STUDENTS' PERCEPTIONS TOWARDS USING WWW AS A SUPPLEMENTARY LEARNING TOOL AT UNIMAS

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STUDENTS' PERCEPTIONS TOWARDS USING WWW AS A SUPPLEMENTARY LEARNING TOOL AT UNIMAS

by

KENG JENN NI

This project is submitted in partial fulfilment of the requirement to obtain a Bachelor of Science (Human Resource Development) from Faculty of Cognitive Science and Human Development, University of Malaysia Sarawak
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This study aimed to determine students' perceptions towards using WWW as a supplementary learning tool. Specifically, it determined students' perceptions towards WWW's usefulness, complexity, job-fit, and user-friendlyness. It also studied the relationships between students' perceptions towards WWW and their educational background, computer competency, the purposes of using WWW, and also the services that they have tried. Questionnaire was used to obtain feedback from a total of 86 first year students from University Malaysia Sarawak, Kota Samarahan. All respondents were art stream students and they responded on voluntary basis. Generally, the findings showed that most of the students had positive perceptions towards using WWW as a supplementary learning tool. The correlation between students' perceptions towards WWW and their computer competency was found to be very weak and not statistically significant. In addition, students' perceptions towards WWW had weak correlation with their educational background, the purposes of using WWW, and the services that they have tried also. The implication of these findings is that students' perceptions towards WWW are associated with their educational background, the purpose of using WWW, and the services they tried. In adopting the idea of web-based learning in education, these factors must be taken into consideration even though the correlation between the variables was weak.
ABSTRAK

PERSEPSI PELAJAR TERHADAP MENGGUNAKAN RANGKAIAN JARINGAN SEDUNIA SEBAGAI SATU ALAT PEMBELAJARAN TAMBAHAN DI UNIMAS

Keng Jen Ni

CHAPTER 1
INTRODUCTION

Introduction

The development in communication and networking technologies has propelled mankind into a new era. With these technologies, we can communicate with thousands of people at any time any day. We can also have accessed to the latest information easily. Increasing utilization of available resources via the Internet is becoming more attractive to users. This can be seen by the increasing popularity of using Internet facilities, such as email, mailing lists, and Usenet News.

Tim Berners-Lee, a graduate of Oxford University has put forward the idea of World Wide Web (WWW) in 1980. He wanted a program that could store random associations between arbitrary pieces of information, after he got frustrated with the difficulty of accessing the database which were stored on different machines. In 1989, he submitted his proposal named "Information Management: A Proposal". The main objective of this proposal was to provide a protocol where information could be exchanged between information suppliers and information consumers. The aim of the proposal was that all these information would be stored in hyperlink documents and this service was free of charge. On October 1990, this proposal was reformulated and renamed the World Wide Web (Feizabadi, 1997).

By the end of 1995, the WWW has more than 100,000 servers and this figure doubled approximately for every two to three months (Eager, 1996). According to Eager (1996), a survey was conducted in U.S. and Canada to study the demographics of Internet users. It showed that approximately 64 percent of WWW users have a college degree, 25 percent have an income of more than $80,000 and the largest group of Internet users are between the ages of 16 and 34, which accounted for 53 percent of the users.

The Internet consists of a several services such as Electronic mail, File Transfer Protocol (FTP), Telnet, Newsgroups, and WWW. WWW is the most talked about service on all arena of the world. Documents in the WWW contained text, graphics, sound, digital video, and animation. With these features, WWW has became more attractive, informative, and its convenience and ease of browsing has been further enhanced.
The attention given to the use of WWW for teaching and learning purposes has been increasing in recent years. However, it is not being utilized to its maximum potential in the classroom especially in Malaysia due to its relative newness. It is only used as a supporting learning tool for students to access to the latest information. This information is very useful for students in performing their task and completing their assignments. In other words, web-based learning is an important tool in developing our society to become information-rich and developed society.

During the National Congress Vision 2020 on 29th April 1997, our Prime Minister emphasized the importance of developing our society. He said, “We emphasized human resource development. Let me remind everyone once and for all that Vision 2020 states unequivocally: nothing is more important than the development of human resources... Our people is our ultimate resource.”

Our Prime Minister, Dato' Seri Dr Mahathir Mohamad has set out nine challenges as the objective of Vision 2020 on 28 February 1991. One of these challenges involves the establishment of a scientific society that is innovative and forward-looking, one that is not only a consumer of technology, but also contributes to the scientific and technological civilization of the future. He made the following statement during his speech on "The Way Forward - Vision" at Malaysian Business Council on 28 February 1991.

In the information age that we are living in the Malaysian society must be information rich. It can be no accident that there is today no wealthy, developed country that is information-poor and no information-rich country that is poor and undeveloped.

To achieve Vision 2020, the Multimedia Super Corridor (MSC), a project that will direct our society to become more knowledgeable in technology was launched. This project consists of seven flagships. One of the flagships is Smart Schools. In its vision, Smart Schools are not only categorized by the introduction of technology -- which is a critical component -- but more importantly, by their ability to deliver education in a better way in Malaysia (Education for a Smart Society, 1998). Under this project, government envisions that all primary and secondary schools will be converted to Smart Schools by the year 2010. Technology will be the driving force behind this effort. Consequently, new teaching and learning process, the connectivity to the external constituencies and the educational network to link all the Smart Schools will be created. If this project is successfully implemented, we will have a developed and knowledge-based generation. The Minister of Education, Dato' Sri Mohd Najib Tun Haji Abdul Razak said,

An exciting development of our education system is the creation of Smart Schools. Smart Schools are being planned in stages nationally, not only to meet the requirements of the Multimedia Super Corridor, but also to create a new generation of Malaysians - Malaysians who are more creative and
In meeting the Vision 2020 and Smart School of challenge, WWW will play an important role. Using WWW as a learning tool will help our society become aware of the ever-changing development and changes in knowledge, especially in science and technology. All students are encouraged to use the WWW as an educational tool. It is a useful tool to achieve the vision of an information technology-based country. For example, students can access to information all around the world by only using their computer. They can also exchange opinions and information with others from all around the world easily and in less time. Educators are encouraged to integrate Internet with their teaching. With Internet, they can get up-to-date information which will help them prepare their teaching materials.

Isaacs, in her article on “WWW as a tool for learning”, said that, WWW has been discovered as a supremely flexible and convenient tool to support education at all levels and in different ways. It enables teachers to provide a rich information infrastructure around their teaching, an infrastructure built up with a minimum of effort, and coming complete with flexible and low-cost distribution. Most commonly, it is used as a reference library of supporting material for a course, enabling access to materials such as course outlines and syllabi, lecture notes, handouts, assignments, reading lists, and so on.

If Malaysia aims to achieve the challenge of Vision 2020, integrating WWW into our education system is a must for all the schools, institutes and universities. We have to prepare our society on how to use WWW before the changes can be made. Society must be able to make use of this tool so that it will benefit us in developing our nation. In other words, WWW will serve as a tool to help us in forming an information-rich generation, which will directly help us in achieving our vision.

Background

Malaysia aims to become a fully developed and information-rich nation in Vision 2020. In response to this challenge, all the universities and institutes of learning in Malaysia are under significant pressure to produce human resource to achieve the vision. They play an important role in helping the country to utilize the creative capacities and potential of its people.

University Malaysia Sarawak (Unimas) was established in December 1992. Although Unimas is still new in its operation, it has prepared itself to meet the challenges, goals, and needs of Malaysia. Unimas consists of eight faculties and four research institutes in
its temporary campus. This temporary campus occupies 20-acre site. The permanent campus, which is still in the planning stage will occupy a 1700-acre site and can accommodate a total of 20,000 students and staff. The University's mission is to establish itself as an exemplary university of regionally acknowledged stature and as a scholarly institution of preference and choice for both students and academic staff through the pursuit of excellence in teaching, research, and scholarship (About Unimas Background, 1998).

In order to achieve this mission and the country's needs, Unimas has to keep up with the rapid changes in the educational field. Unimas has given close and appropriate attention to the technology change and its possibilities of assisting in teaching, learning, research and development to the students and academic staff at large. To facilitate this, Unimas has built a campus wide information network. The staff is provided with free international-linked electronic superhighway facilities. Students are also allowed to have access to this network.

The students are encouraged to use the WWW services, especially in getting information provided by the WWW for their assignments and projects. The lecturers also make use of this facility in their teaching. Interaction between lecturers and students was carried out through email. All these facilities have brought significant change in the teaching and learning processes to accommodate the change from teacher-centredness to student-centredness approach envisages in integrating technology and learning.

In further anticipation of the influence of information and technology on teaching and learning process, Unimas was taken the initiative to set up a virtual campus to enhance the teaching and learning activities. Although this idea is still in the planning stage, it is a new paradigm for Unimas. In the virtual campus, the relationship between educators and learners would shift from teacher-pupil to facilitator-learner. Unimas will make use of WWW for its distance and open learning in Virtual Campus (Ghazally Ismail & Munelza Mohamed, 1996). In the future, WWW will become a learning tool where education will not be restricted by geographical constraints, but still retain the essential interactivity between lecturer and students. There are no timetabling constraints also, because the students can always replay the lectures at any time and any place.

Unimas website can be accessed through http://www.unimas.my/. This website includes information regarding virtual campus, vacancies in Unimas, about Unimas, academic programs, admission, alumni, services, collaboration, people, visitor information, event, R&D, campus life, opportunities and electronic office. Unimas website is a member of Web 66. This registration will link Unimas' website to all K12 web servers, educators and students at those schools. It also helps educators find and use K12 appropriate resources on the web.
Problem Statement

However, in promoting the use of the WWW as a learning tool, a note of caution should be exercised. An important issue to consider in the use of the WWW in learning is the suitability of web-based learning with regard to the different learning styles of the students. Even though WWW is a useful tool in education, it may not be suitable for every student. Some students may be able to learn by exploring WWW, but some may have problem in learning through WWW. This will directly affect their perceptions on using WWW for learning purposes and the using of WWW in general. In adopting the idea of web-based learning in education, we have to consider its effectiveness, efficiency and also students' view on using WWW in teaching and learning in order to maximize its utilization.

Research Objectives

General Objective

This study aims to determine students' perceptions towards using WWW as a supplementary learning tool in Unimas. This study will also study the relationships between students' perceptions towards using WWW as a supplementary learning tool and educational background, computer competency, the purposes of using WWW, and the services that they have tried.

Specific Objectives

Specifically this study intend to determine:

- Students' perceptions on WWW usefulness.
- Students' perceptions on WWW user friendliness.
- Students' perceptions on WWW job fit.
- Students' perceptions on WWW complexity.
- The relationship between the students' perceptions towards using WWW as a supplementary learning tool and their educational background.
- The relationship between the students' perceptions towards using WWW as a supplementary learning tool and their computer competency.
- The relationship between students' perceptions towards using WWW as a supplementary learning tool and the purpose of using WWW.
• The relationship between students' perceptions towards using WWW as a supplementary learning tool and the WWW services that they have tried.

**Conceptual Framework**

Figure 1.1 is the conceptual framework of the study on Unimas students' perceptions towards using WWW as a supplementary learning tool. It shows the various variables that affect students' perceptions which include educational background and level of computer competency. Variables such as WWW usefulness, user-friendliness, job fit, and complexity will be used as a measurement of students' perceptions towards WWW. It examines also the relationships between the students' perceptions and their purposes of using WWW and the WWW services that they have tried.

<table>
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<tr>
<th>Independent variables</th>
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<tr>
<td>Students' educational background</td>
<td>Students' Perceptions towards Using WWW as A Supplementary Learning Tool</td>
<td>Purpose of using WWW</td>
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<tr>
<td>Students' level of computer competency</td>
<td>- Usefulness</td>
<td>- Entertainment</td>
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<td></td>
<td>- User friendliness</td>
<td>- Academic</td>
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<td>- Job fit</td>
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<td></td>
<td>- Complexity</td>
<td>- Self-interest</td>
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WWW services that the students' have tried
- Dictionary
- Online tutorial
- Newspaper
- Magazines
- Journal
- Chatting
- E-mail
- Purchasing

**Figure 1.** The conceptual framework of Unimas students' perceptions towards using WWW as a supplementary learning tool.
Research Hypothesis

The following null hypothesis was tested at the 0.05 level of confidence.

- There is no relationship between the students' perceptions towards using WWW as a supplementary learning tool and their level of computer competency.

Definition of Terms

Perception

The acquisition and processing of sensory information in order to see, hear, taste, smell, or feel objects in the world; also guides an organism's actions with respect to those objects. Perception may involve conscious awareness of objects and events; this awareness is termed a percept (Sekular & Blake, 1990). In other words, perception is the interpretation of sensation, which is the effect on the sensory receptors. In this study, perception focused on acquisition and interpretation of information which students gained from WWW through their sensory nervous system.

World Wide Web


An Internet service that organizes information using hypermedia. Each document can contain embedded references to images, audio, or other documents. A user browses for information by following references. WWW is a system for browsing and retrieving information linked by hypertext which can be to files, gophers, telnet connections, FTP sites, or newsgroups (p. 306).

In this study, WWW refers to any web page which purveying information and services through any WWW browser such as Internet Explorer, and Netscape Communicator. The word WWW and web are used interchangeably in this study.

Learning

There are many definitions about learning, but a universally accepted one does not exist. Domjan (1993) define learning as an enduring change in the mechanisms of behavior involving specific stimuli and/or responses that results from prior experience with those stimuli and responses. Klien (1991) describe learning as an experiential process resulting in a relatively permanent change in behavior that cannot be explained by
temporary states, maturation, or innate response tendencies. In this study, learning is a process whereby students gain a relatively permanent change in their behavior that results from their experience and knowledge obtained through navigating the WWW.

**Supplementary Tool**

In this study, supplementary tool refers to an additional or extra learning tool that is used to enhance, support, and assist in the teaching and learning process.

**Complexity**

Measures the degree to which WWW is difficult to understand and use, due to too much information linked together and without a proper arrangement in a particular site.

**Job Fit**

The capabilities of WWW to enhance an individual's performance. Specifically, this construct measures the extent to which an individual believes that WWW can enhance his/her performance.

**User-friendliness**

The degree to which WWW is perceived to be easy to use for people who are not experts. It is also called intuitiveness where users are able to use a system effectively even if they never seen it before (Norton, 1995).

**Usefulness**

Useful is defined as producing or able to produce good results (Thomson, 1995). This research accesses the prospective user's subjective probability that using WWW will increase his or her performance.

**Students**

People who are studying undergraduate art stream program at Unimas. All of them are first year students.
Introduction

Learning is a behavior that WWW.

... is used to too much site.

... this can enhance who are not effectively 1995). This WWW will

1. Academic

Education in university which is theoretical and not practical relevance. Specifically, this examines the respondents use of WWW for formal education purpose.

2. Business

Business refers to both the activities and the individuals or organizations that seek a profit by providing products that satisfy the needs of society (Ferrell & Hirt, 1993). In this research, it measures the extent to which an individual is involved in purchasing products or services from WWW.

3. Entertainment

Process or action that provides something enjoyable and interesting to the subject. It assesses the respondents in using the WWW service for enjoyment purposes.

4. Self-interest

It refers to the respondents' use of WWW for his or her own interests or for their personal advantage.

Significance of Study

This survey will contribute to the knowledge about students' perceptions towards using WWW as a supplementary learning tool, especially in Unimas. Generally, it will also be beneficial to other universities and institutes of higher learning, which integrate WWW in assisting the teaching and learning process.

Information on students' perceptions towards web-based learning is important in the sense that it is an input for the development of the web-based courses. It will be a useful reference for the direction and design of web-based learning. Equipped with this information, the management of Unimas can examine the students' perspective of web-based learning. This study will provide information for Unimas in integrating WWW with the teaching and learning process. This is important because if the students' perspective is not similar to that of the university, it could hamper efforts towards a quality web-based learning.

Secondly, the findings of this survey will be beneficial to the management of the university in planning their virtual campus project. It will provide guidelines on web-based learning for the university. Students' perspective of web-based learning will help
Introduction

them in developing an effective and highly efficient teaching and learning programs. This is not only aimed to meet the students needs but also to achieve the university's mission at the same time.

Some overseas researches have been conducted to examine the advantages and disadvantages of web-based learning, the instructional design on web page, the implementation and its relation to the traditional teaching and learning process. Local researches in this area are still lacking. This study will contribute to the literature on web-based learning.

Limitation of the Study

Only 100 first year undergraduate students from Faculty of Cognitive Science and Human Development, Faculty of Economics and Business, Faculty of Applied and Creative Science, Faculty of Social Science, and Centre for Language and Communication Studies was used as sample for this study. These faculties are of the art-based knowledge stream. As such, the findings of this study cannot be generalized to the whole population in Unimas.

In this study, the students' perceptions are examined on the overall performance and usage of WWW. It is not referring to a specific site or web page. The findings can only serve as a general guide. In addition, it only examined the strength of the relationship between the dependent variables and the independent variables. The significance of the relationships was not within the scope of this study.
CHAPTER 2
LITERATURE REVIEW

Introduction

This chapter consists of related literature reviews. The literature reviews will be divided into the following topics: perception, World Wide Web, and WWW in education.

Perception

Definition and Concept

Perception is one of the cognitive psychology domains. According to Solso (1995), perception is the branch of psychology directly involved with the detection and interpretation of sensory stimuli. This interpretation of sensory stimuli comes in various forms of physical energy. The physical energy that initiates the chain of events is called a stimulus (Sekular & Blake, 1990). The initial detection of stimulus is called sensation.

Schiffman (1990) said, "The study of perception...generally refers to psychological process whereby meaning, past experience, or memory and judgement are involved." Sekular and Blake (1990) mention that, "A complete understanding of perception must include a thorough description of conscious experience." There are many other definitions and descriptions of perception given by psychologists. Generally, perception is a study of interpretation of sensory stimuli which involves one's conscious experience, memory and judgement.

In order for any information in the world to be perceived, the information about events must be registered by the sensory nervous system. This sensory nervous system is the system that links to the external world. If the events fall inside the range of sensitivity of sensory channels, those events will be experienced directly. Sensory channels consist of eyes, ears, nose, and other sensory organs.

All the information that has been perceived will be translated into symbols in our brain. This gives perception the status of a symbolic process. The information picked up by the
senses is not just one random input after another; that information conforms well to particular, predictable patterns (Sekular & Blake, 1990).

There are many purposes of studying perception. According to Schiffman (1990), the reason is that our facile perception of the external world in fact poses an important scientific problem that must be examined. Another reason of studying sensation and perception is intrinsically interesting and seeks to answer basic questions concerning our moment-to-moment existence: how we see, hear, and so on.

In addition, Sekular and Blake (1990) also stated reasons why we study perception. Below are some of the reasons they stated:
• To know just what kind of perceptual demands can reasonably be placed on the human senses without compromising safety and sanity.
• Enables one to design devices that ensure optimal perceptual performance.
• Studying perception also makes it possible to design aids for individuals with impaired sensory function.

Methods of Studying Perception

There are two main approaches of studying perception. The first approach is biological approach, which focuses on events antecedent to perceptual experience. Perception depends on many different biological processes. From mechanistic viewpoint, it assumes that perceptual experience depends on the operation of the nervous system. In other words, the mechanism holds that perceptual experience is constituted of neuronal and psychochemical activities, which is also part of the active brain. Another viewpoint, dualism, object to mechanism's claim. Dualism holds that perceiving is a result from special and non-physical substances, the soul that interacts with the brain. From these two viewpoints, mechanism sounds more persuasive and logical, especially in a scientific point of view.

Another approach to study perception is the psychological approach. This approach focuses on the perceptual capacities of the various senses. In this approach, there are two techniques to study perception. The first technique is phenomenal and naturalistic approach, which is the least formal technique. This technique concerns responses to whatever stimuli with one's conscious experiences. These stimuli occur naturally within the environment, and there is no attempt to modify them or create artificial ones.

The second technique is experimental approach. This approach allows researchers to manipulate and control stimuli. By careful control and manipulation of the stimuli, researchers are able to identify exactly what aspect of the stimuli that underlies the perceptual experience. Moreover, researchers are able to repeat the stimuli to their sample in the study. This will help in generalising the findings of the study. This approach is very helpful for those who cannot wait for stimuli to occur, especially those that need to study a series of stimuli. Although phenomenal and naturalistic approach
Literature Review

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Ways to Measure Perception

Gentleman (1997) said that if software quality is a perception, measurement on perception could be done through direct measurement. One of the direct measurement methods is survey sampling. A few methods are available in measuring perception with survey sampling. The first method is face-to-face survey research or personal interview. This method requires the interviewer to ask questions and record interviewees' responses. This method is a common information-gathering tool not only in psychology, but in other fields as well. It is probably the most effective way there is to enlist the cooperation of the respondents in a survey (Fraenkel & Wallen, 1993). This method can help to establish rapport, clarify questions and follow-up on unclear and incomplete answers. However, it has some disadvantages. Face-to-face survey is time-consuming and expensive. In addition, it requires a well-trained interviewer to interact with interviewees effectively.

The second method in survey research is telephone survey. In this method, the researcher asks questions over the telephone. Telephone survey offers a number of advantages. It is cheaper than personal interview, can be conducted in a fairly quick way, and have standardised questioning procedures. It also allows the researcher to assist the respondents by clarifying questions, and follow-up unclear and incomplete questions. This method provides better coverage in certain area where personal interviewers are reluctant to go. However, telephone survey also has its limitations. It is impossible for researchers to show respondents visual stimuli via telephone. Samples without telephone or their telephone numbers are unlisted, could not be reached through this method. Generally, telephone surveys are reported to result in a five-percent lower response rate than that obtained by personal interviews (Fraenkel & Wallen, 1993).

Another survey sampling method is mail survey, where data is collected by mail. This is the most appropriate survey method when the survey questionnaire is long. This method requires some time to complete, because questionnaires are sent to each respondent by mail to complete and then returned to researcher. Hamlin and Gitlin (1995) have used mail questionnaire to measure students' perceptions of electronic communication. They have developed a survey to measure categories of use, perceived advantages and disadvantages of email as well as the amount of use. They used the traditional way to distribute the questionnaires and on-line electronic questionnaires in order to increase their ability to collect data.

Compared to other methods, mail survey is relatively inexpensive and can be accomplished by a researcher alone. Mail survey is well suited for obtaining sensitive information which respondents have difficulties to response through face-to-face and

has its limitations, it has an important role to play. For more than a hundred years, careful and thoughtful observers have used this informal approach as a basic upon which to build a more formal study of perception (Sekular & Blake, 1990).