FACTORS AFFECTING TEACHERS' ATTITUDE TOWARD COMPUTER USE

CHUA PEK HOE

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ABSTRACT

This study aims to examine teachers' attitude toward computer use. It also attempts to measure the effects of independent variables namely age, gender, academic qualifications, years of teaching, in-service training, computer experience, computer ownership, mathematics experience, computer knowledge and computer usage on the dependent variable; that is attitude towards computers use. This study involved 95 teachers who were chosen randomly from the secondary schools in the district of Seremban. The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS). The findings revealed that male teachers have more positive attitudes toward computer use than female teachers. There appeared to be no significant difference of computer attitude based on respondents' age and academic qualification, years of teaching experience and in-service training. However, computer experiences, computer knowledge, computer usage and mathematics experience appeared to be significantly related to computer attitude.

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NAME OF AUTHOR   :   CHUA PEK HOE

The undersigned certify that the above candidate has fulfilled the condition of project paper prepared in partial fulfillment for the degree of Master of Management.
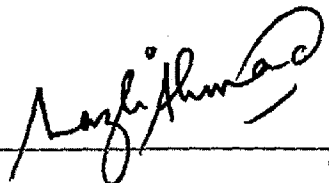
SUPERVISOR

Signature   : _____

Name   : En. Abdul Aziz Muhammad

Date   .: 30 November, 1998.

ENDORSED BY:

_____

Dr. Nik Nazli Nik Ahmad.
`Head Master of Management Program
Date : 30 November, 1998.

_____

Dr. Obiyathulla Ismath Bacha
Director, IIUM Management Center.
Date : 30 November, 1998.

DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by reference notes and a bibliography is appended.

Date: 30 November, 1998   Signature:...................................

                                 Name   : CHUA PEK HOE

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CHAPTER 1

INTRODUCTION

We live in an age of miracles. Images of planets are now routinely beamed to us from the farthest reaches of our solar system. And information from all corners of the world can be accessed through the simple touch of a computer button.

The computer, especially are connected to an information network, is a dynamic multi-purpose device that takes on multiple roles as needed: including communicating, calculating, displaying, searching, simulating, and modeling (Cartwright, 1993). Steward Brand stresses the dynamic nature of digital technology in his classic book, The Media Lab:

With digitalization, all of the media become translatable into each other computer bits migrate merrily- and they escape from their traditional means of transmission. A movie, phone call, letter, or magazine article may sent digitally via phone line, coaxial cable, fiber optic cable, microwave, satellite, the broadest air, or a physical storage medium such as tape or disk. If that's not revolution enough, with digitalization the content becomes totally plastic-any message, sound, or image may be edited from anything into anything else (New York: Viking Penguin, Inc., 1988).

The use of computers and the application of information technology have become increasingly important over the past two decades in human services in general (Caputo, 1988; Geiss & Viswanathan, 1986). However, the most important use of

information technology today is to improve education; by taking advantage of the computer as a learning tool. The culture that inspires modern technology would apparently change a learning culture, which would be different from the normal traditional teaching and learning style practices in the classroom.

Technology particularly computer, can be used as a useful instrument to facilitate intellectual development as well as to stimulate thinking power. It is not just a static machine but it is an application tool that could be properly designed to solve learning problems and to make a learning more interesting and stimulating (Alexander, 1993). Thus, computer could play a pertinent role to enhance new learning start, reshaping a learning culture and eventually students performance.

Technology provides strategic learning that can be used to improve the quality of teaching and learning in schools. Such learning subjects as languages, mathematics, science, geography and history could be learned effectively through the use of computer.

Computer technology's impact on all forms of communication systems is rampant and insidious. The fact that technology has impact on education is certain. The Malaysian Education Ministry, being aware that the computer is an innovative tool and has great educational potential, has emphasized the use of computers and its software applications in many aspects of education.

However, most of today's practicing teachers did not encounter computer-based technologies in their teacher preparation programs. Therefore, they have not experienced using the computer as a resource from which to learn, nor have they had its use modeled for them in educational settings. Furthermore, because they are not children of the "microcomputer-age", many teachers are fearful of computers and are uncomfortable with the idea of bringing computers into their classrooms.

Research had revealed that teachers' computer use encourages students to use microcomputers. Teacher attitudes toward computer also influence student achievement; that is, students instructed by teachers with positive attitudes toward the technology demonstrated improved performance (e.g. Moore, 1988).

Various studies have shown that computer use by teachers can lead to significant productivity gains and efficiency, but their introduction has met with resistance in schools. The reasons for this resistance must be identified and its causes be corrected; so that teachers are prepare to teach with computers and hence able to integrate computer technology into their classrooms effectively.

And as computers become more prevalent in society, teachers are obligated to plan and provide for classroom use of computer technology. As a result, there need to be studies on teachers' attitude towards the use of computers and identify the reasons behind their resistance to change. The attitudes of the teachers are important aspects to determine the success or failure of such innovations as computers.

1.1 Computer in Education

The National Education Association (NEA) report, The Report of the NEA Special Committee on Educational Technology, purports that technology can, "contribute significantly to the improvement of educational opportunity, to managing the increasing knowledge base, and to improving the quality of work life for school employees (NEA, 1989, p.10).

Enhancing technology innovation in school development in a crucial agenda in reforming and achieving 'World Class' quality of education. The notion of World Class Education which, is highly characterized by its technology advancement would eventually transform school into a new image of school culture as a place for breeding technological intellectual and technological elite of the twenty-first century (Schonberger, 1996).

The Malaysian Minister of Education, the honorable Datuk Seri Najib Tun Abdul Razak has made his convincing remarks on the importance of innovation in teaching as follows:

> *We need education research because our education system and teaching methods need to change in line with the creation of a highly informed society. It is impossible to have a world-class education system considering our achievement in other areas like trade and industry. We are moving towards a student-oriented, or self-assessing to motivate students. In*

view of the rapid development in the world, we cannot be static in our thinking and approach. Some students have access to Internet at home and are well informed. So when they go to schools, we need to ensure that their learning interest is maintained. That is why I said that teachers cannot be less knowledgeable than their students. In line with the creation of a high-informed society, teachers have to improve themselves (New Strait Times, September 16, 1996).

Teachers should have the knowledge and skills in computer applications for instruction purposes and the ability to use computers effectively within the discipline of education. Apparently, before this becomes a reality, teachers' attitude toward the use of computer has to be positive.

1.2 Statement of the Problem

The computer is a highly versatile tool that may be used by the teacher for personal productivity and as a way to expand classroom instructional activities, therefore it is necessary for teachers to be computer literate and be prepared for this innovation.

With so much activity focused on schools acquiring computers and having students learn about and with them, it appears that the public's expectations for teachers'

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computer-related knowledge and skills has also increased. Teachers have been and are continuing to be affected.

With this emphasis on the importance of information technology, it becomes an interest to investigate the factors that affecting teachers' attitude toward computer use. More specifically, the study seeks to answer the following questions:

(1) What are teachers' attitudes toward the usefulness of computers as educational tools?

(2) What are the factors that are significantly correlated with computer attitude among teachers?

(3) Is there any relationship between the computer experience, attitudes toward computers, computer knowledge and computer anxiety?

(4) Is there any correlation between math experience and computer attitude?

(5) Is there any relationship between attitudes and self-efficacy?

(6) Is there any direct effect from inservice training on computer attitude?

1.3 Objectives of the Study

The present study was undertaken with the following objectives in view:-

i. to find out teachers' willingness in using the computers as educational tools.

ii. to identify the factors that are significantly correlated with computer attitude among teachers.

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iii.   to find out the relationship between the computer experience, attitudes toward computers, computer knowledge and computer anxiety.

iv.   To find out the correlation between math experience and computer attitude.

v.   to find out the relationship between attitudes toward computers and self-efficacy.

vi.   to find out the direct effect from in service training on computer attitude.

vii.   to find out the relationship between gender and attitudes toward computer.

1.4   Hypotheses

By keeping in view the objectives of present study, the following hypotheses were setup for testing:-

H1:   There is no significant difference in teachers' age and attitudes toward computer use.

H2:   There is no significant difference in teachers' academic qualification and attitudes toward computer use.

H3:   There is no significant difference in years of teaching and teachers' attitude toward computer use.

H4:   There is no significant difference between in service training and teachers' attitude toward computer use.

H5:   There is no significant difference between teachers' computer experience and attitude toward computer use.

H6: There is no significant difference between gender and teachers' attitude toward computer use.

H7: There is no significant relationship between computer ownership and teachers' attitude toward the use of computer.

H8: There is no significant relationship between math experience and teachers' attitude toward computer use.

H9: There is no significant relationship between teachers' computer knowledge and attitude toward computer use.

H10: There is no significant relationship between teachers' computer usage and attitude toward computer use.

1.5 Rationale

Information technologies offer powerful support for learning, that they are necessary to prepare children to function successfully, as citizens and workers in a technological society, and that they can enhance productivity and performance. Therefore, it is obvious that all secondary school teachers should be able to utilize these technologies effectively and also teachers who are comfortable using computers might model positive uses of technology for their students.

This survey study will contribute towards identifying those factors that affecting attitudes of secondary school teachers toward computer and their level of utilization of these technologies. With the growing importance of information technologies in our society, it is hoped that the findings of the study will provide the Teacher Education

Division of the Ministry of Education and some other relevant divisions of the Ministry with additional and useful information as guidelines in planning the appropriate courses in computer education; for equipping educators with the necessary skills and for helping them develop more positive attitudes towards the technologies. Helping teachers use technology well may be the most important step to helping students and to foster favorable attitudes toward computers.

1.6 Limitations of the study

This study will be carried out in a number of randomly selected secondary schools in Negeri Sembilan. It excludes the administrators, the heads of departments and other supporting staff members. This study is only to be used as a sample study as it is restricted to the study of 200 randomly selected secondary school teachers in Negeri Sembilan. Time and financial constraints did not allow for a larger sample to be studied.

1.7 Definition of Terms used

Attitude:

Attitudes and attitude change have been discussed at least since the beginning of this century (Thomas & Znaniecki, 1918). Educators have been concerned about attitude because of their impact on learning, and although attitudes have not been convincingly linked to achievement, they have been long considered an important component of effective instruction.

There are various complementary definitions of attitudes. One of the earliest, Thomas and Znaniecki (1918) proposed definitions of attitude. They defined attitude as "A mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related."

According to Fishbein & Ajzen (1975); attitude is "a learned predisposition to respond in a consistent favorable or unfavorable manner with respect to a given object." The object may be a person, institution, process or event.

Attitudes are latent and directly observable in them, but they act to organize, or to provide direction to, actions and behaviors that are observable. Attitudes are related to how people perceive the situations in which they find themselves. Also, attitudes vary in direction (either positive or negative), in degree (the amount of positiveness or negativeness), and in intensity (the amount of commitment with which a position is held; Smith, 1982).

More recently, Zimbardo and Leippe (1991) defined attitude as "an evaluation disposition toward some object based upon cognition, affective reactions, behavioral intentions, and past behaviors ... that can influence cognition, affective responses, and future intentions and behaviors." They further described that attitude positions are the summary aggregation of four components: (a) affective responses, (b) cognition, (c) behaviors, and (d) behavioral intentions. The effective component of attitude is said to

consist of a person's evaluation of, liking of, or emotional response to some situation, object, or person. Affective responses reflect one's attitude with sensations of pleasure, sadness, or other levels of physical arousal. The cognitive component is conceptualized as a person's beliefs about, or factual knowledge of, the situation, object, or person. The behavioral component involves the person's overt behavior directed toward the situation, object, or person. The behavioral intention component involves the person's plans to perform in a certain way, even if sometimes these plans are never acted upon.

In this paper, the term attitude is used to refer collectively to these four components of attitude form toward computer.

Self-Efficacy:

Bandura (1977), self-efficacy reflects an individual's confidence in his or her ability to perform the behavior required producing specific outcomes. Individuals who feel less capable of handling a situation may resist it because of feelings of inadequate or discomfort which may result from expected changes.

Information Technology (IT):

The definition adopted by UNESCO is "the scientific, technological and engineering disciplines and the management techniques used in information handling and processing, their applications, computers and their interaction with men and machines; and associated social, economic and cultural matters (Hawkridge, 1983).

Computer Anxiety:

Computer anxiety is a person's tendency to experience a level of uneasiness over his or her impending use of technology that is disproportionate to the threat the technology presents (Sleeth, Pearce and George, 1995).

Anxiety refers to "feeling tense, nervous or apprehensive and is, therefore, thoughts of as an emotion (Beck, 1985). Whereas, Lagina (1971) says that anxiety is "a state of heightened tension of a feeling of apprehensive expectation."

The distinction among stress, tension, anxiety, fears and phobias are necessary when discussing the definition of anxiety. This is because these terms are often used interchangeably without regard to fine distinctions of meaning.

According to Levitt (1967), stress refers to a situation containing stimuli that arouse uneasiness of a person. This easiness can be subconscious or conscious. When it is subconscious, it can be referred to as 'tension' or a vague feeling of disquiet and restlessness. When the uneasiness is conscious and the individual is fully aware of its presence, then it is referred to as 'anxiety' which is a general sense of uneasiness about the future. As May (1977) states, when this uneasiness is the result of as specific, known and immediate threat, it is called "fear". The fear becomes a "phobia" if fear of a specific object or events is exaggerated relative to the probability that harm will come to the individual.

Computerphobia refers to 'fear of computers'. On the other hand, technophobia is a term meaning 'fear of technology'. It is the lag in computer usage by Malaysia teachers who regard as a mystical machine (Zoraini, 1986).

CHAPTER 2

REVIEW OF LITERATURE

2.1   Introduction

Computers had been described by various educationists as having caused a revolution in schools as, because of them, education had never been the same. Teachers accordingly had to "evolve or dissolve" as technology crept into schools and homes (Collis, 1988, p.2). Educators at all levels are expected to assume the role of computer instructor and therefore to advance the level of computer literacy and promote information technology in the home and the work place (Dupagne and Krendi,1992).

A National Plan of Action (1990) micro-electronics and information technology (IT) were identified as two of the emerging and strategic technologies required to achieve the development aims of the country. In the broadest sense, technology extends our abilities to change the world: to cut, shape, or put together materials; to move things from one place to other; to reach further with our hands, voices, and senses (American Association for the Advancement of Science, 1989).

For teachers, computer technologies have this potential. Word processing, electronic mail, databases on compact disc, and other technologies can assist teachers in instructional management and improvement, communication with both peers and experts in their fields and identification of new instructional methods and resources. Besides the benefits in personal effectiveness, teachers who use these technologies are likely to be

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