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ABSTRACT

This study examines the relationship between computer laboratory (lab) utilization and computer laboratory supervisor's (CLS) management skills. An interview was carried out with four computer laboratory supervisors in the Computer in Education (CIE) project schools. The laboratory utilization was measured by the number of usage of the lab by the students and the postponement of classes. The bases of the CLS's performance were their attitude, computer knowledge they acquired, and their management skills.

Based on the findings of the study, it can be concluded that managerial skills are essential for CLS. Knowledge of these skills enables the CLS to be an efficient and effective manager. Furthermore, the CLS's attitude and computer knowledge are also important in managing the lab successfully.

This study recommends that the Education Ministry recognizes the CLS's status as a full time position and not an additional task of a teacher. Another recommendation is the necessity to incorporate the management subject in the CIE courses. In addition, a Computer Laboratory Management Training Program and a lab standard operating procedure in assisting the CLSs in their job are proposed in this study. Finally, suggestions for further study are also made.

APPROVAL PAGE

TITLE OF PROJECT PAPER: STUDY OF COMPUTER LABORATORY

SUPERVISORS PERFORMANCE IN

SELECTED CIE PROJECT SECONDARY

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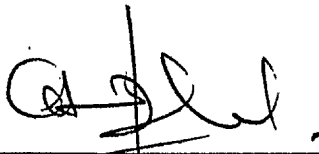
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I hereby declare that this project paper is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references and a bibliography is appended.

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CHAPTER 1

THE PROBLEM

1.0 Introduction

Computer education is gradually becoming part and parcel of the school curriculum throughout the world. The growing awareness and interest of the public toward computer education have promoted the Education Ministry of Malaysia to launch Computer Literacy Pilot Project (CLPP) in April 1989. Twenty rural schools were selected for this purpose. These schools were equipped with a computer laboratory and a trained teacher assigned to supervise it. However, the project was discontinued the following year due to a shift in focus. The new focus was computer integration across the curriculum. (Sulaiman Hashim 1996) In 1992, the Education Ministry launched another project - Computer in Education (CIE) Project for rural lower secondary schools. Under this project, sixty rural schools were selected and they were also equipped with a computer laboratory (lab) each. In 1997, this project is expanded to include ninety selected rural secondary schools. In implementing this new CIE project, the government has taken into account all the potential problem areas such as insufficient system support, outdated or limited hardware, financial constraint, the lack of CIE teachers and the Computer Laboratory Supervisors (CLSs) which they had experienced earlier in the first project. (Rahmat Jamil, 1994:1)

Although the Ministry had taken steps to overcome the problem areas faced by the first project schools, not much attention was paid to the problems of managing and maintaining the lab.

A computer laboratory is just like any other laboratory. It needs to be managed effectively to sustain its usage. A computer lab is undoubtedly very costly to manage, as the computer hardware is expensive, sensitive and sophisticated. Inability to manage the lab well will result in its ultimate closure. Effective and efficient management is of utmost importance to ensure the lab can be utilized to its fullest. The skills of managing a lab can be acquired through experience and formal training. The managers (in this case the teacher-in-charge) need the knowledge and skills of management. They need to know the process of management such as planning, organizing, leading, controlling and budgeting to enable them to become efficient and better managers.

1.1 Background To The Study

Due to the rapid changes in computer technology it is difficult for the schools to keep up with the changes especially so under a strict budget. With this constraint, managing the lab has become a problem for laboratory supervisors who possess no managerial background. Even though selected Computer in Education (CIE) teachers were sent for courses in the subject,

they were never trained to handle the technical aspects of the computer and on managing the lab. From the researcher's personal experience as CLS, managing and maintaining the laboratory is not an easy task to handle without a good managerial and technical background. Even though managing the lab is not the main problem encountered by the CLS, as reported in the *Laporan Projek Literasi Komputer (1994)* by Unit Makmal Teknologi, it could not be ignored. This problem would affect the success of the whole project. The Education Ministry had allocated approximately RM 60,000 per school (150 schools) for the CIE projects. This huge budget allocation indicates that the CLS plays an important role to ensure the success of the project.

1.2 Statement Of Problems

These laboratories have been operating for six years. Given the continued emphasis on computer knowledge and skills, it is timely that the utilization of these labs be evaluated. Four schools in Alor Gajah District of Melaka, have been identified for this study. This study hopes to answer questions pertaining to CLS, facilities and financing. Special emphasis is given to management skills of the teachers directly in-charge of the laboratories. The study seeks to understand the strengths and weaknesses of the management of the lab. This study also hopes to assist the present and future computer laboratory supervisors (CLSs) in managing the laboratory for

the success of the CIE project. This study will also have practical implications in formulating course outline for training computer teachers and for CLS in managing the computer lab.

1.3 Research Hypothesis

This project is to identify the relationship between attitude, computer knowledge and managerial skills of the CLS and the successful utilization of the computer lab. The following hypothesis forms the bases for the research interview questions.

1.3.1   CLS's attitude has an influence on the successful utilization of the lab.

1.3.2   Computer knowledge is a prerequisite skill for CLS.

1.3.3   Managerial skills influence the effective running of computer lab.

1.4 Operational Definitions

The concepts used in the study are defined as below.

1.4.1 Management and administration

There is confusion as to what in actual fact is management and what is administration. Management includes the planning, organizing, leading, and controlling. According to Stoner et. al. (1995: 7), it is a systematic set of actions designed to achieve goals and objectives where as, administration makes possible what has been planned, and it takes a manager to plan the policy.

1.4.2 Computer laboratory manager or supervisor

The computer laboratory manager or supervisor **(CLS)** is the person who is assigned to be in-charge of the computer laboratory. The CLS is selected by the school principal and sent for computer courses conducted by the Ministry of Education. The CLS is given the authority and responsibility to maintain the lab and at the same time plan out activities to achieve the Education Ministry's goals.

1.4.3 Computer laboratory

The computer laboratory (lab) discussed in this study is an equipped computer laboratory, which is set-up by the Educational Ministry for the CIE project. The laboratory is equipped with the wiring and other hardware and software facilities like computers, printers, overhead projector, chairs, tables and cabling.

The first selected project schools were given microcomputers designed locally in order to ensure the standardization of the computer hardware throughout the Malaysian schools. RMS Sdn. Bhd., which comprised of three main companies was appointed as the sole supplier for the project. They designed a computer called Atom 1 PC; a compatible IBM machine based on 16 MHz NEC V20 microprocessor. The laboratory is a Local Area Network (LAN) with the workstation computers connected to a server. The LAN allows the workstations to share the software and hardware. The Computer Literacy subject is geared for Forms One and Two only. The computer laboratory has 20 Atom1 computers.

The present second project schools are equipped with one multimedia computer laboratory. The laboratory has twenty 486 microprocessor workstation with CD-ROM and 540 MB hard disk. The laboratory is a Local Area Network (LAN) where the workstations are connected to a server. The computer can also function as stand-alone if the server break down.

The laboratory is not confined to students of Form 1 but teachers of other subjects can also use the laboratory as a teaching resource. Teachers are encouraged to use the education software provided or available in the market as teaching material for enrichment activities or reinforcement activities in their teaching. In this way the laboratory is expected to be fully utilized to its maximum.

1.4.4 CIE Teacher

The CIE teachers are those selected by the school principal to teach Computer Literacy. They comprise of those who must possess some or little knowledge in computer. They have also attended computer courses conducted by Ministry of Education or by other government agencies.

1.4.5 Attitude

Ajzen (1988:4) defined attitude as a disposition to respond favorably or unfavorably to an object, person, institution, or event. Attitude here is defined as the degree of confidence, motivation and efficiency in managing the lab.

1. 5 Organization Of The Paper

This paper is organized into five chapters. The first chapter is the overview of the study encompassing the focus, purpose of the study and definition concept. The second chapter looks into related literature and importance of managerial skills for CLS. The third chapter discusses the research strategy and methodology of the study. The findings of this study are discussed in the fourth chapter. Conclusion, recommendations and suggestions by the researcher pertaining to the topic discussed are put forward in the fifth chapter.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter presents the review of literature related to the state of Computer in Education project and the role of the CLS in the project school. This chapter is divided into three sections. The first section reviews selected research related to the statement of the problems. The second section presents an overview of the CIE project. The third section discusses the importance of managerial skills for the CLS.

2.1 Research Context

Many professional groups in Malaysia have carried out studies on CIE over a period of years. Md. Khalid:1986, Zoraini Wati:1994, Tengku Shahdan: 1993 and many more carry out some of the studies. There is nearly universal agreement that all teachers and students should be computer literate and computer is essential in the present day education system. Seminars and conferences have also been carried out in this area. Seminar presentations have either focused on the advantages of computer learning in schools, computer assisted learning or teachers' and students' perception towards computer. The researcher has so far not found any research or study carried

out on the performance of CLS of the CIE project schools nor on the computer lab utilization. However, Sulaiman Sarkawi in 1994 did carry out a survey on the effectiveness of the CIE project for his master's dissertation. His findings recommended that the principal and the CIE teacher should meet once a week to discuss on the problems experienced in managing the lab. This, according to him will help to lighten the CIE teacher's burden in carrying out the computer literacy subject. Tengku Shahdan (1993:48-52) also came out with a few recommendations to ensure the success of CIE projects. Among his recommendations were teachers must be adequately provided with computing facilities, and be trained adequately prior to students. Preparation of resources, both in terms of quality and courseware and expert support is crucial to the project. However, he did not stress on the function of the lab.

2.2 The CIE 1992 And 1997 Project.

Information gathered from interviews with personnel from Unit Makmal Teknologi Komputer and through researcher's personal experience as CLS, several problem areas have been identified. The problems encountered by the first project schools were *system support, hardware, financial constraint, CIE teachers,* and *the CLS.*

Any hardware investment without the system support will prove useless to the school. The CLS of the first CIE project faced problems with RMS Sdn. Bhd., the sole supplier of the project to cope with the hardware problems (Rahmat Jamil, 1994:1). The RMS technicians proved incapable of handling their task. They took days, sometimes weeks to overcome one "simple" technical problem. If the hardware were taken back to the factory, it would take a long time for it to be returned. This would mean that some of the students would be unable to have hands-on sessions on the computers and that would lead to the frustration of students as well as teachers. Sometimes, the schools have to do without these hands-on sessions for weeks. Due to these problems, the process of teaching and learning is disrupted. Having realized this problem, the Ministry had proposed to place technical personnel in every district to monitor the overall CIE project. The technical personnel would assist the CLS on technical problems of the computer. (Rahmat Jamil, 1994:23)

The CLS of the first project schools are also faced with networking system (LAN system) problem. The systems tend to breakdown thus depriving students' access to the server. Hence, all programs come to a standstill. To overcome this problem, the systems in the second project schools are equipped with individual CPU and Window NT program. This means that each workstation is a complete unit by itself. Students can

access the system as stand alone should there be problems arising from communications with the server.

Insufficient funding is the next problem faced by the CLS of the first CIE project. During the initial stages of implementing this project there was no allocation in the school budget. Thus, under the school limited and strict budget the task to maintain the lab became a burden to the CLS. However, in 1995 the Education Ministry began to give some financial aid to the project schools. Though the amount is insufficient as the cost of maintenance is usually very high, it however, helps to lighten the financial burden of the CLS.

Another contributing problem would be the attitude and abilities of the CLS and CIE teachers. Those who are cautious and low risk takers find difficulty in managing the lab. They are not willing to accept innovation and change readily. Bearing this in mind, school principals were advised to select potential CIE teacher based on their interest in the subject and computer based qualification in handling the laboratory. Tengku Shahdan recommended that for the project to be a success the teachers need to be trained adequately prior to and be familiar of the multiple uses of computers in the classroom.

His recommendation was supported by Sulaiman Sarkawi (1994:23). Sulaiman found that there were significant differences between computer-trained teachers and non-computer-trained teachers. He suggested that the CIE teachers should be chosen among those who are Computer Science teachers. He also suggested that non Computer Science teachers be sent for computer courses. Some of the CLSs and CIE teachers selected for the project have no basic or very little background knowledge in computers. They comprise of those who have attended a short course in computer literacy organized by the Ministry of Education or those who acquired their computer knowledge through self-study and interest. A few of them however, did acquire the computer knowledge through CIE courses conducted by the Ministry of Education and State Education Department. Their knowledge on computer is confined to what little they gathered in these short courses that they had attended. For the second project schools, however, all CIE teachers and computer laboratory supervisors (CLSs) were sent for a three month intensive computer course in selected Teacher Training Colleges in the country. This step is taken to overcome the teachers' problem. (Rahmat Jamil, 1996:2)

2.3 The importance of managerial skills for CLS

According to Livingston (1971:313), "Managers are not taught in formal education programs what they most need to know to build successful careers

in management." However, Stoner (1995:9) mentioned that the success of an organization depends to a large extent on its managers. Therefore, managers need to know their function in planning, organizing, leading and controlling in the organization. This knowledge can be acquired through formal education. Thus, with this knowledge the CLS would be able to become successful managers of their laboratories. They need to be made aware of these functions as it would help them in managing the lab efficiently and effectively. Inability to manage the lab well would result in its ultimate closure and the failure of the CIE project.

The computer laboratory supervisor (CLS) is the person in-charge of the school computer laboratory. CLS can be categorized as the first-line manager level. As the manager of the laboratory, it is essential for the CLS to have managerial knowledge in handling the laboratory.

Henry Mintzberg (1995:15) quoted in Stoner, Freeman and Gilbert had classified the role of a manager at all levels into interpersonal roles, informational roles and decisional roles. The awareness of these roles is important for the CLS since there are no CLS job description and specification from the Ministry of Education. Therefore, the CLS need to know what are their roles as manager of the lab. With this knowledge it is hoped that the CLS would be able to monitor the lab and the teachers to ensure that the process of teaching and learning is more effective. The CLS would also act as the