning is achieved by first organizing and rehearsing the modeled behavior symbolically and then enacting it overtly. Coding modeled behavior into words, labels or images results in better retention than simply observing.
- Individuals are more likely to adopt a modeled behavior if it results in outcomes they value.
- Individuals are more likely to adopt a modeled behavior if the model is similar to the observer and has admired status and the behavior has functional value.

Social learning theory explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental influences.

Necessary conditions for effective modeling [17]:

- Attention — various factors increase or decrease the amount of attention paid. Includes distinctiveness, affective valence, prevalence, complexity, functional value. One's characteristics (e.g. sensory capacities, arousal level, and perceptual set, past reinforcement) affect attention.
- Retention — remembering what you paid attention to. Includes symbolic coding, mental images, cognitive organization, symbolic rehearsal, motor rehearsal
- Reproduction — reproducing the image. Including physical capabilities, and self-observation of reproduction.
- Motivation — having a good reason to imitate. Includes motives such as past (i.e. traditional behaviorism), promised (imagined incentives) and vicarious (seeing and recalling the reinforced model)

Apart from Bandura's Social Learning theory, there is another learning theory by Gagne which is called Condition of Learning theory. This theory will also be adapted to develop the website that persuades changes in the student's behavior.

Gagne suggests that learning tasks for intellectual skills can be organized in a hierarchy according to complexity: stimulus recognition, response generation, procedure following, use of terminology, discriminations, concept formation, rule application, and problem solving [24]. The primary significance of the hierarchy is to identify prerequisites that should be completed to facilitate learning at each level. Prerequisites are identified by doing a task analysis of a learning/training task. Learning hierarchies provide a basis for the sequencing of instruction.

In addition, the theory outlines nine instructional events and corresponding cognitive processes:

- (1) Gaining attention (reception)
- (2) Informing learners of the objective (expectancy)
- (3) Stimulating recall of prior learning (retrieval)
- (4) Presenting the stimulus (selective perception)
- (5) Providing learning guidance (semantic encoding)
- (6) Eliciting performance (responding)
- (7) Providing feedback (reinforcement)
- (8) Assessing performance (retrieval)
- (9) Enhancing retention and transfer (generalization).

These events should satisfy or provide the necessary conditions for learning and serve as the basis for designing instruction and selecting appropriate media. Therefore, this theory can be incorporated with the intervention website design by:

Events	Example
(1) Gaining attention (reception)	Ask users what are their most important values
(2) Informing learners of the objective (expectancy)	Tell the users why it is vital to reduce computer games addiction
(3) Stimulating recall of prior learning (retrieval)	Review what they have learnt previously.
(4) Presenting the stimulus (selective perception)	Show users the facts and effects of playing excessive computer games
(5) Providing learning guidance (semantic encoding)	Provide the importance of each value they selected
(6) Eliciting performance (responding)	Enquiry on why do they actually smoke(through live chat box)
(7) Providing feedback (reinforcement)	Provide feedbacks
(8) Assessing performance (retrieval)	Provide proper solutions to problem user's face
(9) Enhancing retention and transfer (generalization).	Recall the importance of their values

Table 1: Example of events for Learning Theory

Through social learning theory and condition of learning theory, it can lead to motivation in forms of video and images for the online game addict to reduce this unbeneficial activity.

4.2 Survey Result

The objective of the survey carried out is to find out what you think of the use of a web intervention towards computer games addiction in UTP. Simple background information was inquired followed by a series of perceptions on computer addiction intervention and measures. The amounts of respondents for this survey are 120 students. This section will discuss the significant parts in the survey.

Section A: Background Information

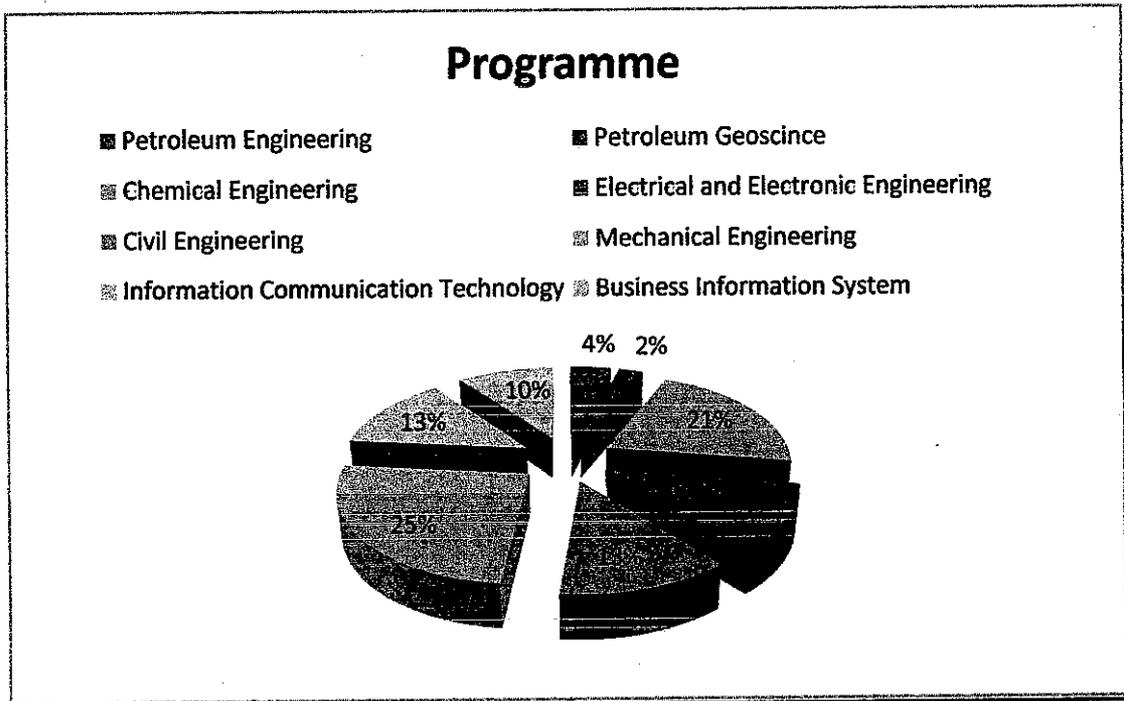


Figure 5: Programme Department of respondents

Most of the respondents in the survey comprises of Mechanical Engineering students followed by Chemical, Information Communication Technology, Civil, Electrical and Electronics and Business Information Systems students. The lowest numbers are from the Petroleum Engineering and Petroleum Geoscience department because these courses are still new in UTP and most of the students are still in either Foundation or in the First year of degree.

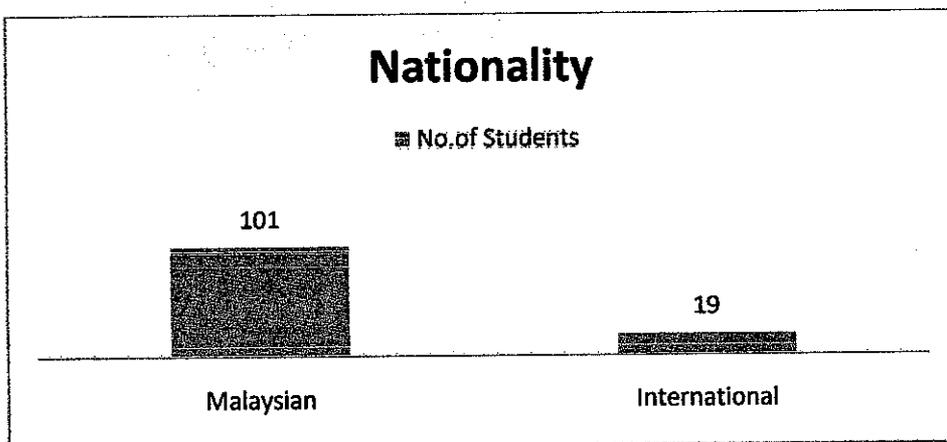


Figure 6: Nationality of respondents.

Of 120 students, 84.1 % are Malaysians and the remaining are International students which is roughly as same as the total students in UTP.

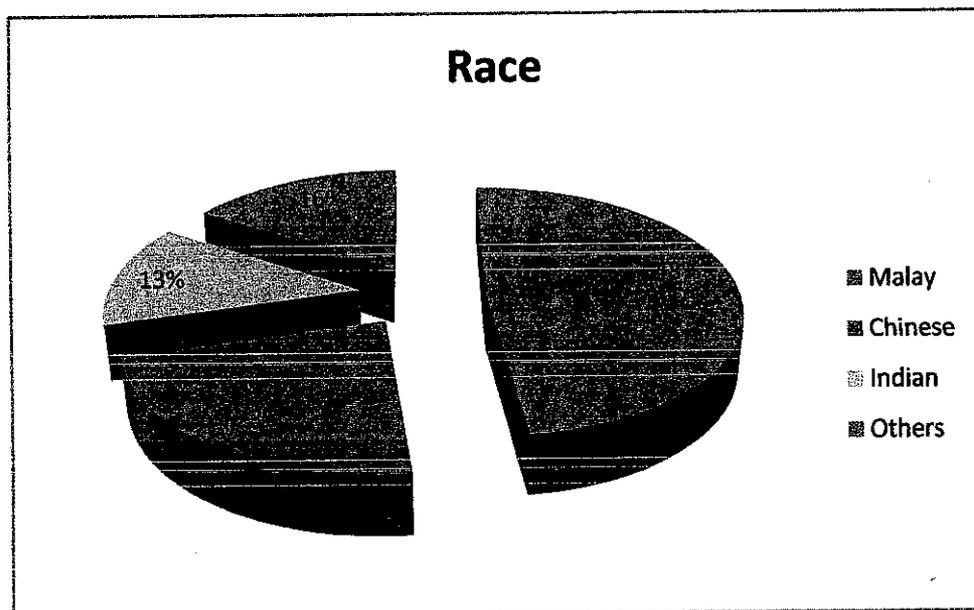


Figure 7: Race's of the respondents

The majority of the respondents comprises of Malay students followed by Chinese, Indian and others. The entire student of UTP does consist of mostly Malay students which is why the survey was focused majority towards them.

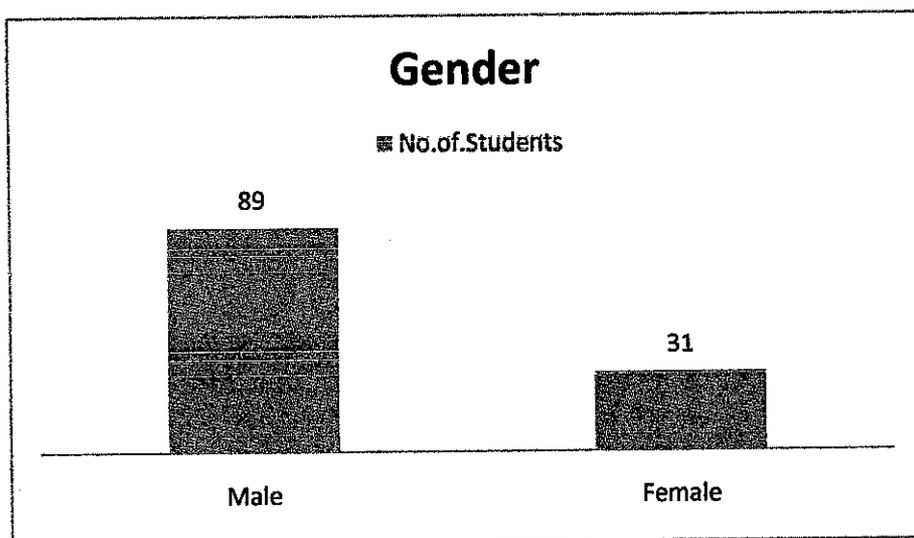


Figure 8: Gender of the respondents

The survey was done mostly on male students because they are more prone to play computer games (Warcraft and Dota) because of the availability of game servers in the boys dome.

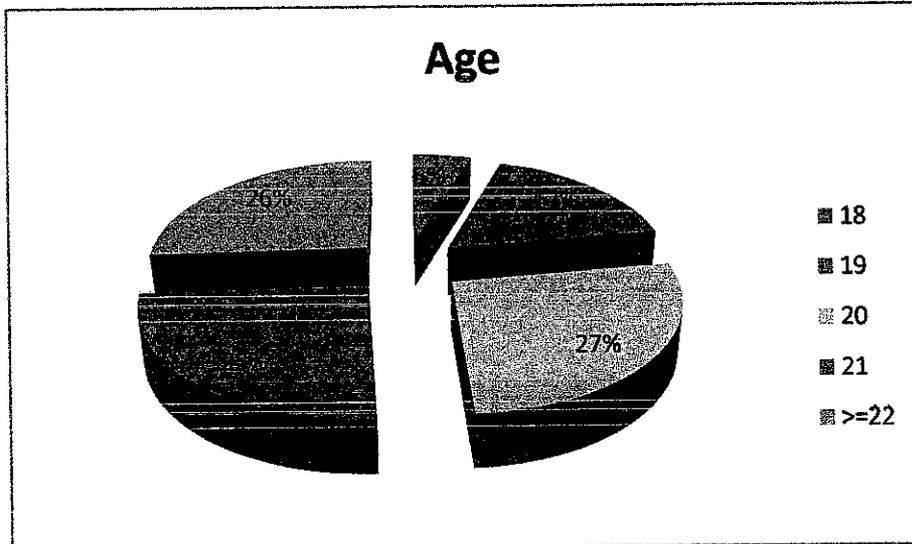


Figure 9: Ages of the respondents

The highest percentage of the range in age is 21 years old students with 26% whilst the lowest percentage is 18 years old students whom are the foundations. They are less likely to play excessive computer games since the dome they are living at does not have LAN network. Therefore the foundation students are not able to play Warcraft or Dota over the network.

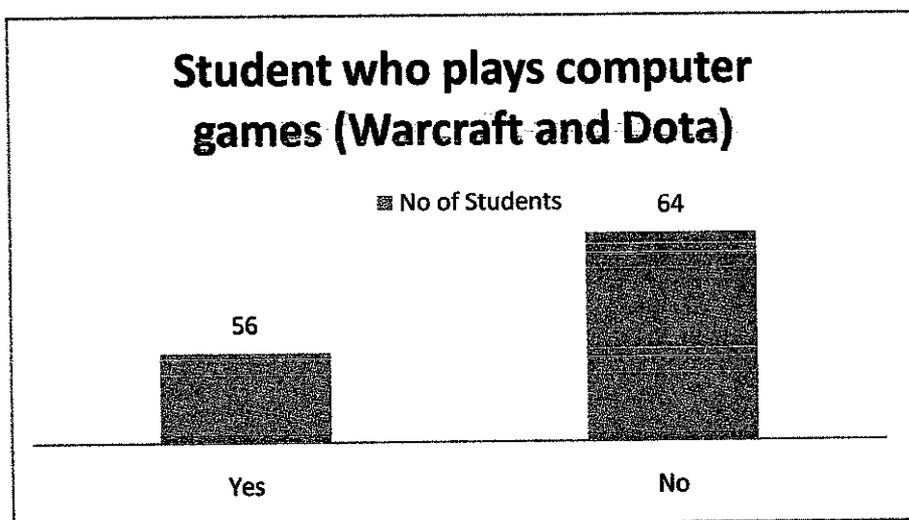


Figure 10: Students who plays computer games (Warcraft and Dota)

The amount of respondents that actually plays Warcraft and Dota is 46.7% whilst that who does not is 54.3%. This does show there are quite a high number of students whom are active in playing computer games in UTP:

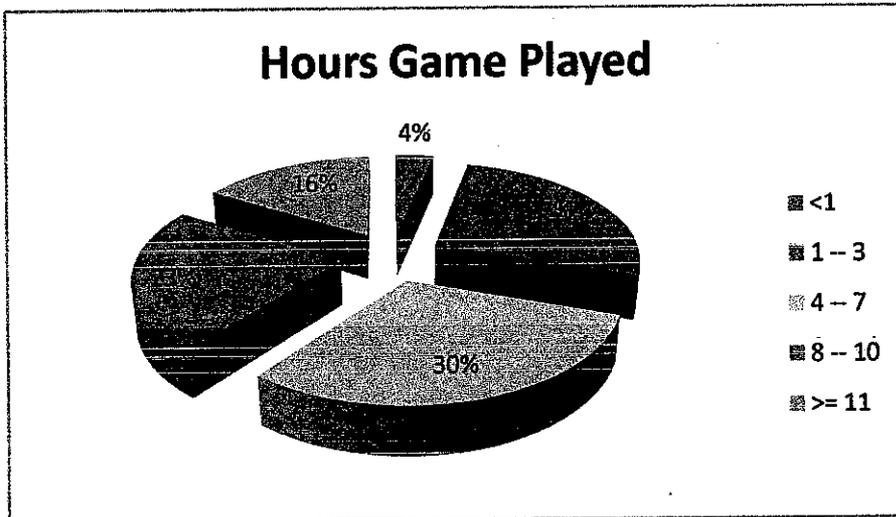


Figure 11: Hours of game (Warcraft and Dota) being played in a day.

Majority of the 56 students who answered yes to playing Warcraft or Dota spend four to seven hours doing so. This shows that they are quite a significant number of students whom are addicted to this unhealthy activity.

Section B: Perceptions on Computer Games addiction and its intervention measure

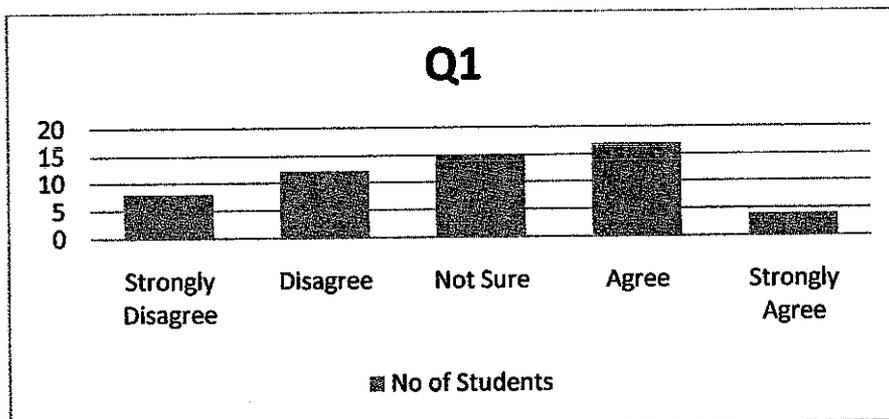


Figure 12: I prefer playing computer games than going for my classes.

30.4% of 56 students agrees that they prefer playing Warcraft or Dota rather than going for classes while 7% strongly agrees with it . This illustrates that they are students whom are prone to skipping classes because of the desire of playing computer games. 26.8% cannot make up their mind on what they prefer while the remaining of twelve and eight students disagree and strongly disagree respectively.

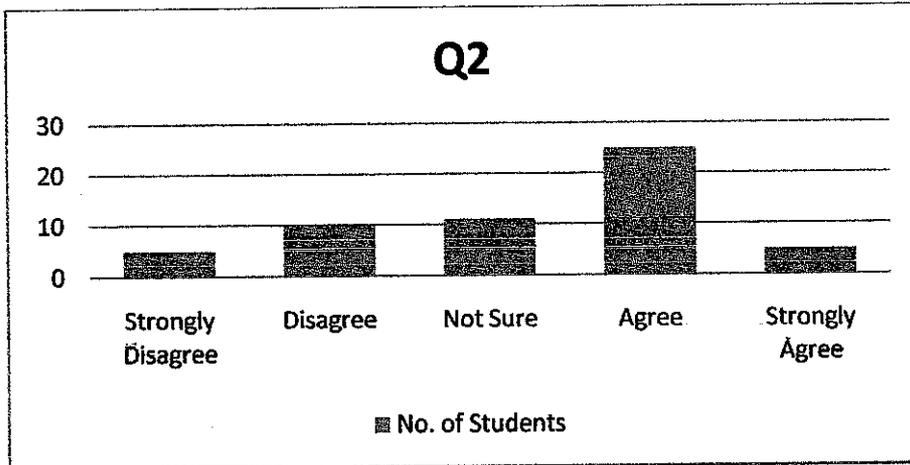


Figure 13: I prefer playing computer games than working on assignments and projects.

Most of the students agree that they prefer gaming than doing their homework and projects. This is because they may use gaming as an excuse to avoid doing their assignments and copy the answers from other classmates.

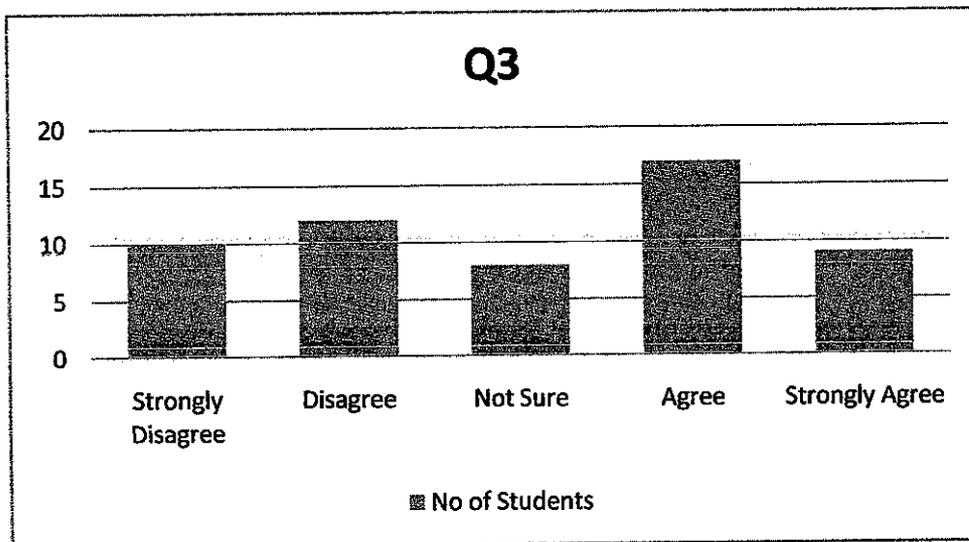


Figure 14: I rather play computer games than going for sports or exercise.

Also here, majority of the respondents agree that gaming is more preferable than working out or playing sports. This shows that being addicted to computer games can make one too lazy to take care of their health.

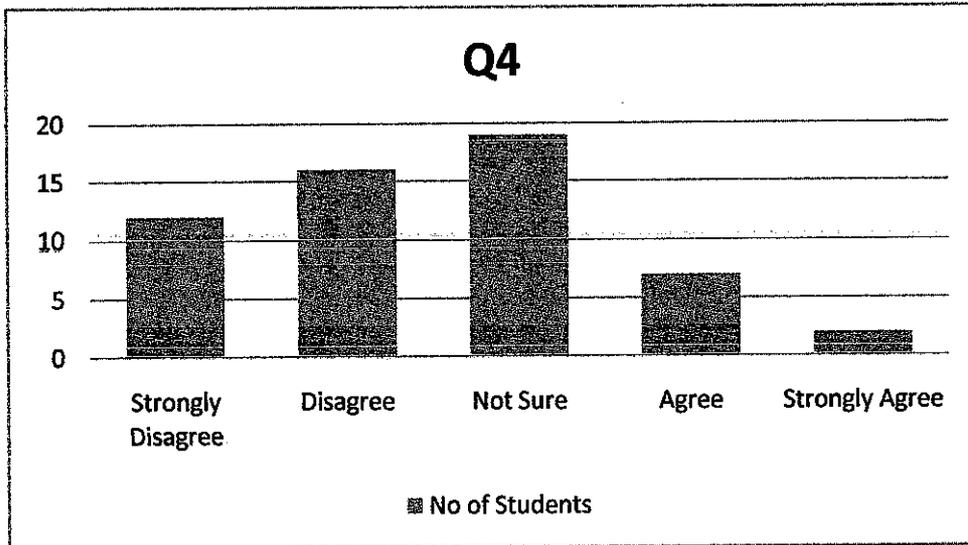


Figure 15: I feel unhappy, cranky or irritable when I am not able to play computer games.

Apparently, most of them are either not sure, disagrees or strongly disagrees that they will feel cranky or irritated when not able to play computer games. This shows that there are probably other activities that these students are doing which can be exploited through the intervention website.

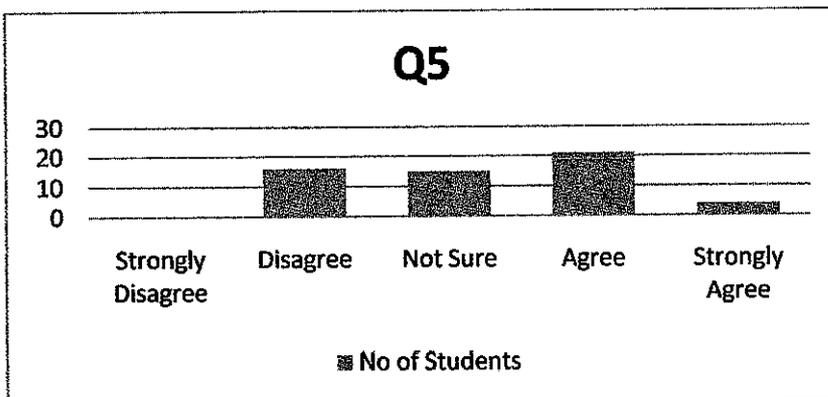


Figure 16: I get angry or have temper tantrums if someone disturbs me when I am playing computer games.

37.5% of students agrees that they will feel pissed off or have temper tantrum if disturbed during gaming. This shows gaming addiction may cause anger issues which is unhealthy for a student.

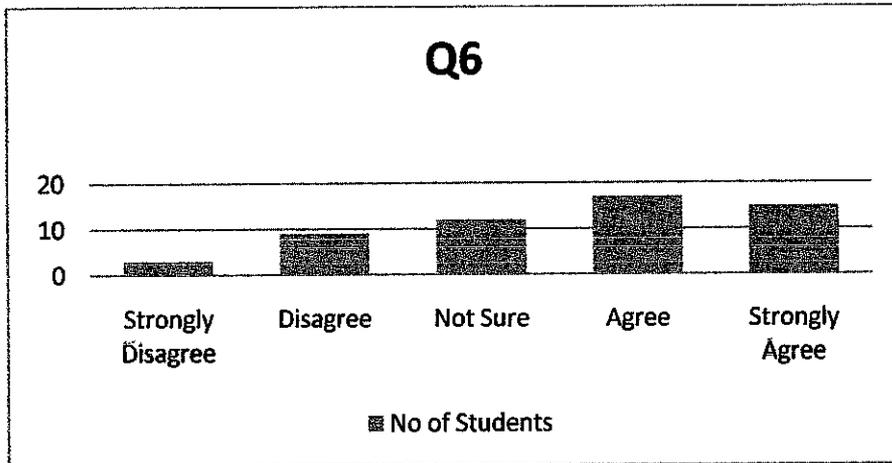


Figure 17: I try to cut back on my playing time but I can't.

Majority of respondents agrees that they are not able to cut back on their playing time even if they tried. The availability of gaming requirements which is their pc's and Lan network does play a role in gaming addiction.

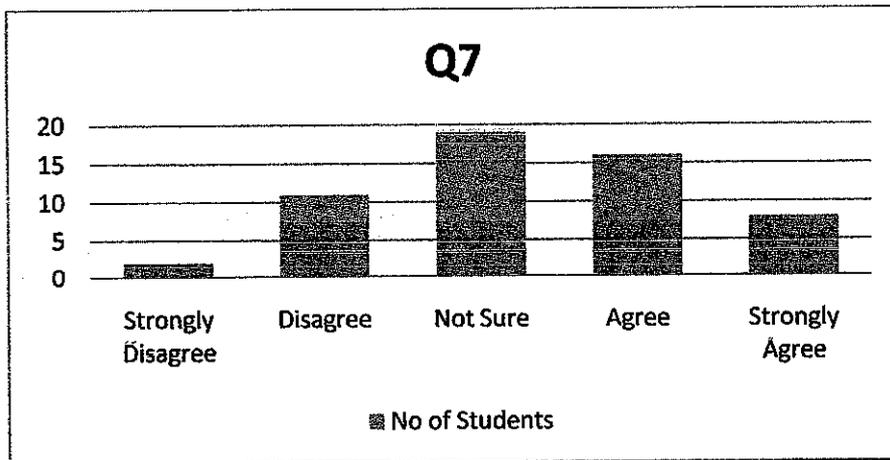


Figure 18: Playing online games cause me to have real life (academic, health, or relationship) problems.

Most of the respondents are not sure if playing Dota or Warcraft can cause to have real life problems. It is probably in the short run, they might not be able to experience. This why the effects and facts of gaming addiction will be shown with real life proof in the in the intervention website.

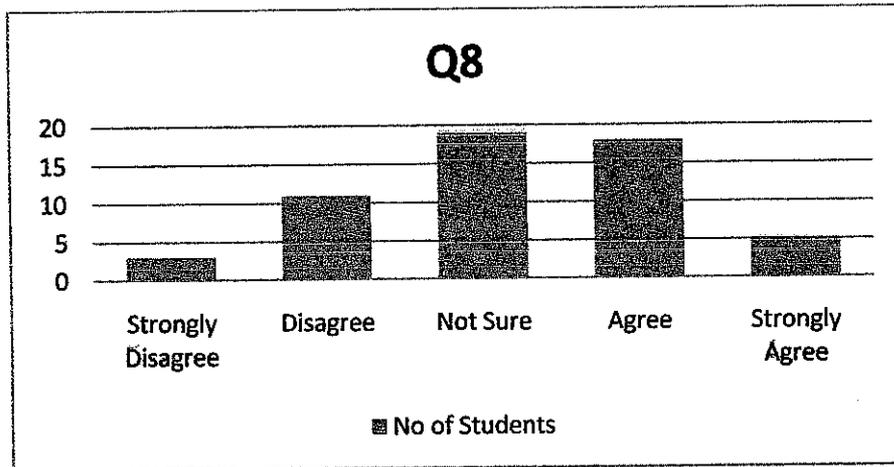


Figure 19: An online web intervention with adequate information of effects and facts about computer games would help student realize the problems of computer games addiction.

About 32.1% agrees that an intervention website could help student realize the disadvantages of playing too much of computer games while 33.9% are not sure if the website can help. Eleven and three respondents disagree and strongly disagree respectively with the statement. 8.9% strongly agrees that the website could help them notice the problems of gaming addiction.

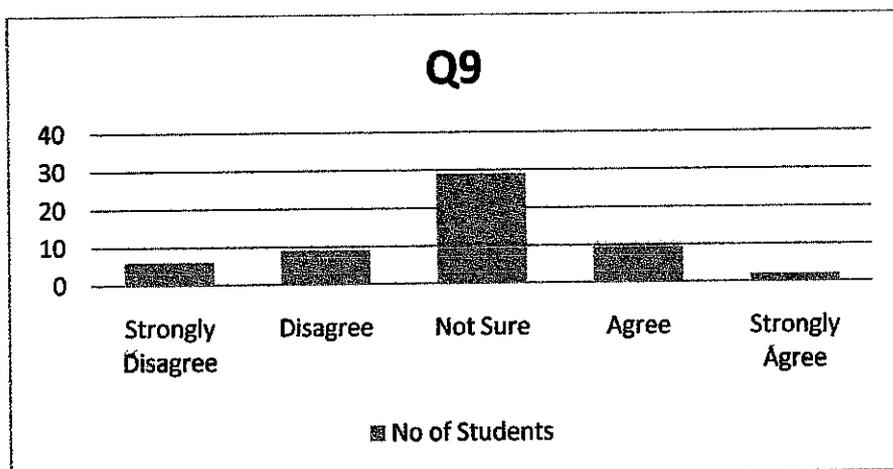


Figure 20: An online intervention website will be more ideal than having to meet a counselor to reduce computer games addiction.

Majority of respondents are not sure if the website will more reliable than meeting the counselors. This could be because the students itself do not meet the UTP counselors regarding their gaming addiction issue which makes them doubt on which approach would work.

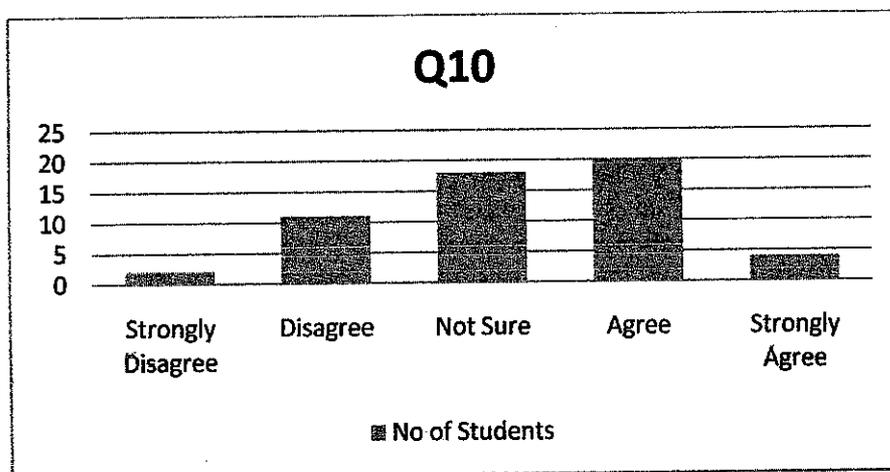


Figure 21: An online intervention website that persuades changes in behavior towards computer games addiction will be relevant for students in UTP.

20 students out of 56 agrees that the website would help the change in behavior towards computer addiction. This is a very positive feedback which shows that an online intervention website would probably be useful in reducing computer games addiction.

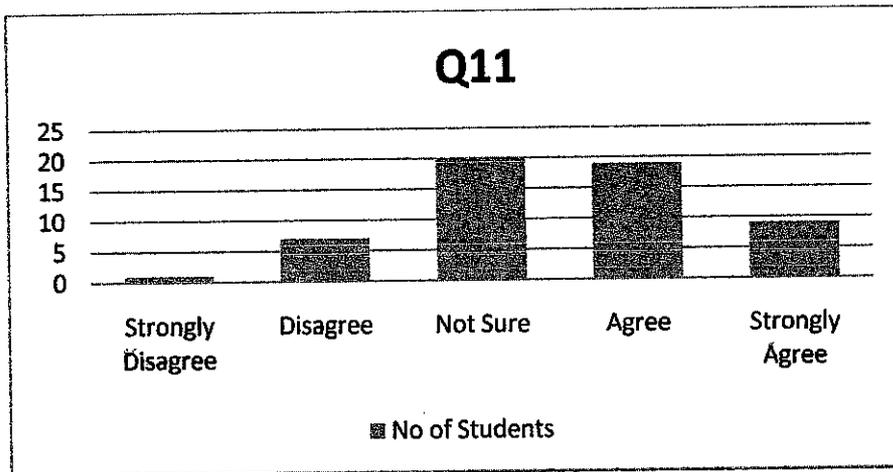


Figure 22: A live chat box in the website will be practical for students to share problems of computer games diction as well as gain advice from UTP counselors or peers.

35.7% are not sure if the live chat box is practical for problem sharing regarding computer games addiction. But they are more of them that agrees than disagree that this live chat box could help them to get advice from friends or counselors to reduce their gaming addiction.

Based on the survey result, it can be concluded that there are number of students whom are actively involved with online gaming and addicted to it. Also majority of them are male students. From the survey done, the development of the intervention website is potentially useful to make student realize of the effects and facts of online game addiction as well as able to share their problems on excessive online gaming.

4.3 Storyboard

Below is the storyboard of the website. These are the descriptions of the tabs and its contents. Also the purposes of each tab are also elaborated in this section.

Home Page

Description:

- Title of website – Online Games Addiction Intervention is the name of the website as stated in top banner of the homepage.
- About – A button linked to another page which will describe in whole about the project.
- Contact – A button linked to another page which will provide the relevant contact information regarding the website.
- Home – A button that links to the homepage
- Intervention911, ComputerAddiction, and Intervention – Buttons that link to other web intervention for online games addiction.
- Description about the developer and sponsor.
- A simple Quiz tab for computer games addicts to indicate what kind of addict they are – low level, moderate level, high level.
- Register and Login in the home page itself.

Video Page

Description:

- Videos – Button linked to the videos page. Contains video of problems caused by games addiction, how it affects teens and also testimonial clips of students addicted to online games. This page is still being improved to upload more videos.
- Clip – A sample clip of online game being played by a gamer addict. Also, some clips from YouTube which shows computer games addict intervention done by professionals.

Addiction Causes and Effects page

Description :

- Content – This page contains the cause of why students have tendency to play online games extremely and eventually get addicted. The causes will be list out with true facts obtained from articles and journals. Also contained in this page is the negative effects Warcraft and Dota addiction.
- Real life encounters because of excessive playing of Warcraft and Dota will be displayed in this page for users to observe and reflect.

Quiz page

Description:

- Content – This page displays a short quiz for computer games addicts to indicate what kind of addict they are; low level, moderate level, or high level. User will have to answer a series of questions about computer games addiction and the website will generate the result determining what kind of addict they are.

Live Chat box

Description:

- Content – This is similar like Google's Gmail chat program whereby there will be a live chat box for registered users to chat discussing their issues on computer games addiction and since the problem is contextualize to UTP students the live chat element will be with UTP counsellors – (An interview with the counselors will be conducted for added input).

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

The introduction chapter includes the background of the study, problem statement, objectives of study and scope of study. The problem statement specifies the problem identified from the study. The problem in this project is students addicted to online games. With the free internet access provided, students are able to create a server (host) so that anyone can join and play the online games. This will lead to serious addiction that leads to many tribulations. The objective specified for the project is to design a web intervention based on the identified theories. The scope of study is to be study will be on finding out reasons how students are drawn to play online video games for hours and the effects to them academically and health wise. Also, study will be conducted based on interfaced related theories which are learning, instructional and behavioural theories. The target of this project is the UTP students with online games addiction.

The literature review chapter consists of journals, articles and books regarding the study. The literature review discusses on other author's findings, research, projects etc. The literature review is important to know the concept used by other author to create the system or prototype. The literature review helps to find solutions regarding the feasibility, ways and methods to develop the website. The methodology chosen is information development methodology for web. This methodology is suitable because it involves the not only the main parts of methodology which are planning, analysis, design and implementation but also promotion and innovation. The Gant chart is also created and attach in the appendix to be viewed.

The result and discussion involves the study done based on the interfaced related theories, a survey regarding perceptions towards computer games addiction and intervention measusers and also a storyboard on the drafted website. From the study

done, two theories were chosen which are Social learning and Cognitive dissonance. Also the storyboard of the websites explains the function of each page and the content of it.

As for the recommendations, author would suggest that the website can provide solution to reduce this excessive addiction by having sets of modules to help different level of computer games addict. This is because the current project will only let user know what kind of addict they are and provide a general solution for the solution. Apart from that, author also hopes that this project can expanded to incorporate with the student support service to help UTP students to cope with online game addiction.

REFERENCES

[1] Sommerville, Ian. 2007. *Software Engineering*, (8), England, Pearson Education

[2]December,John:-13-Feb-2009

<<http://www.december.com/web/develop/overview.html>>

[3] “Web development” Wikipedia: The Free Encyclopedia.

<http://en.wikipedia.org/wiki/Web_development>

[4] “Video games addiction” Wikipedia: The Free Encyclopedia.

<http://en.wikipedia.org/wiki/Video_game_addiction>

[5] “Addiction” Wikipedia: The Free Encyclopedia.

<<http://en.wikipedia.org/wiki/Addiction>>

[6] “Online Game” Wikipedia: The Free Encyclopedia.

<http://en.wikipedia.org/wiki/Online_games>

[7] “GOMS” Wikipedia: The Free Encyclopedia.

<<http://en.wikipedia.org/wiki/GOMS>>

[8] “Experiential Learning” Wikipedia: The Free Encyclopedia.

<http://en.wikipedia.org/wiki/Experiential_learning>

[9] “Cognitive dissonance” Wikipedia: The Free Encyclopedia.

<http://en.wikipedia.org/wiki/Cognitive_dissonance>

[10] "Attribution theory" Wikipedia: The Free Encyclopedia
<http://en.wikipedia.org/wiki/Attribution_theory>

[11] Bandura, A. 9th March 2009
<<http://tip.psychology.org/bandura.html>>

[12] Festinger, L. 9th March 2009
<<http://tip.psychology.org/festinge.html>>

[13] Hull, C. 9th March 2009
<<http://tecfa.unige.ch/themes/sa2/act-app-dos2-fic-drive.htm>>

[14] Intervention911
<<http://www.intervention911.com/>>

[15] Intervention
<<http://www.intervention.com/>>

[16] "Dissonance"
<<http://www.merriam-webster.com/dictionary/dissonance>>

[17] Social Learning Theory (Bandura). 12th April 2009
<<http://www.learning-theories.com/social-learning-theory-bandura.html>>

[18] "What is a MMORPG?"
<<http://www.wisegeek.com/what-is-a-mmorpg.htm>>

[19] Game Addiction: The Real Story, 13th April 2009
<<http://www.gamespot.com/features/6207309/p-3.html>>

[20] Video Game Addiction, 15th April 2009

http://addiction.lovetoknow.com/wiki/Video_Game_Addiction

[21] Cognitive Dissonance. 15th April 2009

<http://changingminds.org/explanations/theories/cognitive_dissonance.htm>

[22] Hull, Clark L. 15th April 2009

<http://www.newworldencyclopedia.org/entry/Clark_Hull>

[23] "Drive Reduction Theory". 15th April 2009

<<http://tip.psychology.org/hull.html>>

[24] "Condition of Learning". 9 September 2009

<<http://tip.psychology.org/gagne.html>>

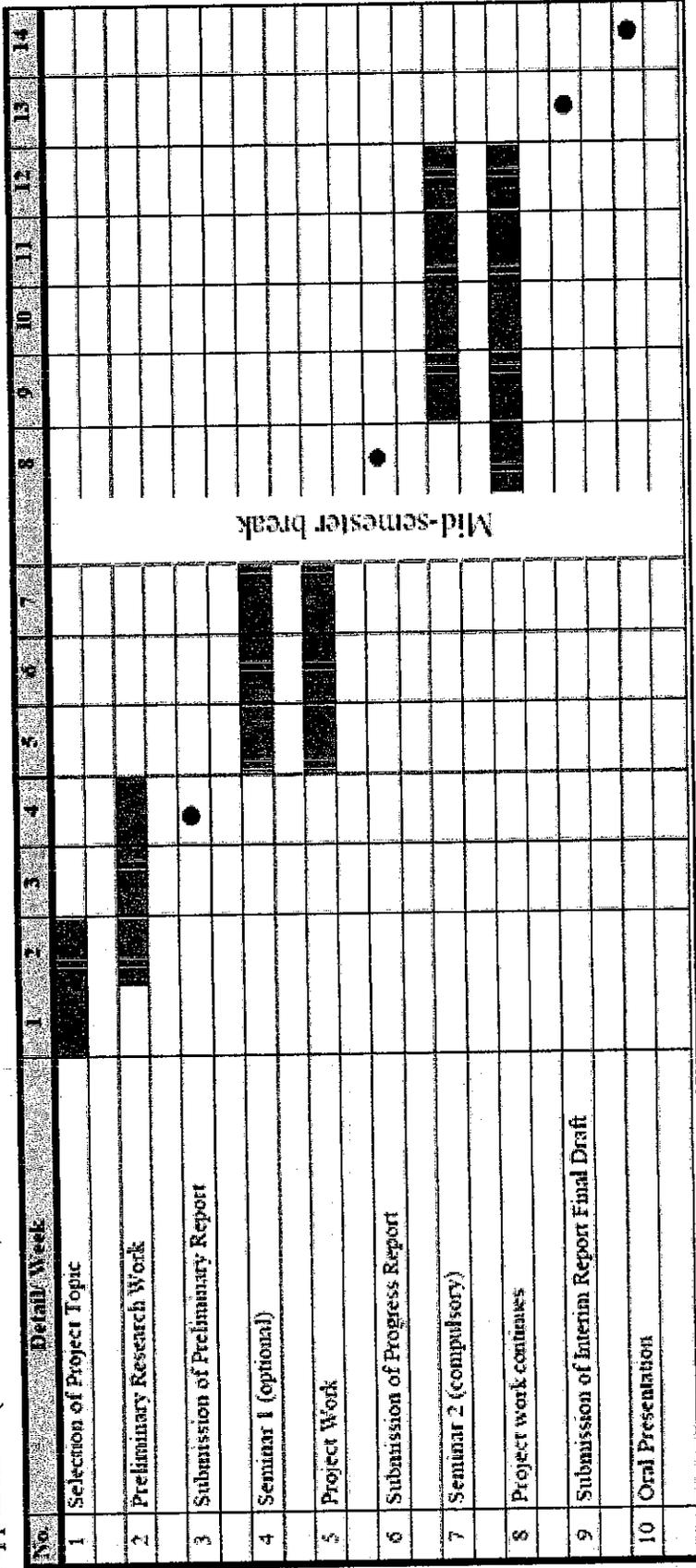
[25] Gagne RM. The Conditions of Learning Theory of Instruction. New York: CBS College Publishing; 1985.

[26] "Addictions". 15th September 2009

<<http://www.curryguide.com/topic/112/Addictions>>

APPENDICES

Appendix A (Gantt Chart)



● Milestone



█ Process

Appendix B (Survey Questions)

Dear Respondent,

The objective of this survey is to find out what you think of the use of a web intervention towards computer games addiction in UTP. This research is being carried out for my FYP project. Your kind assistance in completing this questionnaire is much appreciated. Your response will be treated with strictest confidence.



SECTION A: BACKGROUND INFORMATION

Please circle or tick your response to the following:

1) Programme

1	Petroleum Engineering
2	Petroleum Geoscience
3	Chemical Engineering
4	Electrical and Electronics Engineering
5	Civil Engineering
6	Mechanical Engineering
7	Information Communication Technology
8	Business Information System

2) Nationality

1	Malaysian
2	International

3) Race

1	Malay
2	Chinese
3	Indian
4	Others

4) Gender

1	Male
2	Female

5) Age

18	19	20	21	>=22
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6) Do you play computer games (World of Warcraft and Dota via UTP network)?

1	Yes
2	No

7) If your answer is yes to (6), how many hours in a day do you play those computer games?

<1	1 > 3	4 > 7	8 - 10	>11
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SECTION B: PERCEPTIONS ON COMPUTER GAME ADDICTION AND ITS INTERVENTION MEASURES

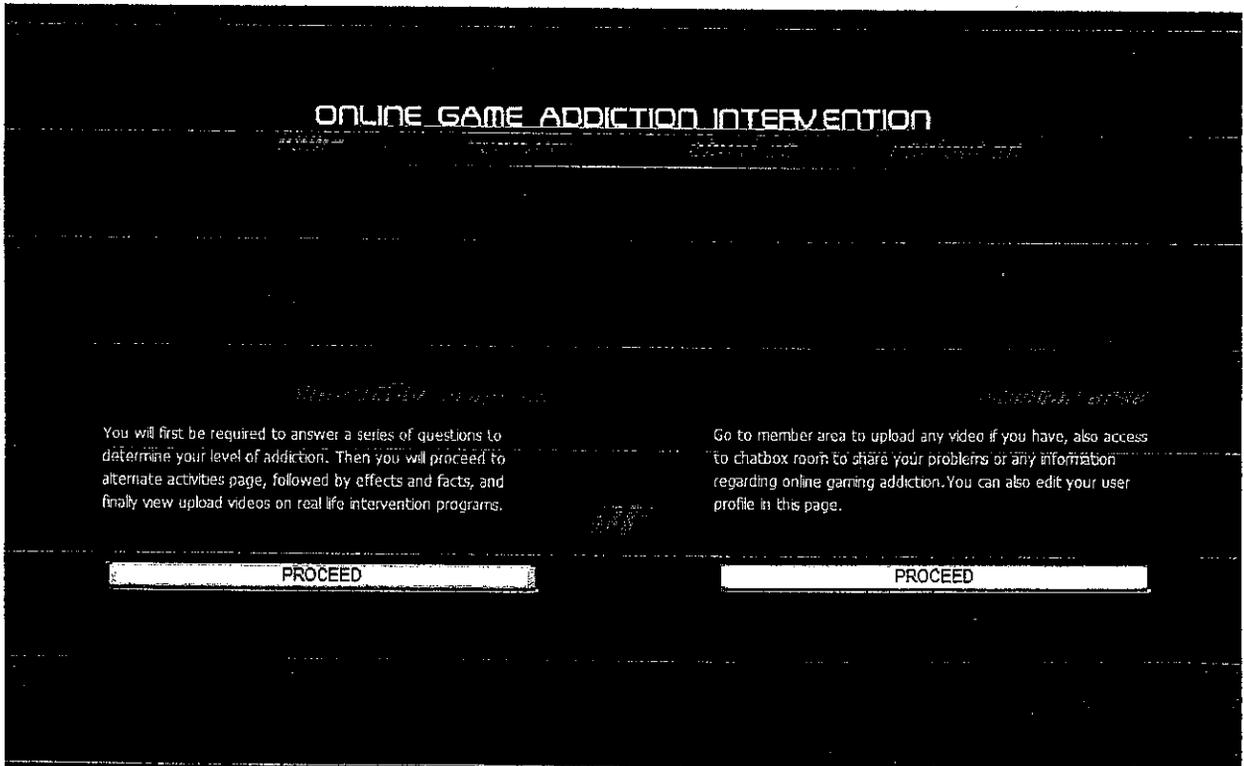
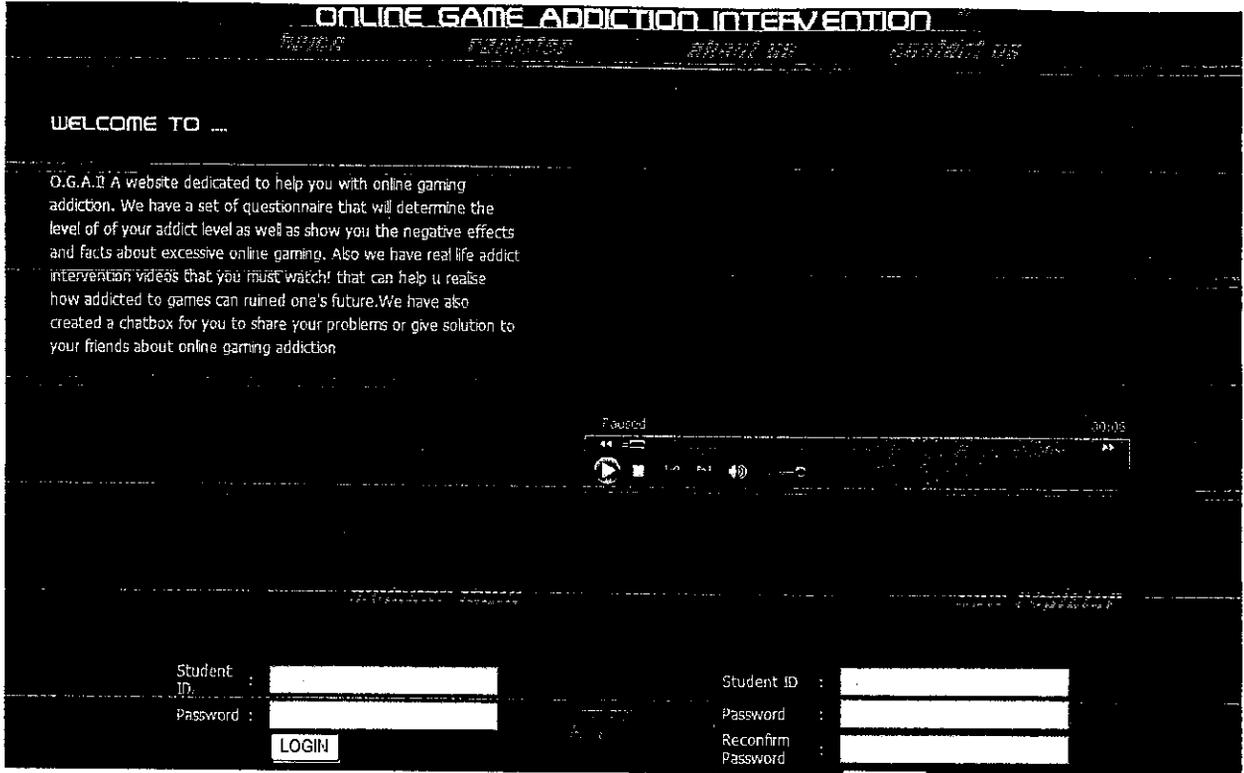
Please rate the following statements on a scale from 1 to 5 by circling the appropriate boxes using the guide below:

1	2	3	4	5
Strongly disagree	Disagree	Not sure	Agree	Strongly agree

NO	STATEMENT	1	2	3	4	5
1	I prefer playing computer games than going for my classes.	1	2	3	4	5
2	I prefer playing computer games than working on assignments and projects	1	2	3	4	5
3	I rather play computer games than going for sports or exercise.	1	2	3	4	5
4	I feel unhappy, cranky or irritable when I am not able to play computer games.	1	2	3	4	5
5	I get angry or have temper tantrums if someone disturbs me when I am playing computer games.	1	2	3	4	5
6	I try to cut back on my playing time but I can't.	1	2	3	4	5
7	Playing online games cause me to have real life (academic, health, or relationship) problems.	1	2	3	4	5
8	An online web intervention with adequate information of effects and facts about computer games would help student realize the problems of computer games addiction.	1	2	3	4	5
9	An online intervention website will be more ideal than having to meet a counselor to reduce computer games addiction.	1	2	3	4	5
10	An online intervention website that persuades changes in behavior towards computer games addiction will be relevant for students in UTP.	1	2	3	4	5
11	A live chat box in the website will be practical for students to share problems of computer addiction as well as gain advice from counselors or peers.	1	2	3	4	5

----- **THANK YOU FOR YOUR PARTICIPATION** -----

Appendix C (Website Screenshots)



Need to play for increasing amounts of time - You rather play online game for hours rather than doing other activities. You feel your whole day is dedicated to just getting on the computer and playing the whole time. You neglect your surroundings. You don't realize time passes by. You are not bothered about it. Is this the person you always want to be?

Using Game as escape from real life problems - "As the general of your army, you are the commander—the conqueror! Tremendous power lies at your fingertips. At your command, tanks will enter a city, destroying whatever, and killing whoever, is in sight. Commandos will stealthily sneak in and blow something—or somebody—to pieces. The enemy doesn't stand a chance..." So this is how u can escape from reality? Think: by doing this all your problems will just disappear into thin air? Think again.

Attention problem - Playing game all the time might help you concentrate and focus in the game but not in class, not when you are spending time with your loved ones, not when you are doing your assignments and projects. You just rather want to play game than do all this.

Emotional Disorder - You may suffer from emotional problems such as depression and anxiety-related disorders and often use the fantasy world of the online gaming to psychologically escape unpleasant feelings or stressful situations. Is this what you want to turn out to be? You wish to enter



A support group called On-Line Gamers Anonymous has numerous postings on its Web site from gamers seeking help. Liz Woolley, of Harrisburg, Pa., created the site after her 21-year-old son fatally shot himself in 2001 while playing an online game she says destroyed his life. Professor Smyth (Syracuse University) discovered that the students assigned to the MMORPG group reported greater decreased levels of health, well-being, sleep, real-life socialization and academic work than the students assigned to any of the other groups.

It is estimated that 88 percent of young people in the U.S. play video games, indicating that up to three million could be showing signs of addiction. The gamers in the study showed addiction-like symptoms ranging from lying to family and friends about how much they play games and using the games to escape their problems to becoming restless or irritable when they stop playing. A support group called On-Line Gamers Anonymous has numerous postings on its Web site from gamers seeking help. Liz Woolley, of Harrisburg, Pa., created the site after her 21-year-old son fatally shot himself in 2001 while playing an online game she says destroyed his life.

Sweden's Youth Care Foundation - World Of Warcraft 'more addictive than crack cocaine' as teenager suffers convulsions after 24-hour-long game. It is the 'most dangerous game on the market'.

Alternative Activities

Alternative Activities

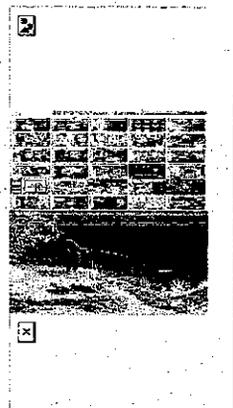
Sports and Exercise - First of all, it gets you out of your room so that you can be distracted from playing online game excessively. Exercising causes the body to produce endorphins, chemicals that can help a person to feel more peaceful and happy. Exercise can help some people sleep better. It can also help some people who have mild depression and low self-esteem. Plus, exercise can give people a real sense of accomplishment and pride at having achieved a certain goal!

Spend Time with Family and Friends - Instead of having online friends, reconnect with your 'REAL' friends. Hang out with them. Spend some quality time with them. Go for a movie, play a sport or even just go a meal with them. You can distract yourself from spending the whole day in room playing Dota or World of Warcraft.

Play Computer Games that are more constructive and less time consuming - It is ok to play computer games but not to a level that you are consumed by it. There are tons of games that can make your brains work and at the same time doesn't require hours to complete. Examples are like bejeweled blitz (facebook), Pop Cap Games, MiniClip Games or even online Chess, Fool and Scrabble games.

Get a 'Real' Hobby - Playing online game all the time is not a hobby and it's not healthy. Find a real one. Read books, go travelling, fishing, take up music, and collect stuff's. These are just few of many hobbies which are healthier, informational, and relaxing.

Join a club or take part in events - UTP has tons of clubs and events to offer. Just pick one or two to keep you busy. This can keep you from just staying in the room and playing game. Recreational, Music, and Social events are fun too. And it involves real people with real characters.



NEXT STAGE

INTERVENTION



COMPLETED