COMPUTER ANXIETY AND COMPUTER KNOWLEDGE: A SURVEY ON FORM FOUR STUDENTS OF SMART SCHOOLS IN KUCHING

by

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Abstract

Computer anxiety and computer knowledge: A survey on Form Four students of Smart Schools in Kuching

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This study was done to find out the level of computer anxiety and computer knowledge among form four students of Smart Schools in Kuching. A survey was conducted using a 23-item questionnaire. The questionnaire was distributed to these students and the data obtained was analyzed using frequency and percentage. The result of the finding shows that there is a significant relationship between computer anxiety and computer knowledge. It reveals that the greater the knowledge of computer usage that one has, the lesser the computer anxiety.

Abstrak

Kebimbangan terhadap komputer dan kemahiran dalam komputer:

Kajian ke atas pelajar Tingkatan empat Sekolah Bestari

di Kuching

Amelia Peter Dien

Kajian ini bertujuan untuk mengetahui tahap kebimbangan terhadap penggunaan komputer dan juga kemahiran dalam penggunaan komputer di kalangan pelajar-pelajar tingkatan empat Sekolah Bestari di Kuching. Kajian ini dijalankan untuk menentukan tahap kemahiran dalam penggunaan komputer yang menjurus kepada perasaan bimbang terhadap penggunaannya. Soal selidik yang mengandungi 23-item telah diedarkan kepada 200 orang pelajar di dua buah sekolah bestari di Kuching. Kiraan deskriptif dan peratus yang juga merupakan statistik deskrptif digunakan untuk menganalisa data kajian. Hasil kajian mendapati terdapat persamaan yang signifikan dalam kedua-dua elemen tersebut. Ini membuktikan bahawa sekiranya seseorang itu mempunyai pengalaman dan pengetahuan yang tinggi dalam penggunaan komputer, maka tahap kebimbangan untuk menggunakannya juga berkurangan.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

In this chapter, an account on the background of the study will be presented first. Then, the statement of the problem of this study will be given. Following that are the research objectives, research questions, significance of the problem, the definition of terms used in this study and finally limitation of the study will be further elaborated.

1.1 Background of the Study

As the world is in the state of rapid changes, so are the schools. Nowadays, the increasing use of technology has been one of the dramatic changes seen in the educational scene around the world. New approaches and methods are required to deal with persistent problems of the past and to provide students of today with education suitable to the needs of a modern, information-based global economy. And today, computer and communication technologies are perceived as one of the means in offering opportunities to significantly improve teaching and learning.

Technology has been recognized as a crucial part of teaching and learning. No matter it is in a form of a high-tech computers or just old-fashioned VCRs, the cache of teaching and learning tools is no longer restricted to papers and blackboards. Technology is seen as a powerful medium of delivery; to convey content, to provide interaction, and to facilitate communication. Its presence does not guarantee effective

learning but it bestows many opportunities for an enhanced learning experience (Frost & Sullivan, 2003).

Since the world is moving into a technology-based society, it is vital that our younger generation be equipped with the knowledge and experience. Apart from that, using computers now forms a major component of the curriculum and teaching with the help of computers is now a practice. According to the ninth Malaysia Plan which was announced by the government in 2006, about RM12, 889.9 millions have been allocated to equip classrooms with the latest technology. As the cost of computers drops, many schools can afford to provide labs and classrooms with computers in order to offer computer learning opportunities to students.

1.1.1 Education in Malaysia

With the implementation of Multimedia Super Corridor (MSC) in 1998, the Malaysian Government has prioritized the formation of its citizens into a knowledge society (Mahathir, 1998). The best way to achieve this is through education. Prior to that, Malaysia has 'Vision 2020', a long term vision which envisioned for sustained productivity driven growth, in which could only be attained with a technologically literate, critically thinking workforce ready to contribute fully in the global economy. In another word, to become a fully industrialized country by the 21st century, young individual entering the workforce, not only must acquired the knowledge and skills required, but also on the capacity for creative thinking, and an integrated approach to learning.

Thus, to be a fully developed country by the year 2020 and to meet the next millennium as a technologically and scientifically adapt society, Malaysia has embarked on a variety of Information Technology (IT) Projects with the intention to be in line with the information era (Ministry of Education, 1997). Education policies, infrastructure and system have been gradually transformed. The transformation of the systems includes the shifting of memory-based learning to a type of education that arouses creative and critical thinking, which caters to individuals' different learning abilities and styles (Salbiah).

1.1.2 Smart School

One of Malaysia's IT Projects is the Smart School Concept. It is the government initiatives and one of the seven flagship applications in the MSC. It is a school which is systematically reinvented in terms of teaching and learning practices and school management (Smart School Project Team, 1997). The whole concept of this Smart School is adapted from the international best practices in both primary and secondary education and this involves the curriculum, pedagogy, assessment and teaching-learning materials (Ministry of Education, 2001). This concept is also in line with the objectives of Smart schools mentioned by Mahathir (1998):

- Using technology to radically transforms and improves teaching practices, school organizations, and students performance,
- Accelerating development of student learning, critical and creative thinking, and
- Enhancing IT literacy and penetration

Therefore, this gigantic project incorporates the most important transformation of the country's school system which includes extensive use of computers in the classrooms. The first phase of implementation involving 90 schools began in January 1999. These constitute the pilots, a sampling of an array of schools in Malaysia. Broad operation to other schools started from January 2000 using a phased approach (Mahathir, 1998). The government envisages that by the year 2010 all the estimated 10,000 schools in Malaysia will be converted into Smart Schools, involving an estimated 5.8 million students and 450,000 teachers nationwide (Ministry of Education, 1997).

Pertaining to this matter, the Ninth Malaysia Plan period is expected to be challenging and requires greater resolve to ensure its success. During the Plan period, the *Program Pembestarian Sekolah* refers to the process of leveraging on all existing ICT initiatives such as the Smart School project, computerisation project, utilising ICT in the teaching and learning of Science and Mathematics in English, SchoolNet and MySchoolNet to enhance the quality of education. *Program Pembestarian Sekolah* will be implemented in all primary and secondary schools to enable teachers to integrate ICT in teaching, learning and management (Ninth Malaysia Plan, 2006 – 2010).

1.2 Statement of the Problem

The implementation of the Smart Schools in Malaysia is one of the major efforts of the government in ensuring that the future workforce has the capability to cope with the challenges of technology-based society. In this digital era, information technology is rapidly becoming the guiding force in people's lives. The importance of information technology cannot be ignored especially by the younger generation. They are playing important roles in making the implementation of Vision 2020 a success. Nonetheless, question on how prepared our future generation is in coping with technology is still lingering. Their computer literacy levels and their attitudes towards computers are among the major concerns that have to be taken into account.

1.3 Research Objectives

This study aims to:

- To find out the level of computer literacy among students
- To investigate computer anxiety among students

1.4 Research questions

Based on the above mentioned research objectives, the research aims to address the following questions:

- Are the students experienced computer users?
- Are the students proficient computer users?
- Does computer anxiety occur among students?

1.5 Significance of the Study

The study is set out to investigate the level of computer literacy and computer anxiety among students of Smart schools. It is interesting to find out if the integration of information technology in teaching and learning process, plus with their frequent access to computers, decrease their anxiety towards computers or vice versa. Apart from that, this study is also to find out the students' knowledge and ability in handling the computer and its applications.

1.6 Definition of Key Terms

The following terms are used in this study:

1.6.1 Smart School

Smart School is defined as a school that applies information and communication technology (ICT) in teaching and learning, staff training and management (Mahathir, 1998).

1.6.2 Computer anxiety

It is described as "a generalized emotion of uneasiness, apprehension, anxiousness of coping, or distress in anticipation of negative outcomes from computer-related operations. It can be in any form of reluctance, frustration, or negative thoughts toward the physical presence or interface of a computer." (Chang, 2005)

Chua et al. (1999) describe computer anxiety as "a fear for computers when using the computer, or when considering the possibility of computer use."

For the purpose of this study, based on the definitions above, it can be said that computer anxiety is the feelings of uneasiness when using the computer. It also concerns about the negative apprehension on the possibilities of what might happen during the computer use.

1.6.3 Computer Literacy

According to Beckers & Schmit (2001), computer literacy comprises 'the perception that one has of one's level of mastery of relevant computer knowledge and skills'.

Simonson et al. (1987) as cited in Nor Azan Mat Zin et al. (1999) viewed computer literacy as the understanding of computer characteristics, capabilities and applications such as software, hardware and communication.

The definition above is also related to the objectives of this study whereby this study looks at the Smart School students' knowledge and skill in computer applications.

1.6.4 Computer experience and computer training

It pertains to 'the totality of a person's knowledge, feeling, and other intellectual or emotional experience from encounters with a computer' (Chang, 2005).

For the purpose of this study, the research includes computer training and computer exposure as examples of computer experience. Computer training consists of either formal or informal computer courses attended by the Smart School students.

Computer exposure comprises of number of computer courses previously attended, number of years using computers, number of computer course hours, and frequency of use of computers at work or at home (Bohlin & Hunt, 1995 as cited in Chua et al, 1999).

1.7 Limitation of the Study

The authenticity of the results of the finding might probably be affected as some respondents may not be truthful in responding to the questionnaires. Another issue that could influence the finding is the feelings of discomfort of the respondents towards the research. If they perceived it as upsetting, then they might not be responding honestly. Since the study is only being conducted on a small scale of population, the result cannot be generalized to the greater population of Smart School students in Malaysia.

The other limitation of this study is the sample of the population covers only half of the total number of Form Four students from each school. In view of the fact that the survey was done only on Form Four students; it did not cover all students from all classes.

1.8 Conclusion

In this chapter, a description of the background of the study was presented. It then was followed by the statement of the problem, research objectives, and research questions, significance of the study, definitions of key terms and finally limitation of the study. This chapter gives general outline to the research problem,

research objectives and research questions with relation to the Smart School students' level of computer literacy and computer anxiety.

The next chapter will focus on the literature reviews which indicate the purpose of the study. It will include related theories and research findings which support the correlation between variables.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter will begin with the definition of Malaysian Smart School and its goals and components, followed by the role of computer, then the concept of computer anxiety which covered its component such as computer literacy and computer experience. It will also include findings of the related studies.

2.1 Malaysian Smart School

Smart school is a school that utilizes information and communication technology (ICT) in its teaching and learning, staff training and management (Mahathir, 1998). Modern technologies such as computer, the Internet, video-conferencing and other sophisticated learning technologies are used so as to enable the Smart School system to function effectively.

The integration of ICT into its system is also seen as a preparation for the students for greater challenges over time and provide a range of needs and capabilities among students (Smart School Project Team, 1997). In another words, their goals focused on the need to develop skilful workforces in the era of ICT in line with the National Education Philosophy. As mentioned

> "The Malaysian Smart School is a learning institution that has been systemically reinvented in terms of teaching-learning practices and school management in order to prepare children for the Information Age."
>
> (The Malaysian Smart School:
> A Conceptual Blueprint, 1997: p.20)

2.2 Computers as a Tool

For the purpose of this research, the researcher looks at the function of computer as tool. Warschauer (2002) argued that many educational technology specialists believed that the role of computer in education has increasingly been transformed, that is from that of a tutor to that of a tool. In relation to the pedagogy of Smart school, conventional methods are being integrated with information and communication technology (ICT) such as computer-based teaching and learning materials and software that fulfill the various needs and capabilities of students (Fisher, 1996). Unlike simple drill and practice tutorials, computer-assisted language learning offers more dynamic simulations, electronic communication, and multimedia production. These technologies not only help to enhance teaching and learning activities, but also cognitively challenging, attractive and hence, motivate and encourages students to learn more (Smart School Project Team, 1997).

As an instructional tool, the function of the computer is similar to a pencil, typewriter, microscope, slide ruler, piano, or drafting table (Merrill et al., 1996). As a tool, the main applications of computer are word processing; draw and paint graphics,

database management, spreadsheets, charts, desktop publishing and presentation are the few examples of software that fits the needs of linguistic intelligence individuals.

2.3 Computer Anxiety

The existence of computer anxiety comes into realization with the increasing use of computers in classrooms. There is no doubt that the influx of computers into society has influenced human emotional reaction towards it. According to Gos (1996) as cited in Wilfong (2006) computer anxiety affects one-fourth of the population. Various forms of anxiety towards using computers are common; some individuals perceive computers to be efficient and useful tools, while others become uneasy and anxious when learning to operate a computer (Chang, 2005).

In realising the facts that computer anxiety brings negative impact on an individual's interaction with technology, numerous research have been done. This matter should not be taken for granted as it may influence one's perception towards computer in a negative manner. Computer anxiety has been studied in a number of different ways (Beckers & Schmidt, 2001). Yet, many researchers have failed to agree to one standard definition for computer anxiety. It involves behaviour, emotion and attitude and is a symptom that changes rapidly in line with the changing nature of new technology and the subsequent pressure for social change (May, 1950 as cited in Brosnan, 1998).

An individual's interaction and relationship with computer is seen as the reflection of their attitude and opinion towards computer. In another words, if an

individual shows positive interaction towards computers, it means that he or she has positive attitude towards them or vice-versa. Having computer anxiety reflects how people perform in their work. This is supported by Mahar et al. (1997) that computer-anxious individuals exhibit phobia-like symptoms which lead them to use computers less, and when using computers to complete tasks, they do so more slowly.

In spite of how anxious people might feel towards computers, yet they are fascinated and recognized its power (Underwood & Underwood, 1990). They cannot deny the benefits that computers might bring them.

According to Zulkfli et al. (1997), the more people know about computer and its usage, the more they enjoy it and the more they anticipate. It explains that people who are having experience and familiar with computers will feel at ease in using them. It further indicates that people who lacks of exposure and knowledge about computers, might lead them to hesitation and negative attitudes towards computers. This might cause a barrier and impediment for the students to grab the opportunity to explore how computer benefits them.

Even though there are many definitions of anxiety, but the most common opinion about anxiety is, it is seen as an affective construct; in another words, it involves negative emotions, which is subjective to its meaning (Bozionelos, 2001). Therefore, it is rather complex to reach to one standard definition and be accepted by all researchers of this particular field.

The definition, however, could be categorized either as conceptual or operational characterizations (Chua & Chen, 1997). Conceptual definitions describe the phenomenon of anxiety which includes emotional fear, uneasiness and phobia of individuals when interacting with computers, or when considering the possibility of computer use.

Conversely, operational definitions are used to measure the level of computer anxiety. According to Chua et al. (1999), computer anxiety is a complex psychological construct and therefore, it cannot be described from a single perspective. It can only be measured in multiple dimensions which use items that are measurable. Many researchers have put forward their own measurement on computer anxiety. For example, Rosen & Weil (1995a) suggested interactive computer learning anxiety, consumer technology anxiety and observational computer learning anxiety.

2.5 Computer Literacy

The traditional meaning of literacy is the ability to use language – to read, write, listen, and speak. Other skills such as computer skills or basic numeracy may also be included, as there are many people who cannot read letters but can read numbers, and even learn to use a computer (in a limited way) while remaining unable to read text. However, these differ to the definition and meaning of literacy in the Digital Age.

In the Digital Age, literacy is seen as a set of survival skill (Towndrow & Vallance, 2004). These skills are needed to function successfully in society especially the technologically and scientifically adapted society. According to the National

Institute for Literacy (NIFL) in Towndrow and Vallance (2004), technology and literacy are two things that have become intertwined in digital age society and if a person is lacking in technology-related skills, then he or she cannot be regarded as being equipped to function successfully in life.

In common discourse, computer literacy often denotes little more than the ability to use several very specific applications such as Microsoft Word, Microsoft Internet Explorer, Microsoft Outlook and others. In relation to that, computer literacy has broadened its term to a more recent dimension of technology brought about by such developments as networks and the Internet. The use of a range of communication tools such as e-mail, video-conferencing and the World Wide Web (WWW) for location of information are considered as the component of ICT literacy.

Apart from that, computer literacy also manifests itself as the number of hours that one spends at a computer, the range of applications that one is able to use successfully, one's knowledge of computer jargon, or one's subscription to computer magazines. In another word, it consists of 'the perception that one has of one's level of mastery of relevant computer knowledge and skills' (Beckers & Schmidt, 2001: pg 39).

Hence, from the mentioned definition of computer literacy, one might say that it incorporates knowledge on what computers are and how they work. The knowledge and skill gained may vary; from a hands-on experience, self-taught, or merely from the related reading articles. Although it requires one to understand its technical jargon, but he or she are not expected to reach the level of expertise.