

**MANAGING CHANGE: A STUDY ON FACTORS  
INFLUENCING TEACHERS' ATTITUDES TOWARD  
COMPUTER- IN- EDUCATION (CIE)**

DONATED TO THE LIBRARY OF  
INTERNATIONAL ISLAMIC UNIVERSITY  
BY

*Management Center*

.....**BY**.....  
Date Received : *18/12/98 omg*

**ROSMINI OMAR**

**A PROJECT PAPER SUBMITTED IN PARTIAL  
FULFILMENT OF THE REQUIREMENT FOR  
THE DEGREE OF MASTER OF MANAGEMENT**

**MANAGEMENT CENTER  
INTERNATIONAL ISLAMIC UNIVERSITY  
MALAYSIA**

**MARCH 1998**



## ABSTRACT

The aim of this study is to analyze the attitudinal differences toward CIE, among public secondary school teachers, and unravel the relationship between it with six independent variables, namely, infrastructure; leadership; motivation; personality; computer exposure and phobia. It also explores the relationship between teachers' attitudinal differences with three general factors, which are, geographical locations, teaching experience and the availability of computers at home. The respondents chosen for this study are teachers from the districts of Kuala Selangor and Gombak. The quantitative data gained via questionnaires are supported by interviews.

The analysis of available data indicates that attitudinal differences exist, and most teachers are bound to perceive computers negatively. However, leadership and ability of the principals, organizational motivation and personal phobia are variables that have stronger predictive ability, and are more strongly correlated to teachers' attitudinal differences than computer exposure, infrastructure and personality.

This study recommends that relevant authority should give serious emphasis on providing computer and leadership training to principals, as they are the initiators who could create positive environment toward accepting CIE among the staff. Continuous organizational motivation should also be given to teachers, so that they can become change agents who would promote the application of information technology at the school level.

## APPROVAL PAGE

TITLE OF PROJECT PAPER :  
MANAGING CHANGE: A STUDY  
ON FACTORS INFLUENCING  
TEACHERS' ATTITUDES TOWARD  
COMPUTER- IN- EDUCATION (CIE)

NAME OF AUTHOR : ROSMINI OMAR

---

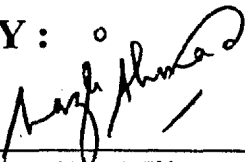
The undersigned certify that the above candidate has fulfilled the condition of the project paper prepared in partial fulfillment for the degree of Master of Management.


### SUPERVISOR

Signature : 

Name : Associate Professor Dr. Syed Abdul Hamid Al-Junaid  
Date : 28<sup>th</sup> April 1998

### ENDORSED BY :


  
Assistant Professor Dr. Nik Nazli Nik Ahmad  
Head, Master of Management Program  
Date : 30<sup>th</sup> May 1998

  
Associate Professor Dr. Syed Abdul Hamid Al-Junaid  
Executive Director, IIUM Management Centre  
Date : 30<sup>th</sup> May 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<sup>th</sup> May 1998

Signature : 

Name : Rosmini bt Omar

**©Copyright by Rosmini Omar and  
International Islamic University Malaysia**

**Dedicated to:**

my father, **Haji Omar Makim**, who always understands;

my mother, **Hajjah Siti Fatanah Kasan**, who has always been my epitome of strength;

my supervisor, **Dr. Syed Abdul Hamid Al-Junaid Al-hajj**, for being a wonderful  
mentor and my best example of an EQ leader;

and,

**my future progeny:**

“For each such person, there are angels before and behind him.

They guard him by command of Allah.

**Verily never will Allah change the condition of a people, until  
they change it themselves with their own souls.”**

(Al-Quranul Kareem: 13:11)

## ACKNOWLEDGEMENTS

Praise be to Allah, The Most Merciful, The Most Compassionate, for granting me the chance and strength to complete this Masters of Management Program, which undoubtedly brings me into heights of intellectual and emotional enrichment.

High appreciation is extended to Dr. Ibrahim Ahmad Bajunid, the Director of Aminuddin Baki Institute, who initiates such program that extremely helps me and other fellow educators to widen our scope of understandings, career prospects, as well as sharpening our management capability.

My highest gratitude goes to my supervisor, Dr. Syed Abdul Hamid Al- Junid, who throughout completing this project, not only provides me with guidance and advice, but generously also shares with me his insights.

In totality, this management project paper would have not been fully materialized without the aid of my two wonderful lecturers, Dr. Ahmad Zohdi Abdul Hamid and Dr. Ahamed Kameel Meera whom with patience, tolerance and commitment help me in analyzing the data of the survey.

I am sincerely indebted to all my lecturers- Dr. Sheikh Ghazali Abod, Dr. Kalsom Abdullah, Dr. Nik Nazli Nik Ahmad, Br. Zakariya Man, Dr. Syed Musa Al-Habshi, Br. Abdul Aziz Mohammed and Tuan Hj. Ghazali Ahmad. All of them have

continuously provided an endless stream of thought- provoking lectures. For challenging the intellect, suggesting the ideas, sharing the experiences and setting core values of hard work and commitment, I extend my thankfulness to all my fellow course mates, especially Chetrilah Othman.

My deepest appreciation goes to my parents who showers me in each and every moment with motivation, love and prayers. My gratefulness also goes to my brothers, sister and best friend, Norul Ashikin Ismail, who always encourage me to seek excellence and satisfaction in my career undertakings. For bringing my life back into balance and sprinkling wonderful colors throughout this whole challenging season, I appreciate the presence of my nieces and nephews - Aisyah, Iqbal, Nabila, Hafiz, Akmal, Fatin, Danial and Redhuan.

Last, my sincere acknowledgement to Muhammad Jusri Jamaluddin, who initially nine years ago, became the first person to inspire me into venturing such a program.



# TABLE OF CONTENTS

	<b>Page</b>
Abstract.....	i
Approval Page.....	ii
Declaration.....	iii
Dedication.....	v
Acknowledgements.....	vi
Table of Contents.....	viii
List of Tables .....	xi
List of Figures .....	xii
<b>CHAPTER I: INTRODUCTION</b>	
Background of the Study .....	1
Purpose of the Study.....	4
Statement of the Problem .....	4
Objectives of the Study .....	5
Research Questions.....	6
Rationale.....	7
Definitions .....	8
Organization of the Paper.....	9
<b>CHAPTER II: REVIEW OF LITERATURE</b>	
Development of Information Technology.....	11
Change, Innovation and the Environment .....	13
Resistance to Change .....	14
Computer Literacy .....	15
The Need for Teachers To Be Computer Literate .....	17
Attitudes of Teachers Toward Computer Based Education .....	18

Exposure and Attitude Toward Computer Based Education .....	20
Leadership and Attitude Toward Computer Based Education .....	21
Motivating Change in Computer Based Education .....	22
Infrastructure and Computer Based Education .....	24
Personality and Computer Based Education .....	25
Phobia As Initial Barrier Toward Computer Based Education .....	27
Relationships Between Teachers' Attitudes Toward Computers and Location, Teaching Experience and Availability of Computers .....	28
Computer In Education (CIE): The Malaysian Experience .....	30
The Smart School Concept .....	33
Summary .....	35

### CHAPTER III: RESEARCH METHODOLOGY

Introduction .....	36
Research Design .....	36
Sample Characteristics.....	37
Instrumentation .....	38
Data Collection .....	40
Dependent Variable .....	41
Independent Variables.....	41
Survey Response .....	42
Data Analysis Technique .....	42
Limitations of the Study.....	44

### CHAPTER IV: DATA ANALYSIS

Analysis of Respondents' Characteristics .....	45
Psychometric Properties and Measuring Instruments .....	48
Factor Analysis .....	48
Reliability Analysis.....	50
Independent Variables .....	51
Results of the Research Questions .....	55
Distribution of Characteristics of Teachers' Attitudes Toward CIE .....	55
Analysis of Data .....	58

Experience, Infrastructure, Leaderships' Influence, Motivation, Phobia and Personality as Predictors of Attitudes Toward CIE .....	62
Other Factors and Attitude.....	64
Feedback from Interviews.....	66
Summary of Findings .....	67
 CHAPTER V: CONCLUSIONS, IMPLICATION AND RECOMMENDATION	
Conclusion.....	70
Implications.....	72
Recommendation .....	74
 BIBLIOGRAPHY.....	 79
 APPENDIX A: QUESTIONNAIRE .....	 85
 APPENDIX B: FIGURES .....	 98
 APPENDIX C: CORRESPONDENCE .....	 101

# LIST OF TABLES

	<b>Pages</b>
4.1 Location and Availability of Personal Computers .....	46
4.2 Reasons for not Having Own Personal Computers Among Respondents .....	47
4.3 Teaching Experience of Respondents .....	48
4.4 Factor Loadings and Cronbach's Coefficient Alpha of Teachers' Attitudes Toward CIE .....	49
4.5 Factor Loadings and Cronbach's Coefficient Alpha of the Independent Variables .....	52
4.6 Summary Statistics of Attitudes .....	56
4.6.1 Frequency Distribution of Attitudes .....	57
4.7 Pearson Correlation Coefficient from the Field Data .....	59
4.8 Regression Analysis of Attitudes .....	62
4.9 Prediction of Teachers' Attitudes Toward CIE in Descending Order of Beta Values .....	63
4.10 Other Factors and Attitudes .....	64
4.11 Independent t-test for Location .....	65
4.12 One Way ANOVA on Teaching Experience .....	65

## LIST OF FIGURES

	<b>Pages</b>
4.1 Histogram: Distribution Of Attitudes .....	56
5.1 Model of Adoption of CIE in Public Secondary Schools in Malaysia .....	76
1 Three Phases Of Change Involving IT.....	99
2.1 The Research Model.....	100

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the Study

The world today is hit by the wave of globalization which rises together with the information explosion. Being a country which exists in an open, boundless and global scenario, Malaysia could not merely overlook nor belittle the titanic turbulence brought about by the information technology (IT). Various analytical futurists, such as Drucker (1985) and academicians, such as Laudon (1996) admit that IT's arrival instigates changes in every realm, including education.

Serious consideration is taken when the Prime Minister of Malaysia, Datuk Seri Dr. Mahathir Mohammad (1991) insists that his vision of transcending Malaysia into becoming a major contributor of the scientific and technological civilization be shared and materialized by bureaucrats and the grassroots. In addition, Professor Dr. Mustafa Daud (1997) points out that being a computer illiterate in this century is like being a total illiterate. IT and telecomputing have captured every domain and activity. They soon be basic needs and also a competitive edge of a nation. Thus, for future concerns, the Minister of Education, Datuk Seri Najib Tun Abdul Razak (<http://www.moe.gov.my>) plans

to develop world class citizens who are technologically literate, who are also a thinking workforce, able to rise with others in the global arena.

Such aspirations are strongly connected to the emergence of Computers-in- Education (CIE) as a program of educational development in Malaysia. This program which penetrates the scenario of secondary education in Malaysia promises comprehensive connectivity between the realities of today and the expectations of tomorrow. CIE will be the primary conduit in enabling Malaysian schools to experience a cultural transformation. Its culmination would mark the substitution of the conventional memory-based and 'talk and chalk' learning process with a system of learning which enhances creative problem-solving, individual farsightedness and group collaboration. All these would be done via the provision of multimedia technology and world-wide networking.

Despite the above aspirations, CIE has shown slow progress. It has been found that only 40% of the CIE programs were realized and attained (Dr. Zoraini Wati Abas, 1994). Since its initiation in April 1986 until today, only 12 out of 156 secondary schools in Selangor interweave CIE in the classrooms (Jabatan Pendidikan Selangor, 1997). The rest of the numbers only apply computers in extra-curricular activities. Most of the computer clubs are held by instructors of private information centers, and not by teachers themselves (KPM-MIMOS, 1997).

The crux of this phenomena then, lies in the denial to change, specifically among teachers who act as implementers of this program. Being important agents of change, teachers themselves are drawn into either accepting, rejecting or being indifferent toward CIE. The level of acceptance toward such technological innovation is manifested in the diverse attitudes of the teachers. They are either experiencing phobia of the electronic tools, regarding artificial intelligence as a rival to human intelligence, or feeling uncomfortable to move from the traditional, structured way of teaching (Wiburg, 1994).

Not much research has been done to unravel teachers' sentiments toward change, specifically those which are caused by IT. In fact, reports and studies usually stress on the benefits of IT to the students. Rarely do they enlighten advantages of IT to educators. As a result, such groups are ignorant of how far IT can contribute to their undertakings. Most of them embed themselves in a myriad of antagonistic thoughts toward CIE.

For the benefit of the whole organization though, these teachers need to step out from their comfort cocoon and grow with the technology. Undoubtedly, the cycle of change would only be accomplished through harmonious orchestration of both technology and human aspects. The existence of practitioners who neglect human aspects and non-practitioners who disregard technology would only lead to a rupture and unpleasantness in society (Adams, 1986).



## **1.2 Purpose of the Study**

The purpose of this paper is to unveil the factors that impinge on teachers' attitudes in adopting change, such as CIE. It is hoped that from the study, necessary actions can be taken to minimize the negative factors impinging teachers' attitudes. The study is also conducted with the hope that future improvements of the CIE program would consider the attitudinal aspects of teachers. It is hoped that the findings of this exposition could assist administrators in forecasting the performance of any organizational change and would also become the basis for expecting change within the educational settings.

## **1.3 Statement of the Problem**

The attempt to introduce CIE in classrooms has been initiated since the mid 1980s. Additionally, the concept of smart schools which was conceptualized in the early 1990s has reinforced this trend to apply computerization in the curriculum. Notwithstanding these, CIE for secondary schools in Malaysia are still lagging when compared to other similar institutions in Japan, Korea and Singapore (Abbas, 1994). Recently conducted researches have reported on the rather limited extent of such technological tools being internalized into the teaching process. Studies have also been conducted to

explain this problem by looking into the perception of students and trainee teachers toward the role of computers in the change process.

However, an in-depth analysis on teachers' attitudes and factors affecting them makes the attempt to explain the rate of CIE adoption in secondary school's curriculum difficult. The fact that no studies have been attempted to relate differing teachers' attitudes toward CIE and the management of change means there continues to be a lack of awareness on these issues within the school community. Without such an awareness, CIE may not achieve total success despite sufficient infrastructure. The ability of an organization to understand and neutralize the imbalance of such attitudinal differences toward CIE, would open doors to other future attempts to initiate change or new technologies within the educational realm.

#### **1.4 Objectives of the Study**

The objective of this study is to analyze the attitudinal differences toward CIE, among public secondary school teachers. Three types of attitudes are defined: perceived usefulness; perceived control; and the behavioral component.

Another objective of this study is to study the relationship between all the independent variables, which are infrastructure; experience and exposure; leadership (principals' influence); organizational motivation; phobia and personality against the attitudes of teachers toward CIE. The research also aims to examine the influence of teachers' location, teaching experience and affordability in owning computers against their attitudes toward computers.

## **1.5 Research Questions**

This study is designed to address and answer specific questions underlying the external (environmental) and the internal (personal) dimensions of teachers that might be relevant to their attitudes toward applying computers in classrooms.

The research questions pertaining to the external factors are as follows:

Is there any significant relationship between teachers' attitudes toward CIE and

- (1) leaderships or principals' actions?
- (2) previous exposure or experience?
- (3) organizational motivation?
- (4) infrastructure?

The research questions which relate to the internal factors are:

Does any significant relationship exist between teachers' attitudes toward CIE and

(1) their personalities?

(2) phobia of new technology and their attitudes toward CIE?

Phobia in itself is a reflection of personality. But in this study, phobia is totally separated from personality, and is viewed as extreme anxiety toward computer technology.

There are also three research questions concerning teachers' general information that would be investigated in this study. Is there any significant relationship between the teachers' attitudes toward CIE and

(1) their locations?

(2) the teachers' conventional teaching experience?

(3) the availability of computers among them?

## **1.6 Rationale**

This study particularly signifies CIE as a change or a cultural transformation in the Malaysian education system, that is from the mundane 'chalk-and-talk' technique to a computer-aided-learning process. The effort to identify relevant variables in this study can help policy makers at various levels

of educational administration to institute strategies that can overcome the resistance to change toward computer literacy.

The important role of information technology induces the need for teachers to be computer literate. Research in this paper then, might implicitly provide useful help for the Teachers' Education Division (BPG) in generating relevant in-service programs on computer education to secondary school teachers.

## 1.7 Definitions

The following definitions apply in this study:

Attitude - an idea charged with emotion which predisposes a class of actions to a particular class of social situations (Triandis, 1971). It is also an individual's prevailing tendency to respond favorably or unfavorably to an object, person or group of people, institution or event (Enoch, 1992). Allport (1962), Spencer (1862) and Lange (1888) conclude that attitude has three basic components. They are:

- (1) The cognitive component which consists of an individual's beliefs, or factual knowledge of an object, person or situations ; (2) the affective component which reflects the process of attaching emotional significance to any stimuli ;

and (3) the behavioral component which relates an individual's involvement in overt behavior toward an object or person (Raja Abdullah, 1990, p.49).

Teacher - a person who gives knowledge, skill, lesson or training in a particular subject, to other individuals (Longman Dictionary of Contemporary English, 1978). For the purpose of this study, the interpretation of teacher would be solely confined to graduates or non-graduates who professionally work in secondary schools.

Principal - a person who takes the role of the head of a secondary school and has legitimate power over the resources and individuals within that boundary.

CIE - a methodology which integrates the skills of applying computerization into the mainstream of instructional activities within the present curriculum (Ee, 1992).

Innovation - the existence of new development which involves the application of information technology and computerization in the education system being studied and that requires adoption thereof by teachers (Raja Abdullah, 1990). The word will be used interchangeably with "change".

## **1.8 Organization of the Paper**

The study is organized into five chapters. Chapter one presents the overview of the problem and specifies the objectives of this study. Chapter two

reviews the existing literature and ultimately puts forth a framework of the hypothesis. The third chapter focuses on the research strategy and methodology of the study. Chapter four analyzes and discusses the findings of this research. The conclusion and recommendations are presented in the final chapter.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

This review of literature first describes the development of information technology which has culminated in the present emphasis on global changes of paradigm. It presents and discusses previous research innovation in the context of technological change. Specifically it focuses on computer literacy in general and within the teaching profession, as well as concentrating on the needs of teachers to become computer literate. Based on the literature available, it discusses the factors that can be attributed to the observed attitudinal differences of individuals towards change especially in the area of computer in education. References will also be made on the concept of Smart Schools, where computerization would be fully integrated into the teaching system.

#### **2.1 Development of Information Technology In Education**

As the domains of business and education become thinner due to globalization, a huge number of distinct technologies in the business world only took a few years before becoming a necessity in the education field. This was exemplified in the linear growth of microcomputers in schools (Abrams, 1993) and the adoption of