THE UNIVERSITY OF HULL

Problems in the Implementation of
Computer Assisted Language Learning in Malaysia

being a Thesis submitted for the Degree of
Doctor of Philosophy
in the University of Hull

by
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SUMMARY

The aim of the research was to study an attempt to integrate Computer Assisted Language Learning (CALL) into the curriculum of institutions within Malaysia. The study was based on the premise that the quality and quantity of computer usage in the classroom is influenced by the teachers' readiness to use the device. Based on the findings suggestions are made for possible solutions to some of the recurring problems. The findings have implications for both pre- and inservice teacher training.

The rationale for research is laid out in Chapter One whilst Chapter Two gives the background to the study. The review of literature is given in Chapter Three. Chapter Four argues for the use of both qualitative and quantitative methodologies in this research work. The findings made in the first three phases of the study which were largely based on qualitative approach are discussed in Chapter Five. The large-scale questionnaire survey which was carried out in phase four is presented in Chapter Six. The findings are discussed in relation to studies identified in the literature review in Chapter Seven. The implications of the findings for teacher training are discussed in Chapter Eight. The thesis concludes by identifying important follow-up studies.

Teachers in the study were not sure how computers could be integrated into their curriculum. Attitudes to CALL had a positive relation with the use of computers for administrative tasks. The training programme conducted by the Ministry of Education was found to have a positive impact on their attitudes. Teachers who were sent for training had a more positive attitude than those who volunteered. Those who took the initiative to learn were found to have a more positive attitude and a higher expectation of computers than the others in the study. Teachers' attitude to and perception of CALL were found to be dependent on their qualification and teaching institution. Generally higher qualifications and teaching level were associated with more negative attitudes and perceptions. Anxiety was higher among teachers with a lower level of computer proficiency, and among University teachers.
PUBLICATIONS

Accounts of parts of the research described in this thesis have appeared in the publications listed below. No offprints or direct quotations from the published materials are included in the thesis.


'First experiences of language teaching with computers', paper presented at CALICO Outreach Symposium, California, USA (Feb. 1992).

'Information Technology, ESP and Teacher Training,' paper presented at ESP Seminar, Malaysia University of Technology (Nov. 1993).

'Integrating CALL into E.S.P.,' ESP SIG Newsletter (1994) Jan, 8-10.


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ABBREVIATIONS

BBC  - British Broadcasting Corporation
CAI  - Computer Assisted Instruction
CAL  - Computer Assisted Learning
CALL - Computer Assisted Language Learning
CBE  - Computer-Based Education
CBI  - Computer-Based Instruction
CBL  - Computer-Based Learning
CEI  - Computer-Enriched Instruction
CDC  - Centre of Curriculum Development
CDI  - Computer-Directed Instruction
CDL  - Computer-Directed Learning
CMI  - Computer-Managed Instruction
ComIL - Computer Integrated Learning
Ed   - Education
EFL  - English as a Foreign Language
EPRD - Educational Planning and Research Division
IIU  - International Islamic University
IT   - Information Technology
JARING - Joint Advanced/Academic Research Integrated Networking
MCCE - Malaysian Council for Computers-in-Education
MECC - Minnesota Educational Computing Consortium
MIMOS - Malaysian Institute of Microelectronics System
ML   - Modern Language
MOE  - Ministry of Education
PC   - Personal Computer
RECSAM - Regional Centre of Education in Science and Mathematics
RM   - Ringgit Malaysia
CHAPTER ONE

INTRODUCTION TO THE RESEARCH

1.0 INTRODUCTION

Computers have added to the number of technological tools that can be used in class for teaching purposes. They can be an effective supplement to classroom activities (Jamison et al, 1974). They can also help to enhance traditional or alternate methods of instruction (Kulik and Bangert-Downs, 1983-84). Wyatt (1984:4) remarks that there is, "a growing acceptance of the potential role for the computer in the language teaching curriculum." However, its presence is subject to constant scrutiny and challenges. In Dunkel's (1991) reviews of Hart (1989), he mentions Hart as stating that even in the late 80's L2 instructors still had negative perceptions of CALL. He quotes the following reasons for this:

(1). The dearth of microcomputer hardware and the amateurishly produced quality of software,
(2). the lack of L2 teacher training in computer use, and
(3). the failure of L2 administrators to recognise that computer-assisted language learning is a viable use of technology.

(Dunkel, 1991:7)
Willem and Plomp (1993) and Powell (1990) report similar findings in their research. From the researcher's observation of educators in Malaysia many of them are still doubtful of its effectiveness as a teaching tool. They are sceptical of its real contribution to the educational world especially in the area of language learning. One question that often arises when this issue is discussed is its advantages over other teaching tools. This scepticism might be attributed to its lack of usage especially among the language teachers as stated by Phillips (1987:1), "Computer Assisted Language Learning is currently distinguished more by its potential than its practice." Where computers are used, many teachers are pressured into using them and this, despite the fact that often training does not come with the computer.

CALL equipment is quite costly compared to most of the other teaching aids. Interested teachers usually have to allocate some time to learn the working of the machine before they can make the full use of it. This could be one of the reasons why certain institutions and also individuals are quite reluctant to commit themselves to it. Where it is available it is usually left to certain individuals to handle it. Without widespread practice, CALL might remain as an educational tool with an apparent potential but one that has not been fully utilised.
1.1 CHOICE OF TERMINOLOGY

A number of terms are used to refer to computer related courses. Hofmeister (1984:1-5) divides the applications into three areas: (a) computer-assisted instruction, (b) computer-managed instruction and (c) computer literacy. According to Hofmeister,

**Computer-assisted instruction (CAI)** involves the use of computer for direct contact with the learner. In this capacity the computer can be used for practising recently acquired skills. It can also be used to teach new skills.

**Computer-managed instruction (CMI)** is concerned with the diagnosis of pupils' strengths and weaknesses, the prescriptions of learning activities based on this diagnosis, and the monitoring of these learning activities. When the computer is being used for computer-managed instruction, it is not necessary for the child to come into direct contact with the computer.

(p.5 Ch.1)

In **computer literacy** the computer is not viewed as just an instructional tool; instead, the computer becomes a part of the curriculum. Computer literacy adds to the curriculum in several areas. One area is concerned with the learner becoming aware of the application of computers in society. Another area is concerned with the learner acquiring the more specific technical skills focusing on the computer's operation. A third area would be the learning of the logical processes of the computer and formal computer languages.

(p.7 Ch.1)

Apart from Computer-Assisted Instruction, CAI can also mean Computer-Aided Instruction. In fact the words 'assisted' and 'aided' are important in showing the
'subservient, auxiliary' role of the computer (Ahmad et al, 1985:2). The way it affects the teaching or learning process is dependent more on the methodology than the technology. CAI is the acronym that is usually used in the United States. Such preference might be the result of the widespread influence of Programmed Learning and behaviourist psychology in the US in the fifties and sixties. CAL (Computer Assisted Learning) is more common in Britain and is now gaining ground in the United States in ESL circles (Ahmad et al, 1985:2). Hooper (1975:X) argues that, "It is necessary to use less restrictive and less 'opinion charged' terms than CAI." He favours the use of CAL to signify the variety of ways in which computer can contribute to learning.

Among others, CBI/CBL (Computer-Based Instruction/Computer-Based Learning), CDI/CDL (Computer-Directed Instruction/Computer-Directed Learning) are also used in the discussion of computers in education. According to Ahmad et al (1985:2) CBI/CBL, "suggests that the computer has a more fundamental role in the education process than in CAI. CDI and CMI explicitly assign a more active and controlling role to the computer."

From the definitions given, the use of computers can take the acronym of any of the above depending on the role that the teacher wants them to play, and what he
intends to do with them or the extent of his willingness to exploit the computers. Since the focus of this research is on language learning the widely accepted term, Computer Assisted Language Learning (CALL) will be used in this study. The term itself indicates that the computer is just an intermediary in the language learning process. In this research, any kind of software that could be useful for language teaching might be used. This includes pieces of software that are produced for other applications that can be exploited for the purpose of language learning. This would include any word processor because it can be used for language teaching. In this work the term CALL is not going to be used in a very restrictive manner. Its use would also cover other equipment that is used in conjunction with computers in the language learning process. Although different terms are given to refer to computer aided lessons, basically they involve the presence of students and the use of appropriate software together with two of the most basic elements of CALL, namely text and terminal. Hence CALL would include the following items:

1. Audio Enhanced Computer Assisted Language Learning (AECALL)
2. Interactive Video
3. CD-ROM
4. E-Mail
5. Satellite
1.2 STATEMENT OF RESEARCH PROBLEMS

Experience with educational technology in second language learning suggests that teachers tend to react to its implementation strongly. At one of the International Conferences on Language Learning held in Kuala Lumpur in July 1989 which was attended by a considerable number of Malaysian leading figures in the area of education and language teaching, a negative feeling towards the use of the device was displayed by the majority of the participants when Dr. J. Anderson presented his paper on CALL. Personal communication with a number of other influential figures in education in Malaysia suggested that they also shared the same feeling with regard to the use of Computers in Language Teaching and Learning. Despite that, the Malaysian Ministry of Education aimed to equip all the schools in Malaysia with the device to be integrated into the national curriculum. Therefore, there seems to be a good case to look at the problems in implementing this innovation.

It is to be argued that not enough attention has been given to teachers' needs in relation to computer usage
in language teaching. This neglect is apparent when one looks at the growth of studies on CALL. Most of the studies are concentrated on the technical aspects and also the effectiveness of the device in language learning. Many mention the needs for teacher training to ensure the success of the innovation but very few touch on the kind of training that is appropriate. The practitioners' attitudes, perceptions and expectations of computers in the classroom may influence their decision on whether to adopt the innovation in teaching or not. By focusing on the teachers, their needs in relation to CALL may be identified.

1.3 OBJECTIVES OF THE STUDY

The primary aim of the research is to study an attempt to inject CALL into the education system. In this study, the focus of research is on the Malaysian experience in the implementation of CALL.

This study is expected to provide information about teachers' attitudes towards computer assisted learning. Allport (1954:45) defines attitude as, "a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related." In their study of ethnic group§, Harding et al (1954) categorise
attitudes into cognitive, affective, and conative components. "The cognitive components are the perceptions, beliefs, and expectations that the individual holds..." The affective components, "include both a general friendliness or unfriendliness toward the object of the attitude and the various specific feelings that give the attitude its affective colouring." The conative components, "include beliefs about 'what should be done' with regard to the group in question, and action orientations of the individual toward specific members of the group" (Harding et al, 1954:4).

Individuals' belief structures may affect their emotional reactions to the stimulus and their way of behaving toward the attitude object. With regard to CALL, teachers' positive perception toward the device and their high expectations of it (cognitive) may lead to a general friendliness (affective) towards the object. The teachers may decide to use the computer in their classroom because they believe that it helps in the learning process (conative). In this study, the affective component will be referred to generally as attitudes whilst the cognitive components will be divided into perceptions and expectations.

The research tries to:

i. investigate the possibility of obtaining greater
benefit from the computer facilities available;

ii. assess language teachers' attitudes towards Computer Assisted Language Learning;

iii. investigate language teachers' attitudes towards teacher training in Computer Assisted Language Learning;

iv. explore teachers' perceptions of Computer Assisted Language Learning;

v. discover language teachers' expectations of Computer Assisted Language Learning;

vi. suggest possible solutions to the problems that teachers face in integrating computers into the curriculum;

vii. make recommendations for teacher training on the basis of the findings made in i, ii, iii, iv, v and vi.

1.4 RESEARCH METHODOLOGY

There are various problems that we have to consider when CALL is discussed. One of the important issues is the nature of language teaching itself where it is influenced by a number of different elements. How do we then go about making use of the computer within this process? Ahmad et al (1987:116) comment that,
Language teaching tends in practice to be eclectic: there are not only exceptionally many paths and educational means for arriving at a given educational goal, but there are also very many types of educational materials which can be used to achieve that goal. To complicate matters even further, there are many different goals, and views about the goals which language teaching is supposed to aim at. It therefore serves little to talk of integrating CALL into the language teaching programme in any standardised way.

As the nature of language teaching itself is very wide, in order to analyse its practicalities, one has to look at its implementation in a context. For the purpose of this research, both qualitative and quantitative analysis methods were employed where the situation demanded it. Qualitative methodology was used to yield a better understanding of the problem (Finch, 1986). Bates (1985;6) argues that the comparative, laboratory-controlled study, "has proved to be completely useless as in making practical decisions about the use of different teaching media." On the other hand, Kincheloe (1991;144) claims that a "well-executed quantitative research with an understanding of context and a concern with purpose can provide important insight with certain human affairs. Quantitative methods allow us to focus on variables of interest, and the use of mathematical symbols permits an economical summary of information."
In this research, the qualitative methods were employed in order to get the insight and a deeper understanding of the problems in CALL implementation. The quantitative methods were used to focus on identifiable aspects such as teachers' age and gender. The survey method was preferred over the laboratory-controlled study. Teachers' attitudes, perceptions and expectations were examined by using both methodologies.

In the first three phases, a case study was carried out at the International Islamic University, Malaysia where computers were used in the teaching of English language to its students. Similar research was carried out at four schools in a rural area of Selangor, a state in Malaysia. The research at the schools was to complement the findings made at the University.

The case-study institutions were not chosen randomly. The International Islamic University was chosen because at the beginning of the study, it was the only University in the country which used computers in teaching English Proficiency courses. The reason the schools in the District of Sabak Bernam were chosen was because one of them has been chosen by the Ministry of Education for its Computer-in-Education project. Studies were also carried out on three other schools in the same district to complement the findings made at the school.
Prior to research, permission was sought from the Ministry of Education and the State Education Departments to conduct the case study and later the survey at the selected schools. (See Appendix A for the permission letters from the Ministry of Education and the list of State Education Departments which gave their permission for the questionnaires to be distributed). The preliminary contact with the schools chosen for the case studies was first made by giving the school principals a visit. Their consent was sought before the researcher embarked on the study. The researcher also visited their computer lab and met the personnel in charge of the lab. At the International Islamic University, the permission to do research was automatically granted as she was a member of staff. She took the role of a participant observer who looked into the problems in hand as an insider rather than as an outsider looking inside. Being an insider gave her the advantage of having an easier access to relevant information at the institution under study.

The study was based on recorded interviews at the beginning of the research work, questionnaires to the students and video recordings of the class proceedings, and at the University the researcher’s observation of the day-to-day running of the Division. A check-list
was drafted based on the recordings to analyse the teachers' classroom behaviour variables. The major findings made in the first three phases were realised into quantifiable variables. Questionnaires were drawn up based on these findings. The questionnaires were distributed in the last phase of the study to all the schools which had been selected by the Ministry of Education for its Computer-in-Education project (both primary and secondary) and also three of the Universities in Malaysia. The questionnaire helped to validate some of the findings made in the earlier phases. It also helped to lead to the important issues in CALL implementation. Teacher personal variables which include age, gender, teaching experience and computing experience were taken into consideration when analysing the data.

1.5 SCOPE OF THE STUDY

The study particularly examined the problems that might hinder teachers from adopting the innovation. This includes looking at the teacher's behaviour in the computer classroom setting and the organisation as a whole. Since it was assumed that there were many ways of teaching language effectively, comparison was not made with other teaching approaches. This means that not using the computers does not necessarily imply that the teachers are not efficient.
1.6 LIMITATIONS OF THE STUDY

The etiquette of research is one of the limitations of this research work where some issues which might be relevant to the discussion of the findings cannot be disclosed in this thesis because of the implications that they have for the individuals and institutions concerned. Apart from that the researcher’s familiarity with the setting might also be a disadvantage since it is possible that she failed to observe certain significant points because they have already formed part of her lifestyle. The researcher’s location in the social context may have an effect on how she defines the situation.

The absence of research funds while the study was conducted also imposed a limitation on the research. Such funding could have been used to purchase further equipment to facilitate the study.

1.7 ORGANISATION OF CHAPTERS

The following chapters will be arranged into several complementary parts. Chapter Two gives the background information to the study. It sets the scene for the study, and gives the reasons for choosing the educational institutions concerned in the research.
Chapter Three surveys the literature relevant to the study. It looks at CALL as an innovation from the perspective of the individual and also the institution. The potential of CALL and its limitations are discussed. The importance of teachers in ensuring the success of CALL implementation is stressed. The major findings in research related to the use of computers in education are discussed in this chapter. These findings may give us some insights into some of the achievements and also problems faced in the implementation of this innovation.

The conduct of the research is outlined in Chapter Four. It outlines the arguments for using the different approaches in this study. The longitudinal study is divided into four phases in which the approaches are triangulated in order to obtain more reliable and valid findings.

The findings based on the research done are presented in Chapter Five and Six. Chapter Five concentrates on the analysis of the first three phases of the study which was largely qualitative. A large scale survey was conducted in phase four and the results are given in Chapter Six of the thesis. The two chapters aimed to give a holistic representation of the problems in CALL implementation in Malaysia. The findings will be
interpreted and inferences drawn in accordance with the purpose of the research.

Chapter Seven compares the findings made in this study with other works in this field. It particularly looks at the similarities and differences that this research has with other studies in similar areas.

Chapter Eight provides a response to the research questions on the basis of the findings made in this study. It concludes the work by giving recommendations on how to achieve a more successful result in the implementation of CALL. The possible trends in the future will also be touched upon.
CHAPTER TWO

BACKGROUND INFORMATION:
ENGLISH LANGUAGE LEARNING AND
COMPUTER-IN-EDUCATION PROJECTS IN MALAYSIA

2.0 INTRODUCTION

English is taught as a foreign language in Malaysia. There has been a general concern over the decline of the standard of English among the Malaysian students (Haja Mohideen, 1991). The government is trying to take steps to remedy the situation. In a press conference, the Malaysian Prime Minister, Datuk Seri Dr. Mahathir Mohamed stated that the government might make English language a compulsory subject in examinations if the standard continues to deteriorate (New Straits Times, March 9, 1991, p.3). On the other hand, the President of the Malaysian Linguistics Association, Professor Dr. Nik Safiah Karim suggested that emphasis should be placed on the teaching methodology rather than making it compulsory (Utusan Malaysia, March 13, 1991, p.16). This was also the issue that the Minister of Education, Datuk Dr. Sulaiman Daud promised to tackle as he assumed his new post in 1991 (Utusan Malaysia, March 13, 1991, p.16).
Above all the main underlying issues here would seem to be the students’ attitude and motivation. Teachers can help in awakening these attributes in the students (Gardner, 1985:9). If the students have a positive attitude towards learning the language, and at the same time are highly motivated, they might be able to do well in their examination, and might also be able to learn to use the language fluently. Using computers in language teaching could be one of the ways of making language learning more attractive to the students.

The introduction of computers in education is fairly recent in Malaysia. It only started to take place in the mid-eighties. The Ministry of Education’s decision to provide all the secondary schools with computers helps to accelerate the process. However, in the writer’s experience the use of computers in language learning is still very minimal. Amidst the Ministry’s readiness to supply the hardware, teachers still doubt its effectiveness in addressing the needs of the New Integrated Curriculum for both the primary and secondary schools.

2.1 MALAYSIAN SCHOOL CURRICULUM

The curriculum was reformed in the early eighties. It was launched by the then Minister of Education Dato’ Musa Hitam on 8th Dec. 1980. The main difference
between the new and old curriculum is that the previous curriculum stressed subject-matter whereas the new curriculum stresses study skills (Wan Mohd Zahid, 1991). The previous curriculum was multidisciplinary in nature. In the new curriculum emphasis is given to the acquisition of basic skills in Reading, 'Riting and 'Rithmetic (the three R's). It calls for a more active participation from the pupils in the learning process. Where possible experiences are made available by organising activities which are related to their day-to-day living.

The Integrated Secondary School Curriculum was introduced following the introduction of the New Primary School Curriculum in 1988. In the first year of its implementation it involved only four language programs namely Bahasa Malaysia, English, Mandarin and Tamil. The involvement of all the other subjects took place in the second year of the implementation (Pukal Latihan Kurikulum Bersepadu Sekolah Menengah (KBSM), 1990:vii). The design was based on the National Educational Philosophy which, "has at its core the concept of lifelong education geared towards the development of a morally upright person who is intellectually, spiritually, emotionally and physically integrated" (Huraian Sukatan Pelajaran Bahasa Inggeris: Tingkatan 111, 1989:IX).
2.2 ENGLISH LANGUAGE LEARNING

English used to be one of the mediums of instruction at all levels of education in Malaysia. It was gradually phased out and is officially made the second language in the country. All subjects in Primary One in the national schools started to be taught in Bahasa Malaysia in 1970. 1982 saw the end of English medium schools at the secondary level (see Figure 1).
Figure 1: The Timetable for the Implementation of the Teaching of All Subjects in Bahasa Malaysia in National-Type Schools.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SUBJECT TO BE TAUGHT IN BAHASA MALAYSIA</th>
<th>PRIMARY LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>Bahasa Malaysia</td>
<td>Standard I</td>
</tr>
<tr>
<td></td>
<td>All Subjects except English</td>
<td>Standard II</td>
</tr>
<tr>
<td>1971</td>
<td>All subjects except English</td>
<td>Standard III</td>
</tr>
<tr>
<td>1972</td>
<td>All subjects except English and Pupil's Own Language</td>
<td>Standard IV</td>
</tr>
<tr>
<td>1973</td>
<td>&quot;</td>
<td>Standard V</td>
</tr>
<tr>
<td>1974</td>
<td>&quot;</td>
<td>Standard VI</td>
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<tr>
<td>1975</td>
<td>&quot;</td>
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<tr>
<th>SECONDARY LEVEL</th>
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<tr>
<td>1976</td>
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<td>1977</td>
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<td>1982</td>
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2.2.1 ENGLISH AT PRIMARY SCHOOLS

English is one of the compulsory subjects at both the primary and secondary levels of education. When the children start to learn English depends on which school they go to. There are two types of primary school in Malaysia, the national and national-type schools. Bahasa Malaysia is the sole medium of instruction at the former. It is used right from Primary One to Primary Six. Chinese medium schools and Tamil medium schools fall under the category national-type primary schools. At these schools apart from Bahasa Malaysia, the subjects are taught in Chinese and Tamil respectively. English is only introduced in Primary Three. To enter into the national secondary school, those from the vernacular schools have to spend one year in Remove Class before they can proceed to Form One. They are expected to obtain the same level of proficiency in Bahasa Malaysia and English as those who come from the national primary schools. The later go directly to Form One.

At the Primary level, the pupils are taught how to communicate effectively, both orally and in writing (Sukatan Pelajaran Sekolah Rendah: Bahasa Inggeris, 1983). They spend seven periods per week learning English: 30 minutes per period. Pupils from both types

1Children enter Primary One when they are about seven years old in that academic year.
of schools are required to sit for the Standard Six Assessment Examination at the end of Primary Six. The English paper comprises comprehension, essay writing and grammar questions.

2.2.2 ENGLISH AT SECONDARY SCHOOLS

The Secondary School English Language Programme stresses the teaching of both the productive and receptive skills. The syllabus is an extension of the Primary School English Language Syllabus. It is fundamentally skill-based, and the aims and objectives of the programmes are incorporated into the four language skills, namely, listening, speaking, writing and reading. In addition to that, the syllabus,

...specifies the scope for the selection of topics and moral values to be taught for each year of the secondary school. The syllabus contents state what the students will be able to do at the end of the secondary school in the four language skills. The contents also list the sound system, the grammar, the vocabulary to be taught...

The English Language Programme also seeks to provide some opportunity for self-expression and creativity as well as for the development of the aesthetic through the infusion of literary elements in the programme.

(Huraian Sukatan Pelajaran Bahasa Inggeris: Tingkatan III, 1989:X)

A total of five periods per week are allocated for the secondary schools. For schools that have both morning and afternoon sessions, each period lasts for thirty-
five minutes. If there is only one session\(^2\), each period lasts for forty minutes.

There are three national level examinations at this stage. The first which is the Lower Secondary Examination (*Peperiksaan Menengah Rendah (PMR)*) is taken at the end of Form Three. The Malaysian Certificate of Education (*Sijil Pelajaran Malaysia (SPM)*) is taken at the end of Form Five, and the Malaysian Higher School Certificate (*Sijil Tinggi Pelajaran Malaysia (STPM)*) at the end of Upper Six. The students have to pass each of the exams before they can proceed to the next stage. English is one of the compulsory subjects at PMR and SPM level but it is not compulsory for the students to pass. English is not compulsory for the Form Six students. The absence of such a requirement is said to be, "one of the major contributory factors to the decline in the standard of English" (Haja Mohideen, 1991:56).

In 1991, a study was conducted in three of the states, namely Selangor (west coast of the Peninsula), Trengganu (east coast of the Peninsula) and Sarawak (East Malaysia) to find the effectiveness of the Form Five English language programme at those schools. Among the findings made was that 69% of the teachers found the textbooks which were supplied to their

\(^2\)Some schools have both morning and afternoon sessions.
schools unsuitable for their students. All the teachers from the selected schools in Selangor and one of the schools in Sarawak claimed that the textbooks were not challenging enough for their students. On the other hand the rest of the teachers in the selected schools in Sarawak and Trengganu said that the textbooks were too difficult for their students. Only 59% of the teachers used the given textbooks. The study concludes that the significant problems facing the rural schools were the lack of trained teachers and an environment which was not conducive enough for English language learning to take place. On the other hand, the main problems faced by the students in the suburban area was the subject was not stimulating enough to them. (Laporan Pengesanan Program Bahasa Inggeris Tingkatan 5 KBSM Di Sekolah Menengah Kebangsaan Di Wilayah Persekutuan, Selangor, Sarawak and Trengganu, 1991;11). The use of computers may help towards providing an environment conducive to language learning for the rural students and reducing boredom for the students in the suburban schools.

2.2.3 ENGLISH IN TERTIARY EDUCATION

Except for the International Islamic University, Malay is the medium of instruction in all the other Universities. English was phased out in line with the National Language Policy. However, it is taught as a
subject to the students. The importance of English differs from one University to another and also from one course to another. Although the courses are taught in Malay, students have the alternative of doing their assignments either in Malay or in English.

The International Islamic University and MARA Institute of Technology require the students to get a good credit in English before they can gain entry there. Some courses in the other institutions may also require a credit in English at SPM level as a pre-requisite.

2.3 CALL DEVELOPMENT IN MALAYSIA

The introduction of CALL in Malaysia is quite recent. Each institution is working independently of the others. It is not clear when interest in CALL really started. In the New Straits Times, Tan (1990:6) states that, "Perhaps it can be traced back as far as 1986, when University Pertanian Malaysia organised its first COMPUTESL seminar-cum-workshop, which many teachers attended. Following this, CALL became quite a common and popular topic in local seminars on educational computing."

The establishment of the national body which is known as the Malaysian Council for Computers-in-Education (MCCE) in 1986 helped to promote CIE to educators.
This body together with the Ministry of Education set up an annually held National Software Writing competition. With regard to students' contribution to the project, Gan (1990:6) comments that,

It is an acknowledge (sic) fact that students often possess special insights into how their peers learn and they are able to translate adult language into kid's language to facilitate the learning process... Students involved in this form of peer-teaching also tend to gain better understanding of the content, since he (sic) really has(sic) to learn something before he (sic) can explain it to him (sic) to develop his (sic) programming skills and apply them to real life problem-solving.

In 1990, a competition was held among the school children to develop courseware for language learning. This created a nationwide awareness in the use of computers in language learning.

Not many schools, however, take part in such competitions because most of them are not equipped with the device yet. The interested schools have to take their own initiative in acquiring their own microcomputers, and exploring the area out of their own interest. However, as stated by Mr. Mohsin Fadzli Shamsuri, the then Director of the Computer Technology Lab Unit, Ministry of Education, the principals, teachers and parent-teacher associations of some of those schools are not really committed in their undertaking. He pointed out that a number of computer
clubs have had to be dissolved because of this lack of commitment. Since the main problem was maintaining the lab, and acquiring more hardware and software, he suggested that each of the students be charged 20 cents (about 5 pence STERLING) for every activity that they attended. He also urged the teachers not to concentrate the activities on games (Utusan Malaysia, Dec.18, 1992, p.6).

2.3.1 THE PLACE OF CALL IN THE CURRICULUM

With the deteriorating standard of English among the school children, in order to improve the situation steps have to be taken to make teaching more effective and learning more attractive to the students. Although various approaches have been taken, the computer constitutes another possible supplement to language teaching.

The teachers can play an important role in improving the standard of English in Malaysia. Gardner (1985) realises the importance of teachers in his discussion of the role of attitude and motivation in language learning. He states that,

If teachers are skilled in the language and attuned to the feelings of their students, and the methodology is interesting and informative, this can do a lot towards the awakening of positive attitudes, regardless of whether students' initial attitudes are positive or negative. This is because the
language course is artificial. It is, after all, a school subject also, and the majority of students will approach it initially just like another school subject. Obviously, if teachers are not knowledgeable, not sensitive to student reactions, and encumbered with a dull and unimaginative methodology, it is unlikely that positive attitudes will be developed. In such a situation only the student with an initially strong favourable attitude might be expected to survive the programme with much favourable affect intact.

(Gardner, 1985:9)

The use of the appropriate hardware and software may help in improving the standard of teaching. One of the areas which can be aided is the teaching of writing. Using the computer allows the teacher to explore the process of writing rather than to depend solely on the end-product. The capacity of the computer gives the teacher the opportunity to try materials and approaches which are otherwise difficult to use if the device is not available. Its usage may eventually help the students to improve their level of proficiency.

Moral values which, according to the National Education Philosophy, have to be taught as part of the syllabus can be incorporated into lessons. The following are some of the possible ways cross-curricular issues can be tackled, along with language learning, in using computers:
Example i: A paragraph on ASEAN co-operation in a text reconstruction exercise may expose the students to this issue as language is learnt. The co-operative value can be promoted by asking the students to do the task in groups. Apart from the awareness of local issues and the development of co-operation and autonomy values, the teachers can use the same exercise to teach several language skills which include collocation and cohesion. They can also be used to teach certain words in context.

Example ii: Databases of several items of interest such as local and international games can be developed. This can be part of the students’ language project where information can be retrieved for their language exercises. For instance, students can be asked to make comparisons based on the information that they have. They can also use the data as their reference point when they write their essay, which can incidentally of course be done by using the word-processor.

Example iii: Comprehension skills can be developed by using the adventure or simulation programs. Some programs may require the students to understand the text before they can carry out the task successfully. As the students ‘play with the computer’ reading skills such as scanning and skimming can be developed.

ASEAN stands for Association of South-East Asian Nations.
2.3.2 COMPUTERS IN SCHOOLS

Computers started to be used by schools which took their own initiatives in setting-up their computer club. The state of Kelantan pioneered the state level organised computer literacy programme. Its 'Computer Project for Kelantan Schools' was launched in July 1985. The project was funded by public donations and industries such as ESSO Production Malaysia Inc.

In 1986 the Ministry of Education carried out a pilot project on Computer Literacy in 20 schools (Maklumat Program Komputer Dalam Pendidikan, 1992:1). Five sets of computers were distributed to each of the schools. The project which was carried out with Form Four students was known as 'Introduction to the Computer'. In the same year a joint committee of the Ministry of Education (MOE) and the Malaysian Institute of Microelectronics Systems (MIMOS) was set up to plan the provision of equipment, software development and a computer education curriculum for the Malaysian schools. In 1988, in one of its meetings, the Educational Planning Committee decided that:

i. As a pilot project the 'Introduction to Computer' project at the selected schools is to be replaced with 'Learning with Computers'.

ii. This project is to be implemented in four
stages starting from 1990 with 300 schools involved in each stage.

iii. A Computer-in-Education Committee must be set-up to co-ordinate the program with the Educational Planning and Research Division (EPRD) as the Secretariat.

iv. The division of task is as follows:
   - EPRD- Identifying schools at every stage, deciding the type of computer to be supplied to the schools and supplying the computers to the selected schools
   - Centre of Curriculum Development (CDC)- Setting-up panel for developing software
   - Teacher Education Division and the Regional Centre of Education in Science and Mathematics (RECSAM)- Providing in-service training for teachers.

(Maklumat Program Komputer Dalam Pendidikan, 1992:1- Translation: Nuraihan Mat Daud)

In January 1989, in the Co-ordination of Professional Matters Meeting it was decided that the Computer-in-Education Working Committee and Science and Mathematics Unit of the School Division be placed in charge of matters pertaining to computer usage at schools. In September the same year the MOE-MIMOS Technology lab started its operation. It is responsible for developing software for the Ministry of Education. It
was officially opened by Datuk Dr. Sulaiman Daud, the Malaysian Ministry of Education, on 8th August 1991. He also launched the Computer Integrated Learning (ComIL) Courseware which was created at the lab. In his speech, he stressed the need for developing software which is based on the Malaysian principles of education. He emphasised the importance of making the students understand their own culture before exposing them to the other cultures. In order to cater for that need, it is necessary for the schools to use tailor-made software for the students. He mentioned that as the first step, MOE-MIMOS had successfully organised a course on the National Educational Philosophy, the New Primary School Curriculum and the Secondary School Integrated Curriculum. The course was attended by the planners and the software writers (Media ComIL,1991:7).

A survey was carried out by the Ministry in 1990, and it was found that only 14.4 per cent of a total of 8,124 schools (primary and secondary) were equipped with computers (Ismail,1993:18).

The first group of schools were due to receive their computers in 1991 but it only took place in 1992. The project was officially launched by the Ministry of Education on the 6th of July 1992 (Ismail,1993:18). Sixty schools were chosen for the pilot project. (See Appendix B for the listing). According to the then
Director of the Computer-in-Education project among the criteria for selection are:

1. The school is located in a rural area;
2. A spacious room in which to place the computers is available at the school;
3. Only one school from a district is chosen;
4. The school principal has requested that his/her school be selected.

Except for the state of Perlis, Pulau Pinang and Melaka, five schools from each state were selected for the project. Only three schools in Perlis and Pulau Pinang, and four in Melaka were chosen because these states are relatively small in size. The geographical location of the selected schools is given in the following maps:
Map 1: Location of the Secondary Schools in West Malaysia which have been selected for the 'Learning with Computers' Project.
Map 2: Location of the Secondary Schools in East Malaysia which have been selected for the 'Learning with Computers' Project.

*Capital of the state
The Computer-in-Education project forms part of the Sixth Malaysia Plan which is a five-year interval plan (1991-1995). It is projected that by 1995, all the secondary schools in Malaysia will be equipped with computer laboratories. The aim of the pilot project is to try out, study and evaluate:

- Suitability of curriculum
- Effectiveness of teacher training
- Suitability of hardware and software provided
- Suitability of the number of computers supplied
- Suitability of time-tableing and time-allocation;
- School readiness and administration problems.

(Maklumat Program Komputer Dalam Pendidikan, 1992:3, Translation: Nuraihan Mat Daud)

The project aims to prepare the students with knowledge of computing and its application and to develop their potential through teaching and learning with the aid of computers. The objectives of the project are:

- to equip the students with the knowledge of basic skills on the computer and the limitations of the device;
- to make possible for the student and teacher to use educational software in the learning and teaching process;
- to add variety to teaching and learning strategies.

(Maklumat Program Komputer Dalam Pendidikan, 1992:3, Translation: Nuraihan Mat Daud)
In Dec.1992, the then Deputy Director of the Ministry of Education proposed the use of computers to aid teaching and learning. This was endorsed on the 3rd of Feb.1993. The program was to be launched in June 1993. In the first stage concentration would be centred on Mathematics and English. It was going to be introduced to the sixty schools which had been selected for the 'Learning with Computers’ project. Those schools which have computer facilities were also included in the project. Apart from that a pilot study was to be carried out at fifteen primary schools in the state of Selangor\(^4\). The software for this project was created for the Year 4, 5 and 6 pupils. The same pieces of software were to be used by the weaker students at the secondary schools. The geographical location of the primary schools within the state of Selangor is shown in map 3 below:

\(^4\)See Appendix C for the list of schools.
Map 3: Location of the primary schools which have been chosen for the 'Computer Aided Learning and Teaching' Project.

*Location of institutions which are involved in the case studies
In Nov.1993, MOE-MIMOS jointly proposed to establish a National Education Network. It aims to link up schools and institutions of higher learning in the country over a wide area network. The move is part of an initiative to tap the synergy between the Computer Integrated Learning (ComIL) authoring system and the Joint Advanced/Academic Research Integrated Networking (JARING) network operated by MIMOS. The project was to start in early 1994. Twenty schools were chosen to participate during the two-year test phase of the network (New Straits Times, Nov.8, 1993, p.1).

2.3.3 FINANCIAL IMPLICATIONS OF THE PROJECTS

In 1991, the education sector together with the social and support sectors received the biggest grant for the computerisation projects, "The amount was RM35 million or 33 percent of the year's total budget." In 1993, the biggest allocation also went to the same sectors. They received RM 79.1 million (New Straits Times, Feb.1, 1993, p.1-2).

In officiating at the opening of the 'Learning with Computers' project, the Minister of Education stated that in the Sixth Malaysia Plan (1991-1995), RM3 million has been allocated for Research and Development whilst RM2 million was allocated for administering the implementation of computer-in-education project. It
was projected that in the Sixth Malaysia Plan a total of RM10 million would be spent on the computer-in-education project (Media ComIL, 1991:6). RM4.8 was spent in the first phase of the Computer Project (Ismail, 1993:18).

In the National Education Network project, the cost of the link and a modem to connect to JARING would be provided under a budget which has been allocated for the project. According to Dr. Mohamed Awang-Lah, the Director of MIMOS' Computer Systems Division, the link for each school is expected to cost about RM2,000 per year (New Straits Times, Nov. 8, 1993, p. 1).

2.3.4 HARDWARE

Each school is equipped with 21 machines; these consist of one server 386 SX and 20 work stations. The ATOM 1 computers are produced locally by RMS consortium. They are connected by Local Area Network (LAN). The menu on the computer is standardised by the Ministry of Education (Media ComIL, 1991:6). The equipment was distributed in two stages:

Stage Two: 15th Apr. 1992 to 18th June 1992
In the later development of the computer aided learning and teaching project, the Ministry of Education decided not to use the same type of machines as those supplied to the secondary schools because of the various problems that the users experienced with the machine. (These problems will be discussed below in Chapter Six).
2.3.5 **SOFTWARE**

In the first and second stage of the 'Learning with Computers' project which was estimated to take two years, the following would be taught to the students:

1. Disk Operating System
2. Word Processing
3. Spreadsheet
4. Database
5. Desktop Publishing

In the first stage of its implementation, the teaching of Computer Literacy would be emphasised whilst in the second stage, emphasis would be given to the integration of computers into the curriculum. Ten software packages are being developed for each of the following subjects:

1. Malay language
2. English language
3. Mathematics

In the initial plan these programs were to be distributed together with the hardware. However, the target could not be achieved on time. Only Mathematics

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5This information was obtained from an interview with the then Director of the Computer Technology Lab Unit, Mr. Mohsin Fadzli Shamsuri at the Ministry of Education. It was held at his office on the 10th of June 1991.
programs were distributed in the second year of the project.

In the later part of the implementation, it was planned that an authoring tool, COMIL (Computer Integrated Learning) which is produced by MIMOS would be used for software development. The panel of software writers is made up of educators who are the experts in the particular field. Version 3.0 of the software was expected to be completed by the end of 1993. This version was regarded as the most stable version of the courseware authoring system for classroom use. MIMOS also planned to release the Windows version of ComIL. It was to run under the Microsoft Windows 3.1 environment. This was expected to take place in early 1994 (New Straits Times, Nov.8,1993, p.2).

At the same time, the general public is also invited to develop software, and submit their work to the Ministry of Education.

2.3.6 TEACHER TRAINING

At the central level, the training for teachers of computer literacy, resource persons and co-ordinators was carried out in two stages:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage Two:</td>
<td>18th Nov. 1992 to 29th Dec.1992</td>
</tr>
</tbody>
</table>
120 teachers from the selected schools were chosen for the training (that is, two from each of the schools). The selection was based on the recommendation of the school principals. The teachers who were selected were those teaching Form One and Two (Year Seven and Eight) pupils.

Inservice training programmes were also conducted from time to time by the State Education Departments. In 1992, the Deputy Minister of Education, Dr. Leo Michael Toyad, made a press statement saying that, "The Education Ministry will make the purchase of computer equipment and academic staff training a priority next year to enhance computer literacy in the country" (New Straits Times, Nov. 20, 1992, p.1).

Teacher training in computer aided teaching and learning started in May 1993. English and Mathematics teachers from the schools which have been selected for the project were called for the training. A four-day training programme for the secondary school teachers was conducted by each of the State Education Departments. It was held between May and June (the exact date varies from state to state). The training for the teachers from the selected primary schools was conducted by the Technology Lab in September 1993. The Ministry planned to provide the schools with computers
in October 1993. However, this was later postponed to December 1993.

2.3.7 TRAINERS

The trainers are the staff of the Ministry of Education who have the knowledge of both computer technology and teaching methodology. Apart from that, professionals from other divisions, with the help of the vendors also formed part of the teaching team.

2.3.8 STUDENTS INVOLVED

Computer Literacy is compulsory for the Form One and Form Two students. However, this subject will not be examined. The fact that it is compulsory for those students does not mean that the others cannot use the computers. The other teachers and students can use the lab when Computer Literacy classes are not on. The arrangement suggests that Computer Literacy is given higher priority than Computer Integration.

2.4 SCHOOLS STUDIED IN THIS RESEARCH

In the first three phases of this research, case studies were conducted at four secondary schools and one university. The four secondary schools are located in the district of Sabak Bernam which is one of the
rural areas in the state of Selangor. The schools concerned are:

1. Sekolah Menengah Kebangsaan Agama Simpang Lima. (From here onwards will be known as School A).
2. Sekolah Menengah Tunku Abdul Rahman Putra. (From here onwards will be known as School B).
3. Sekolah Menengah Ungku Aziz. (From here onwards will be known as School C).
4. Sekolah Agama Menengah Tinggi Sultan Salahuddin Shah. (From here onwards will be known as School D).

In the last phase, all the schools which have been selected by the Ministry of Education for its Computer-in-Education project were included in the study.

2.4.1 SCHOOLS A, B, C AND D: DISTRICT BACKGROUND

According to the 1991 census, there were a total of 100,053 persons in Sabak Bernam (Draf Laporan Akhir Rancangan Pembangunan Daerah: Daerah Sabak Bernam, 1993:p.3-1). It is the agricultural district of the state of Selangor. 70 per cent of its people are involved in forestry and agricultural activities. Almost all houses in this area have been supplied with the basic amenities as shown by the following figures:
<table>
<thead>
<tr>
<th>Type of facilities</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water supply</td>
<td>96 %</td>
</tr>
<tr>
<td>Electricity supply</td>
<td>94 %</td>
</tr>
<tr>
<td>Public phone</td>
<td>70 %</td>
</tr>
<tr>
<td>Flushed toilet</td>
<td>66 %</td>
</tr>
<tr>
<td>Personal Telephone</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

Figure 2: Percentage of Public Amenities in the District of Sabak Bernam

(Source: Taklimat Ringkas Daerah Sabak Bernam, 1992. Translation: Nuraihan Mat Daud)

Based on the definition given by the Department of Statistics, Malaysia, the district falls into the category rural because of the large percentage of agricultural activities there. According to the 1991 Population and Housing Census of Malaysia (1992:12), urban areas are defined as,

Gazetted areas with their adjoining built-up areas which had a combined population of 10,000 or more at the time of the 1991 Population Census.

Built-up areas were areas contiguous to a gazetted area and had at least 60 per cent of their population (aged 10 years or more) engaged in non-agricultural activities and at least 30 per cent of their housing units with modern toilet facilities.

Sabak Bernam district was chosen because it falls under the category rural. It fulfils one of the criteria set by MOE for selection of schools for the Computer-in-Education project. The geographical location of the
schools within the district are marked in the map below:

Map 4: Location of the schools chosen for the case studies within the district of Sabak Bernam.
A: Sekolah Menengah Kebangsaan Simpang Lima
B: Sekolah Menengah Tunku Abdul Rahman Putra
C: Sekolah Menengah Ungku Aziz
D: Sekolah Agama Menengah Tinggi Sultan Salahuddin Shah
Schools A and B are located in the middle of the main town in the district. However, they still fall under the category rural because the students come from the surrounding rural areas.

Although they are in the same district, each school has a different historical background. School A and D were Arabic medium schools, School B was an English medium school whilst School C has always been a Malay medium school. With the introduction of the National Language Policy, the medium of instruction in all these schools is now Malay. This change took place gradually. The process was completed in 1981. Before the change, School B had always enjoyed its status as the most prestigious school in the area because of its medium of instruction which was English.

Two of the other schools underwent a major reshuffle in that their status was changed from a day school to a residential school. School A which is directly under the Ministry of Education has been changed to a fully residential religious school starting from 1988. School D which is under the State Religious Department had its status changed to a semi-residential school in 1981. The move means that the students who are accepted have good academic standing, and they come from various parts of the country.
School B and C are under the Ministry of Education, and the students who are enrolled there are mainly those who attended the primary schools in the district. They are usually among those who could not gain acceptance in any of the residential schools in the country. Nevertheless in 1991, School C was chosen as the exemplary school in the district. This was based on the efficiency of the school’s administration⁶.

Apart from the environment, particularly the exposure to the English language, the differences in the school background and the type of students that each one received might have an influence on the outcome of the study.

2.4.2 COMPUTER FACILITIES AT SCHOOLS

The number of computers in each of the schools was quite limited. Added to that they were fully utilised for teaching computer literacy to the members of the school’s Computer Club. Foreseeing that access to the computers by the other teachers (who were not teaching computer literacy) would be very limited, only certain classes were chosen for this study. The limitation on the number of computers also forced the researcher to be selective in the number of classes involved in this research. Since the more able students are the ones

⁶This information was obtained from an interview with the Principal of the school on 11th June 1991.
who are likely to enter universities, they were chosen for this study. Their language proficiency might also be closer to the pre-degree students of the University. The best group of their Form 3, 4 and 5 students was chosen for the purpose of the research. However, the teachers in-charge were informed that they were free to include the other classes if they wished to. It is worth mentioning that none of the schools employed a technician. This is quite normal in Malaysian schools.

The laboratory lay-out differs from one school to the other. The way the computers were arranged was largely determined by the size and shape of the room, and also the number of computers available. The variation in the lay-out gave the researcher the opportunity to see whether it has an influence over language learning and teaching.

2.4.3 SCHOOL A

School A bought five computers (stand-alone) for the members of the computer club. In order to be a member, the students have to pay MYR $12.00 (about STERLING £3.00) registration fee and MYR $8.00 (about STERLING £2.00) monthly fee. (By local standards this is quite costly). Classes on computer literacy for these students were held twice a week. The fee was used to pay for the cost and maintenance of the computers which
were bought on an instalment basis from the Teachers' Association Co-operative. Basically the members were taught how to use a wordprocessor, database and spreadsheet. The software used were Wordstar, DBase 3 Plus and LOTUS 123. LOGO and BASIC were also taught to the students.

This school has been chosen to be one of the schools which is involved in the Ministry of Education's Computer Project. It was due to receive the 20 computers in August 1991 but the computers only came in July 1992.

In a normal year, school A has about 600 students. (In 1993, they had 646). The approximate number of students per class at this school was around 25 to 35 students. The school assigned different language teachers to teach the different forms (years). The three teachers who were teaching the three levels of classes were studied for the purpose of this research. The following table gives the teachers' background which might be relevant to this study:

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7The information on the teachers' background was taken at the beginning of the case studies which was in 1991.
Table 2.1: School A: Teacher’s Background

<table>
<thead>
<tr>
<th>Teacher</th>
<th>TA1</th>
<th>TA2</th>
<th>TA3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country where qualification is obtained</td>
<td>U.S.A.</td>
<td>U.K.</td>
<td>Malaysia</td>
</tr>
<tr>
<td>Majoring in:</td>
<td>T.E.S.L.</td>
<td>T.E.S.L.</td>
<td>T.E.S.L.</td>
</tr>
<tr>
<td>Highest qualification</td>
<td>2nd Degree</td>
<td>1st Degree</td>
<td>Teaching Certificate</td>
</tr>
<tr>
<td>Teaching experience</td>
<td>5 years(^8)</td>
<td>1 year</td>
<td>5 years</td>
</tr>
<tr>
<td>Familiarity with computer</td>
<td>None</td>
<td>Yes (PC)</td>
<td>None</td>
</tr>
</tbody>
</table>

The computer laboratory lay-out in the school is shown in the following diagram (not according to scale):

\(^8\) Five year range is taken as the approximate value. Their teaching experience does not necessarily reflect the actual years of teaching English. This is especially true in the case of TB1 and TC1.
As in school A, the computer lab was only open to the members of the Computer Club. In order to be a member, the students have to pay MYR $5.00 per month (about STERLING £1.25). Most of the students who were involved in this study informed the researcher that they could not afford to pay the fees. The club

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9The diagram is not drawn to scale.
members were taught among other things how to use Wordstar, DBase 3 Plus, and LOTUS.

There were one PC and four Apple IIe computers in the lab. The main reason for acquiring the Apple IIe computers was because they were relatively cheap compared to the PCs. The school started buying the computers in 1986. The PC was bought in 1990. They have actually tried to acquire five more PCs but as they could not afford to keep up with the payment, the computers were reclaimed by the vendors.

At this school any teacher could take their students into the lab although they were not members of the Club. However, only members of the Club could utilise the facilities outside classroom hours.

In 1993, the total number of students enrolled in this school was about 870 people. There were approximately 30 to 40 students per class at the school. Since only one computer could be used for this study (the researcher did not have any software for Apple computers) only Form Four and Form Five were included in the study. The same teacher taught English language proficiency to these classes. The table below demonstrates the relevant teaching background of the teacher:
Table 2.2 : School B : Teacher’s Background

<table>
<thead>
<tr>
<th>Teacher TB1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country where qualification is obtained</td>
</tr>
<tr>
<td>Malaysia</td>
</tr>
<tr>
<td>Majoring in</td>
</tr>
<tr>
<td>Malay Lang. teaching</td>
</tr>
<tr>
<td>Highest Qualification</td>
</tr>
<tr>
<td>Teaching Certificate</td>
</tr>
<tr>
<td>Teaching Experience</td>
</tr>
<tr>
<td>35 years</td>
</tr>
<tr>
<td>Type of computer familiar with</td>
</tr>
<tr>
<td>Apple</td>
</tr>
</tbody>
</table>

For the purpose of this research, none of the computers in the laboratory was used. One of the reasons is that the only PC that they have was not working properly. Only the Apple IIe computers were still running. Unfortunately no suitable software was found to match the hardware. Therefore, the computer used for administrative purposes was used whenever the class decided to utilise the computer for language learning. The classes were held in the Teachers’ Meeting Room. The lay-out of the room is shown in the following diagram (not according to scale):
2.4.5 **SCHOOL C**

The school's computer lab is quite spacious. It housed 16 computers but some of them have broken down. The school made it compulsory for students of the Lower Forms (Secondary One and Two) to become members of the Computer Club. The lab was only open to the members of the Computer Club. The school, however, has a legal problem with its creditor because the suppliers of the computers have been declared bankrupt.

There were about 1,100\(^{10}\) students studying at this school. The number of students per class varies from

\(^{10}\)This is 1993 enrolment figure.
about 30 to 40 students per class. The relevant information concerning the teachers who were involved in this study are given in table 3 below:

<table>
<thead>
<tr>
<th>Teachers</th>
<th>TC1</th>
<th>TC2</th>
<th>TC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country where qualification is obtained</td>
<td>Malaysia</td>
<td>Malaysia</td>
<td>U.K.</td>
</tr>
<tr>
<td>Majoring in</td>
<td>Mathematics</td>
<td>English</td>
<td>T.E.S.L.</td>
</tr>
<tr>
<td>Highest qualification</td>
<td>1st Degree</td>
<td>1st Degree</td>
<td>1st Degree</td>
</tr>
<tr>
<td>Teaching Experience</td>
<td>15 years</td>
<td>20 years</td>
<td>1 year</td>
</tr>
<tr>
<td>Familiarity with computer</td>
<td>None</td>
<td>None</td>
<td>PC</td>
</tr>
</tbody>
</table>

The school's lab lay-out is shown in the following diagram (not according to scale):
2.4.6 SCHOOL D

There were six IBM compatibles in the lab but only one was working. Even then, it was not working properly. The dusty lab proved that it has not been used for quite some time. The school started to buy their own computers in 1986 through the Computer Club. The lab was open only to its members. The Principal stated that the condition of the lab was going to be improved, and the computers repaired, that is, if they could find enough money to do so. Although a detailed study could
not be carried out at the school because of the poor condition of the lab, the visits triggered the interest of the administrators of the school to improve its computing facilities.

In 1993, there were 1,001 students studying at the school. There was a wide gap in the total number of students per class. The range was between 25 to 50 students in each class. The following is the relevant information about the teachers who were involved in this study, and also the plan of its computer lab (not according to scale):

Table 2.4: School D: Teachers' Background

<table>
<thead>
<tr>
<th></th>
<th>Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TD1</td>
</tr>
<tr>
<td>Country where qualification is obtained</td>
<td>Malaysia</td>
</tr>
<tr>
<td>Majoring in</td>
<td>T.E.F.L.</td>
</tr>
<tr>
<td>Highest Qualification</td>
<td>Teaching Certificate</td>
</tr>
<tr>
<td>Teaching Experience</td>
<td>1 year</td>
</tr>
<tr>
<td>Familiarity with computer</td>
<td>PC</td>
</tr>
<tr>
<td></td>
<td>TD2</td>
</tr>
<tr>
<td>Australia</td>
<td>General</td>
</tr>
<tr>
<td>High School Certificate</td>
<td>High School Certificate</td>
</tr>
<tr>
<td>5 years</td>
<td>PC</td>
</tr>
</tbody>
</table>
2.5 INTERNATIONAL ISLAMIC UNIVERSITY

The International Islamic University (IIU), Malaysia was established in 1983 with the objective of integrating Islamic educational values into one's daily life. It is a comprehensive professional institution of higher learning where the teaching of all fields of knowledge is infused with the Islamic value system and the Islamic philosophy of knowledge. According to this philosophy, knowledge is a form of trust from God to man who should utilise it in accordance with God's will, in his performance as God's servant and vicegerent on earth. The quest for knowledge is an act
of worship in Islam. In this pursuit, man should also observe the Islamic value system, that is, what is recommended and permissible in Islam, in his attempt to lead a harmonious and successful life (International Islamic University Undergraduate Catalogue 1991-92, 1991).

IIU is the only higher learning institution in Malaysia which uses English as its medium of instruction. All other institutions use the national language, Bahasa Malaysia. This, however, does not alienate the population of the university from the rest of the country because English still plays an important role in the development of the country. Apart from being the medium of instruction, in the International Islamic University, English is also the medium of communication because its student population is international in composition. Whilst Muslims, particularly the Malays, make up the majority of the population of the University, the student intake is not limited to Muslims.

At the moment there are only four faculties in the University: Law, Economics, Revealed Knowledge and Social Sciences, and the Faculty of Science and Engineering. In 1993, there were 5,340 students studying at the main campus and 2,308 at the Matriculation Centre.
All the students at IIU are required to do English by their respective faculties. Since the students of this University come with varying levels of proficiency, a number of different approaches are used in the teaching of English. In the University handbook (1990:200), the following is given as the objective of the programme:

The programme is intended to develop the student's proficiency in grammar, structure and comprehension as a means of achieving the overall course objective—improving the skills of speaking, reading and writing to a level required for university study. In the development of basic skills, the emphasis will be on helping students extract and organise information as accurately as possible. A secondary objective of the programme is to engage the students' interest and stimulate them to discover the meaning of, and think critically about, the language they are being exposed to. The students will also be trained in the development of study skills. The language to be taught will, as far as possible, be relevant to their studies and will equip them for their academic and professional needs in particular.

Students' grouping for language classes is based on their core subject, and also their performance in an exemption examination which is conducted by the English Language Division\(^1\). As their language proficiency improves more emphasis is placed on English for Specific Purposes. It is incorporated in the various

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\(^{1}\) The academic staff of the English Language Division teach English Proficiency courses whilst the academic staff of the English Language Department teach the Degree (B.A. English), Diploma (Dip. in E.S.L.) and Masters (M.A. in ESL) courses. It was not until 1991 when these courses were introduced that the staff was divided into the two groups. However, a considerable number of the staff are teaching in both the Division and the Department.
courses offered by the Division. The following are the English Language courses that are offered by the University to those students who are doing their degree courses:

1. English Language Elementary One
2. English Language Elementary Two
3. English Language Intermediate One
4. English Language Intermediate Two
5. English Language Advanced One
6. English Language Advanced Two
7. Business Communication (for Business Administration and Accounting students only)
8. Advanced English Writing One
9. Advanced English Writing Two
10. English for Specific Purposes (Advanced level courses for the students and general public).

Those students who fail the qualifying examination have to follow one of the following courses depending on their intended course and the score obtained in the examination before they proceed to their degree courses:

1. Pre-Sessional Level I
2. Pre-Sessional Level II
3. Pre-Sessional Level III
4. Special English for Arabic Major I

The courses offered are subject to change; depending on students' needs in that particular semester.
The University was chosen for the study because the decision to integrate CALL into its curriculum had already taken place before the study started. Although microcomputers have been installed in the University for quite a while, the idea of CALL was still new to the majority of the staff. The use of computers in the curriculum was seen as an innovation in this situation. It is true that a few of the staff have started using the computers since the second laboratory was set up. However, as far as the majority of these individuals were concerned, the machines were not familiar to them. The staff was still vague about the ways of integrating CALL into the curriculum.

2.5.1 **INNOVATION INITIATOR**

At the University, the highest authority (the Rector) has called for a change in the teaching system: from a teacher-centred to a learner-centred approach. Although decisions are made at the top of the academic hierarchy, the academic staff remain as the managers of the learning environments. This means that teachers can transmit their sentiments towards the change to their students. In this way, students’ feelings
towards the innovation may be coloured by the staff’s interpretation and reactions towards it.

A real interest in CALL started when Mr. Tom Ross from the University of Bahrain gave a hands-on demonstration to the staff of the University in 1987. This triggered the interest in especially some of the then newly employed staff (including the researcher). The then Head of the Department played an important role in promoting CALL in the University. Two expatriates from the U.S.A. with knowledge of CALL were employed. At the same time he encouraged the local staff to specialise in this field. Among the steps that he took was to send the interested staff to seminars and conferences that discussed this issue. Seminars of this kind are unfortunately rare in Malaysia. He also made the decision to buy BBC computers in 1988. CALL classes started from there onwards. CALL is also one of the options in the newly introduced Diploma/Masters in TESL program. In 1989 a technician was employed to be in charge of the laboratory.

The staff of the English Language Division was instructed by the then Head of Division to use the computer lab for at least 25% of their contact hours. However, this was based on verbal instruction to the staff and not put in black and white. In the Departmental meeting in August 1992, the Head of
Department mentioned the Department’s plan to increase the use of computers in teaching.

The University itself shows a keen interest in the use of computers in every facet of university life. The MESH (Microcomputer Extension and System Harmonisation) project is being carried out with the help of a New Zealand University to equip IIU with the technology, linking the personnel from the different departments to each other. The University’s Economics and Management Society organised an IT and Communication Fair '93 in February, 1993. Among the items on display were programs on language learning. Dr. Leo Michael Toyad, the Deputy Education Minister who officiated at the opening of the seminar, "urged the people to use the recent reduction in the price of computers by investing in the latest information technology" (New Straits Times, Feb. 7, 1993, p. 6, col. 1-4).

2.5.2 HARDWARE AVAILABLE

The first laboratory was installed in 1985 when the Italian government donated 24 convertible ATARI computers to the English Language Department. Unfortunately they did not come with technical support and training for the staff. Added to that none of the staff showed interest in CALL at that time. As a

\[13\text{Tax on computers was lowered in the 1993 Malaysian budget, reducing the price of computers in the market.}\]
result of that the laboratory was used just as another classroom. In fact it was a favourite because of the good air-conditioning system! Since the computers were not utilised, in 1993 all the equipment in the lab was removed and the room was turned into a tutorial room.

Where CALL is concerned, classes are concentrated in the BBC-ECONET lab. There are 17 computers in this lab. The BBC is not open to the other staff and students of the University. When it still existed the ATARI lab was also not made accessible to the others.

Apart from the BBC computers, for the purpose of this research the Economics Faculty agreed to let the staff and students of the English Language Division use their PC laboratory which consists of three rooms adjoining each other. The number of computers in these rooms varies. Lab A consists of 30 stand-alone computers. Lab B has 20 Novell LAN (Local Area Network)\textsuperscript{14} PC's. Wearnes Boldline is used in Lab C which is connected to UNISYS for the UNIX Operating System. There are 30 computers in Lab C. The lecturers are free to use whichever room they want in accordance with their own needs. When they are not

\textsuperscript{14} Sinclair (1988:154) defines LAN as, "a cable system that can be used to link suitable computers together. This allows, for example, one computer to be connected to disk drives and printers, and the other computers on the network to make use of these peripherals."
used for teaching, the lab is open to students and staff from 8.00 a.m. to 10.00 p.m. on weekdays and 8.00 a.m. to 5.00 p.m. at weekends.

An establishment of another computer laboratory has also been proposed for the Matriculation Centre of the University. This centre is mainly concentrating on the teaching of English to pre-University students who are qualified to follow the University’s academic courses but are not proficient enough to meet the linguistic needs of tertiary education. Only the Malaysians attend courses given by this centre.

In the Divisional meeting held on the 12th of September, 1991, the Head of Division announced to the staff that a new computer lab which would house 90 computers for the Language Centre would be built in the University’s new campus which is situated on the outskirts of the capital city. It was projected that the permanent campus would be ready by 1996.

2.5.3 LABORATORY LAY-OUT

The lay-out of the laboratories and their sizes are different from each other. The ATARI and PC laboratories are much more spacious than the BBC. The BBC lab is about 6 feet X 45 feet wide, and the PC lab
is 36 X 20 feet wide. The following diagrams show the plan of each of these rooms:

![Diagram of PC Room (Lab C Lay-out)](image)

Diagram 2.5: PC Room (Lab C Lay-out)
2.5.4 SOFTWARE AVAILABLE

A number of different pieces of software are installed in the different laboratories. In the ATARI lab, there are PILOT and a number of adventure game programs. In
the BBC lab, among the pieces of software that are installed there are:

1. Podd
2. Welcome Adventure
3. Turtle Graphics
4. London Adventure
5. Fast Food
6. El Dorado
7. Sir Francis Drake
8. Telemark
9. Sixgam
10. Stokmark
11. Yellow River Kingdom
12. Great Britain Ltd
13. Clozemaster
14. ABC Word Processor

A number of the major application software can be found in the Economics Faculty lab. Wordprocessors (Word Star and Word Perfect), Databases (DBase and Paradox), and Spreadsheets (Lotus 123 and SPSS) are available there. The English language programs are installed in Lab C. Among them are:

1. Wordstore
2. Storyboard
3. Testmaster
4. Gapmaster
5. Matchmaster
2.5.5 **TRAINING**

When the BBC computers were installed the lecturers were given training on how to handle the micros by the supplier of the computers (but not on 'how to teach' by using the device). In the early stage a few workshops were given by the network manager and the researcher from time to time. Individual help concerning CALL was also offered to the staff whenever needed. The latest workshop was conducted by Mr. Tim Johns of Birmingham University in May 1992. This workshop drew the attention of the Head of the Department to the use of concordance in language teaching.

2.5.6 **STAFF BACKGROUND**

At the beginning of this study, there were 24 personnel serving the English Language Division of the main campus. The rest were either teaching at the Matriculation Centre or on study leave. The number varies from time to time as more staff are recruited and some added to the number who go on study leave. The following is the relevant information on the instructors who were observed in the first three phases of the study:
Table 2.5: Instructors' Background

<table>
<thead>
<tr>
<th>INSTR.</th>
<th>YEAR BORN</th>
<th>TEACHING ENG. STARTED</th>
<th>OWN COMP.</th>
<th>COM. RELATED</th>
<th>QUALIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>1950s</td>
<td>After 70's</td>
<td>N</td>
<td>Did CALL at Masters level (U.S.A.)</td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td>1950s</td>
<td>In the 70's</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>1930s</td>
<td>Before 70's</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M4</td>
<td>1940s</td>
<td>Before 70's</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M5</td>
<td>1940s</td>
<td>In the 70's</td>
<td>Y</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M6</td>
<td>1960s</td>
<td>After 70's</td>
<td>N</td>
<td>Did Comp.in Ed. at Masters level (U.S.A.)</td>
<td></td>
</tr>
<tr>
<td>M7</td>
<td>1940s</td>
<td>Before 70's</td>
<td>Y</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M8</td>
<td>1950s</td>
<td>In the 70's</td>
<td>N</td>
<td>Did CALL at Masters level (U.K.)</td>
<td></td>
</tr>
<tr>
<td>M9</td>
<td>1950s</td>
<td>In the 70's</td>
<td>Y</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M10</td>
<td>1940s</td>
<td>In the 70's</td>
<td>Y</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>M11</td>
<td>1950s</td>
<td>After 70's</td>
<td>N</td>
<td>Did CALL at Masters level (U.S.A.)</td>
<td></td>
</tr>
<tr>
<td>F1</td>
<td>1960s</td>
<td>After 70's</td>
<td>Y</td>
<td>Did Comp. in Ed. at Masters level (U.S.A.)</td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>1960s</td>
<td>After 70's</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>1940s</td>
<td>Before 70's</td>
<td>Y</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F4</td>
<td>1940s</td>
<td>After 70's</td>
<td>Y</td>
<td>-</td>
<td></td>
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<tr>
<td>F5</td>
<td>1960s</td>
<td>After 70's</td>
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</tr>
<tr>
<td>F6</td>
<td>1960s</td>
<td>After 70's</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>F7</td>
<td>1940s</td>
<td>After 70's</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

2.6 CONCLUSION

There is an increase in the use of computers in the education sector in Malaysia. In the area of language teaching, its usage may help to make learners more interested and motivated to learn the language. This may eventually help to improve the standard of English in Malaysia. The case study done at the International

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15The term instructor is used to refer to the academic staff of the University. In this study it is the generic term used to refer to the teachers, tutors, assistant lecturers and lecturers. When the discussion includes both the school teachers and the instructors the term teachers is used.

16Did not possess computer related qualification.
Islamic University may help to highlight some of the problems of an institution which has a longer experience with regard to CALL implementation. The case studies at the schools may lead to the possible problems that a school may face in the implementation of CALL. Many factors can influence the success of a CALL class, the institution, the personnel involved, the administrators, how the computers are used and the lab lay-out constitute some of these factors. In this study the researcher is going to concentrate on the practitioner variables, and at the same time how the other factors affected the implementation of the innovation will also be looked at.
3.0 INTRODUCTION

The microcomputer is one of the devices that has undergone a very rapid change and development since it came into existence. The first computers were designed more to speed up existing tasks such as numeric calculation (Weizenbaum, 1976:33). Because of the reduction in cost, its high portability, and increase in the flexibility of applications, microcomputers have attracted the attention of more educators. Despite this, according to Hofmeister (1984:p.20 ch.1), "It was not until 1977 that microcomputers with serious educational applications appeared." The 8-bit machines were the type of microcomputers that were originally used for CALL. This type of machine limits the amount of memory to 64K (Maddison and Pamela, 1987:10). This in itself limits the quality of software that is produced by using the machines. However, the capacity of the present day computer turns it into an exceptionally flexible device for teaching. In fact, the challenge is to make the educational use of computers maximally...
beneficial to all concerned (O'Shea and Self, 1983:5; Langhorne et al, 1989:7).

The presence of the technological tool in the classroom "will influence learning, classroom management, curriculum content and curriculum organisation, and it is this influence in the practical world of the classroom that needs to be monitored" (Dunn and Morgan, 1987:137). Teachers are not only involved in the monitoring process but they are also among those who are affected by the very presence of the computer.

3.1 THE MICROCOMPUTER AS AN INNOVATION

3.1.1 INDIVIDUAL AND ORGANISATIONAL INNOVATION

According to Maddison (1982:65), "The computer offers new ways of teaching, and makes it possible to introduce new practices and emphases into education. Possibly the most significant new educational tool since the printed book, it may not only alter the teaching of existing subjects but also create new ones." The word new is always associated with the term innovation. In education the term innovation is closely linked to the words development and renewal. Rogers and Shoemaker (1971:19) see innovation as essentially in the eye of the beholder,
An innovation is an idea, practice or object perceived as new by individual. It matters little whether the idea is 'objectively' new. It is subjective newness for the individual that determines, whether it is an innovation. If the idea is new to an individual, it is an innovation.

The concentration on the individual is important because the idea, practice or object which is perceived to be new to a specific individual might not be new to others. A computer might have been used in an institution for years but its usage in teaching would be regarded as an innovation because of the 'newness' of the idea to the personnel involved.

Miles (1964:14) views innovation as, "a deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system." It is "being willed and planned for, rather than as occurring haphazardly." This idea is shared with Morrish (1976) who distinguishes it from spontaneous change which is less planned and deliberate. Most literature on this issue also regards innovation as a deliberate change and is concerned with improvement. Munro (1977) looks at educational innovation as the deliberate attempt to improve educational practice. In Daft and Becker's (1978) review of Becker and Whisler (1967), they mention that Becker and Whisler define innovation as something new in relation to the organisation's technological environment. All these definitions imply that the change is desired and it is
done purposely. The change is brought about by individuals who favour the innovation. However, not many discussions are centred on the impact of innovation on other individuals in the system.

Daft and Becker (1978:197) on the other hand concentrate on the organisations rather than the individuals. They also make a distinction between innovation and change. They define organisational innovation as:

...the adoption of a new idea or behaviour by an organisation. Innovation is very similar to change but is distinguishable by the criterion of newness. Innovation is the adoption of something new; change is the adoption of something different.

They, however, realise the difficulties in drawing the line that separates innovation from change.

Once it is decided that an idea is to be adopted then it is regarded as one new addition to the already available course or material. However, although the idea is new to the organisation it does not mean that it is new to the individuals in that organisation. Some might have been exposed to it in another environment. Therefore, the innovation is regarded as new only to that particular organisation.
Preoccupation with individuals on one hand and organisations on the other might take us away from the fact that they are inseparable in the discussion of innovation in educational institutions. A change can happen in a number of different ways. It can be made in the content or teaching method of individual subjects, or the reform could take place throughout the organisation or across a range of institutions (Becher and Maclure, 1978).

The decision to include new items in the teaching process usually comes from the management. The ideas, however, might be generated by the teachers themselves. Out of their familiarity with the existing problems some teachers might desire to bring about changes to the present system with a view to improving the system. The decision to use computers in teaching does not necessarily mean that it is needs driven. It could also be technologically driven. The innovators' vision might be blurred by their high expectations of the technology.

3.1.2 EFFECTIVE INNOVATION

An innovation is said to be effective if its implementation is successful. With regard to effectiveness, Gregory (1988:XII) raises two interrelated questions:
(a). what are the best ways of implementing an innovation in school? and
(b). what evidence is there for the effectiveness of an innovation being carried out in a particular school?

In finding the answers to the above questions the teacher should ask himself first what is the best thing for him in that particular setting and that particular group of students. In this case, the teacher has to assess his particular skills, the constraints of the setting in which he is working, and the nature of the problem to be explored (Nixon, 1981:5).

In the implementation of CALL, the teacher needs to have a certain level of computing skills before he can manipulate the equipment no matter how 'simple' the software or hardware is. The constraints in such an undertaking might be technical. It can also be financial where the device is not supported by the necessary peripherals or the suitable software packages for that environment.

Cost-effectiveness is one of the important issues that needs to be highlighted when the question of effectiveness is discussed. Not only are machines costly but human resources can also be expensive in terms of their time management. This includes the
amount of time that the members of staff have to spend in learning about the technology. To some, CALL does conflict with established values. They argue that so far they have managed to achieve the aims and objectives of the lessons with pen and paper. Proper management is vital in order to ensure the effectiveness of such an innovation.

In computer assisted classes the computer is usually used to reinforce or to support the existing curriculum. Dunn and Morgan (1987:40) warn of the dangers in adopting such an approach. According to them,

To begin with, the knowledge capable of being put on the computer becomes thought of as central knowledge or important knowledge. In this way it is possible that software in the classroom turns the computer into a reactionary or confining influence, so that innovation is not encouraged or even accepted. There is also the danger that the computer will produce an authoritative view of knowledge and erode the notion of personal knowledge and of personal choice about knowledge. From a political point of view there is the possibility of more central control and less freedom for experiment and individual initiative. A major influence on this will be the view that such a system could be considerably more efficient in economic terms than existing systems, and so could produce financial savings. It could also be more easily controlled and changed.

Based on his studies on innovation, McDonald (1978:77) outlines several situations where innovations are unlikely to succeed. They are:

1. Innovations which require special training for teachers;
2. Innovations which are difficult to use;
3. Innovations that are costly in terms of human or financial resources;
4. Innovations which conflict with established values.

The use of computers in school has at least one of the above characteristics. CALL does require special training if efficiency is high on the list priorities. Without training there may be very few individuals who would be willing to spend their time and energy in learning about the new technology and how to integrate it into the curriculum. Based on McDonald’s studies there seems to be a high risk of failure where CALL is concerned. This possibility can be compared with the studies done on the state-funded project of the Minnesota Educational Computing Consortium (MECC) which aims to provide computer access, teacher training and curriculum development, in addition to computer literacy projects for every school. After two decades, Langhorne et al (1989) notice three distinct phases in working toward the goal of integrating computer technology:

\[\text{\underline{\text{1}} No fixed dates were given to differentiate the three phases.}\]
Figure 3: Growing Toward Integration: A Three-Phase Model of Instructional Computing

(Langhorne, 1989:4)

Langhorne et al (1989:5) reported that in the first phase, "a fair number were convinced that the computer was a passing fancy destined to be sent to storage with the language labs and programmed learning texts." Things were more positive in the second phase where computers were not a mere novelty but it begun to be regarded as a tool for instruction. The third phase saw a more purposeful use of the device. In this phase, careful consideration was given before it was used. Questions like:
i. Will the computer enable us to teach content or process better?

ii. Will the computer enable us to teach something we could not before?

became the guidelines in the integration process. They noticed that with better planning the schools could move to stage three. Based on this overview, it seems that the worries expressed by McDonald (1978) are shared by those who are not convinced of the possibilities of its success in the first phase of its implementation in the MECC project.

3.2 SIGNIFICANT DEVELOPMENT IN CAL

3.2.1 SIGNIFICANT CAL PROJECTS

CALL development can be traced back to the sixties. The PLATO project and the Computer-Based-Foreign-Language-Teaching project at Stanford University are among the pioneer projects in CALL (O'Shea and Self, 1983). They were designed under the influence of Behaviourism. Behaviourism which is proposed by Skinner (1957) is linked to the Structural View which considers language as a system of structurally related elements for the coding of meaning (Richards and Rogers, 1986). Behaviourists work on the assumption that learners are passive. According to them learners learn new information in response to a properly
structured environment. In the light of current
development in language teaching, structural exercises
and drills may be regarded as outdated. On the other
hand, many teachers and learners may still find such
activities useful (Thompson and Chesters, 1992).

The PLATO project is still going strong today but
language teaching is just an elementary part of the
program (Davies and Higgins, 1985:4). An authoring
language, TUTOR is one of the programming aids
available with PLATO. It allows the teacher to produce
a tutorial drill and other type of exercises. In fact,
teacher control is one of the main features of PLATO.
Curtin et al. were among the first teachers to use
PLATO for language teaching. They used it to teach
students to translate written Russian into English.
Curtin et al. (1972:354) argue that since a computer-
based system, "calls for high frequency of student
response to visual devices, the student’s full
attention is concentrated on the lesson. Through the
use of the computer the student is taught to translate
Russian prose with a minimum expenditure of his time."

A quantitative evaluation which was carried out at the
end of the five-year project did not give any evidence
that PLATO has any effects on the students’
achievement. But, when a qualitative method was
employed it revealed that PLATO was generally popular
with student users. Dodge et al (1974) attributed the differences in the students' performance to their teachers' attitude towards the device. The study also mentioned that a large percentage of the teachers would like to use the system again. According to O'Shea and Self (1983:97) the reason for this seemingly positive attitude is that the teachers perceived that they retained control over how it is used, "and that the system was therefore not a threat to their current procedures."

With the introduction of laser videodisc, a project on TICCIT (Time-shared Interactive Computer-Controlled Information Television) was developed at Brigham Young University. It emphasized the fact that its course material is learner-controlled. TICCIT claimed that it is able to combine television technology and computer technology into a highly flexible instructional delivery system. Projects such as TICCIT made possible the creation of a highly interactive and individualised teaching materials. It is an example of what Cook (1985:15) categorises as the cognitive-code model. It involves the combination of rule display, example, and practice (Merrill,1980). The coursework is controlled by the student himself. The 'learner control buttons' at the keyboard gives the learner control over his own learning tactics (O'Shea and Self,1983:87).
The capacity of TICCIT is exploited in the creation of the 'Montevidisco' program. The experiment was carried out at the same University (Schneider and Bennion, 1981; Last, 1984:99). This program is developed for the teaching of Spanish. It allows the user to 'explore' a town in northern Mexico and to 'talk' to the natives.

Despite its great capacities, a number of studies have shown that TICCIT has a negative effect on completion rates. The completion rate in Mathematics was 16% compared with 50% for non-TICCIT courses (Alderman, 1979:9). O'Shea and Self (1983:92) state that, "It would seem that learner control and self-pacing (integral features of the TICCIT system) if it increases motivation at all, does not do so enough." An insufficient degree of instructor involvement in managing student progress was the reason given by Jones (1978) for the low completion rates. The teachers were not enthusiastic about their new role as tutor-advisor/diagnostician and problem solver for individual students (Alderman, 1979; O'Shea and Self, 1983).

In the U.K., the Microelectronics Education Programme (MEP) was launched in 1980 by the Department of Education and Science (DES) to prepare school children for an indigenous IT economy (Fowler, 1988). After MEP ended in 1986, Microelectronics Education Support Unit (MESU) started its operation in January 1987. "The
main functions of MESU were to exploit the potential of successful MEP programmes, promote the curricular integration of information technologies via LEAs\textsuperscript{2} and teacher-training establishments, and set-up curriculum development projects" (Boyd-Barrett, 1990:9). In his review, Boyd-Barrett (1990:18) quotes Foster (1988), the chief executive of MESU as saying in the Times Educational Supplement (TES),

...that at the start of MESU operations in January 1987 the majority of teachers were not using computers. He blamed poor programs that were difficult to use, trivial in content and not meeting perceived needs. Teachers had received little or insufficient training, feared the unknown, and were ill-prepared to deal with the implications for classroom management and styles of teaching. They were too few computers, yet too many different kinds of computers.

BBC (British Broadcasting Corporation) microcomputers were supplied to the schools. The development of CALL in the U.K. was dominated by this machine. A number of language programs were produced to support the micro. These include Copywrite, Clozewriter, Clozemaster, Gapkit, Speedread, Choicemaster, Vocab and Matchmaster. An authoring language MICROTEXT was also designed for this purpose.

Unfortunately, the BBC micro is not without faults. The major drawback of this machine is that it has only 32K RAM\textsuperscript{3}. Although it was later increased in the

\textsuperscript{2}LEA stands for Local Education Authority.

\textsuperscript{3}RAM is short for Random Access Memory. This memory is used for storing running software and data, as well as the operating system.
subsequent models, the 32K RAM model remained the standard in which programs were written. The issue of two versions of BASIC for the two machines complicate the matter further. The commands recognised by the network system, ECONET, are not recognised by the stand-alone machines. The programs and datafiles have to be reformatted before they can be used on the network.

The popularity of MS-DOS and UNIX operating systems has led to the reduction in the use of BBC microcomputers. With a higher RAM, they make the IBM or its compatibles more powerful than BBC B microcomputers. This means that they can afford to offer more to their users than the BBC B microcomputers. This puts the BBC users into "a computing dead end" (Last, 1984). The decrease in production also means that the users have difficulties in maintaining the machines and getting the spare parts. However, Burgess (1990:12) agrees that the capacity of BBC B and the range of things one can do with it, "not only made possible but was responsible for the revolution in UK CALL..."

Since the demand for language programmes for the other machines is increasing, a number of software packages which were originally programmed for BBC machines have been reprogrammed to make them compatible with the more popular machines: PC and Macintosh.
The development of CALL in the leading countries like the United States and the United Kingdom may influence the development of this technology in other countries. The technology may even create a strong dependency on the leading or the vendor countries. In some cases,...

...foreign manufacturers succeed in dumping on a developing country large number of machines, as donations or at discounted prices, these same manufacturers and their local agents show little interest in after-sales service.

(Hawkridge et al, 1990:12)

In cases where this happened the machines might have to be abandoned as the staff might not be familiar with the technology. Teachers may also be frightened of causing break down of machines particularly when after-sale service is poor.

3.2.2 EFFECTIVENESS OF CAL CLASSES

Kulik and Kulik (1986) analysed 101 quantitative studies on the effectiveness of Computer Assisted Learning in college classrooms. Based on the analysis, they found that the examination performance of Computer-Based Education (CBE) was higher than the conventionally taught class. They state that, "the average student from the CBE class would outperform 60% of the students from the conventional classes" (Kulik and Kulik, 1986:88). Kulik and Kulik also noticed varied effects in magnitude from study to study depending on the publication sources, disciplines with
different emphasis on science methodology, and disciplines with different degrees of emphasis on life versus non-life processes.

Kulik and Kulik summarised their meta-analysis by stating that there is no significant difference in effectiveness for different types of CBE implementations. CAI, CMI and CEI programs all made small, positive contributions to student learning. This result is strikingly different from pre-college findings on CBE. In elementary schools, for example, CAI programs of drill and practice and tutorial instruction almost always produced good results, whereas CMI programs produced weaker findings (Kulik and Kulik, 1986). In high schools, both CAI and CMI produced positive results, but CEI programs contributed little to student achievement (Bangert-Drowns et al, 1985). At the college level, students seem to be able to adapt to a variety of uses of the computer in teaching.

The results obtained by Kulik and Kulik were based entirely on quantitative research. Different results might be obtained if the qualitative research were analysed as well. Stenson et al (1992) who carried out a study on the effectiveness of Computer-Assisted Pronunciation Training used both quantitative and qualitative measures in their research. They find
that, "Speech Viewer does not have significantly greater effect than traditional methods on the pronunciation skills of ITAs'..." (1992:13). They say that it is possible that this is due to the ITAs' lack of practice with the package. The researchers point out that a longer exposure to Speech Viewer and some refinement of the software and instructional materials used may give different result to the study. According to them although quantitative results do not show major differences between the experimental and control group, the qualitative results suggest that instructors and ITAs were enthusiastic about the use of Speech Viewer.

3.3 COMPUTERS IN LANGUAGE TEACHING/LEARNING

Linguists often concentrate their discussion on what happens during first language acquisition. For example, Krashen (1982) differentiates between Acquisition and Learning. In his Monitor Theory he says that the monitor or the mental faculty corrects and edits second language production. He argues for an exposure and comprehension-based approach to second language learning. However, the important issues which are how and why language acquisition and learning happen have not been dealt with satisfactorily yet. This means that natural language processing still cannot be done on the computer as there is no model for it to lean on.

\footnote{ITA is the acronym for International Teaching Assistant.}
Cook (1985) tries to fit the use of computers to the four broad models of teaching/learning situations: the audiolingual model, the cognitive model, the communicative model and the humanistic model. He argues that the use of drills may fit into the cognitive code which stresses rules and conscious attention. The detection and correction of mistakes by the computer can help the student learn by conscious awareness. According to him the justification for computer drilling cannot come from the audiolingual model because the model assumes language is primarily speaking and listening. Reading and writing are considered as secondary skills. Programmed learning is closely linked to audiolingualism. This method aims at the development of correct verbal habits. In conditioning, learners learn to use structures and linguistic patterns automatically; mimicry-memorisation techniques and structural pattern drilling are paramount (Aitchinson, 1990:6).

In the Communicative Approach syllabi, materials are grouped together according to the functions of communication and not grammatical orders of structures. The aim of the approach is to enable the students to communicate effectively in any situation. Simulation and games are some of the software packages which can be used to promote communication in the classroom.
Some of these programs like LONDON ADVENTURE aim to develop the learners' ability to use the target language in realistic communicative situations.

In Cook's (1985:16) opinion, "the humanistic goals of L2 teaching are achievable through computers but this will require new techniques that may well be beyond us today." "The aim of humanistic teaching is not to relate to the use of language in the external world but to develop the internal world of his own personality and mind..."

CALL techniques have been successfully applied to teach some of the language skills. In his survey of 1200 members of TESOL who had selected the CALL Interest section of TESOL(CALL-IS), Johnson (1987:74) finds that computers are used most frequently in conjunction with training in the writing skills.

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td>79%</td>
</tr>
<tr>
<td>Speaking</td>
<td>16%</td>
</tr>
<tr>
<td>Grammar</td>
<td>67%</td>
</tr>
<tr>
<td>Listening</td>
<td>15%</td>
</tr>
<tr>
<td>Reading</td>
<td>64%</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>9%</td>
</tr>
<tr>
<td>Spelling</td>
<td>55%</td>
</tr>
<tr>
<td>Computer Lit.</td>
<td>4%</td>
</tr>
</tbody>
</table>

Figure 4: Percentage of Schools Using Computers per Skill Area

Many studies have been carried out on the use of computers to teach writing skills. Programs
particularly word-processors have been found to be helpful in improving the user’s writing skills. However, the computer has yet to, "arrive at a point where a lesson can accurately judge every detail of a student’s spontaneously produced writing" (Garrett, 1991:84).

Many programs have been designed to teach vocabulary. A considerable number of them are of the drill and practice type. Fox (1984:32) argues that with programs like COLLOCATIONS and ANALOGIES, students are encouraged, "to treat the computer not so much as a drillmaster but more as an information source, which offers hints or clues to help them complete their tasks, and which positively encourages guessing."

Students’ progress can be monitored if the appropriate program is used. The same principle applies to most grammatical programs. Van Els et al (1988) demonstrate how grammatical feedback is given on a computer-based editing-task. Many programs can be used to teach the different skills. Concordancing software, for example, can be used to teach collocations and meaning from context among others (Tribble and Jones, 1990; Butler, 1991).

In teaching reading comprehension, the computer can be used to teach text which has been divided into several levels of difficulty for use by learners of different
In their study on deficient teenage readers, Cutler and Truss (1989) find that computers can also be used as a reading motivator. They reported an increase in reading rate and a decrease in the subjects' request for words. One of the drawbacks of computer usage as pointed out by Fox (1990) is the uncertain role that the teacher plays. Based on the Ventureader project at the University of East Anglia, he concludes that an overall teacher control of the learning process in the classroom should be maintained. This can be done by dividing the programs into individual items rather than using a large integrated package.

The use of computer software for teaching listening and speaking is still quite limited. The bottom line is, "modern technology has not yet produced a computer capable of conversing normally with the language learner" (Brown, 1986:17).

The present state of CALL is best summed up by Garrett (1991:95) who says, "The good news is that the technology does offer the potential for enormous enhancement of foreign language learning. The bad news is that the potential cannot be easily realised."

---

5 The subject touched a spot near the word when they encountered an unknown word and they would hear the word and often the synonym.
3.3.1 STUDIES ON CALL

There are many factors that could affect the effectiveness of CALL classes. One of them is the students’ needs. Munby (1978:2) stresses the need to, "focus on the learner and the purposes for which he requires the target language..." Hutchinson and Waters (1987:55) use the term ‘necessities’ to denote the learner’s needs in order to function effectively in the target situation. One of the questions that arises with regard to CALL is whether computer usage fulfils part of students’ needs.

A number of studies found that the use of computers helps in increasing the students’ motivation (Jones,1986:186). Jones argues that the simulation program that he used namely YELLOW RIVER KINGDOM helps to motivate the students. According to him it helps keep the discussion going by constantly providing new data.

The activities generated by the computer can also provide ‘something to talk about’ in the class. Piper (1986) looked at learners who were using text manipulation programs. She noticed that the students’ conversation seemed to fall into three categories namely ‘repeat’ (repeating language from the screen), ‘manage’ (managing the computer and the task), and
'discuss' (discussing the language task itself and working towards a solution/completion). She compares her studies with that of Tong (1984) who examined Malaysian EFL learners carrying out three 'oral communication' activities: problem-solving, role-play and a 'natural' interview. The striking similarity between the two is that in both circumstances there is lack of self-correction of error among the learners. "This un-'Monitored' use of language should, according to the theories of Krashen (eg. 1981:2) facilitate the acquisition of that language" (Piper, 1986:194). However, the use of the target language is still barely minimal in both Jones' and Piper's studies.

3.3.2 EFFECTIVENESS OF CALL CLASSES

There has been a marked increase in research on the effectiveness of CALL. Dunkel (1991) makes a review of several of the research studies in the United States. In reviewing Hope, Taylor and Pusack (1984), she mentions that they could not draw any unequivocal conclusions about the efficacy of CALL because the investigations involved small samples. She goes on saying that in Roblyer et al's (1988) survey, different results were obtained by the three studies observed (Noda,1983; Ojeda,1984; Ortmann,1984). Roblyer et al (1988) attributed them to differences in size and
composition of sample and the different basic design of the studies. In these studies:

The effect sizes of CAI over non-CAI for the ESL students in two of these studies offered contradicting evidence, though both studies used similar kinds of materials and the same measure of overall achievement (the California Achievement Test): Ojeda’s study, whose subject was Spanish-speaking students, yielded an Effect Size of -0.19 for the use of computers in teaching ESL, whereas Noda’s study with Arabic/Chaldean students produced a robust, positive ES of 0.60 for teaching the language... an ES could not be determined for Ortmann’s (1984) data; however, the Hispanic students in the study achieved better gains than the Anglo children in both CAI and non-CAI groups, although the differences between gains for the Hispanic CAI and non-CAI groups did not differ to a significant degree.

(Dunkel, 1991:16)

Based on these studies, Dunkel (1991:17) quotes Roblyer et al (1988:10) as stating, "the overall picture in studies of CAI with Spanish-speaking students suggests that CAI does not have advantages for them over other methods in learning English skills." However, Dunkel questioned the conclusion made by Roblyer and her colleagues (1988) since it contained only three studies and did not include a number of ESL empirical studies. Dunkel (1991:17) mentions examples of other studies,

Nunez (1987),..., investigated the effects of two computer-assisted metacognitive strategies (the Tutorial-Direct Monitoring Strategy versus the Schema-Direct Monitoring Strategy) on the sequential reading skills of LEP students, and found a positive effect for the Tutorial-Direct Monitoring Strategy. De Villar (1987) investigated the language use of four students from different language background, paired with four native speakers of English within a co-operative, computer-assisted instructional setting, and found that the amount of English
produced depended on the level of English proficiency of the dyad, although English accounted for 86% of the words uttered during the computer activity.

Dunkel (1991:18-19) also suggests that part of the problem in CALL research findings is the design of research. She asks future researchers to improve the design of such research. She also mentioned that researchers are turning away from the laboratory-like experimental studies (that is medium A versus medium B) to a more descriptive and evaluative research. She calls for L2 researchers to investigate the social and cognitive impact of using computers for L2 learning and teaching by a more ethnomethodological research.

Wyatt (1988) and Garrett (1991) share their dissatisfaction over research on CALL which does not employ the use of the more advanced machine. The use of older machines may mean that the findings are not applicable to the present situation. Another factor that adds to the complexity of the situation are the learner characteristics (Chapelle and Jamieson, 1986). Factors like age and attitude may have an influence on the study. Wyatt (1988:222) also mentions the possibility of pedagogical approach and philosophy limiting the relevance of the studies to the practitioners. Although there is a movement away from the tutorial and drill application towards using computers for more holistic and enrichment activities,
the majority of basic applied computer education research is still based on tutorial and drill programs.

3.4 TEACHERS AND MICRO'S

3.4.1 TEACHER VARIABLE

Teacher variable is an important factor in the implementation of CALL. Teachers are the personnel who are responsible for validating the teaching theories through their practice (Dunn and Morgan, 1987:134). They are the ones who know what the problems are and formulate their own theories based on their teaching experience to be tested as they teach.

The different dimensions of the variable themselves might have a direct influence on the innovation. Teachers' characteristics such as their attitudes, interests, values, aspirations, motivation, personality, experience, age, sex, and seniority might affect the success of the innovation (McDonald 1978:30). In this study, focus will be put on the relationship between some of these variables with particular attention to teacher's attitudes (cognitive, conative and affective).
Teachers' reactions to computer usage in the classroom vary. Some are really enthusiastic about the range of use that it can offer. Moore (1986:XIII) makes a strong assertion that, "teachers who do not use the computer in their teaching are not only doing a disservice to their pupils, but are also rejecting a teaching tool which is limited in its use only by the imagination of the teachers." Piper (1986) stresses that, "it is up to the teacher to exercise judgement in the choice of programs and creativity in using them."

Jones and Fortesque (1987) and, Higgins and Johns (1984) suggest a variety of innovative ways in which the computer can be exploited in the classroom.

A considerable number of teachers still see computers as a threat to their profession. To most teachers, computers are difficult to use especially for teaching purposes. Some teachers may be afraid that computers will show them as incompetent and that it will do some of their work more efficiently than they can. Some of the reasons for teachers' lack of response and resistance as outlined by O'Shea and Self (1983:218) are:

i. The fear that the technology would take over their job;

ii. They do not appreciate the new roles which
they have to play including being the resource person, learning manager and the facilitator;

iii. They lack the time and added to that, no incentive is given to encourage them to keep up with the latest development in computing;

iv. The presence of the device may disrupt their routine. They may have to be responsible for the scheduling of the use of computer resources;

v. They may find it difficult to cope with hardware malfunctions and program errors.

The problems are quite universal. The language teachers are not trained as computer experts. This might have an effect on their career as a whole be it from the students’ point of view or from somebody in power, that is, if they are not given the right training (and on-going) as this area is developing fast. Foreseeing that they are going to have problems handling this tool some teachers are resistant to using micros in their institutions. The fact that some manage to master it might only increase resistance in the others because of the feeling of inadequacy that they inspire (Somekh, 1988 and 1990).

Some writers even failed to show the importance of teachers in the learning process. Ahmad et al (1985),
for example, do not include teachers in their proposed model for future development in CALL. Their model is based on the relationship between learner, language and computer:

```
psychology             technology

learner --------------- ERGONOMICS --------------- computer

PSYCHOLINGUISTICS    COMPUTATIONAL LINGUISTICS
  METHODOLOGY         MACHINE TRANSLATION

language
linguistics
```

Figure 5: A model of the three main factors in CALL (learner, language, Computer)

(Ahmad et al,1985:45)

This model is not adequate for the purpose of language teaching. It could alienate the teachers further through ignoring them. The model does not reflect the claim that computers are used only as a tool, and that teachers play an important role in language learning. By excluding the teachers from the model Ahmad et al seem to be saying that teachers are not important in the learning process. The fact is, even in self-access learning teachers play an important role in the development of such resource centres either directly or indirectly.
3.4.3 Impact of Teachers on CAL Projects

A number of studies concerning the implementation of CALL have been carried out in the United States and the United Kingdom. One such study was carried out by Olsen in the winter of 1978-79. The survey was carried out on 1,810 foreign language departments in American higher educational establishments. Out of the 602 who responded, surprisingly only 62 made use of CALL systems (Olsen, 1980:64). Hainline (1987:2) also reported that CAI did not really play an important role in the educational process throughout the 1970s. The main reasons for non-usage was cost, and also teachers’ suspicion of computers and modern technology in general. The lack of involvement in CALL among the educators in Malaysia can be attributed to the same causes.

A large-scale survey was conducted under the auspices of the International Association for the Evaluation of Educational Achievement (IEA) in 1989. Questionnaires were distributed to principals, computer co-ordinators and teachers from 21 education systems which include Austria, Belgium-Flemish, Belgium-French, Canada British Columbia, China, France, Federal Republic of Germany, Greece, Hungary, India, Israel, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Poland,
Portugal, Slovenia, Switzerland and the United States of America. Willem and Plomp (1993) report that the educational practitioners have high expectations of the computers. However, the accessibility of computers within the schools is far from ideal. Added to that the hardware used consisted of the eight-bit machines (p.325). There is also lack of software for learning with computers. The practitioners claimed that they lack time to develop computer based lessons. To the principals and co-ordinators the key problem is the teachers' lack of knowledge or skill about computer usage in instruction. Willem and Plomp (1993:331) stress the importance of staff development in order to get more integration of the computer. They quote ten Brummelhuis and Tuijnman (1992) as stating, "The highest degree of confirmation for the influence of indicators on computer use among countries was found for internal innovation assistance and teacher competence and readiness." This finding is confirmed by Becker (1992) who uses a different analysis technique for the USA. According to him, "Exemplary teachers teach in an environment that helps them to be better computer-using teachers, they are themselves better prepared to use computers well in their teaching."

In the research carried out by Powell (1990) on language departments at British Universities,
Polytechnics and Colleges of Higher Education in 1989, he found that only 55% of the respondents used computers in language teaching. More than 50% of the respondents mentioned the lack of software and information for their non-usage of the tool (Powell, 1990:2).

A similar survey was carried out by Fox et al (1990) on the secondary, tertiary and vocational sectors to find the "current and likely future developments in the use of educational technology in modern language learning, teaching and training." They reported the use of peripherals other than the basic equipment. These include satellite TV, Interactive video and Audio, Remote Databases, CD-ROM, and computers with cassette players. The percentage of users in both the secondary and adult sectors varies according to the type of equipment used. They found that word processing was the most popular approach in both divisions, satellite TV and CD-ROM were used more in the adult division, and e-mail, remote databases and interactive video were used more in schools than in adult education (Fox et al, 1990:60-61).

Despite the great potential that it has in language teaching, the popularity of traditional CALL is on the decline in some places. Fox et al (1990:63) report that only 20% of the IT/ML advisers in Britain responded that traditional CALL has a very promising
future in secondary education. 10% of them prophesied that it was not promising at all. In adult education 18% of the heads of ML who responded said that it has a very promising future whilst 7% of them think that it was not promising at all. The rest of the population falls in the middle. From the above we could see that traditional CALL did not come high in the opinion of certain influential individuals. This might be attributed to the present state of CALL where there is not much effective support material in this field.

Another survey, by Mullings, was carried out in 1990 on Universities, Polytechnics and Colleges of Higher Institutions in Britain. This survey revealed that a high percentage of the respondents found benefits from the introduction of IT in their departments more than experienced problems with its use. Mullings (1992:47) reports 89% of the respondents mentioning benefits and 58% of them problems. The frequently cited benefits were improved IT skills among staff (97%) and also increased research productivity (73%). This was followed by saving time (71%). One of the problems stated was staff resistance which recorded 31% out of the 164 problems mentioned. Polytechnics experienced more problems with staff resistance than did universities.

Staff reported that they had no time for this sort of activity, that it caused them more work and
made them more aware of the problems involved with incorporating this element into their teaching.

Staff resistance was seen more like reluctance and lack of interest than hostility, and was largely linked to lack of time to acquire knowledge. Some staff reported initial resistance which had since been overcome. A few people did not see any benefit in using computers, or objected in principle to using computers (some seeing it as a threat to staff resources and some to the decline of the book).

The studies signify that teachers' usage and their acceptance of the device increases with time. Time is needed by the teachers to get acquainted with the device and hence to use it comfortably in their class.

3.4.4 COMPUTER ANXIETY

There are concerns over teachers' computer anxiety particularly when the technology is still new to them. Teachers who have little experience with or knowledge of computers may fear them and this fear may interfere with their decision whether to adopt the innovation or not. Lambert and Lenthall (1989) state that computer anxiety actually covers several concepts. They quoted Meier's (1985) conceptualisation of computer anxiety. According to Meier, from a social learning perspective, computer anxiety consists of three components namely, computer fear, computer apprehension, and computer opposition. "These three components relate to the user's fear and reluctance to use computers because of
a potential for devaluing people, respectively" (Lambert and Lenthall, 1989:208).

Lambert and Lenthall also noted Rosen, Sears, and Weil's (1987) studies which were designed to elucidate the parameters and correlates of computer anxiety. According to them, "Their results also suggested that computer anxiety consists of increased anxiety surrounding computer use as well as negative attitudes toward computers and negative cognitions or feelings about computer use. Meier's position notwithstanding, they additionally found computer anxiety to be unrelated to computer experience and was not reduced through increased experience." Lambert and Lenthall (1989:208) also quoted other findings which are not consistent with that of Rosen and associates.

Research conducted by Heinssen, Glass and Knight (1987) and Raub (1982) indicate that computer anxiety is inversely related to computer experience. Reductions in computer anxiety have also been observed following systematic computer use (O'Quin, Kinsey & Berry, 1987; Powers, Cummins & Talbott, 1973). Additionally, a study by Heinssen and Glass (1986) which assessed the efficacy of cognitive restructuring and computer exposure versus applied relaxation and computer exposure for computer anxiety reduction found that both treatments are equally efficacious. This result implies that computer exposure may be the essential component for computer anxiety reduction. A study by Wresch and Hieser (1984), however, found that brief exposure to computer use through computer-assisted-instructional programs led to an increase in computer anxiety. Yet, the results of the Wresch and Hieser study may be understood in light of the results presented by Powers et al (1973) who demonstrated a curvilinear relationship between computer experience and
symptoms of computer anxiety. According to Powers et al’s results, brief computer exposure can lead to anxiety increase while prolonged exposure leads to a significant anxiety decrease. As with Meier’s interpretation, the bulk of these studies support the contention that increased computer experience can lead to decreases in computer anxiety.

Due to the uncertain nature of the relationship between computer anxiety and computer use, Lambert and Lenthall themselves decided to study the relationship between the two. Based on the study, they conclude (1989:213) that, "computer experience can facilitate significant computer anxiety reductions and improved computer related attitudes..."

Todman and Lawrenson (1992:63) carried out a similar study on a group of first-year psychology students and a group of nine-year old children. They quoted a number of related pieces of research which reported a negative correlation between anxiety and computer experience, which included that of Rosen et al (1987) and Raub (1981), Howard and Smith (1986), Heinssen et al (1987) and Igbaria and Chakrabarti (1990). They (1992:64) added that,

It seems likely that qualitative differences in the nature of the students’ experiences with computers have to be taken into account along with the distinction between actual, observed experience and retrospective self-reports of experience. The possible subtlety of the effects of experience are indicated by a result from a study carried out by Siann et al (1990) with primary school children. They found that, for girls only, anxiety increased following exposure
to either language- or graphic-based Logo activities.

In their study, Todman and Lawrence (1992:69) found that the subject's different experience with regard to computer usage gives rise to different effects on computer anxiety. They distinguished between 'relaxed' and 'stressful' experience. 100 per cent of the children have used computers at school. In contrast only fifty per cent of the students had the exposure. The students lack the gradual and casual introduction to computers at an early age. However, "it is not yet clear whether the children's early introduction to computers will protect them against anxieties arising from the pressures of formal requirements when these occur, whether at the secondary school level or later." They express the need for a longitudinal study to address this question.

Based on the studies done on the students an assumption can be drawn that computer illiterate teachers would go through the same stage where computer usage is concerned. In most cases its usage can be a stressful experience as they lack the gradual and casual introduction to the device. A longer computer experience may be needed before a teacher has the confidence to use the tool in the classroom. Based on his survey on 131 teachers, Georgi (1991:320) suggests, "using unfamiliar technology by a step-by-step planning
system, using familiar technology successfully and moving to similar but more advanced applications of similar technology." This might be one of the ways of overcoming computer anxiety in teachers.

3.4.5 **TEACHER TRAINING**

Staff training is crucial in maintaining stability and balance between management and the curriculum (Fox et al, 1990:54). It is critical for the institution to take the necessary steps to provide inservice training to the teachers. The course has to aim at matching the training with specific instructional needs. However, as stated by Gandilhon (1989:222), "It is essential that experience gained with micros in the classroom is used to influence initial teacher training, otherwise the gap between training and classroom practice will quickly widen." Hence training programs should not be confined to inservice only. It should also prepare teacher trainees for computer integration.

If problems are tackled at the initial stage, that is, at teacher training institutions, the problems of teacher resistance might be reduced. Stimmel et al (1981) employed a semantic differential scale to measure preservice teachers' attitudes. The research includes studying teachers' attitudes towards computer and computer-aided instruction. They found a
considerable negative affect toward computers and computer-aided instruction. They reported that, "The oppressive factor loads most heavily on the dead, sad and ugly dimension" (p. 129). Based on the study, they make recommendations for the following steps to be taken to help the student teachers:

(1) induce a more positive affect toward computers, (2) stress the facilitative aspects of computer-aided instruction, (3) stress that computer-aided instruction is not overly difficult for teachers to become involved in, and (4) build on the efficacy, potency, and rigor factors in pointing out the advantages of the medium.

(Stimmel et al., 1981:130)

It is not, however, stated how the above can be carried out effectively.

In the qualitative study carried out by Simmons and Wild (1991) on teacher trainees at Loughborough University, they found the need for an extrinsic motivation rather than relying on trainees' own initiative. The students were forced to word process their assignment. They reported that, "many students persevered, overcame their fears and completed their exercise." Teachers can be 'forced' to learn while they are still in training (although this does not guarantee interest), but such a tactic is more difficult when they are already in service. Teacher readiness is an important factor to consider in the implementation of the innovation.
Teachers' computer readiness is defined "as teachers' awareness of curricular intentions and their reactions indicated by interest, motivation, willingness, attitudes and activated knowledge in a school context" (Lang, 1992:301). Lang (1992:307) finds that the male computer-using teachers who have sufficient knowledge and skills are more affirmative than their female counterpart. The female teachers, on the other hand, are the ones who are mostly interested in learning about computer use. The affirmative teachers use more computers in classes. Most of those who are sceptical of its use do not use computers in the classes. They lack knowledge and skills for computer use. Lang (1992:308) concludes that, "The concept of high computer readiness indicates an affirmative view of one's interest, attitudes and prior knowledge about computer use.... Teachers with a medium range of computer readiness generally have some limited experience and interest in computers but are insecure about the educational purpose."

In the training process, there is a danger of overloading and frightening teachers if they are not recruited in the technological base camp first. Nevertheless the availability of computers at schools and the widespread and common general knowledge about computers makes the basic introductory material redundant. Computer literacy is usually the first step
in teacher training. In the computer literacy courses, the teachers are usually introduced to the machines and their use at the schools. Hertz (1987:4) suggested four levels of computer literacy for teachers:

Level 1: The computer-using teacher. A person at this level knows how to locate, evaluate, and use ready-made courseware to supplement his or her classroom teaching.

Level 2: The nonprogramming author of courseware content. A person at this level knows how to write courseware content and knows not only what can and cannot be done in creating courseware but also what should and should not be done. He or she does not do the actual programming of the content as courseware.

Level 3: The user of authoring system. A person at this level knows not only how to write the courseware content but also how to use special software, called authoring systems, to create his or her own courseware.

Level 4: The teacher-programmer. A person at this level is competent in a suitable programming language, such as BASIC, Pascal, or PILOT, and can design and program his or her own courseware."

In the MECC project, Langhorne et al (1989:49) report that many teachers who participated in the literacy courses state that they hardly put their knowledge into use. The teachers remarked that the content of the courses had little relevance for their teaching. There were many cases where these teachers had little or no access to hardware or software in their classroom.
Langhorne et al (1989) stress the importance of practice, both guided and independent for teachers to achieve a change in teacher behaviour. They divide the change process into six stages of concern. In the following figure, they use topics related to problem-solving skills to illustrate each of the stages:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Facilitating Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-Refocussing Concerns</td>
<td>Identify ways to relate problem-solving software dealing with variables to a science lesson</td>
</tr>
<tr>
<td>5-Collaborating Concerns</td>
<td>Bring together teachers who are teaching with problem-solving software so that they can share ideas; a user’s group</td>
</tr>
<tr>
<td>4-Consequence Concerns</td>
<td>Provide opportunities for newly trained teachers to visit classrooms of veterans to observe benefits of teaching problem solving with computer</td>
</tr>
<tr>
<td>3-Management Concerns</td>
<td>Provide software and equipment</td>
</tr>
<tr>
<td>2-Personal Concerns</td>
<td>Break down teacher skills into small chunks: nonevaluative feedback, questioning strategy, record keeping, etc.</td>
</tr>
<tr>
<td>1-Informational Concerns</td>
<td>Demonstrate teaching techniques to teachers</td>
</tr>
<tr>
<td>0-Awareness</td>
<td>Involve teachers in discussion about the need for teaching problem solving</td>
</tr>
</tbody>
</table>

Figure 6: Facilitating Acceptance of Teaching Problem Solving with Computer.

(Langhorne et al, 1989:50)
In the training program, Langhorne et al (1989:51) stress the importance of presenting information with models or demonstrations because according to them a model has considerable influence on teaching behaviour.

The model may take the form of videotaped teaching segments where the computer is used in a demonstration mode with large groups of students. The model may include printed materials that the teacher would use with students in teaching database lessons or word processing. The model may include schedules or schematics for organising students to use a computer laboratory. Modelling can take many forms, but it is an essential part of the content to facilitate teachers' acceptance of a new way to teach. Models help to make the new teaching behaviour more concrete.

(Langhorne, 1989:51)

Langhorne et al (1989) also mention the need to give the teachers the opportunity to participate in the decision-making process within the inservice program so as not to make them powerless. "Furthermore, if teachers, as a group, have a hand in making the decisions and suggesting what changes are desirable, such changes will then take a greater credibility and authenticity than if the 'experts' or authoring figures initiate the type and direction of change. Self influence and peer group influence increase both the likelihood and the intensity of change" (Adams, 1985:39-40).

In Adams' (1985:44) approach, rather than concentrating on the technology alone, he also considers areas which
may cause uneasiness to teachers. He identifies several areas which may cause uneasiness and recommends ways of overcoming them:

Source of uneasiness: Loss of control over the teaching/learning process-fear of being replaced.

What can be done to help: Develop a list of the instructional things that can be done better by the teacher. Discuss the complementary role of teacher and computer. Point out how the computer can actually give the teacher more power.

Source of uneasiness: Mechanical, impersonal approach to education.

What can be done to help: Stress the personalising role when teaching other students. Working together can increase opportunities for mutual help and socialisation.

Source of uneasiness: Feeling that it is too late in career to begin.

What can be done to help: Provide for small immediate steps-friendly programs.

Source of uneasiness: Using different computers that are often confusing and incompatible.

What can be done to help: Provide hands-on experience and information on efforts to make the equipment compatible. Avoid technical jargon.

(Adams, 1985:44)

An example of a teacher training program is given by Baltra (1991) where the objectives of the two-day workshop are listed as follows:

i. awareness of computer uses consistent with current principles of second language learning,

ii. direct experience with computers,

iii. emphasizing what can go wrong and why,

iv. teacher acquaintance with effective software,

v. provision of guidelines for software evaluation,

vi. and participant awareness of sources of information in CALL.

(Baltra, 1991:1)
The brief exposure that teachers have at the courses that they attend are often not enough for teachers to master the technology. In order to be a competent user teachers still have to take their own initiative to learn about the technology. Apart from trying things on their own, Garrett (1991) suggests teachers should apply for courses to help improve their knowledge in computing.

Some institutions take the initiative to supply computers to their staff for private use apart from sending them for courses. Lang (1992) does not believe supplying computers and training teachers in the basic concepts and programming are enough. He suggests an infusion approach which, "should be tried with high quality courseware and materials and teacher training with more opportunities for reflection about computer-use and education" (p.308). Somekh (1990) also calls for teacher reflection as part of the training process. Dunn and Morgan (1987) recommend focusing on education instead of details of computer systems after the teachers attend computer literacy courses. In carrying out such a task, Weston (1988:66) advises us to keep the many profound educational disputes and controversies to a minimum level to help reduce the complexity and challenges of the innovation.
3.4.6 SOFTWARE EVALUATION

Software evaluation is an important component of a teacher training program. The increase in the availability of software demands a good evaluation skill. Generally the available software packages are not tailored to learners' needs. Computers have to be integrated into a methodological schema for them to be effective. De Quincy (1986) stresses that the role that the computer takes in the teaching or learning process is largely dependent on the type of programs that are being used.

One of the reasons for the lack of computer usage is the difficulty in getting a relevant and flexible program for classroom use. This prompted some teachers to jump to the conclusion that you need to know programming before you can teach with the computer effectively. Although teacher's creativity plays an important part in determining the success of a class, the use of good software helps in ensuring the effectiveness of the lesson. Various criteria have been suggested in software evaluation. The important aspects to look at are generally the content of the software, material presentation, the objective of the program, and its documentation.

McDonald et al (1977) classify software based on its educational paradigm. It rests on four categories
namely instructional, revelatory, conjectural and emancipation:

1. The Instructional Paradigm
It "involves the belief that the knowledge students need to acquire can be specified in language and learned by the transmission and reception of verbal images" (p.24). It is largely derived from Skinner's doctrine of operant conditioning.

2. The Revelatory Paradigm
In this paradigm, "the view of learning emphasises closing the gap between the structure of the student's knowledge and the structure of the discipline he is trying to master" (p.25). It consists of simulation and some kinds of data-handling programs.

3. The Conjectural Paradigm
The view taken here is that, "knowledge is created through experience and evolves as a psychological and social process. Authoritative theorists of this persuasion are Piaget (adaptation through interaction with the environment), Popper (conjectures and refutations), and within computer learning theory itself, Papert" (p.26). The paradigm is said to be appropriate for modelling artificial intelligence packages and for computer science applications.

4. The Emancipatory Paradigm
"Its key concept is the notion of reducing the inauthenticity of student-labour... The role of the
computer is calculation, graph-plotting, tabulation or other information handling "(p.20).

The first and last suggest educational philosophies at opposite poles; from behaviourist notions of stimulus-response to student-centred, open learning. The presentation of the earlier mode is instructional and inflexible whilst the later is enquiry-based. The teachers' choice of software may reflect their own views about education.

In language teaching, many programs have been designed to meet the needs of foreign or second language learners. However, as stated by Jones (1991:1) many of these failed to, "deliver the classroom-language goods because they are designed according to computing criteria (sophisticated programming=superior), instead of general FL materials-design criteria (effectiveness/efficiency in achieving pedagogic aims=superior)"... Jones compares the program GLISH which is relatively unsophisticated with GRANVILLE and LONDON ADVENTURE. He claims that his students' language production diminished as they became acquainted with the programs. He blamed the elementary material-design principles for the failure of many classroom CALL programs to deliver the expected interactional goods. The 'cleverer' the program is, the more likely the students are going to perceive it
as teacher-and-lesson rolled into one. This may make CALL lessons 'uncomfortable' to the teachers.

3.5 COMPUTER LAY-OUT

In Langhorne et al's (1989:25) review of School Tech News (1987), they mentioned research on the appropriate way of housing computers within a school. This research suggests establishing a computer lab where there are enough machines to accommodate the entire class. Ideally it should be able to accommodate a class of students, one per machine. By putting all the machines together at a location where it is convenient for everybody, it makes them accessible to everyone in the building. Computers should be made easily available to the teachers whenever they need them to develop lessons. It would give them the opportunity to learn and hence become a competent user themselves. Putting all or most of the machines together may also be the logical choice for reasons of cost, expediency and security (Cunningham, 1989:8).

There are usually two ways of arranging the computers in the lab. One of the ways is by arranging them around the periphery of the room. This arrangement provides a better traffic flow. The teacher can monitor student progress and give feedback on their work better. However, students have to turn around to face the teachers during instruction. The other
A popular way of arranging the computers is by placing them in rows facing the front of the room. This is better for instruction purposes since the students are facing the teacher. However, traffic flow, wiring and supervision of work pose greater problems in this layout (Moran, 1987).

Other than placing them in the lab a few should be kept on carts for circulation to classrooms for groupwork use. This makes it possible for the users to meet the machine on their own ground (Maddison, 1982:82). The computer can be connected to a large-screen display for large-group instruction. The stand-alone computer helps with problems arising from individual differences such as the users’ age and abilities. "The predominance of individual work makes it easier to accommodate individual sessions with the computer" (Maddison, 1982:82).

A survey carried out by Johnson (1987:73) on where to place the computers reflects the popularity of the computer lab:

- Special Computer Lab: 61%
- Language Resource Centre/Language Lab: 43%
- Classrooms: 13%
- Offices (for administration purposes): 11%
- On Mobile Carts: 6%

Figure 7: The Popular Location of Computers
Jordan (1992) shows how the different computer-based simulations can be used for different purposes in three environments for CALL: the language classroom, a computer room and a self-access room. He gives examples of simulations and how they can be manipulated within each environment. The discussion reflects that a certain program is best used in certain environment, for example, a program like FAST FOOD is best done in a computer room where the teacher can act as the 'controller' and ensures that the environment is structured.

Apart from the location, one of the issues that has to be considered is whether the stand-alone or the network is employed. Where the network is used, students' marks and errors can be recorded on the teachers' hard disk. This means that students' progress can be monitored (Thompson and Chesters, 1992). On the other hand, there are also arguments that the network may add to teachers losing control of their power (Moran et al., 1992; Langhorne et al., 1989). However, in most circumstances it is not for the teachers to choose which set-up is best for them. The trend is usually dictated by external factors such as popularity among users and management efficiency. Garrett (1991:79) realises that in most cases language teachers do not have a major voice in terms of hardware choice and configuration. In her article, she discusses the ways
of using the available facilities for language teaching purposes.

3.6 PERSONNEL-IN-CHARGE

3.6.1 KEY PERSONNEL

For an effective program implementation good leadership is crucial. The person should be able to act as the "mover and shaker" in the institution (Langhorne et al, 1989). He or she should be a respected member of the school or faculty who is capable of getting things done. The person must know about the curriculum and how to integrate the available resources to achieve the aims and objectives of the institutions. He or she is to help members of staff in the integration process. At the school level the person may be placed in charge of scheduling and supervising the lab. He may also assume the responsibility of organising, maintaining and purchasing of the appropriate software. Langhorne et al (1989:30) use the term 'match-maker' for the key personnel for his or her role in matching the teachers, software and the curriculum. They specify the most important role of the person in charge as, "how successful a match can be accomplished between the needs of the teacher in achieving an instructional goal and the capabilities of the computer. The building co-ordinator must be someone who knows the building
Identifying effective trainers is also crucial to the success of the innovation. Among the criteria that Langhorne et al (1989:52-52) cite are that the trainers must have been exceptionally successful teachers, they must not be threatening either by personality or position, and they must have the knowledge of utilising the technology to achieve the objective of the curriculum. Langhorne et al (1989:53) quoted Showers et al (1987) who mentioned coaching as another component of inservice work that can enhance its effectiveness.

Somekh (1990) warns against the concept of 'cascade' training whereby a small number of trainers are trained, who in turn trained a small number of teachers attending short training courses, who in their turn trained their colleagues back at school. She claims that this type of training which was practised in the UK was a dismal failure, the reason given being the, "taboo which existed at the time against teachers claiming to know more than their colleagues" (p.37).
3.6.3 *TECHNICIANS*

The presence of a computer lab calls for somebody to be in charge. In most cases, a full-time member of staff is employed to take charge of the lab. A technician is usually taken to do the job. Langhorne et al (1989:29) see the importance of having full-time staff to ensure the success of the lab for several reasons:

1. Teachers who are inexperienced with computers will feel more comfortable about coming to the lab and bringing their classes.
2. Teachers will be able to send small groups of students from class to work on assignments.
3. There will be someone to assist the teacher during instruction in such areas as word processing, which can be very intensive as each student encounters specific problems that require adult assistance.
4. The security of hardware and software housed in the lab must be ensured.
5. Someone must be responsible for upkeep, troubleshooting and minor repair of the equipment.

There are cases where having a technician is a luxury that many schools cannot afford. In this case usually one of the staff is asked to take charge of the computers. The concerned personnel has to undergo training in order to equip him or her for the job. If the member of staff is expected to carry out other duties, it might be difficult for him to handle the lab on his own.
3.7 CONCLUSION

In instances where computers are new to the organisation and the individuals the reactions towards the innovation may be negative in the early stages of implementation. A number of studies have shown that many could not achieve their aim because the resistance comes from the agent of change itself which is the practitioner. There are still a large percentage of language teachers who have neither the motivation nor the technological skills who remain sceptical about the value of computers in education. If the technology affects the teacher it will consequently affect the learning process in the classroom. Steps have to be taken to provide training programmes for the teachers to ensure that the move is both cost-effective and educationally-effective. Apart from that continuous support should be given to help teachers in keeping pace with the development in this field.
4.0 INTRODUCTION

No one research method is superior to another. Both qualitative and quantitative research strategies have their own particular strengths and weaknesses. It is the appropriateness of the method of investigation that is the main concern in a particular research problem (Trow, 1957). The methodological approach is dictated by the nature of research questions (Bell, 1987). Morton-Williams (1985:27) asserts that, "the subject matter and the sort of people to be studied all have bearing on the choice of method."

In this research a range of methods were used in exploring the problems of CALL implementation at the institutions under study. The qualitative methodology was thought to be one of the appropriate approaches because the study aimed to investigate the insights into and deeper understanding of the problems faced by the language teachers in using computers as a tool for teaching.
The qualitative approach allowed the researcher to come 'face-to-face' with the subjects, and it was hoped this might help in giving a holistic description and explanation of the situation. Apart from that, quantitative methodology was also employed to give strength to the study. With data that can be used for generalisation purposes, the findings might be more useful to decision-makers.

4.1 METHODOLOGICAL ISSUES

The term qualitative research is used as the generic name for a number of investigative methodologies which include ethnography, participant-observation, naturalistic and field research. Qualitative research strategies are especially suited for small-scale analysis in which the researcher uses methods that allow him or her to get first-hand information about the problem being studied (Finch, 1986; Nixon, 1981; Kincheloe, 1991). In this approach, the researcher is required to 'enter into the lives' of the subjects being studied. This requires a long-term study in order to make the researcher's presence as natural as possible.

In Tesch's (1990) reviews of Wertz (1987) he argues that Sigmund Freud and Jean Piaget made important assertions about human beings without testing hypotheses or using large and representative enough
samples of people for it to be statistically significant. Tesch mentions the primary use of observation methods in Freud’s and Piaget’s studies. Both tried to make sense of what they saw and also find out what it meant.

Phenomenology is one of the philosophical roots of qualitative research. It stresses the subjective aspects of human behaviour which include people’s motives and the beliefs behind their actions. The phenomenologists view a problem from the eyes of the participants: how they interpret their world (Taylor and Bogdan, 1984). To the phenomenologists reality is what is perceived by the individuals. Therefore, it is important for the researcher to understand the participants’ viewpoints because their perceptions may influence their behaviour. This, however, does not mean that the phenomenologists ignore reality no matter how the particular society perceives it (Blumer,1980).

Symbolic interaction is another perspective which underlies qualitative research methodology. According to Stainback and Stainback (1988:2), "Meaning comes not from the thing itself but rather from the interpretation given to it by a person." In quoting Bogdan and Biklen’s (1982) and Blumer’s (1969) work, Stainback and Stainback (1988:2) mention the importance of understanding the meaning given to an object,
people, events and situations in relation to human
behaviour in order to understand the behaviour of a
person.

Until recently the positivist traditions of social
science dominated educational research:

...positivists maintain that science should be
concerned with the explanation and prediction of
observable events. The ability to predict is
founded upon the fact that observable phenomena
are micro-expressions of universal laws that are
appropriate in all contexts.

(Kincheloe, 1991:50)

The more conventional research methods such as surveys
and experiments have been the preferred method of doing
research. These traditions have an epistemological
view of knowledge where it is taken as something "hard,
objective and tangible" (Cohen and Manion, 1980:8).

The critiques of positivism "argue that there is a
fundamental difference between the study of natural
objects and human beings, in that the latter themselves
interpret situations and give meanings to them."
(Vulliamy, 1990:8). They also reject "the belief that
human behaviour is governed by general laws and
characterised by underlying regularities" (Cohen and
Manion, 1980:26). Kincheloe argues at great length in
his book against the positivists. According to him
(1991:56), "When positivist researchers examine the
social and educational world using the methods of the
physical sciences, they adopt the dehumanising
structure." He points out the importance of action research in order to improve teaching practice.

The proponents of the qualitative method see the events in an educational organisation as something that cannot be moulded and controlled in the desired shape by the external 'manipulator'. The emphasis is on the explanation and understanding of the subject studied rather than what is general and universal (Burrel and Morgan, 1979). Some aspects of the participant's experience and consciousness may remain hidden in the conventional research method. In his studies of schools and classrooms, Woods (1983) shows how the interactionist perspective takes the human actions as constructed by the actors and not through the manipulation of external forces.

Finch (1985) prefers the use of qualitative technique over quantitative in her study of playgroups. According to her, "Statistical studies can tell us how many children are being catered for in playgroups and something about their social profile; questionnaire studies can tell us what parents say when asked formal questions about their experiences of playgroups. But only studies which include an element of observation and probably over a fairly long period of time can tell us what playgroups are actually like" (Finch, 1985:114-115).
The literature on qualitative research methodology suggests that no single attribute is present in all qualitative studies. However, several attributes are found to a greater or lesser degree in the use of a qualitative research strategy. In Vulliamy's (1990;11) reviews of some of these literature, he states that, "there are several common features to be found in the use of qualitative research strategy (see, e.g., Burgess, 1985, pp. 7-10; Bryman, 1988, pp.61-9; Patton, 1988, pp.124-5):

1. The focus on meanings and the attempt to understand the culture of those being studied predisposes researchers to work as far as possible in natural settings (Denzin, 1971). This suggests, for example, a preference for participant observation rather than experiments under artificial conditions, and a preference for informal and less standardised interviews rather than for more standardised and formal ones.

2. Rather than testing preconceived hypotheses, such research aims to generate hypotheses and theories from the data that emerge, in an attempt to avoid the imposition of a previous, and possibly inappropriate, frame of reference on the subjects of the research (Glaser and Strauss, 1967; Glaser, 1978). There are two important implications of this. First, it implies a greater degree of flexibility concerning research design and data collection over the duration of a research project; and secondly, it implies that the process of analysis occurs simultaneously with the process of data collection.

3. In focusing on the processes of social interaction, qualitative research involves the ongoing collection of data (so that, for example, attitudes will be monitored continuously during a research study, rather than at discrete points, as with
ticks on a questionnaire or interview schedule). A consequence of this is that research into effects of an innovation is likely to be more concerned with the processes of implementation than with outcomes.

4. Qualitative research is holistic, in the sense that it attempts to provide a contextual understanding of the complex interrelationships of causes and consequences that affect human behaviour (Goetz and LeCompte, 1984). In doing so it seeks to avoid either the deliberate manipulation of variables (characteristic of the experimental tradition of educational research) or the study of attitudes or indicators as variables isolated from the wider totality (characteristic of the survey tradition). A further consequence of this holistic emphasis is that qualitative research tends to incorporate a wide variety of specific research techniques, even within one research project.

Vulliamy (1990:11), however, realises that the differences are not clear cut. He quotes Patton (1988) as saying that such differences are tendencies and not absolutes.

4.1.1 SUMMARY OF METHODOLOGIES

Stainback and Stainback (1988:4-8) discuss the difference between qualitative and quantitative research from a number of different perspectives. These include the purpose of research, reality, viewpoint, values, focus, orientation, data, instrumentation, conditions and results of the study. The differences are summarised below:
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Quantitative Paradigms</th>
<th>Qualitative Paradigms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>Prediction and Control-Seeks causes and effects of human behaviour.</td>
<td>Understanding-Seeks to understand people's interpretations and perceptions.</td>
</tr>
<tr>
<td>Reality</td>
<td>Stable-Reality is made up of facts that do not change.</td>
<td>Dynamic-Reality changes with changes in people's perceptions.</td>
</tr>
<tr>
<td>Viewpoint</td>
<td>Outsider-Reality is what quantifiable data indicate it to be.</td>
<td>Insider-Reality is what people perceive it to be.</td>
</tr>
<tr>
<td>Values</td>
<td>Value free-Values can be controlled with appropriate methodological procedures.</td>
<td>Value bound-Values will have an impact and should be understood and taken into account when conducting and reporting research.</td>
</tr>
<tr>
<td>Focus</td>
<td>Particularistic-Selected, predefined variables are studied.</td>
<td>Holistic-A total or complete picture is sought.</td>
</tr>
<tr>
<td>Orientation</td>
<td>Verification-Predeetermined hypotheses are investigated.</td>
<td>Discovery-Theories and hypotheses are evolved from data as collected.</td>
</tr>
<tr>
<td>Data</td>
<td>Objective-Data are independent of people's perceptions.</td>
<td>Subjective-Data are perceptions of the people in the environment.</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>Non-human - preconstructed tests, observational records, questionnaires, and rating scales are employed.</td>
<td>Human-The human person is the primary data collection instrument.</td>
</tr>
<tr>
<td>Conditions</td>
<td>Controlled-Investigations are conducted under controlled conditions.</td>
<td>Naturalistic-Investigations are conducted under natural conditions.</td>
</tr>
<tr>
<td>Results</td>
<td>Reliable-The focus is on design and procedures to gain &quot;hard&quot; and replicable data.</td>
<td>Valid-The focus is on design and procedures to gain &quot;real&quot;, &quot;rich&quot;, and &quot;deep&quot; data.</td>
</tr>
</tbody>
</table>

(Stainback and Stainback, 1988:8)
Merriam (1988:18) also makes a summary of the characteristics of the two orientations to research. Different points of comparison are given here:

<table>
<thead>
<tr>
<th>Point of Comparison</th>
<th>Qualitative Research</th>
<th>Quantitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus of research</td>
<td>Quality (nature, essence)</td>
<td>Quantity (how much, how many)</td>
</tr>
<tr>
<td>Philosophical roots</td>
<td>Phenomenology, symbolic interaction</td>
<td>Positivism, logical empiricism</td>
</tr>
<tr>
<td>Associated phrases</td>
<td>Fieldwork, ethnographic, naturalistic, grounded, subjective</td>
<td>Experimental, empirical, statistical</td>
</tr>
<tr>
<td>Goal of investigation</td>
<td>Understanding, description, discovery, hypothesis generating</td>
<td>Prediction, control, description, confirmation, hypothesis testing</td>
</tr>
<tr>
<td>Design characteristics</td>
<td>Flexible, evolving emergent</td>
<td>Predetermined, structured</td>
</tr>
<tr>
<td>Setting</td>
<td>Natural, familiar</td>
<td>Unfamiliar, artificial</td>
</tr>
<tr>
<td>Sample</td>
<td>Small, nonrandom, theoretical</td>
<td>Large, random, representative</td>
</tr>
<tr>
<td>Data collection</td>
<td>Researcher as primary instrument, interviews, observations</td>
<td>Inanimate instrument (scales, tests, surveys, computers, questionnaires)</td>
</tr>
<tr>
<td>Mode of analysis</td>
<td>Inductive (by researcher)</td>
<td>Deductive (by statistical methods)</td>
</tr>
<tr>
<td>Findings</td>
<td>Comprehensive, holistic, expansive</td>
<td>Precise, narrow, reductionist</td>
</tr>
</tbody>
</table>
4.2 THE PREFERRED METHOD

One of the problems of qualitative research is that it cannot be used for generalisation purposes (Finch, 1986). It also does not reflect the society as a whole. This might make it useless to the policy makers who usually prefer statistical figures. Data that can be generalised might be more worthwhile to them. On the other hand, one of the problems with quantitative methodology is that it emphasises the product more than the process (Finch, 1986:182). Pollard (1984) states that since both have their advantageous and disadvantageous aspects, the use of both methods would help in producing a more authoritative research.

4.2.1 TRIANGULATION

The process of triangulation is important in ensuring the validity of such a piece of research work. Cohen and Manion (1980:254) define triangulation as, "the use of two or more methods of data collection in the study of some aspects of human behaviour." According to Croll (1986:176), "This is a data confirmation technique in which data are strengthened where the same results are produced by different procedures. However, it can also serve to give greater depth to the data and give the researcher a greater understanding of it." The use of both the quantitative and qualitative
data might help to explain more fully the situation studied. In his review of Denzin (1970) and Hammersley (1979), Hargreaves (1985:28) says that the use of triangulation or cross-referencing helps to:

i. Check out the contaminating influence of the, "theoretical preferences by actively seeking out disconfirming cases in the data that would challenge their initial prejudices and hunches..."

ii. Compare different methods "in order to check consistency of what a particular teacher or pupil says between settings."

iii. Triangulate "the interpretations that different observers make..."

In this study, all the methods were used independently of each other. Each of the techniques was used whenever it was deemed to be appropriate. In this process events were looked at from three points of view, namely the researcher, the teacher and the students. Witnesses’ accounts of an event helped to give the picture of an event from many different angles.

In the first three phases of this study, the researcher used the qualitative research methods which include participant observation and interview as the main methods of data collection. At the same time,
quantitative research methods were also employed in order to strengthen the findings of the research. Unlike qualitative research methods where the process of analysis occurs simultaneously with data collection, the data collected by quantitative methods particularly by questionnaires and systematic observation were analysed at the end of the study. This was done due to time constraints. A longer time was needed to make a detailed analysis of the survey and recordings made by using video tapes.

A large-scale survey was then conducted in phase four of the research to confirm some of the findings made in the previous phases. Information which could not be obtained by other methods, for example, teacher’s level of anxiety was also sought by using the survey method.

4.3 RELIABILITY AND VALIDITY ISSUES

Before a piece of research can be accepted, the questions of reliability and validity have to be addressed. In this research, measures were taken to ensure that the study was both reliable and valid by employing a number of different research methods.

4.3.1 RELIABILITY

Kirk and Miller (1986:19) define reliability as "the extent to which a measurement procedure yields the same answer however and whenever it is carried out..." In
other words, if another observer uses the same method on the same group the same result will be obtained. In the qualitative approach, a replication to check the findings is difficult to achieve because the procedure is quite flexible. The relationship of the researcher with the participants cannot easily be duplicated. What the researcher chooses to record and the way he or she interprets the result might vary from one researcher to another. Hence reliability of research can be relative in this case.

In this study, with the large scale survey, a reliability test was carried out to check the internal consistency of the data. According to Hull and Nie (1981:248) the goal of the test is, "to assess how reliable a sum or weighted sum across variables is as an estimate of a case's true sum."

To look at the internal consistency of the items the Cronbach reliability estimate was used. The coefficient alpha is suitable for items that are not scored as right or wrong. The response simply indicates where one stands on the continuum of the given scale. Kaplan (1987:253) asserts that, "All of the measures of internal consistency evaluate the extent to which the different items on a test measure the same ability or trait. They all will give low estimates of reliability if the test is designed to measure several traits." If all the variation in
observed scores is due to errors of measurement, the reliability coefficient will be zero. If there is no error of measurement, the reliability coefficient will be one.

4.3.2 VALIDITY

The validity of a measurement is the extent to which it gives the correct answer (Kirk and Miller, 1986:19). In order to assess the validity of a research study careful attention has to be given to study conceptualisation and the way in which the data were collected, analysed, and interpreted. In qualitative research the use of methods that "provide first hand knowledge of the phenomenon under inquiry as it exists in the world" (Taylor and Bogdan, 1981:74) strengthen the validity of such work.

In an experiment, the internal validity is concerned with whether the experimental treatment makes a difference to the study or not. If the findings made can be generalised, the study is externally valid (Cohen and Manion, 1980:194). Cohen and Manion (1980:194) claim that, "Without internal validity an experiment cannot be possibly be externally valid. An internally valid experiment may or may not have external validity."

In this study no experimental treatment was given to the CALL classes. The internal validity of research of
this kind relies on the nature of the study, that is, it is representative of the real thing. Its external validity relies on the possibility of it being applicable in other situations. In Vulliamy’s (1990:12) reviews of Bracht and Glass (1968), he mentions 'ecological validity' as a threat to the external validity of experiments. "This concerns the extent to which behaviour observed in one context can be generalised to another." Since the focus is on deeper understanding of the problems at the institutions concerned there are details that might not be applicable to other situations.

Reliability and validity issues can be inter-related to each other. Kirk and Miller (1986:20) assert that, "It is easy to obtain perfect reliability with no validity at all....Perfect validity, on the other hand, would assure perfect reliability, for every observation would yield the complete and exact truth." The use of both quantitative and qualitative methods may help towards developing a more reliable and valid generalisation.

4.4 APPROACHES USED IN THIS STUDY

4.4.1 CASE STUDY

The case study approach was chosen in order "to probe deeply and to analyse intensively the multifarious phenomena that constitute the life cycle of the unit
with a view to establishing generalisation about the wider population to which that unit belongs" (Cohen and Manion, 1980:120). The case study method allows the researcher to concentrate on a specific issue and to study the interactive processes at work. Some of the processes may remain hidden if only the survey method is used. Key issues may be identified and this in turn may be used in designing questionnaires for a survey (Bell, 1987:6).

In defining case study, Adelman et al (1980:48-49) start with what it is not:

1. Case studies should not be equated with observational studies, participant or otherwise;
2. Case studies are not simply experimental;
3. Case study is not a name for a standard methodological package.

The case study method was thought by the researcher to be appropriate for the issue in hand for these reasons:

(a). The nature of work is such that it is impossible to separate the variables from the context, that is, to determine the teachers' and students' reactions to the innovation outside the educational institution;
(b). There are difficulties in identifying all the important variables ahead of time;
(c). It is, therefore, impossible to prespecify all the details of the research design from the start;
(d). Case studies provide a good basis for exploring contemporary events, and the research can examine the instance in action (McDonald and Walker, 1975:181).

McDonald and Walker (1975:3) declare that, "case study is the way of the artist, who achieves greatness when, through the portrayal of a single instance, he communicates enduring truths about the human conditions". Perry et al (1969) define case study as, "an account of event, or events, in the life of teachers and schools" (p.1) and that it "is a report of facts only. The writer is not there to judge, in fact the writer has tried, as much as humanly possible to eliminate all personal bias from his account"(p.2). Stake (1980:73) argues that,

...because of the universality and importance of experiential understanding, and because of compatibility with such understanding, case studies can be expected to continue to have an epistemological advantage over other inquiry methods as a basis for naturalistic generalisation.

The International Islamic University, Malaysia, and four secondary schools in a rural area of Malaysia were chosen for the case study. The schools were used to complement the findings made at the University because at the beginning of the study such innovation was not practised yet at the other Universities in Malaysia. CALL was offered to teacher trainees as a subject at
some of the universities but not as part of the aids in English language teaching. The schools in the rural area were chosen because of the Malaysian Ministry of Education's plan to distribute computers to the schools in the rural areas instead of the cities. (See Chapter Two, section 2.3 for information on this project).

4.4.2 ACTION RESEARCH

In order to give a holistic view of the instances captured in the case study the action research method was adopted. In action research the problem in hand is reviewed, diagnosed, planned, implemented and monitored (Elliot 1981:2). According to Elliot (1981:3) action-research can be defined as, "The study of a social situation with a view to improving the quality of action within it". Cohen and Manion (1980:208) define it as, "small scale interventions in the functioning of the real world and a close examination of the effects of such intervention." The following model is going to be adopted in this study. It is Elliot's (1981:5) improvement of Lewin's (1946) model.

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1The researcher contacted all the English Language Departments of the tertiary institutions in Malaysia in September 1990 before beginning the study to find out whether any of their staff used computers to teach English. From the answers given it was found that the computer was not as yet at that time used by any of the staff for teaching purposes.
Figure 8: Elliot’s Model of Action Research
The steps taken in this research will be that of the model outlined by Elliot. However, in action research the method of implementation is not specified. Action research here is seen as an exploratory process.

Action research is usually collaborative where teams of researchers and practitioners work together on a project (Cohen and Manion, 1980:208). In this research, however, collaborative research was not carried out in a formal way. Where there were discussions among the staff at the University and the schools, the researcher usually tried to include issues on CALL. A formal collaborative research was not done because of the risks involved. Communicational problems among the participants were reported in several projects such as the Humanities Curriculum Project (McDonald, 1978) and Keele Integrated Project (Lees, 1991). In these projects many of the teachers felt that they were put on trial. The same might occur in this study. The situation is such that the researcher might take the leading role in the discussion. This might not be tolerated by some people because of her age, gender, status and position at the University. The same applies at the schools. The researcher might be taken as somebody from the ivory tower who tried to tell them what to do in their teaching environment.
4.4.3 INTERVIEWS

Interview is one of the most frequently used methods in the case study approach. The interview method is a good way of identifying an individual's problems. It has the advantage of putting the interviewer in direct contact with the people involved in the research (Walker 1985b). Walker and Adelman (1975:138) point out that, "Through interviews common motives, intentions and interpretations which can usually only be inferred from recordings may be revealed." Added to that the method also enables work to be done in and out of the classroom. In these case studies, the subjects for the interviews were chosen based on accidental or convenience sampling where the individuals who were the nearest or available were chosen. At the school, all the teachers who were involved in the research were interviewed. In the last phase of the study, some of the personnel who were involved in the Ministry of Education's computer project were also interviewed.

At the University, the relationships with interviewees were already established as they were the researcher's own colleagues. At the schools the interviews only took place after the teachers were acquainted with the researcher. The interviews at both the University and the schools were carried out in an environment which was familiar to the interviewees; the interviews took
place at the interviewees' own institution. This might have helped to reduce the level of anxiety among the interviewees. The interviews were not structured because of the explorative nature of the research. This allowed the interviewees to express themselves at some great length. Some information might be revealed in this kind of interview. However, the interviews were semi-structured, "to prevent aimless rambling" (Wragg, 1979: 10).

The use of a tape recorder was preferred over note-taking to ensure a smoother flow of conversation among the interlocutors. Note-taking might appear 'mechanical'. The continuous eye-contact also helped in keeping rapport with the interviewees. However, the tape recorder was not used in the last phase in order to get the most from the officers and teachers involved in the Computer-in-Education project. Since no observation was involved in this phase, the researcher saw the importance of placing the interviewees in an unthreatening situation in order to obtain as much information as possible.

4.4.4 OBSERVATION

Other than interview, observation is also one of the most frequently used methods in a case study.
4.4.4a PARTICIPANT OBSERVATION

The observation procedure offers "the most direct way of determining teacher adherence to a particular teaching method" (Allwright 1988:7). In this study, this method was used not only to focus on teachers' and students' non-verbal behaviour but also other factors in and outside the classroom that might have an influence on teachers' decision-making process.

In Cohen and Manion's (1980) review of Bailey (1978) they state that Bailey "identifies some inherent advantages in the participant observation approach:

(1). Observation studies are superior to experiments and surveys when data are being collected on non-verbal behaviour.
(2). In the observation study, the investigator is able to discern ongoing behaviour as it occurs and is able to make appropriate notes about its salient features.
(3). Because case study observations take place over an extended period of time, the researcher can develop a more intimate and informal relationship with those he is observing, generally in more natural environments than those in which experiments and surveys are conducted.
(4). Case study observations are less reactive than other types of data gathering methods."

Walker (1985b:6) points out this method enables the researcher to study the participants in their natural settings. Powdermaker (1966:6) states that the observer's task is to immerse himself or herself in the host society, "learning as far as possible to think, see, feel and sometimes act as a member of its culture and at the same time as a trained (researcher) from
another culture." According to him, observer involvement and detachment are central to the participant method. This reflects the varying degree of roles that the observer plays. Gold (1958) mentions that it can vary from complete participation through participant-as-observer and observer-as-participant to complete observer. The role taken by the researcher in this study would depend on the way the research went.

At IIU, the researcher acted as a participant observer where she was engaged in the activities she set out to achieve. As a teacher herself she tried to reflect her own experience in implementing the innovation as stated by Stenhouse (1975:165), "it is difficult to see how teaching can be improved or how curricular proposals can be evaluated without self-monitoring on the part of teachers."

Similar observation could not be done at the schools because she was not part of the school community. Her short visits did not allow her to study the problems faced by the teachers at the schools at great length.

In this study, the researcher kept memos that contain ideas that came to her mind which include reformulation of statements of hypotheses and emergent ideas. The memos also include the researcher's thoughts, feelings and changes of direction. Apart from that there were
also a few journal entries which the researcher did while observing some of the classes at the school.

4.4.4b SYSTEMATIC OBSERVATION

In order to get an insightful account of classroom behaviour and an accurate description of selected features of activities and interactions in the classrooms, video recordings of the CALL classes were made. This technique was employed because the researcher saw the need to measure the length of time spent on a particular event to see if it was significant or not. The recordings also made it possible for the researcher to analyse events which were clustered at particular times during the lesson.

The category system developed by Flanders (1970) is the best known technique for looking at discourse in the classroom. He proposed seven categories for classifying teacher verbal actions, two categories for classifying pupil verbal actions and one for silence or confusion. With this system, the trained observer sits at the back of the class with his/her coding schedule and codes events at three-second intervals (see table 4.4a).
Table 4.4a

Flanders Interaction Analysis Categories

| Teacher Talk | 1. Accepts feeling. Accepts and clarifies an attitude or the feeling tone of a pupil in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included. |
| 2. Praises or encourages. Praises or encourages pupil action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "Um hm?" or "go on" are included. |
| 3. Accepts or uses ideas of pupils. Clarifying, building, or developing ideas suggested by a pupil. Teacher extensions of pupil ideas are included but as the teacher brings more of his own ideas into play, shift to category five. |
| 4. Asks questions. Asking a question about content or procedure, based on teacher ideas, with the intent that a pupil will answer. |
| 5. Lecturing. Giving facts or opinions about content or procedures; expressing his own ideas, giving his own explanation, or citing an authority other than a pupil. |
| 6. Giving directions. Directions, commands, or orders to which a pupil is expected to comply. |
| 7. Criticizing or justifying authority. Statements intended to change pupil behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference. |
| Pupil Talk | 8. Pupil-talk—response. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited. |
| 9. Pupil-talk—initiation. Talk by pupils which they initiate. Expressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure. |
| Silence | 10. Silence or confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer. |

(Flanders, 1970:34)

Croll's (1986:121) opinion of the Flanders' system is that the categorisation of "interactions at very brief intervals makes it possible to link together sequences of interactions." Coulthard et al (1973) criticise the technique for enforcing selection, "with the result
that only part of the data can be used." However, as argued by McIntyre and Macleod (1986:11), "Systematic observers have the distinctive merit that they make quite explicit the aspects of teaching on which they are focusing attention, and make any ideological commitment quite transparent." They state that the work of Flanders and other systematic observers are based on certain ideological assumptions about teaching, and that they "do not see anything inherently objectionable about it" (p.11).

Although there are problems with the Flanders’ system (Allwright, 1988), it helps to lead to the more important aspects in the classroom observation. Interaction analysis can be carried out based on specific events that a researcher is interested in. Hence, in this research, the researcher saw the need to analyse the classroom proceeding carefully in order to find the significant events in it. The use of the video helps in this venture.

One of the common criticisms of the systematic observation is that the categories are predetermined (McIntyre and Macleod, 1986). However, in this research, recorded lessons were studied and attempts were made to define discrete units in classroom discourse. The videos were transcribed and the categories were developed based on the transcription
with Flanders’ model serving as a guideline. Categories for student talk were not constructed in this study because they were not the focus of research. The system thus developed is suitable for analysing teacher behaviour in CALL classes. As such, different categories may have to be developed for different kinds of classroom settings.

This kind of approach is categorised under systematic observation in its broadest sense where categories were used to analyse the classroom behaviour but the coding was not done simultaneously and the categories were not determined prior to the classes. Using the tape also means that the researcher did not base her coding on instant judgement.

After analysing the CALL classes there seemed to be a need to look at categories other than those specified by Flanders. The researcher saw the need for such system because of the multiplicity and complex nature of classroom interaction. New patterns which tended to recur in the interaction are added to the system. These additional categories are marked with asterisks. The categories chosen are given below:
### Table 4.4b:
**Interaction Analysis:**
**Teacher Talk Observable Events**

<table>
<thead>
<tr>
<th>Teacher Talk</th>
<th>Teaching Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Accepts or Uses Student's ideas—Agreeing, clarifying, building, or developing ideas suggested by student.</td>
<td></td>
</tr>
<tr>
<td>2. Praises or Encourages—Praises or Encourages student action or behaviour.</td>
<td></td>
</tr>
<tr>
<td>*3. Expresses Inability to help on technical matters—Accepts weaknesses in handling hardware, or courseware.</td>
<td></td>
</tr>
<tr>
<td>*4. Agree/Disagree to what students have keyed in on the screen.</td>
<td></td>
</tr>
<tr>
<td>*5. Gives Instruction/Suggestion — instructs, suggests or orders to which a student is expected to comply. a. In relation to the given software. b. On issues other than the given software.</td>
<td></td>
</tr>
<tr>
<td>*6. Asks Question — Asks a question about content or procedure with the intent that a student will answer. a. In relation to the given software. b. On issues other than the given software.</td>
<td></td>
</tr>
<tr>
<td>*7a. Gives Explanation on Content — Explains to a student the content, expecting him/her to comply by typing in the answer.</td>
<td></td>
</tr>
<tr>
<td>*7b. Gives Explanation on Equipment Used — Explains to student about the equipment, what to do when he/she has problems with the technical aspect of the program, expecting him/her to overcome his/her technical problem.</td>
<td></td>
</tr>
<tr>
<td>*8. Gives a general comment on the student's work</td>
<td></td>
</tr>
</tbody>
</table>

### Reason for Silence

| *1. Monitoring Student's Activities. Monitors what each student or group is doing. | |
| *2. Confused. Uncertain of how to deal with the situation. | |
| *3. Others. This includes doing other things while waiting for student to finish his/her work, such as leaving the classroom. | |

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Under teacher talk there is a need to look at to whom teacher talk was directed, and within that the quality and quantity of that talk. The researcher is in agreement with Allwright (1988) here in that who is expected to respond to teacher talk is included.

The presence of the computers demanded that the teacher used an approach that realises the presence of such a medium in the classroom. The teacher’s activities seemed to revolve around the computer, and much of the explanation done was related to the activity. Therefore, the researcher sees it necessary to include categories such as Giving Explanation in the table. This is divided into two to differentiate the explanation that is given on content, and the one that is given to help the students with the program. Based on the analysis, much of the explanation done was restricted to giving hints to the students in doing the exercise. Such hints are placed under category 7a ‘Gives explanation on Content’ because they were meant to help students to carry out the given tasks.

In discussing silence, Flanders (1970:34) concentrated on only, "pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer." The researcher, however,

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2Quality refers to what is actually said in the interaction. Quantity refers to the length of time spent on a particular event in the interaction.
notices other occasions that can be grouped under 'silence'. Both the teacher and student can be silent for a number of different reasons. The teacher may be silent when he or she is (i) monitoring student’s work, (ii) doing his or her own work, and (iii) not sure about how to deal with student’s problems particularly those related to the technical aspects of computing (Mat Daud, 1993/4). The last one, however, can be difficult to detect. A teacher may choose to ignore the problem and concentrate on other problems.

As the teachers' teaching behaviour was analysed, there were other characteristics that might be of significance to the study. These include the speaker’s voice, that is, whether it was loud or powerful enough to attract the hearer’s attention. Another factor that the researcher perceived as important was the interlocutors' eye contact. According to Walker (1975:11), "Looking is not simply a means of seeing, but also a communicative action." The continuous eye contact might help in establishing communication. However, in the CALL class this might be hindered by the presence of the computers.

A continuous recording procedure is used where the researcher "keeps a continuous record of the category into which the behaviour of the subject of the observation is to be categorised on a schedule laid out
in such a way as to allow the use of the categories to be precisely timed" (Croll, 1986:62). A coding sheet which has a three-second interval matrix was used in analysing the interaction. Code symbols were used to represent each of the categories. The category number was recorded on the sheet as the event represented by the symbol took place.

It cannot be denied that there were problems with this technique. One of them is the difficulty in focusing the camera towards all the activities that took place in the classrooms. The presence of the video equipment might also intrude upon the running of the class. However, in this study most of the students seemed to ignore the video and concentrated on the task at hand. Another criticism of this method is that it is not concerned with the context of observation. In this study, this is overcome by establishing a more general context "by noting the physical arrangements of the classroom and the materials in it at the beginning of a period of observation" (Croll, 1986:162). The constraints of physical setting on possible behaviours were taken into consideration.

4.4.5 QUESTIONNAIRES

A questionnaire is a "structured transcript with the responses missing" (Walker, 1985a:91). Questionnaires
are often used for large-scale research. In this study, questionnaires were distributed when information was needed from the whole population of respondents or specific group of respondents.

Different techniques were used in constructing the questionnaires. These include the use of Likert scale\(^3\), visual analogue\(^4\), adjective check list\(^5\) and open-ended questions at the end of the questionnaire.

4.4.5a **LIKERT SCALE**

The unique characteristic of the Likert scale is that responses are based on an agree-disagree continuum. The rater is expected to express his/her opinion by rating his agreement with the series of given statements (Streiner and Norman, 1989:25). Teachers indicated their attitude on a scale of one to five ranging from strongly disagree to strongly agree. With some of the questions, the alternate forms method where equivalent versions of items given are used in constructing the items for the scale. This helps towards checking the reliability of the scale (Bell, 1987:51).

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\(^3\)See Part Four of the questionnaire in Appendix D for the sample of this type of question.

\(^4\)See Part Three of the questionnaire in Appendix D for the sample of this type of question.

\(^5\)See Part Five of the questionnaire in Appendix D for the sample of this type of question.
Other than teachers' attitudes this scale was also used to measure their perceptions and expectations of computer usage. Their opinions on teacher training in CALL and issues relating to software were sought by using the same scale. This scale was also employed in the questionnaires which were distributed to the students at the beginning of the study.

4.4.5b VISUAL ANALOGUE

A visual analogue is a line with fixed length. In this study it was 100 mm long. Anchors used at the extreme ends are the opposite words or phrase that described a certain situation. No word described the intermediate position. The respondents were asked to mark X on the horizontal line, on the line that corresponds to their perceived state (Streiner and Norman, 1989:23). This technique is used to measure teachers' expectations of the computer. The answers given can be compared with those in the other scales. Their expectations may be related to who they are (their background), their attitudes towards CALL, their level of anxiety and also their perceptions of it.

4.4.5c AFFECT ADJECTIVE CHECKLIST

The adjective checklist is used as the scoring key for 'anxiety'. Zuckerman (1960:457) argues that such a test, "could be given quickly, scored objectively, and
adopted for varying time sets." The use of the standardised test helps in interpreting the respondent's score in relation to the others. The Affect Adjective Checklist is adopted from Docking's (1978,1979a) modification of Zuckerman's. However, the checklist was constructed for pupils. Since no standard measurement for measuring teachers' anxiety level was found the checklist was used for this purpose. Fraser et al (1983:202) argue that,

"Data reported by Docking (1978) support that the instrument has good concurrent validity (with correlations of 0.62 to 0.74 with other measures of anxiety) and good reliability (test-retest coefficient of 0.83). Also Docking and Thornton (1979b) provide evidence that the subtlety of this anxiety measure makes it less susceptible than some alternative anxiety instruments to various sources of confounding such as defensiveness (unwillingness to admit anxiety), the nature of the test situation or the order of presentation of various instruments."

Sixty adjectives are arranged in alphabetical order in which only twenty-one of them are significant. The respondents' anxiety score is obtained by summing the scores for the twenty-one words marked (+) and (-) in table 4.4c below:
Table 4.4c: Affect Adjective Checklist

PART FOUR
Read through the list of words. Underline those words which describe how you would generally feel about your position as a language teacher if you were asked to teach by using the computer.

absorbed afraid(+) aimless ambitious
annoyed aware bored calm(-)
careless cautious challenged cheerful(-)
cheated comfortable confused contented(-)
creative curious dedicated desperate(+)
disappointed efficient entertained excited
fearful(+) fortunate frightened(+) happy(-)
hopeless impatient incapable inspired
interested joyful(-) lazy loving(-)
miserable misplaced nervous (+) organised
overloaded panicky(+) pleasant(-) pleased
productive pushed refreshed regretful
rewarded satisfied secure(-) serious
shaky(+) steady(-) tense(+) terrified(+)
thoughtful(-) upset(+) weary worried(+)

A word designated (+) is scored 1 if it is underlined and 0 if it is not underlined. A word designated (-) is scored 1 if not underlined and 0 if it is underlined. All other words are ignored in the scoring. The positive and negative signs are not actually shown in the respondent’s copy.

The Affect Adjective Checklist hopes to investigate the relationship between teacher’s anxiety about computer and their:

i. attitudes towards the use of computers in language teaching and learning;

ii. perceptions of computer assisted language learning

iii. expectations of the computer;

iv. background.
At the end of the study, a large scale survey was distributed to the teachers. This was done to see whether some of the findings are statistically significant or not. A cluster sampling was used where only the English language teachers from the schools which have been selected by the Ministry for its computer project were chosen. At the Universities, the sample consisted of the academic staff who were teaching English as a second or foreign language at those institutions.

A smaller scale survey was carried out with the students. The survey was to find out the range of students' attitude and motivation towards English language learning. The adapted version of Gardner’s (1985:177-182) Attitude and Motivation Battery was used for this purpose. (See Appendix E for the sample of questionnaires distributed to students). A pilot study was not seen as necessary in this case because the study was not focused on the students’ attitudes and motivation towards the language.

In his study, Gardner (1985) divides his questions into, a. Attitudes toward French Canadians; b. Interest in foreign language; c. Attitudes toward European French people; d. Attitudes toward learning French; e. Integrative Orientation; f. Instrumental orientation;
g. French class anxiety; h. Parental encouragement; i. Motivational intensity; j. Desire to learn French and k. Orientation Index. Only sections which were deemed to be appropriate to the situation were adopted in designing the questionnaires. Where necessary the reference to language was changed to English instead of French. Questions on Attitudes towards English people were adapted from section c (Attitudes toward European French) because it was more relevant than section a (Attitudes toward French Canadians). The term integrative orientation refers to the use of the language to interact with the speaker of the target language for social-emotional purposes (Gardner, 1985:11). By instrumental orientation, Gardner (1985:11) refers to the pragmatic reasons for learning the language which include obtaining a job.

The instrument was administered by the researcher herself. By doing so it might help to establish rapport with the students. At the same time, the purpose of the study could be made clear, and the meaning of items explained. As the respondents were from different countries, the questionnaires were written in English. However, where the whole group was Malaysian, the questions were translated and explained in Malay orally. Queries from the students were answered as it was administered. Where the group was mixed, an explanation of the meaning of items was
given in English, and the better students were asked to translate the questions to their compatriots if necessary.

4.5 RESEARCH ORGANISATION

From July 1991 to September 1992, three phases of study were conducted at the International Islamic University, and two at the four selected schools. A series of questionnaires, observations and interviews were carried out. Out of these several hypotheses were drawn, and the steps that were taken in the following phases were based on the research findings of the previous study. The investigation was divided into three phases based on Elliot’s (1981:5) improvement of Lewin’s model.

4.5.1 PHASE ONE. July 1991 to September 1991

RECONNAISSANCE. In entering the field the researcher tried to start with no preconceived ideas about the participants and the setting. The following were the situations that already prevailed at the beginning of the research.

At the University: i. Some of the staff did not make the full use of the lab because they lack the confidence in handling the equipment.

\[\text{Note that there is a gap from one phase to another as no study was conducted before the exam week and also during the break.}\]
ii. They did not have the time to go through the programs in the labs and to develop materials based on the available programs.

iii. Not enough training sessions were held for them.

iv. Not enough technical support was given to the academic staff.

At the school the teachers had never had any exposure to the use of computers in teaching language.

At IIU the questionnaires for the students were distributed to three of the Pre-Sessional classes. (See Chapter Two, section 2.5 for the details of courses offered by the University). All the instructors involved in the study have to teach at least one of the study skills components of the Pre-Sessional Course.

At the University, a proficiency test was given by the English Language Department to the students before they were assigned the English language course that they should take. There were no specific criteria that differentiate one class from the other within a course as the students were free to choose their grouping (within the same course). Several classes were
conducted for a particular course. The students were free to choose the one that suited their time-table.

In contrast the more able groups at the schools were chosen for the survey because they were the people likely, later on to enter the University. However, by the more able groups it did not mean that all of the students that made up the group did well in their English examination. They were there because they were better than the others in their overall academic performance. The actual level of proficiency might differ as we went from one school to another. The survey might give us a picture of what their attitude was towards the language, and whether there was any significant relationship in their attitude and motivation towards English language learning with the place where they were studying.

TEACHER TRAINING. At the beginning of the study, it was thought that the staff at the University could be encouraged to use the computers if they had the print-outs of the programs available. It was assumed that this could help them to go through the programs available in the comfort of their room without having to 'waste their time' in the computer laboratory. For that reason, a file which contains information about all the programs was distributed. The file also contained information about how to start the various
machines. Some exercises to go with the software were also attached.

Apart from the file, two workshops (at the two laboratories - BBC and PCs) were also arranged for the staff. The workshops concentrated on:

1. How to handle the machine. This includes how to start the machine and how to choose the programs.
2. How to use the software. The instructors were encouraged to try the software out. They were also taught how to create materials by using the authoring software.
3. Suggestions on how each of the software packages can be used for teaching were also given.

Interviews were held with the staff. The main question that was asked was their opinion of the ways of improving the use of computers at the Department. (See Appendix F for the semi-structured interview questions).

The teachers at the schools were given the guide-lines of which software to teach. They were given personal coaching on how to use the hardware, and on how to use the given piece of software for teaching their students; these were written based on the syllabus. Several texts were also distributed to the teachers to be keyed in into the authoring programs.
SOFTWARE. At the University, the academic staff was encouraged to use the language programs particularly the authoring software. This includes STORYBOARD, CLOZEMASTER and MATCHMASTER. This offered the teacher an excellent means of integrating computer-based activities into the scheme of work. At the same time, one of the word-processors namely WordStar 5.5 was also used in the teaching of writing skills.

At the school, teachers were first shown how to use STORYBOARD. The researcher also gave them some teaching suggestions on how the piece can be utilised. A few texts which were written by following the syllabus were entered into STORYBOARD by the researcher. After the teacher had used the software in class, the researcher gave them LONDON ADVENTURE to try. On her next visit, she supplied them with MATCHMASTER, GAPMASTER and TESTMASTER. They were shown how to use each of the software packages.

IMPLEMENTATION. The researcher encouraged the staff to use the software while offering to help in teaching the class if they were not confident in handling the class (team-teaching).

MONITOR. The case study approach was used in monitoring the innovation. This included classroom
observation, discussion with students and teachers, and interviews with members of the group concerned. The teachers were encouraged to keep in touch with the researcher particularly if they had any problems with the application of the software in class. Where possible the CALL lessons were video-recorded to be analysed at a later date. The tapes gave the researcher the opportunity to look at teacher behaviour in the classroom more closely. Some of the classes could not be taped for various reasons. These included difficulties in getting the technician to help with the recording at the given period. Apart from that some teachers did not inform the researcher of their intention to hold CALL classes prior to the class.

RECONNAISSANCE. At the end of phase one, the problems encountered were identified, and attempts were made to find the solutions to these problems. These findings were used to make improvements in the subsequent phases of the research. (See Chapter 5, section 5.2 for the findings made in Phase One).

4.5.2 PHASE TWO. December 1991 to February 1992

REVISION. Based on the study made in Phase One, the following hypotheses were drawn in Phase Two.

Hypotheses: The language instructors would be more motivated to use the lab if the following
were easily available:

i. The appropriate courseware for their course;

ii. Personal assistance from the researcher;

iii. Easier access to the technician;

iv. The time to (a). learn about computer usage
    (b). prepare the lesson.

v. Encouragement from the administrators

AMENDED PLAN. Out of the findings in Phase One further actions were planned. In this phase, based on the interviews, the researcher hypothesised that it was the lack of materials that made the staff lose interest in using computers as a teaching aid. Teaching materials that emphasised integration were then written for some of the courses.

TEACHER TRAINING. Personal assistance was offered instead of workshops to the instructors by the researcher. Apart from that teaching materials were also distributed to the staff in order to assist them in integrating CALL into the curriculum.

IMPLEMENTATION. At the University teaching materials for the Pre-Sessional Courses were distributed to the staff. At this stage, the degree students particularly
those in the Business Communication course were included because quite a number of the staff who were involved in this study were teaching this course. It was also thought that the staff might prefer to use computers with the more advanced classes. The technician was also within reach since his office had been moved into the BBC lab.

MONITOR. At the University, the staff was observed and whenever possible their CALL classes were taped.

The researcher visited the schools from time to time. The permission of the school principal was obtained every time such visits were made. A workshop was held for teachers of school A. Data collection was limited to discussion with teachers, video recording and brief observation because of the time constraints.

RECONNAISSANCE. The data collected in phase two was analysed at this stage. (See Chapter Five, section 5.3 for the results of the study made in Phase Two).

4.5.3 PHASE THREE. July 1992 to September 1992

REVISION. At this stage, the data reflected how many times the instructors actually made use of the computer lab. The following hypotheses were drawn based on the study done in the first two phases of the research:
i. The lack of any form of reward which could be in
time or monetary forms discouraged the teachers
from learning or using the innovation.

ii. There was lack of support and encouragement from
the administrators to adopt the innovation.

iii. The teachers' have a positive attitude towards the
computer but they lack the motivation to use it as
a teaching aid.

iv. The teachers have a high expectation of the
technology.

At the University the researcher's actions exerted
pressure on the staff to use the computer laboratory.
This caused some of the staff to act negatively by not
using the lab for teaching purposes.

At the school:

i. The research forced the teachers to use the
computers at the time when they were not ready for
the integration of computers into the curriculum.

ii. The administrators were not in favour of the
'interference' caused by the research.

AMENDED PLAN. Plans were amended based on the findings
in Phase Two. At this stage the researcher did not
intervene in the academic running of the Division.
This was to reduce pressure on the staff with regard to
computer usage. The study hoped to see how many actually used the device of their own free will.

Data collection at the schools was stopped because of the tension created at the schools by such research. The researcher felt that it should not be continued because it might only create further tension between the researcher and the staff of the school.

TEACHER TRAINING. The researcher did not impose herself on the staff to see whether her previous 'interventions' have any effect on the staff. The staff, however, was welcomed to discuss their CALL classes with her.

IMPLEMENTATION. Things were left to take on their own course.

MONITOR. The researcher observed the staff's day-to-day activities to see whether they did try to make use of the device. No interviews or recordings were done at this stage.

RECONNAISSANCE. The effects and difficulties in implementation were explained. For the analysis of this phase refer to Chapter Five, section 5.4.
4.5.4 PHASE FOUR. September 1993 to December 1993

The relation between teachers' attitudes, perceptions, expectations and level of anxiety with their background was not that obvious in the qualitative study. In order to find the relation a survey was conducted to see if any of the relations were significant or not. The survey was designed based on the findings made in the previous phases of the study. (See Chapter Six, section 6.1.1 for the discussion on the chosen dependent and independent variables)

4.5.4a PILOT STUDY

Ten teachers who taught language comprising six males and four females were the respondents in this pilot study. They consisted of teachers ranging from primary to tertiary who have taught language in Malaysia. They were in England either because they were pursuing their studies or accompanying their spouse here. They were asked to answer as well as give opinions regarding the content of the questionnaires.

Some of the scales were found to have a low internal reliability but they were included in the questionnaires because they were deemed to be important to the study. The small number of respondents might mean that the reliability test that was carried out was

7The survey was only carried out after the results of the qualitative study were analysed.
not reliable enough for the researcher to drop the questions. On the other hand a statement that looked obvious was deleted from the questionnaire. The statement which was dropped for this reason was:

Q42. Practical training in actual classroom situation is an essential part of teacher training in computer assisted teaching.

Questions which were ambiguous were also dropped from the questionnaire. These include the following statements:

Q43. Computer training for teachers is not a wise step because what is learnt is easily forgotten.
Q55. Existing commercial software can be used in language teaching.
Q59. Computers will improve language students' thinking capacity.
Q60. Teacher training in computer assisted teaching is best done in groups.

4.5.4b LARGE SCALE SURVEY

Over 800 postal questionnaires were sent out in October 1993 to English language teachers who were teaching in the schools selected for the 'Learning with Computers' project. Similar questionnaires were also sent to a

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8The questionnaires were not sent to the teachers in the state of Sabah because the letter from the state education department was received only in late November during the school holidays.
few Universities which are: International Islamic University, Science University of Malaysia and Northern University of Malaysia. The teachers of both the matriculation and the degree programmes were included. Questions to teachers examined their attitudes, expectations, perceptions of computers in teaching and level of anxiety with regard to computer usage. Their opinions regarding training and software were also sought in the questionnaires.

Figure 9: Number of institutions receiving questionnaires

<table>
<thead>
<tr>
<th>no.of institutions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td>3</td>
</tr>
<tr>
<td>Secondary Schools</td>
<td>55</td>
</tr>
<tr>
<td>Primary Schools</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
</tr>
</tbody>
</table>

The length and complexity of the questionnaire might have put some people off completing it. However, it was felt that a degree of detail has to be sought in order to gain as much information as possible. In order to encourage the respondents to fill-up the questionnaires, souvenirs in the form of key-rings and car stickers were distributed together with the questionnaires. Reply-paid envelopes were also provided. The response rate as we shall see later was 71.7% (section 6.1.2).
4.6 DISCUSSION OF RESULTS

The results of the qualitative and quantitative studies are discussed in relation to research questions in Chapter Five and Six. The findings are compared with related studies in this field in Chapter Seven.

4.7 CONCLUSION

The different methods used help to reflect the macro and micro perspectives of the data. The qualitative study gave insight into the problem. The longitudinal nature of the study means that the researcher could follow the development of CALL in Malaysia, and at the same time evaluate the reactions of English language teachers to the Computer-in-Education project. With the quantitative study the significance of certain issues could be statistically checked.
5.0 INTRODUCTION

At the beginning of this study, the focus was on the effects of computers on the students' attitudes and motivation in language learning. However, as this research delved into the subject matter, it became clear that the importance of the teacher had been underestimated. Indeed the role of the teacher revealed itself to be of paramount importance. It seemed that the teacher variable is central to determining the success of a CALL class and the nature of the interaction in the CALL classroom. It is partly the teacher's readiness and ability to manipulate the device that decides whether it has a negative or positive impact on students' process of learning. In view of the change in focus, in the course of data collection the researcher felt the need to modify her initial thoughts about the general objectives of the research. The research becomes focused on the teachers rather than the students.
5.1 GENERAL RESEARCH PLAN

In this study, Elliot's (1981:5) improvement of Lewin's (1946) model of Action Research was used as a guideline in carrying out the research. (See Chapter Four, section 4.4.2 for the discussion on Action research and for Elliot's Model of Action Research.) The steps taken by the researcher at both IIU and the schools will be discussed in tandem, that is, the actions taken will be presented under the same 'step'. The researcher saw the need to do this in this way in order to facilitate comparisons between the institutions.

The researcher intended to give as much exposure to CALL as possible to the teachers. She planned to conduct workshops and to give personal assistance to them. The aim was to promote the use of computers in the teaching of English.

5.2 PHASE ONE - July 1991 to Sept. 1991
5.2.1 RECONNAISSANCE- Fact Finding and Analysis
5.2.1a INNOVATION INITIATOR

The question of who initiated the innovation might have to be considered in analysing the data as this might have an influence on the direction of the study. In the case of the International Islamic University, it was first initiated by the relevant authority. The purchase of the computers specifically for language teaching purposes
reflects the administrators' interest in the innovation.

At the schools the innovation, which was the teaching of English by using the computers, was introduced by the researcher with the permission of the Malaysian Ministry of Education and the relevant State Education Departments. Except for School C, the teachers and students were asked by their respective principal to cooperate in the study without their being consulted first.

5.2.1b RESULTS OF PRELIMINARY CONTACT WITH IIU STAFF

In the staff meeting held on 31st July 1991, the Head of Division mentioned that certain members of the staff were criticised by the students because they did not use any audio-visual materials in their teaching. (Student evaluation is part of the University program). CALL might be one of the answers to the students' desires if not their needs, that is, provided the instructors know how to conduct the class effectively.

Staff of IIU were interviewed to get i) their opinion of CALL, ii) their views of the problems of CALL implementation at the university and iii) how they think CALL can be improved there. About 70% of the main campus staff\(^1\), that is, 19 out of 27 were interviewed\(^2\). They

\(^1\)See Appendix G for the sample of interview transcriptions.
\(^2\)The number of staff varies from time to time as some go on study leave and others come back. At the same time new recruitment is also made.
were selected on a random basis. The answers given were based on free-responses and not on checklists.

Generally, the staff had a fair idea of what CALL was about. The idea of CALL was not unknown to the majority of them, especially those who have been there since CALL was introduced to the institution. Five of the staff interviewed did a course on a computer related subject when they were doing their Master's degree. Three of them claimed that they obtained a very good result in this subject. However, the majority of them did not use the facilities frequently. They mentioned that they had used different equipment to that available at IIU and they have difficulties in adjusting themselves to the different type of computers. One of those who did well in CALL at Masters level (M11) admitted that he did not have the confidence to handle his own CALL classes. It seemed that the course did not help to give him the confidence to teach in a classroom situation.

CONFIDENCE

About 60% of the instructors interviewed mentioned their feeling of insecurity when it comes to having lessons in the computer lab. Their role as the sole authoritative figure was affected. They have to cope with the

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3See Chapter Two, table 2.5 for the information on the background of the staff interviewed.
psychological problem of feeling left-out and subordinated in their own class! With the additional source of information, that is, the computer, students’ attention might be diverted from the teacher. Class management becomes more difficult. Coping with students’ demands is another aspect that the teachers have to handle in their CALL classes.

Some of the staff still hold the idea that the teacher is the giver-of-answer (F2, M4, F4, M11, M7). A few feared the possibility of becoming unwanted. The fact that they were not in total control might have caused them to lose their confidence.

**TECHNICAL PROBLEMS**

Technical problems were among the major obstacles to their ‘desire’ to try out the device. The interviewees claimed that the situation might be different if technicians were easily available. They experienced difficulties in getting help from the technicians whenever their services were needed.

**TIME FACTOR**

Apart from feelings of insecurity and also the lack of technical support, several other reasons were given for the non-usage of the device. Time seemed to be one of the major stumbling blocks in its implementation. At the
University, basically each of the staff has to teach 20 hours per week. Their hours will be reduced if they hold any responsibilities in the Division. The instructors, however, felt that the demand made on them was too great. Apart from teaching they were also expected to keep up with the latest developments in language teaching, and to carry out research in this area! When new courses were introduced or new teaching approaches were adopted, the teachers were usually thrown in at the deep end. They felt they were expected to put them into practice without preparing them in advance, that is, no inservice training was given prior to the adoption of a particular approach.

**MATERIALS DEVELOPMENT**

As the instructors were pressed for time, they found difficulties in coming up with materials to go with the already available software. The network manager was made responsible for producing teaching materials for each of the courses. However, such materials were not yet available at the beginning of the study.

**SOFTWARE AVAILABLE**

Two of the staff expressed their desire to create their own software to suit the needs of the students (M4, M6). However, they did not have the knowledge of programming to do so. Four of the interviewees, who were more familiar with what is available than most of the others,
claimed that the number of packages that they had was quite limited (F1, F3, F5, M6). They called for the acquisition of more programs. One of them commented that:

"...with the old programs that we have I wouldn't want to bring them next semester to the lab."

(F1)

Some of the comments regarding the available software are tabulated in Table 5.2a below:

<table>
<thead>
<tr>
<th>Comments</th>
<th>Made by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not familiar with available software.</td>
<td>M2, F1, F2</td>
</tr>
<tr>
<td>2. Need better program.</td>
<td>M6</td>
</tr>
<tr>
<td>3. Find program that makes students discuss certain problems.</td>
<td>F3</td>
</tr>
<tr>
<td>4. Get more software to cater for students' needs.</td>
<td>F1, F5, M6</td>
</tr>
<tr>
<td>5. Need an active link between the programs and the course.</td>
<td>M11</td>
</tr>
<tr>
<td>6. Find a foolproof program so that students can't cheat.</td>
<td>F3</td>
</tr>
<tr>
<td>7. The network manager has to store the exercises.</td>
<td>F3</td>
</tr>
<tr>
<td>8. Provide spell-checker and thesaurus to teach writing skills.</td>
<td>F1, M8</td>
</tr>
<tr>
<td>9. Do not know what is available.</td>
<td>M1, M2, M8, F7</td>
</tr>
</tbody>
</table>

Based on the comments it seemed that some of the staff were not satisfied with the programs that they have at the University. The question that arose from these comments was whether they had exhausted all the software packages for teaching, and whether there was a serious attempt on their part to relate the available programs to the syllabus.
Apart from the software, the physical setting was also unattractive to the instructors. Almost all of them argued that the size of the BBC lab was too small and not conducive to language learning. Among the words used by the instructors to describe the room were:

claustraphobic, confined, too small, too close, uncomfortable, unhealthy, radiation, cramped, not conducive, too congested

The absence of a discussion table made it difficult for teachers to get the class's attention when they were teaching or discussing with the class. In short, class management was made difficult by the physical set-up of the lab.

On the question of training, one of the lecturers (F7) reckoned that,

"You will still face problems even if you have, you undergo the courses right?"

and M1 mentioned that,

"You forgot, in the computer lab. With computers, whatever you learnt can easily be forgotten."

Such a thought might discourage them from attending the relevant courses and conducting CALL lessons. However, when asked about the steps that could be taken to improve the situation, training was high on their list of
priorities. Some of the suggestions given are tabulated below:

<table>
<thead>
<tr>
<th>NO.</th>
<th>SUGGESTIONS</th>
<th>COMMENTS GIVEN BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Make it compulsory for staff to attend CALL courses.</td>
<td>M1, M2, F3</td>
</tr>
<tr>
<td>2.</td>
<td>Training must be given to staff.</td>
<td>M3, F4</td>
</tr>
<tr>
<td>3.</td>
<td>Training should be conducted during the holidays- for a week.</td>
<td>M3</td>
</tr>
<tr>
<td>4.</td>
<td>Have an ongoing course on CALL.</td>
<td>F3, M4, F5, F6, F7, M7, M6</td>
</tr>
<tr>
<td>5.</td>
<td>The workshop must have some elements from the coursebook.</td>
<td>F3, F5</td>
</tr>
<tr>
<td>6.</td>
<td>Personal attention is needed.</td>
<td>M12, M6</td>
</tr>
<tr>
<td>7.</td>
<td>Conduct workshops for staff only- no outsiders.</td>
<td>M1, M2</td>
</tr>
<tr>
<td>8.</td>
<td>Start with basic about computers.</td>
<td>M2</td>
</tr>
<tr>
<td>9.</td>
<td>Each of the lecturers has to take the initiative to try out the programs.</td>
<td>M10</td>
</tr>
<tr>
<td>10.</td>
<td>Train the first year students to operate the machines.</td>
<td>M3</td>
</tr>
<tr>
<td>11.</td>
<td>Keep lecturers informed of current development.</td>
<td>F1, F5, M6</td>
</tr>
<tr>
<td>12.</td>
<td>Provide guidance to the lecturers to make them more motivated.</td>
<td>F2</td>
</tr>
<tr>
<td>14.</td>
<td>Brief staff on newly installed program (courses unnecessary).</td>
<td>F1</td>
</tr>
<tr>
<td>15.</td>
<td>Course on word-processing for members of staff.</td>
<td>F7</td>
</tr>
<tr>
<td>16.</td>
<td>Learn how to teach writing skills.</td>
<td>F3, M4</td>
</tr>
</tbody>
</table>

From the suggestions, it seemed that one of the best ways of solving the problems is by providing in-house training for the staff. The training should not only be geared towards technical aspects of CALL but also its approach particularly on issues concerning curriculum integration. Two of them pointed out teachers' need for personal attention in this matter. It is interesting to note that seven of the instructors asked for on-going training to be given to the staff. This reflects their desire to keep abreast with the latest development in CALL.
The network manager was interviewed about the staff's reactions to CALL. According to him they could see the advantages of using computers in language learning, but their main problem was not knowing how to exploit the machine for that purpose. He also noticed that not all of the staff were enthusiastic about using computers to teach English. He called for a more structured organisation of the Division in order for teaching to be more systematic, and for less to be left to the decisions of the instructors. He also mentioned that he had offered help to the staff. However, not many people took any notice or were aware of the help available as expressed by M6,

"There is no one available to really teach the lecturers on how to use the computers."

Based on the instructors' comments it seemed that although there were problems with its implementation nobody denied that CALL has its advantages. All of them appeared to have a positive attitude towards the use of the device in the classroom. In the interview, although some of them have not used the computers for teaching they expressed the desire to use them provided that their needs were met (which include more courseware, more user-friendly hardware, a bigger lab and reduced teaching hours!).
TEACHER'S PERCEPTIONS OF STUDENTS' REACTIONS TO CALL

Where relevant, the instructors were also asked about their students' reactions to their CALL classes to see whether they perceived the usage of computers as beneficial to their students or not. There was a mixed feeling among the instructors about their students' reactions to CALL. According to them the students reacted to the use of computers in different ways. There were students who wanted to try the software on their own. Some of them refused to leave the lab, at least not until they finished the given assignment. However, there were students who got frustrated with the exercise and left the room half-way through the 'game'. Some instructors also noticed that some students tended to use their mother-tongue when they were together with their compatriots. They forgot about the target language that they were supposed to use especially when they got excited. This reflects that teachers still play an important role in language learning in that their presence is essential in disciplining the students, in this case in reminding them of the need to use the target language.

From the instructors' point of view the computer could help motivate students to learn the language. However, this did not mean that the students would be happy to be fed with any courseware at all. As stated by F1, they
preferred to have CALL classes for a good reason, and not just for having fun. This reflects the need for the teachers to be selective in their choice of courseware.

Some of the instructors stated that the device helped them to cope with the 'troublemakers' in the class. Apart from that the instructors also mentioned that the computers helped the students to learn in a number of ways: the students were not embarrassed in making mistakes, they were more ready to take the risks, they had more courage to pose questions to their teacher, they could get individual attention, they were more competitive, and they became more lively, active and motivated. When asked about their definition of motivation, all the instructors mentioned amongst other things the students' readiness to do extra work in order to improve their language skills. In CALL classes, this type of student was more ready to look up other sources such as notes and dictionary in arriving at the answers to the questions on the screen.

A number of instructors also observed some differences between the male and the female students' reactions towards CALL. According to them, the boys seemed to prefer individual work more than the girls did. The girls tended to rely on the teachers more, whereas the boys were more independent, and were able to cope with the technical problems better than the girls. The boys
were more mischievous in the sense that they would try out other things whenever they got the chance whereas the girls adhered to the given instructions.

A few of the instructors noticed a certain trend among the weaker and the better students. They said that in the CALL lab the weaker students were more dependent on the teachers than the better ones. The teachers also found that they were slower in handling the machine than the better students.

5.2.1c RESULTS OF PRELIMINARY CONTACT WITH SCHOOL TEACHERS

Since the researcher was working at IIU, the permission to carry out research there was granted to her. However, to do research at schools she had to gain the permission of the Ministry of Education prior to going to the selected schools. Such permission, however, did not guarantee that similar permission would be obtained from the four schools concerned. In order to ‘gain entry’ the researcher went to the principals personally during the school holidays. While she was there, she also asked to be shown the computer facilities at the schools. Some of the problems concerning computer acquisition were revealed in the initial visits. The researcher also found out that the device had never been used for teaching languages in those schools before.
Based on her visits, the researcher’s first impression of those schools was that school A provided a better atmosphere for learning and teaching to take place compared to the other three schools in terms of setting and facilities. Some of the teachers seemed to be more positive than others in their attitudes towards the implementation of CALL.

None of the teachers at the schools concerned were familiar with the term CALL. As such they could not give their definitions of the term. An informal discussion with the teachers at the four schools revealed that the idea was new to them. They had never been exposed to the use of such a medium in language teaching. Most expressed their anxiety in their involvement in this research because they did not know the ABC of computing. This is significant as it is one of the basic problems in CALL implementation in Malaysian schools. Since the idea was still new to the teachers in the study, they could not envisage the long-term problems that they might have with regard to its usage in teaching.

5.2.1d **STAFF BACKGROUND - STUDENTS THEY TAUGHT**

The Attitude and Motivation Test Battery which was adapted from Gardner (1985) was distributed to the better students of the selected schools and some of the pre-sessional groups of IIU to see whether there were any
significant differences among the students that the teachers in the study taught in terms of their attitude and motivation towards English language learning.

**INTERNAL RELIABILITY**

The internal consistency of the variables within the Attitude and Motivation Test Battery was determined by using Cronbach Alpha. The reliability of each scale in the test ranges from 0.57 to 0.85 (table 5.2c).

<table>
<thead>
<tr>
<th>Scale</th>
<th>No.of Items</th>
<th>Mean</th>
<th>S.D.</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in foreign lang.</td>
<td>10</td>
<td>59.78</td>
<td>7.81</td>
<td>0.76</td>
</tr>
<tr>
<td>Attitudes toward English people</td>
<td>10</td>
<td>41.74</td>
<td>11.00</td>
<td>0.85</td>
</tr>
<tr>
<td>Attitudes toward learning English</td>
<td>10</td>
<td>59.28</td>
<td>8.98</td>
<td>0.83</td>
</tr>
<tr>
<td>Integrative Orientation</td>
<td>4</td>
<td>24.46</td>
<td>3.95</td>
<td>0.80</td>
</tr>
<tr>
<td>Instrumental Orientation</td>
<td>4</td>
<td>23.65</td>
<td>4.76</td>
<td>0.75</td>
</tr>
<tr>
<td>English class anxiety</td>
<td>5</td>
<td>19.03</td>
<td>6.62</td>
<td>0.76</td>
</tr>
<tr>
<td>Motivational intensity</td>
<td>10</td>
<td>17.80</td>
<td>4.83</td>
<td>0.63</td>
</tr>
<tr>
<td>Desire to learn English</td>
<td>10</td>
<td>15.64</td>
<td>4.30</td>
<td>0.57</td>
</tr>
</tbody>
</table>

**STUDENT DIFFERENCES**

ANOVA or analysis of variance was used to find whether there were any differences among the students of the different learning institutions in term of their attitude and motivation towards language learning. ANOVA is used to test the hypothesis that several population means are equal (Norusis/SPSS Inc., 1990:B25). The results are tabulated in table 5.2d to 5.2k below.

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5The sub-scales have been prespecified by Gardner (1985). See Appendix E for Gardner's Attitude and Motivation Test Battery for the students.
### Table 5.2d: ANOVA: Students' Interest in Foreign Language

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Mean</th>
<th>F</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>322.51</td>
<td>80.63</td>
<td></td>
<td>1.33</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>17372.85</td>
<td>60.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>17695.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.2e: ANOVA: Students' Attitudes Towards English People

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Mean</th>
<th>F</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>4922.99</td>
<td>1230.75</td>
<td></td>
<td>11.67</td>
<td>.0000</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>30171.64</td>
<td>105.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>35094.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.2f: ANOVA: Students' Attitudes Towards Learning English

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Mean</th>
<th>F</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>887.53</td>
<td>221.88</td>
<td></td>
<td>2.82</td>
<td>.0255</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>22506.92</td>
<td>78.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>23394.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.2g: ANOVA: Students' Integrative Orientation

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Mean</th>
<th>F</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>28.70</td>
<td>7.17</td>
<td></td>
<td>.47</td>
<td>.7674</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>4491.52</td>
<td>15.71</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>4520.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.2h: ANOVA: Students' Instrumental Orientation

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>Mean</th>
<th>F</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>1057.21</td>
<td>264.30</td>
<td></td>
<td>13.69</td>
<td>.0000</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>5523.03</td>
<td>19.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>6580.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5.2i: ANOVA: English Class Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>318.89</td>
<td>79.72</td>
<td>1.84</td>
<td>.1216</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>12405.83</td>
<td>43.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>12724.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2j: ANOVA: Motivational Intensity

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>997.03</td>
<td>249.26</td>
<td>12.36</td>
<td>.0000</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>286</td>
<td>5768.01</td>
<td>20.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>290</td>
<td>6765.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2k: ANOVA: Desire to Learn English

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>9.06</td>
<td>2.27</td>
<td>1.33</td>
<td>.2589</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>199</td>
<td>338.17</td>
<td>1.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>203</td>
<td>347.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The survey revealed that three of the scales of the attitude and motivation test battery have a strong relation with the place where the students were studying at (table 5.2e, 5.2h and table 5.2j, p<0.01). When the differences were further analysed it was found that students of certain institutions were significantly different from other students in the study in some of the given scales (table 5.2l, 5.2m and 5.2n).

Table 5.2l below shows that there was no significant difference between students of school C and D where attitudes towards the English people were concerned. IIU students were the most positive and they were
significantly different from students of school C, D and A. Students of school B were significantly different from students of school C and D where their attitudes were more positive than the other two. The difference in the attitudes could be attributed to the kind of exposure that the students have to the other races. The IIU students were more exposed because there were a number of English staff and students at the University. Apart from that the University consists of students and staff from many other different races and countries. At school B there was a good mixture of all races (Malay, Indian and Chinese) studying at the school. Hence the students might be more open towards other races as they formed part of the school society. Added to that most of the students came from the town. Similarly most of the students of school A came from towns in the state of Selangor. Although they were predominantly Malays their attitudes towards other races particularly the English in this case might be more positive because of their wider circle of socialisation. The more negative attitude towards the English people which was shown by the students of schools C and D might be attributed to their lack of exposure to the other races compared to the other students in the study. Most of them came from villages within the district where the inhabitants were predominantly Malays.
Table 5.21: Students' Attitudes Towards English People

<table>
<thead>
<tr>
<th>Mean</th>
<th>Group</th>
<th>Sch.C</th>
<th>Sch.D</th>
<th>Sch.A</th>
<th>Sch.B</th>
<th>IIU</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.46</td>
<td>School C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.68</td>
<td>School D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.32</td>
<td>School A</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.36</td>
<td>School B</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.91</td>
<td>IIU</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

When their instrumental orientation was analysed (table 5.2m) IIU students were shown to be significantly different from the school students in what they thought the language could do to them. Compared to the school students their 'degree of hope' was much lower than that of them. Since they were already in the tertiary level of education they might be aware that English alone was not enough to make them a better educated person, and that knowing the language alone was not enough to secure them a good job. They might be more aware of the possible demands of their future employer. No significant difference was observed among the school students. This might mean that they shared the same perception concerning how useful their knowledge of English would be when they eventually applied for a job. Table 5.2m reflects that they were more positive in their instrumental orientation than the IIU students.

Table 5.2m: Students' Instrumental Orientation

<table>
<thead>
<tr>
<th>Mean</th>
<th>Group</th>
<th>IIU</th>
<th>Sch.D</th>
<th>Sch.B</th>
<th>Sch.A</th>
<th>Sch.C</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.51</td>
<td>IIU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.62</td>
<td>School D</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.19</td>
<td>School B</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.66</td>
<td>School A</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.76</td>
<td>School C</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
Table 5.2n reflects that students of schools B, A and C were significantly better motivated than students of school D and IIU. School D students' low motivational intensity could be attributed to the lack of highly qualified teachers in English language teaching at the schools (compared to the other three schools in the study). Added to that, the fact that the school was under the administration of the State Religious Department might mean that the emphasis was more on other subjects rather than English. The students themselves might be more inclined to learn the other subjects because it was not compulsory for them to pass English in the national level examination. Students of school D were not significantly different from IIU students.

Table 5.2n: **Motivational Intensity**

<table>
<thead>
<tr>
<th>Mean</th>
<th>Group</th>
<th>Sch.D</th>
<th>IIU</th>
<th>Sch.C</th>
<th>Sch.A</th>
<th>Sch.B</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.97</td>
<td>School D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.20</td>
<td>IIU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.83</td>
<td>School C</td>
<td></td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>19.68</td>
<td>School A</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.58</td>
<td>School B</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the survey, it seemed that the difference among the institutions in their students' attitudes and motivation in learning the language was not really striking. The schools showed more similarities to each other except for their attitudes towards the English and their motivational intensity in learning the language. This means that the challenges facing the teachers were not
very different from one situation to another. In all the institutions a similar approach could be taken to improve the students’ proficiency in the language.

5.2.2 ACTION STEP ONE

5.2.2a IIU

At IIU access to the Economic Faculty’s computer lab was arranged for those staff who preferred a bigger lab and more varieties of software.

5.2.2b SCHOOLS

At the schools the teachers were first shown some of the available programs. Since the majority of them were not familiar with the hardware as well as the software attempts were made to help them learn to use the machine in the easiest way possible. The stand-alones at their own school were used for this purpose. They were given private coaching by the researcher on how:

i. to start the machine

ii. to install the program

iii. to use the software for teaching

The technical aspects of computing and computer jargons such as 'log on' were avoided as much as possible.

The time to take the teachers to the lab depended on when all of those concerned were free from teaching. The time spent in the lab varied depending on the teachers'
interest in the subject. At school A each session lasted
for about one period which was forty minutes. At school
B, since only one teacher was involved it only took a few
minutes since the teacher preferred to look at the
program himself. At school C, the teacher who was most
resistant to the technology (TC16) was at the keyboard
whilst the other two watched. The more proficient of the
two (TC3-the youngest in the group) helped her with the
equipment in that he pointed out which button to press
when she was lost. The other observer gave the
advantages of using the program (which was STORYBOARD) to
language learning. A step by step approach was taken,
that is, it went from switching on to how to use the
program for teaching. However, this did not last long
enough since the one at the keyboard found the machine
too complicated. That was the first and last workshop
held at that school.

5.2.3 ACTION STEP TWO

5.2.3a IU

Foreseeing the difficulties of getting the members of
staff to come to the lab, files which consist of the
details of materials available in the laboratories were
distributed to the staff. Apart from information on
software packages, the commands to start both the BBC
ECONET and PC networks were also given. Also attached

\footnote{See tables 2.1 - 2.4 for the background of teachers at schools A, B, C and D.}
was a list of books on CALL that were available at the University library. However, at the time the interviews took place only two lecturers, F1 and F5, had actually looked at the file contents.

5.2.3b SCHOOLS

TC1 of school C insisted that there was no time to use the computer and that its usage was not related to the syllabus. Her comments prompted the researcher to write materials based on the syllabus for the teachers. Some of the materials were keyed-in into the programs. For example, texts were created by using STORYBOARD. They were then distributed to all the teachers in the study. The choice to use those programs was left entirely to the teachers.

5.2.4 ACTION STEP THREE

5.2.4a IIU

A demonstration and two workshops were held during the duration of the research. In addition personal help was also offered to the staff by the researcher. Attendance was made compulsory by the Head of the Division for the two workshops. Both workshops were held on a Saturday to enable the staff to attend them because usually no official duties were carried out on that day. Apart from that the researcher also helped in conducting some of the classes particularly when they were held at the PC lab
because most of the instructors were not familiar with the commands on how to start the network.

5.2.4b SCHOOLS

The researcher made frequent visits to the schools. She helped the teachers of school A and B in conducting their CALL classes. She tried to help school D by taking along the University's technician to the school. However, in the opinion of the technician the machines needed to be replaced because of their poor condition. At school C research had to be stopped because of the teachers' reluctance to co-operate in the study.

5.2.5 RECONNAISSANCE- Possible explanations of any failure to implement, and effects

5.2.5a IIU

At IIU most of the staff opted for not using the computers although the Head of the Division advised them to do so. Those who did use the computers tended to rely solely on the software. Few attempts were made to integrate the programs into the curriculum. The relatively heavy teaching load7 that the instructors had meant that they did not have the much needed time to explore the possibilities of linking the available software with the courses that they were teaching.

7Each of the instructors was expected to teach for about 20 hours per week if he/she did not have any other responsibilities.
The use of the PC lab did not really help in encouraging the staff to employ the computers for teaching English. They found the UNIX Operating System confusing. Among other problems that they faced in this lab were:

(a). The network was too complicated;
(b). Setting up was time-consuming;
(c). There was no sense of belonging;
(d). Prior arrangement had to be made with the technician if they wanted to use the lab for teaching.

M9 and M10 suggested getting a system that is easier to handle. This could be one of the best ways of solving the problem. Since the staff have problems in coping with technicalities, getting computers that are more user-friendly might help in overcoming the problem. But this alternative has its financial implication. If this gets through at all, it might mean that a trail of white elephants would be left behind (after the ATARI lab, and if not checked the BBC ECONET might receive the same fate).

When the first workshop was held only about 15% of the main campus staff turned up for the demonstration because the others said they had to attend to other duties. The lab was full but not with the people who suggested it in the first place8. Most gave the excuse that they had been postponing too many of their classes because of the

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8Most of those who attended were the staff of the Matriculation Centre. They had been instructed by the Head of the Division to prepare themselves for the proposed computer lab at the Centre.
previous workshops (on other subjects). But when one of them was asked about the effectiveness of such undertakings he (M1) replied,

"Like what you did the other day, eh was very good. Get people together. Teach them, you know."

He added,

"Make it compulsory because people are avoiding it. They are avoiding because of the personal fears. They imagine the machine to be more than it really is."

What was said above might reflect the instructor’s positive attitude towards the use of such an educational aid, and his awareness of computer phobia problems among his colleagues. Unfortunately the same person has never attempted to attend any of the workshops held, nor consulted anybody in the department about the use of the device. Added to that, in the duration of the study he never took his students into any of the computer labs. This shows that some of the staff have an apparently positive attitude but lack the motivation to conduct CALL classes.

The Head of the Division ordered another workshop to be held especially for those who could not attend the first one. It was held at the time when nobody was having any classes. This time the attendance was much poorer than the first workshop! One of the more motivated lecturers remarked that some of them found out that the Head was not going to be there so they decided not to attend
either! This could be the same problem that the network manager experienced: namely instructors' lack of drive and motivation. Their lack of willingness to participate in the activities organised by the Division was not limited to CALL. In fact this issue was mentioned in one of the staff meetings which was held on 31st July 1991: the difficulties in getting the staff to attend any workshops or talks arranged by the Division and the University.

The entire blame cannot be placed on the instructors as some of the problems had root in the realities of day-to-day life. One of the obvious ones was the instructors' teaching load. The staff considered the allocated number of hours and their other duties as heavy and this might have discouraged them from becoming more innovative where information technology was concerned. Apart from that the power to purchase new equipment lies in the hand of the administrators. The number of software packages for the ECONET has not increased since its installation although suggestions had already been made for more programs to be acquired.

5.2.5b SCHOOLS

The schools faced a tight constraint on their budget. Therefore, they did not have enough means to provide a spacious and well-equipped computer lab for their
students. Without the financial support from the Ministry of Education it might take them quite awhile before they could provide such facilities for their students. This lack of facilities is one of the major constraints in the implementation of CALL at the schools. The teachers have difficulties in arranging classes in the computer labs because of the limited number of machines and the size of the labs. Added to that, the labs were set-up and funded by the members of the Computer Clubs. In fact this was one of the reasons why this study has to be terminated at School D where machines which were bought by the members of the Computer Club could not be maintained by the school.

The financial constraint also meant that the schools could hardly afford to add to their collection of software. Unless it is provided by the Ministry or copied from some other sources, it is quite unlikely that they could have access to the wide range of programs now available on the market.

The relatively short school hours also posed a problem to the use of CALL. At the schools, the morning session usually starts at 7.30 a.m. and finishes at 12.30 p.m. In the afternoon the students and teachers were expected to participate in the school's extra-curricular activities such as organised games and social activities for the students. This in itself put a constraint on
both the teachers and students to work within a limited period. Apart from that the teachers also claimed that the demand made on them by the New Integrated Curriculum left them with little space to explore other areas of teaching.

There were mixed feelings towards the introduction of CALL at the schools. At school C the steps taken by the researcher were not effective enough in 'converting' the teachers to become CALL practitioners. None of them tried the courseware on their students. Instead, they managed to persuade the school Principal to end the study at the school. This was relayed to the researcher by the Principal in a telephone conversation with her. The Principal asked for the research to be ended in an apologetic manner. He gave the following reasons why the study should be discontinued there:

i. The teachers found it difficult to adapt.
ii. The skills outlined in the syllabus were not covered.
iii. The syllabus was not being adhered to.
iv. The end-product was questionable, that is, what the school could gain from such research was not clear.
v. It would be unfair to members of the computer club if other students were let in.
vi. Only six of the computers were working properly.
vii. It might clash with Computer Literacy classes.
As the Principal was only conveying the message from the teachers his points were not questioned. It appears that the main problem was the teachers' reluctance to use the machine. Two of the teachers (TC1 and TC2) had never touched a computer before. They did not seem to have the confidence in the new methodology. This negative feeling was expressed even before they tried out the device. One of them (TC1) insisted that nothing much could be done to improve the situation because the students' level of proficiency was too low to begin with. Although materials were created for them based on the syllabus the teachers chose to ignore them and did not mention the availability of these materials to the principal of the school.

Teachers' reactions in the other three schools were different from those of School C. In School B where teachers were equally hard-pressed, and the facilities were not as good as those of school C, the teacher involved was more co-operative. This might be due to the fact that he was already a user when the innovation was introduced: he used Apple for word-processing. He welcomed the idea of providing a different learning environment for his students. The teacher believed that there was more than one way of teaching the language. His first reaction was that he felt a bit left out, and not up-to-date with progress in language teaching. He also commented that students might like CALL because of
its similarities with video games. To him the use of computers was one of the ways of channelling that kind of interest for academic purposes.

The limited amount of hardware, and the fact that it was not in good order made it quite impossible to hold any CALL lessons at all at the school. But the teacher himself was determined to try and he arranged with the staff of the general office to let his students use the computer that they have there. So, instead of having the first class in the lab or the classroom, it was held in the general office instead. Since there were about 50 students in the class, the teacher divided them into males and females, and asked them to have a go at it group by group. The subsequent classes were better arranged in that the office computer was taken to the staff meeting room where CALL classes were conducted.

The group of teachers in the other two schools (A and D) seemed to be more enlightened because of the smaller number of students that they had, and also the fact that they only accept specially selected students to the school (based on their academic achievement at the Primary School Assessment Examination). Although the teachers were enthusiastic, no further research could be carried out at School D because of the absence of properly working computers. One of the English teachers showed a keen interest in the innovation. He was very
much into improving the lab, which had been put under his care. However, without the financial backing he could not do much to improve the situation of the lab.

At school A, when the idea of using computers in language teaching was first mentioned to them, the immediate reaction from the teachers was their concern over their lack of knowledge about computers. In the interviews two of the teachers (TA1 and TA2) who tried the device for teaching admitted that they felt de-skilled when they first used the computers in teaching language. One of them (TA2) was actually quite conversant in the use of computers, particularly word processing. TA3 said that the presence of the computers did not concern her although she did not know much about computing.

Based on the interviews with the students and teachers of school A, except for one (TA2), it was found that no classes were conducted during the researcher's absence. The one who held a CALL class on her own managed to do so with the help of her colleagues. The reason for not using the computers was mainly because of the difficulty in arranging a suitable time slot for such classes. According to the teachers the process of checking with other teachers who were possibly going to have their class there was quite time-consuming. This disheartened the teachers. Apart from that they were also busy
preparing the students for the coming national level examinations (Lower Certificate of Education and Malaysian Certificate of Education).

On the question of training, TA1 and TA2 expressed their wish that regular training courses be built into the programme. However, TA2 asserted that she could not find a suitable time for attending training sessions because of her tight schedule. TA3 did not see the relevance of training. Instead she would rather be given instructions than courses.

TB1 was not really keen on the idea of inservice training. Although he seemed to have a positive attitude towards the innovation he did not really favour training for himself. This could be due to the fact that he was retiring in the coming year. In the study, he preferred the researcher to conduct the classes herself. In the course of the research, team-teaching took place between the researcher and the teacher. However, the researcher managed to leave the control of class in the hands of the teacher without the teacher realising it.

In the CALL classes although the researcher left the decision to choose the texts in a particular software package to the teachers none of them seemed to take the trouble to check their suitability for those particular classes. Instead they left it to the class to take their
own course. The students chose the exercise on their own (where there were options). This means that they might not have chosen the one that might be most appropriate for them. It seemed that in the CALL classes under study, teachers did not really exert their role as the 'manager' of learning.

5.2.6 STUDENTS' REACTIONS TO CALL CLASSES

5.2.6a IU

Twenty-three students from five different classes were interviewed while they were doing the task assigned to them to get their views of computer usage in the classroom. Three of the groups were doing simulation programs when they were interviewed while the other two had only experienced using the traditional CALL programs.

Except for one, all of the students interviewed found English classes which were held with the aid of computers more interesting than the traditional approach. The only one who objected to it did not like the idea of using computers at all, no matter what the subject matter.

Based on the interview, it was also found that most of the students preferred their instructor to be around when they faced either technical or academic difficulties. It was also found that students who did the simulation

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9 The interviews were not based on checklist. Hence percentage of answers are not regarded as significant as not all of the students were asked the same thing.
program needed the instructor more for academic reasons than the other students. In the Business Technical Writing class, the assignment given was based on what they had learnt in class. The computers were used integratively in this case. This means that the students have to know the subject-matter before they can do the assignment. The use of computers would not be a sheer game in this case. The following table gives an indication of students' reactions to the simulation:

<table>
<thead>
<tr>
<th>Students' Reactions</th>
<th>Comments Given By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information finding is less time-consuming and more practical with computers.</td>
<td>FE2</td>
</tr>
<tr>
<td>2. Makes the lesson more realistic.</td>
<td>ME2</td>
</tr>
<tr>
<td>3. Learn business terms.</td>
<td>ME2</td>
</tr>
<tr>
<td>4. By doing the simulation on the computer, you know what to write.</td>
<td>FE1</td>
</tr>
<tr>
<td>5. Fast feedback.</td>
<td>FE2</td>
</tr>
<tr>
<td>6. Teaching the subject and doing the assignments with the help of the computers is a more effective and interesting way of learning.</td>
<td>MA1, MD2, FD4</td>
</tr>
<tr>
<td>7. Better to know what one is learning, the objective and idea.</td>
<td>MD2</td>
</tr>
<tr>
<td>8. Fast Food tests one's knowledge of Business.</td>
<td>FD4</td>
</tr>
<tr>
<td>9. Prefer to do assignments without using the computer.</td>
<td>MD4, MD3</td>
</tr>
<tr>
<td>10. Did not understand what was going on.</td>
<td>MD3</td>
</tr>
</tbody>
</table>

Except for MD3 and MD4, the students found the use of computers stimulating. Based on the researcher's observation, the two who did not enjoy the task seemed to

---

10 M stands for Male  
F " Female  
A represents LE 3013 - Advanced English I  
B " LE 1000 - Pre-Sessional Level I  
C " LE 2000 - Pre-Sessional Level II  
D " LE 3050 - Business Technical Writing (Group 7)  
E " LE 3050 - Business Technical Writing (Group 6)
be lost in the class. One of them confessed that he did not really know what was expected of him. This might indicate that the clarity of teacher's instructions and also of the instructions on the screen is important in determining the success of a class.

The students were also asked whether they preferred to do the given assignment individually or in a group. It was found that students from the higher levels were those who preferred to share the computers with their friends (table 5.2p). On the other hand, most of the pre-sessional students preferred to do the task alone. This might be attributed to the kind of task that was assigned to them. The simulation given to the Business and Social Science students might be the reason for them wanting to share the task. Table 5.2p also shows that most who wanted to share were the male students. This finding contrasts with the instructors' comment about the boys preferring to do the task on their own.

Table 5.2p: Students' Preference with Regard to Sharing

<table>
<thead>
<tr>
<th>Comments</th>
<th>Given By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prefer to share computer(s) with friends.</td>
<td>MA1, MA3, MD1, MD2, MD3, MD4, ME1, ME2</td>
</tr>
<tr>
<td>2. Prefer to work alone.</td>
<td>MB1, MB2, MB3, MB4, MC1, FD2, FD4, FE2</td>
</tr>
</tbody>
</table>

In the interview with the instructors, almost all of them argued that the size of the BBC lab was too small and that it is not a conducive place for language learning.
The students, on the other hand, said that the size of the lab did not really affect their work. This means that the size of the lab affected the teachers more than the students. Since the students' focus was on the computers, they might have failed to see the significance of having a more spacious lab.

A few of the students who were taken to the Economics lab gave the following responses when asked about the number of times they went to the lab on their own after they had their CALL lessons:

<table>
<thead>
<tr>
<th>Actions</th>
<th>Comments Given By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gained better results after repeated use of the programs. MB1, MB4</td>
<td></td>
</tr>
<tr>
<td>2. Try English program every Monday night.</td>
<td>MB1</td>
</tr>
<tr>
<td>3. Try on his own any time of the week.</td>
<td>MB2</td>
</tr>
<tr>
<td>4. Went only two or three times after the class.</td>
<td>MB4</td>
</tr>
<tr>
<td>5. Did not go on his own.</td>
<td>MC1</td>
</tr>
</tbody>
</table>

Other than MC1, the others took the initiative to go to the lab on their own to improve their English. These students and also the majority of the students from the other groups also expressed their desire to go to the BBC lab on their own if it was open to them. When asked to compare the two labs, in term of user-friendliness the students agreed that BBC computers were much easier to handle than the PCs but they preferred the PCs because they were more familiar with them.

Apart from the lab, students and teachers might also have
a different opinion when it comes to what they actually thought was taught in the class. The teacher who asked his students to do the LONDON ADVENTURE program did not have a clear objective as to why he took his students to the lab. On the receivers' part, the students have their own perceptions of what was actually learnt in the class (table 5.2r).

Table 5.2r: What Students Thought They Learnt

<table>
<thead>
<tr>
<th>Skills/ Component Learnt</th>
<th>Comments Given by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Writing, Grammar, Reading, Spelling</td>
<td>MA1</td>
</tr>
<tr>
<td>2. Writing, Oral</td>
<td>MA2</td>
</tr>
<tr>
<td>3. Grammar, Reading, Oral</td>
<td>MA3</td>
</tr>
<tr>
<td>4. Writing, Reading, Vocabulary, Grammar</td>
<td>MA4</td>
</tr>
</tbody>
</table>

It seemed that each of the above students had his own idea of what he actually gained in the CALL class. The English politeness formulae are explicitly included in the LONDON ADVENTURE program. Since this was made clear in the program, it could prompt the learners to say that oral skills were one of the aspects that they had actually learnt. This in itself shows that students were aware of what they were learning. When the class was asked whether the setting in the program, which was the City of London, made it difficult for them to do the task, half of the class said it did. However, despite the cultural biases, about fifty percent of the learners found the package challenging but interesting.

Quite a number of the students interviewed did not have any typing skills when they were first brought into the
computer lab. However, they did not see this as a big problem. Although this meant that they would be very slow in typing in the answers, they showed great perseverance. Three of them admitted that one of the things that they learnt in CALL classes was typing skills. There were a few other reasons why the students liked to go to the lab. These include:

i. The lab was cooler.

ii. The screen was colourful.

iii. They could give more concentration to the lessons when computers were used.

iv. They felt more relaxed in learning the language when computers were used.

5.2.6b SCHOOLS

The school students were also interviewed in the first phase of the study, that is, after they had their CALL lessons. The game-like nature of the programs, and the novelty of the method could be its main attraction to the students. One remarkable aspect of the lesson was that it managed to change the not so motivated and the passive students into more active and interactive individuals. Unfortunately, students tended to forget about the target language when they got excited. Instead most of the time they used Malay as their medium of communication in the CALL classes.

The class teachers noticed this change of attitude in their students.
A few students from each of the classes that were taken to the lab for CALL lessons were interviewed. At school A generally the students saw the introduction of CALL as something positive. Although it attracted their attention it did not mean that they would like to have the class every day of the week. This proved the teachers' point about the students wanting variety in teaching aids and methodology.

Based on the interviews at school B it seemed that the students have a positive attitude towards the introduction of computers in their English classes. One of them said that it could help him to memorise. He also claimed that he could still remember the words used in the exercise when this question was posed to him. However, he could not give the exact reason for not being able to remember the vocabularies taught in class. This area would need further research.

5.3 PHASE TWO - Dec.1991 to Feb. 1992

5.3.1. REVISE - General Idea

At IIU it was decided that help would continue to be offered to the instructors but this time it would be more on personal basis as the workshops given in phase one were not all that successful in attracting more users. Added to that some of the staff preferred this kind of 'training'. At the same time CALL materials for some of
the courses were produced as a supplement in teaching the English language because attempts had not been made to create them yet. At the schools the researcher planned to provide more encouragement by offering personal assistance and a workshop. Teaching suggestions were also given from time to time.

5.3.2 ACTION STEP ONE

5.3.2a IIU

The researcher tried to improve the situation for the instructors as much as she could. In the first phase of the study, the technicians were often hard to find whenever their services were needed. This was remedied in the second phase when arrangements were made for an easier access to one of them by placing his office in the computer lab itself. The other demands such as a reduction in teaching hours, the provision of more user friendly hardware and the acquisition of more programs could not be met. The researcher was not in the position to change the teaching load. Since there was no financial backing for this research she could not satisfy the other requests.

5.3.2b SCHOOLS

Arrangements were made with the teachers of school A and B for the research to continue. At school B, classes were to take place in the meeting room. At school A the
computers promised by the Ministry of Education had still not arrived. CALL classes, therefore, had to be conducted using the computers purchased by the school's Computer Club. Further research was not conducted at school C and D for reasons explained in section 5.2.5b above.

5.3.3 ACTION STEP TWO

5.3.3a IIU

At IIU in the second phase of this study, materials were created based on the existing syllabus\(^\text{12}\), and help was also offered to all the lecturers concerned (LE 1600, LE 1800 and LE 2000).

5.3.3b SCHOOLS

A training session for all language teachers (including English, Malay and Arabic) was conducted at School A. The teachers were taught how to use the word processor (WordStar 5.5) and suggestions on ways of using the program for teaching language were given. The aim of the workshop was to create CALL awareness in the other staff and to provide further encouragement to the staff who had already been shown how to use the device for teaching. A few language programs were also demonstrated to the teachers. The programs demonstrated include STORYBOARD,

\(^{12}\)See Appendix H for the sample of letters sent to the academic staff regarding materials to be used for the related courses, and materials which were developed based on the coursebooks of the relevant courses.
MATCHMASTER, GAPMASTER and TESTMASTER. The three who were already familiar with the language packages helped their colleagues in the workshop. The workshop had to be ended prematurely because of a disruption in the electrical supply to the school.

The same kind of workshop could not be conducted at school B because of the lack of facilities. For this reason the researcher could only concentrate on one teacher (TB1).

5.3.4 ACTION STEP THREE
5.3.4a IUU

Personal help continued to be offered to the teachers for the rest of phase two, that is, after the materials had been distributed and the technician was made more accessible to the staff. Those staff who were not familiar with the use of a word-processor asked the researcher to teach their class how to use one (team-teaching). The researcher did so in the hope that the staff could take on from there.

5.3.4b SCHOOLS

Continuous help was offered to the teachers. The teachers were persuaded to contact the researcher if they had any problems regarding CALL usage. She also made frequent visits to the schools concerned.
5.3.5 RECONNAISSANCE - Possible explanations of any failure to implement, and effects

5.3.5a IU

Just before phase two of the study begun, one of the frequent users of the computer lab was voted the most popular academic staff of the English language division, whilst one of the staff who opted for not using the equipment in teaching was voted the least popular staff in the Division\textsuperscript{13}. The evaluation might perhaps show that students prefer instructors who give them a wider variety of learning environment. This preference was reflected on 14th Jan. 1992 by one of the classes (LE 2000) who clapped their hands joyously when they were informed by their instructor (M5) that they were going to be taken into the computer lab for the day's English lesson\textsuperscript{14}. It was the first time the instructor used the equipment as an aid in teaching. But with most of the students, it was not their first. They had been taken there by their previous instructors.

Based on the discussion held in one of the divisional meetings held on 9th Jan. 1992, it seemed that some of the staff did not wish to have the suggested materials distributed to them. Possibly, they felt that the

\textsuperscript{13}Academic Staff evaluation by students is part of the University system.

\textsuperscript{14}The instructor related this incident to the researcher in an informal conversation with her.
presence of the materials exerted extra pressure on them to use the computers in teaching. In the meeting, the Head of Division asked the course-leaders to arrange for the teachers to use the computers as an aid in teaching at least once a week. He also urged the staff to consult the researcher on matters pertaining to CALL. In the second phase of the research only four of the staff did so (M5, F1, F3 and F5). They were the only staff who used the materials which were distributed earlier. They also asked for help in conducting their CALL classes. In F3’s class, students asked to be given more time to do the Business Simulation exercise. F3 mentioned that her students had never asked for extra time before, and apart from that they looked more enthusiastic when given the task.

Despite the claim that computer usage would increase if the technician was readily available, it seemed that his availability did not do much to increase the frequency of computer lab usage. (See table 5.4 for the frequency of lab usage among the instructors from Phase One to Phase Three of the research).

5.3.5b SCHOOLS

Although so many factors seemed to work against the use of computers in the classroom, the outcome might have been different if the teachers had been more enthusiastic
and interested in this area. A number of factors might have influenced their reactions towards it. At school B, TB1 was about to retire from the service. Hence, although he was interested, he might not see the advantages of 'learning' such an approach in the long run because of his coming retirement. (He informed the researcher that he was going to take up another job that was not related to teaching after his retirement). At school A, two teachers had already been selected to follow the courses organised by the Ministry of Education; neither of them was one of the English language teachers. The teachers involved in this study might not see the immediate benefit for their self-advancement if they decided to practise CALL. They queried whether the Ministry of Education would implement CALL at school". This might reflect that their decision to get involved in the innovation was very much influenced by the authority's policy.

The researcher's presence at the schools might be considered as an interruption rather than a help. The teachers might feel pressured into using the device whenever the researcher came to the school. They seemed to feel obliged to make arrangements with the computer literacy teacher to let them used the computer lab. What was significant was that they did not practise CALL out

\[15\text{When the question was posed the researcher was not able to tell them for certain when the Ministry was going to promote its usage at school.}\]
of their own interest in the approach. The tension was increasingly felt by the researcher towards the end of phase two of the study. Eventually she felt it was necessary for her to stop her study at the schools in order to avoid unnecessary confrontations.

5.4 PHASE THREE - July 1992 to Sept. 1992

5.4.1 GENERAL PLAN

In this phase the researcher did not take any actions to 'promote' the use of CALL at the chosen institutions. Instead she took the stand of an observer. Her seemingly lack of involvement meant that the staff were not put under pressure to use the computers in their teaching due to the study. The researcher also intended to finish the transcribing and analysis of the video recordings made in the previous phases.

5.4.2 RECONNAISSANCE - Possible explanations of any failure to implement and effects

Although they were not under pressure to use the device (neither from the researcher nor from the administrator) there was no increase in computer usage for teaching in the division. In fact the researcher noticed that there was a remarkable decrease in its usage. The following table shows the frequency of their usage of the Computer lab from Phase One to Phase Three of the study:
Table 5.4: The number of times that each of the instructors interviewed spent in the lab in Phase One to Three of Research

<table>
<thead>
<tr>
<th>Teacher</th>
<th>July'91-Sept'91</th>
<th>Oct'91-Feb'92</th>
<th>July'92-Sept'92</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>- (^{16})</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M3</td>
<td>-</td>
<td>-</td>
<td>resigned</td>
</tr>
<tr>
<td>M4</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M5</td>
<td>-</td>
<td>rare</td>
<td>-</td>
</tr>
<tr>
<td>M6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M7</td>
<td>rare</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M9</td>
<td>frequent</td>
<td>rare</td>
<td>-</td>
</tr>
<tr>
<td>M10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M11</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F1</td>
<td>frequent</td>
<td>frequent</td>
<td>maternity</td>
</tr>
<tr>
<td>F2</td>
<td>seldom</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F3</td>
<td>frequent</td>
<td>rare</td>
<td>-</td>
</tr>
<tr>
<td>F4</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F5</td>
<td>rare</td>
<td>rare</td>
<td>-</td>
</tr>
<tr>
<td>F6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F7</td>
<td>rare</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The number of users and the frequency of use decreased from one phase to another. Although during the interview in the first phase most expressed the desire to use IT in teaching (provided that their needs were met) it did not actually materialise.

5.5 CLASSROOM OBSERVATION

One of the reasons why some teachers are reluctant to use computers in teaching might lie in the conduct of the CALL class itself. The ideal situation would be to use the computer as a supplement, that is, it is best used to help the students follow or understand the linguistic points that the teacher is teaching. The teacher is

\(^{16}\)Frequent = more than six times per semester  
Seldom = from four to six times per semester  
Rare = from one to three times per semester  
- = none

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expected to use the computer to help achieve the aims and objectives of the lessons. The computer can be used to make the lesson more stimulating and to enhance learning. The teacher can prepare certain tasks which could relate the piece of software to the curriculum. A follow-up exercise can be given after the task is accomplished. As an example, programs such as STORYBOARD and CLOZEMASTER can be used for vocabulary building. At the beginning of the lesson the teacher can start by brainstorming students about the words that are frequently used in relation to a certain topic. The students can then do the exercise on the computer. The topic of the text would give a clue to the students of the kind of words that would be needed to do the exercise. After the students have successfully done the exercise on the computer and the accompanying task (if provided), they can then be asked to write an essay on a similar topic.

The above sequence, however, did not take place in all the classes observed in the study. Video-recording of some of the classes also revealed that there was a minimal amount of teacher talk in the CALL classes recorded¹⁷. (See Chapter Four, section 4.4.4b for the argument for using Systematic Observation and for the development of CALL category system). Table 5.5a shows that most of the talking done was concentrated on giving instructions to the students about the software. The

¹⁷Teachers who were systematically observed were TA3, TB1, F1, F3, F7 and the researcher herself (team-teaching situation).
higher percentage of instruction compared to the other
categories was expected because that was the first time
the students were exposed to the program and in some
cases to the computers. Yet, on the whole only 6.85% of
the total teaching hours was spent on instructing
students. The low percentage of teacher talk might be
due to teacher’s lack of familiarity with the program.
There was no induction set where the teacher was expected
to relate the software to the previous lesson or focused
the attention of the students on the lesson of the day.
In all cases the students started the given program
straight away without any explanation from the teacher as
to what the program was about and this lasted till the
end of the lesson. The students learnt by discovery and
the teacher helped by hinting the answers. The
relatively high percentage of explanation (in comparison
to other categories in the system) consisted mainly of
teachers’ attempt to help students with the exercise.
The teachers used various ways of providing a clue as to
the grammatical function of the word. (See Appendix I for
the sample of transcription).
Table 5.5a: **Interaction Analysis on Nine Classes (IIU and Schools)**\(^8\)  
(From a total of 10380 seconds [173 minutes] of teaching)

<table>
<thead>
<tr>
<th>As A Teaching Behaviour</th>
<th>n   (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Accepts or Uses student's ideas-Agreeing, clarifying, building, or developing ideas suggested by students.</td>
<td>183 (1.76)</td>
</tr>
<tr>
<td>2. Praises or Encourages-Praises or encourages student action or behaviour.</td>
<td>75 (0.72)</td>
</tr>
<tr>
<td>3. Expresses Inability to help on technical matters-Accepts weaknesses in handling hardware or courseware.</td>
<td>6 (0.06)</td>
</tr>
<tr>
<td>4. Agree/Disagree to what students keyed in on the screen.</td>
<td>81 (0.78)</td>
</tr>
<tr>
<td>5. Gives Instructions/Suggestions-Instructs, suggest or orders to which a student is expected to comply.</td>
<td>486 (4.68)</td>
</tr>
<tr>
<td>a. In relation to the given software</td>
<td></td>
</tr>
<tr>
<td>b. On issues other than given software</td>
<td>225 (2.17)</td>
</tr>
<tr>
<td>6. Asks Questions-Asks a question about content or procedure with the intent that a student will answer.</td>
<td>291 (2.80)</td>
</tr>
<tr>
<td>a. In relation to the given software</td>
<td></td>
</tr>
<tr>
<td>b. On issues other than the given software</td>
<td>147 (1.42)</td>
</tr>
<tr>
<td>7a. Gives Explanation on Content-Explains to student the content, expecting him/her to comply by typing in the answer.</td>
<td>440 (4.24)</td>
</tr>
<tr>
<td>7b. Gives Explanation on Equipment Used-Explains to student about the equipment, what to do when he/she has problems with the technical aspect of the software/hardware, expecting him/her to overcome his/her technical problem.</td>
<td>276 (2.66)</td>
</tr>
<tr>
<td>8. Gives a general comment on the student's work.</td>
<td>147 (1.42)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2357 (22.71)</td>
</tr>
</tbody>
</table>

---

\(^8\)The class proceeding ranges from nine to fifty minutes depending on the length of recording and the noise level. Not all classes could be taped for technical reasons. Added to that some of the teachers did not inform the researcher in advance about their decision to use the computers. Hence arrangement could not be made for recording to take place.
5.5.1 CLASSROOM MANAGEMENT

The teachers who were observed were found to have difficulties in getting their students' attention once they started to use the machine. In the traditional classroom usually the teacher is the single authoritative figure to whom the whole class have to pay attention. This situation differs when computers are used. Not only did teachers have difficulties in getting students' attention but also students might see the computer as a teacher-substitute. The teachers' traditional role as the 'giver-of-answer' is affected in a CALL class because of the computer's ability to provide fast feedback to the given exercise (Mat Daud, 1992).

The relatively low percentage of instruction given in a CALL class as shown by table 5.5a could be due to the difficulties in getting the students to listen to one. At IIU and school A, smaller groups of students shared each of the computers. There was a certain degree of autonomous learning there where there was less 'interference' from the teacher. However, the teacher was still expected to give instruction or to explain about the task to the whole class at least at the beginning of the lesson. TA3 of school A did not manage to do so because the students were too engrossed in the given task. In fact only the first nine minutes of the recording could be analysed as the students' voice...
drowned the teachers’ till the end of the lesson. At IIU, at one point in the middle of the lesson, F5 reminded the students that they had only five minutes to complete the exercise but none of the students paid heed to her direction. Finally she had to give in to the students’ will and they continued doing it for the next half an hour. At school B, more teacher input was expected because the whole group was gathering around one computer. However, the class was far from being teacher directed. In fact, the teacher’s attempts to help were often ignored by the group. In one of the classes, TB1 reminded the class that their English period was over, and their Science teacher was waiting for them. This was ignored by the students who continued doing the exercise until they finished it. One had the impression that the students were too absorbed in their attempts that they generally failed to listen to what their teachers had to say. This included teachers’ attempt to help them do the exercise. These difficulties in getting students’ attention might put the teachers into a threatening situation.

The above situation could be improved if there were a discussion table or an area where the students could be asked to sit away from the computers. The existence of such a table might help towards better classroom management. One of the reasons why teachers failed to get students’ attention might be the lack of eye-contact with
the students. With the screen in front, the focus of students' attention turned from the teacher to the computer. This might hinder communication between the teacher and the student. By placing them away from the computers, pre-computer and post-computer activities can be carried out with less distraction and students' attention can be focused on the teachers and the lesson.

5.5.2 BUILDING TEACHERS' CONFIDENCE

The problems that teachers have in getting students' attention might cause them to lose confidence in teaching when a computer is used. Teachers' lack of proficiency in computing might also lead to anxiety. With several attempts a teacher might increase in confidence in using the computer for teaching. The following table shows how the percentage of TB1's 'teacher talk' increases from his first to third class. The third and fourth class were actually one class which was divided into boys and girls. Unfortunately when it was the girls' turn to use the computers TB1 was still concentrating on the boys' group. He did not seem to be able to manage the two groups well. This could be due to the fact that the lesson was not prepared in advance. The lack of preparation might be one of the reasons for the teachers' problems in managing the class in all the CALL classes observed.

The increase in usage might help in increasing teachers'
familiarity with the software and hence reduce anxiety. This could lead to a gain in confidence in controlling the class. Teachers' anxiety about both software and class management could be among the reasons for the lack of usage of computers in teaching.

Table 5.5b: Interaction Analysis on TB1—using STORYBOARD

<table>
<thead>
<tr>
<th>Teaching Behaviour</th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
<th>Class IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>1. Accepts/Uses student's Idea</td>
<td>12(0.60)</td>
<td>-</td>
<td>6(1.11)</td>
<td>-</td>
</tr>
<tr>
<td>2. Praises</td>
<td>-</td>
<td>-</td>
<td>6(1.11)</td>
<td>3(0.17)</td>
</tr>
<tr>
<td>3. Not able to help</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Agree/Disagree with student's answer</td>
<td>3(0.15)</td>
<td>3(0.42)</td>
<td>-</td>
<td>9(0.51)</td>
</tr>
<tr>
<td>5. Instructs/Suggests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Software Related</td>
<td>84(4.24)</td>
<td>27(3.75)</td>
<td>30(5.56)</td>
<td>21(1.20)</td>
</tr>
<tr>
<td>b. Not related to Software</td>
<td>36(1.82)</td>
<td>-</td>
<td>21(3.89)</td>
<td>3(0.17)</td>
</tr>
<tr>
<td>6. Asks question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Software Related</td>
<td>24(1.21)</td>
<td>21(2.92)</td>
<td>24(4.44)</td>
<td>21(1.20)</td>
</tr>
<tr>
<td>b. Not related to Software</td>
<td>-</td>
<td>-</td>
<td>6(1.11)</td>
<td>3(0.17)</td>
</tr>
<tr>
<td>7a. Explains on Content</td>
<td>12(0.60)</td>
<td>63(8.75)</td>
<td>90(16.67)</td>
<td>93(5.32)</td>
</tr>
<tr>
<td>7b. Explains on Equipment</td>
<td>-</td>
<td>21(2.92)</td>
<td>15(2.78)</td>
<td>9(0.51)</td>
</tr>
<tr>
<td>8. General Comment</td>
<td>6(0.30)</td>
<td>9(1.25)</td>
<td>3(0.56)</td>
<td>15(0.86)</td>
</tr>
<tr>
<td>Total</td>
<td>177(8.92)</td>
<td>144(20.1)</td>
<td>192(37.23)</td>
<td>177(10.11)</td>
</tr>
</tbody>
</table>

5.5.3 ATTENTION TO STUDENTS

The possibility of giving individual attention to students is one of the main arguments for using CALL. The teacher can check students' work on the computer, and try to assist or guide them. The number of computers at IIU made it possible for such attention to be given. However, not all teachers managed to make an effective use of this capacity. F5, for example, just walked around the class without making much effort to help the
students even when her help was necessary. (One of the
students asked for the translation of a word from the
neighbouring group when F5 was around. His friend could
not help, and the teacher ignored the question). The
others did try to help the different groups, but the help
offered was usually related to the software rather than
pertaining to language learning. Only T4 made a serious
effort to relate the activity to language learning as the
students were doing the exercise. For example, when
students had difficulties in reconstructing a text from
STORYBOARD program, he hinted to the students that the
missing word "should be a noun".

At IIU the lay-out of the computer lab in the Economics
Faculty made it more difficult for the teacher to reach
out to the group in the middle of the rows. F1's feeling
at the end of the class might be shared by the others who
were observed:

"I think at the end of a computer class I feel
more exhausted than when I am teaching the class
because even with the computer itself, the students,
the students just cannot follow the instruction on the
screen. They keep on asking the teacher. They are
tagging more to the teacher than when attending the
classroom (sic)."

(F1)

However, in the video recording there was not enough
evidence to support her last two sentences. There seemed
to be a considerable degree of autonomous learning in all
the classes observed.
5.5.4 LANGUAGE USED FOR COMMUNICATION

The kind of English used by the students was mostly limited to word by word guessing. There was very little communication done in the target language. At the schools, Malay was used for inter- and intra-group communication. The students' mother-tongue was used when they communicated with members of their own ethnic group. At IIU, English was only used when at least one of the group members did not share the same language as the others.

In all the classes observed, the teachers seemed to have no control over or did not attempt to control the language used by the students in oral communication. None of them reminded the students of the use of the target language.

5.5.5 TECHNICAL HELP

Unlike what some of the teachers might have thought (that they should know the mechanics of computing) little time was actually spent on handling this type of problem (2.66% - table 5.5a). The low percentage of category three, that is, 'expressing inability to help on technical matter' also reflects that it was very seldom that the teachers could not handle students' technical problems. Although most of the students were new to the computers what they needed to know was quite basic such
as how to erase the words that they have inserted and finding which one was the Space Bar, the Enter key and the Function key.

It seemed that the teachers needed only to equip themselves with the basic knowledge of computing which mainly consisted of keyboard manipulation. Even when they have this knowledge they can choose not to guide the students in such skills. The activity itself can be a way of promoting interaction among students. They could consult each other about which button to press in order to do the exercise. One of the groups in F5’s class did have a mechanical problem. The teacher could not help but the students managed on their own.

5.5.6 TEACHER SILENCE

Table 5.5a indicates that teachers were silent during the greater part of the exercise. No break-down was possible of why they were quiet most of the time because it was difficult to differentiate the reasons behind it. It was difficult to tell whether the teachers were monitoring or were also ‘learning’ as they ‘monitor’ the students’ work.

5.5.7 SUMMARY OF SYSTEMATIC OBSERVATION

Based on the observation it looked as though the teachers could not exert their role as the ‘facilitator’ and
'manager' of learning effectively in the CALL classes. These could be some of the aspects that should be tackled in teacher training. Once teachers gained confidence in their ability to cope with this educational tool, they might be more motivated to use the device as an aid in teaching. A properly planned activity plus teachers' confidence and knowledge in handling the equipment might create an effective learning environment for the students. As a result the use of CALL might be both more cost- and educationally-effective.

5.6 CONCLUSION

The steps taken by the researcher were not really successful in promoting the use of computers in the English language classroom in the institutions chosen for the case study. Apart from the problems with availability and accessibility of hardware and software, the research largely depended on the readiness of the teachers to use the device. Their readiness might be influenced by their attitudes, perceptions, expectations and anxiety of computer usage. Other than these factors, teachers' reluctance to use the computers might also be attributed to external factors such as the need for extra time to learn and for support and co-operation from the administrators and colleagues.
6.0 INTRODUCTION

The assumptions made in the previous phases of the study were triangulated\(^1\) by using a survey approach. The purpose of the survey was to test the assumptions made in the first three phases of the study which were largely based on observations and interviews. A questionnaire was designed in accordance with the observation and interview findings. The researcher also visited sixteen of the schools which were involved in the Computer-in-Education project, at the stage when the computers had been supplied to the schools. She also talked to the State Co-ordinators of the project from nine of the states in Peninsula Malaysia\(^2\). Other personnel who were involved in the MOE's Computer-in-Education projects were also interviewed. These included the Director of the Technology Lab, state resource persons, computer literacy teachers and school principals.

\(^1\)See Chapter Four, section 4.2.1 for the discussion on triangulation.
\(^2\)The states were Penang, Kedah, Perlis, Kelantan, Pahang, Trengganu, Negeri Sembilan, Melaka and Selangor.
Based on the interviews it was found that training programmes for the English language teachers had already been carried out by all the states. However, with one exception none of the teachers who were interviewed had yet used the computers for teaching. Among the reasons given for non-use were:

i. The computer lab was not easily accessible to the language teachers nor to the students unless the computer literacy teacher happened to be the language teacher.

ii. The computers could easily break down. The extra care needed meant only certain 'reliable' personnel were allowed access to the computers.

iii. Programmes which were tailored to the needs of the local students were not yet available. Teachers had not been taught how to manipulate the already distributed programs such as the word processor package for language teaching.

iv. The one teacher who had used the device for teaching came from the state of Trengganu. A teacher from another school in the same state expressed the desire to use it but could not do so without the software. He wanted to try the word-processor after the researcher informed him of the possibilities of teaching with this device. It was found that of all the states visited, only the state of Trengganu included microteaching as

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3Twelve language teachers from the different states were interviewed by the researcher.
part of the training program. Since the teachers from this state had shown a more positive reaction compared to the others it is possible that microteaching helped to give them the confidence to try out the device. The teachers, however, complained that the presence of the Computer Literacy teachers in the Computer Assisted Learning course made the situation uncomfortable for them to learn because of their lack of knowledge in computing.

It was also observed that where computer usage was concerned, the decision making process had largely been delegated to the network managers. There was a tendency in some cases for the manager to become over-possessive of the lab. Instead of encouraging their colleagues, the actions taken tended to drive them away from it. For example, in one of the schools the language teacher was made to believe that the lab was not for teaching subjects other than Computer Literacy. The researcher informed him in the interview that one of the objectives of providing the computer was to help in the learning process which included language learning. After this was pointed out a discussion was held with the network manager who later admitted that the lab was also open to language teachers.
The network managers, however, had a good reason to be over-cautious with computer usage because the schools were not provided with technical assistants. Hence, the maintenance was overseen by the network manager. When the computers were still within the guarantee period, they could ask the company to repair the computers when they broke down. However, because of bureaucracy it took a while before the representative(s) of the company came. The school itself has a limited budget for the maintenance. Hence the best step would be to make sure that the computers were maintained well so that they would not break down easily. Even after care was taken, there were problems which were beyond teacher’s control such as the inconstant supply of electricity to some of the schools. According to the teachers-in-charge, the frequent problems that they had with burnt-out fuses could be attributed to this factor. Apart from that the teachers complained that the computer was a bit slow and the machine was not compatible with some programs such as D-Base. They suggested the workstations should be upgraded.

The network managers were not only taking charge of the computers but also of the maintenance of the lab. The teachers interviewed complained about the amount of time that they had to spend in the lab. The responsibility did not grant them any reduction in
teaching hours. The hours remained the same as for the others. One of them said that he did not feel like training the other teachers at the school on how to use the computers because they were not really interested in the innovation; this was apart from his own lack of time to conduct such courses. Some of the teachers also found difficulties in following the syllabus for the Computer-Literacy classes. According to them what was specified was ‘too wide’.

Apart from the teacher-in-charge there was also a resource person to help teachers with the maintenance of the computers. There are normally two resource persons in each state. He/She is usually one of the teachers himself/herself. He/She could also be one of the officers of the CIE unit of the State Education Department. In the interview, teachers from one of the schools which had no resource person complained that these personnel tended to concentrate on their own school, and that their assistance was not easily gained. On the other hand, some of the resource persons interviewed stated that time and their other duties made it difficult for them to make themselves easily available for helping.
A questionnaire was designed to verify some of the findings made in the earlier phases of the study, and to confirm assumptions on issues relevant to the study. One of the things that was studied was whether there were any differences between the male and female teachers in their reactions to computer usage in the classroom. Apart from that the teachers’ teaching experience might also have an influence on them. Since they did not necessarily start as language teachers there is a need to ask, in the questionnaire, for both the total length of teaching experience and the length of language teaching experience. Some of the teachers might also teach other subjects in addition to English. Thus the total teaching hours and the hours spent on teaching language were included in the questionnaire. The teacher was also asked to give the language that he/she was teaching to ensure that only the English teachers filled up the questionnaires. Computer ownership, computing experience and proficiency were all included as separate items in the design because

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4 See Appendix D for the sample of questionnaire.
5 Although it was made clear that the questionnaires were meant for the English teachers in the researcher’s letter to the Principal of the schools concerned, there was the possibility that they might give them to the other teachers as well. In fact the researcher did receive a few questionnaires from the Bahasa Malaysia teachers. These were not included in the counting. The questionnaire was not translated hence there was the possibility that the Bahasa Malaysia teachers did not understand fully some of the items on the questionnaire.
6 See Part Two of the questionnaire in Appendix D for the items that make up the computer proficiency variable.
although they owned a computer they might not necessarily use it. The length of usage also does not necessarily reflect proficiency because as some of them admitted they used it off and on and this might not help towards making them proficient in its usage. When they did use the computer, they might use it for a number of different purposes which could include teaching. If they used the computers for teaching it would be interesting to know which of the programs they decided to use and what kind of exercises they carried out with their students. Thus all the possible options are included in the questionnaire.

The reasons behind teachers' lack of experience in computing would also be of interest because in theory all of them, especially the secondary school teachers, should have already experienced using the computers. This is because their schools have already been equipped with computers and those who have attended the courses given by the Ministry of Education were expected to share the knowledge with their colleagues. Some of the language teachers have attended the courses and it would be interesting to find whether there was any significant difference between those who were asked to go and those who volunteered to attend it. Apart from the Ministry, the teachers could obtain training from other sources which include from the

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7Courses in Computer Assisted Learning and Teaching.
Malaysian Council for Computers-in-Education and also from other computing bodies. These courses might have a different impact on the teachers.

The case studies which were carried out in the first three phases of this research pointed out that the teachers' attitudes were not the only factor in determining the success of CALL implementation. Other factors such as their perceptions, expectations and level of anxiety were among the variables that should be considered where teacher readiness to use the tool was concerned.

The Likert technique was used as a scoring system in the 'Attitudes to CALL' and 'Perceptions of CALL' scales. Items for the scale were collected from the interviews with teachers and from observations made in the earlier phases of the study. Such steps helped in ensuring the validity of the instrument. The items used to measure the respondents' attitudes towards CALL are tabulated in table 6.1a below:
Table 6.1a: **Items that Make Up 'Attitudes to CALL' Scale**

<table>
<thead>
<tr>
<th>Question</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In the classroom computers are as important to language students as tex...</td>
<td>3. A computer training programme should be compulsory for every language t...</td>
</tr>
<tr>
<td>4. Computers will increase the amount of teacher-student interaction in th...</td>
<td>5. I look forward to a time when computers are more widely used in language teaching.</td>
</tr>
<tr>
<td>6. Language teachers can manage without computers, so computers are not r...</td>
<td>8. The use of computers can help improve language students' communication skills.</td>
</tr>
<tr>
<td>19. Using a computer makes language lessons more interesting to the teachers.</td>
<td>21. Teaching language with the aid of computers would make learning easier for all of the students.</td>
</tr>
<tr>
<td>24. Language teaching is better without the use of computers.</td>
<td>27. Computers can enhance students learning of the four language skills.</td>
</tr>
<tr>
<td>28. Computers will increase the amount of student-student interaction in t...</td>
<td>36. The use of computers helps to motivate the students to learn.</td>
</tr>
<tr>
<td>43. Using a computer makes language lessons more interesting to the students.</td>
<td>52. The skills taught in computer assisted classes are applicable outside the classrooms.</td>
</tr>
<tr>
<td>45. Computers can be used as a private tutor.</td>
<td>53. Teaching language with the aid of computers would make teaching easier.</td>
</tr>
</tbody>
</table>

The above statements were chosen because they reflect the respondents' 'friendliness' or 'unfriendliness' towards computer usage in teaching.

The statements that are used to measure the
'Perceptions of CALL' scale are listed in table 6.1b below:

<table>
<thead>
<tr>
<th>Question</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Introducing computers into language teaching would decrease the teacher's role.</td>
</tr>
<tr>
<td>10.</td>
<td>Language teachers must know a great deal about how computers work if they want to use them in language teaching.</td>
</tr>
<tr>
<td>13.</td>
<td>Better students will gain more from the computer-aided lessons than the weaker students.</td>
</tr>
<tr>
<td>14.</td>
<td>The benefit of computer usage does not justify its cost.</td>
</tr>
<tr>
<td>15.</td>
<td>If the schools use more computers, they will need fewer teachers.</td>
</tr>
<tr>
<td>17.</td>
<td>Computers will increase the amount of anxiety students experience in the language classroom.</td>
</tr>
<tr>
<td>18.</td>
<td>The use of computers in language teaching would require large changes in language teaching methods.</td>
</tr>
<tr>
<td>20.</td>
<td>Only the computer studies teacher should use computers regularly in his teaching.</td>
</tr>
<tr>
<td>22.</td>
<td>Using computers in language classroom would weaken teacher's control of the students.</td>
</tr>
<tr>
<td>30.</td>
<td>Computer assisted lessons are time consuming.</td>
</tr>
<tr>
<td>31.</td>
<td>Less lesson preparation is needed when computers are used for teaching.</td>
</tr>
<tr>
<td>33.</td>
<td>Computers should not be used when the students are tired.</td>
</tr>
<tr>
<td>37.</td>
<td>Students are more individualistic in computer assisted classes.</td>
</tr>
<tr>
<td>39.</td>
<td>Students are less embarrassed about making mistakes in computer aided lessons.</td>
</tr>
<tr>
<td>47.</td>
<td>To use a computer successfully, one needs to learn how to program.</td>
</tr>
<tr>
<td>51.</td>
<td>Boys more than girls benefit from using computers in language learning.</td>
</tr>
</tbody>
</table>

The statements chosen for the 'Perceptions of CALL' scale represent what the respondents might believe took place in computer assisted learning lessons.

The Affect Adjective Checklist was adopted from Docking's (1978,1979a) modification of Zuckerman's (1960) scale (see Chapter Four section 4.4.5c) to measure the teacher's level of anxiety. Other items
which include issues on training and software are treated individually to see what the teachers specifically need in relation to these issues.

The visual analogue technique was used to measure teachers' expectations of the computer. Four items were drawn to make up the expectation scale. The teachers were asked to put a cross on each of the items which represented the scale to indicate their:

i. degree of enthusiasm in the use of computers in language teaching;

ii. expectations of the computer;

iii. how much the computer can ease classroom management;

iv. how much the computer helps in language learning.

An open-ended question was also included to allow the CALL practitioners to express their views on the difficulties that they faced in integrating CALL into the curriculum. The same technique was also employed to find out if they saw any differences in students' use of language in their CALL classes compared with other lessons.

6.1.2 ADMINISTRATION OF SURVEY

The questionnaire was piloted in June 1993. (See Chapter Four, section 4.5.4) for the details of the
study). Permission for the questionnaire to be distributed was obtained from the Educational Planning and Research Division of the Malaysian Ministry of Education in August 1993. Permission to distribute the questionnaires to the selected schools was then sought from all the states in Malaysia. The questionnaires were only distributed after the approval letters were obtained from each of the State Education Departments. However, they could not be distributed to the teachers in the state of Sabah because the letter from the Sabah State of Education was received only in November. By then it was difficult to contact the teachers because the school holiday had already started. Apart from the school teachers the same questionnaire was also sent to the English Language Departments of three of the Universities in Malaysia\(^8\) to see if there were any differences between the institutions where CALL implementation was concerned.

Figure 10 shows the number of institutions that the questionnaires were sent out to and the rate of response. Wherever possible phone calls were made to the school principals to get the co-operation of the staff. Not all the schools could be contacted by telephone. In some cases, the person who answered the call was uncertain of the exact number of English teachers at the school at the time they were contacted.

\(^8\)There are eight Universities in Malaysia.
The researcher sent extra copies of questionnaires in most cases. A total of 380 responses was received from the respondents. The number of replies from each of the institutions was not stated in figure 10 since the exact number of English teachers at the schools was not known, that is, the total number of questionnaires sent out was not equal to the total number of teachers at those institutions. Hence the percentage is taken from the number of institutions that replied over the total number of institutions to which the questionnaires were sent. The figure shows that the schools and two of the Universities gave an excellent response to the questionnaires.

<table>
<thead>
<tr>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td>2/3</td>
</tr>
<tr>
<td>Secondary Schools</td>
<td>51/55</td>
</tr>
<tr>
<td>Primary Schools</td>
<td>13/15</td>
</tr>
<tr>
<td>Total Rate of Response</td>
<td>65/73</td>
</tr>
</tbody>
</table>

Out of 380 teachers who responded, 230 of them were females and 150 were males. The higher number of female teachers who responded did not necessarily mean that the female teachers were better at responding to questionnaires than the males but it reflects the overall higher percentage of female teachers in Malaysia as shown by the following figures:
Figure 11: Number of Teachers in Malaysia According to Gender
(As At 1st Jan. 1994)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Primary Schools</td>
<td>47,196</td>
<td>57,054</td>
<td>104,250</td>
</tr>
<tr>
<td>National Type Primary Schools (Chinese)</td>
<td>6,466</td>
<td>19,696</td>
<td>26,162</td>
</tr>
<tr>
<td>National Type Primary Schools (Indian)</td>
<td>2,659</td>
<td>3,571</td>
<td>6,230</td>
</tr>
<tr>
<td>Special Primary Schools</td>
<td>158</td>
<td>275</td>
<td>433</td>
</tr>
<tr>
<td>Total</td>
<td>56,479</td>
<td>80,596</td>
<td>133,075</td>
</tr>
</tbody>
</table>

|                |        |        |        |
| Secondary      |        |        |        |
| Non-Residential Secondary Schools | 33,481 | 43,815 | 77,296 |
| Residential Schools     | 1,121  | 1,103  | 2,224  |
| Vocational Schools      | 2,613  | 1,311  | 3,924  |
| Technical Schools       | 237    | 232    | 469    |
| Religious Schools       | 729    | 779    | 1,508  |
| Special Schools         | 56     | 55     | 111    |
| Total                   | 38,237 | 47,295 | 85,532 |

(Source: Perangkaan Pendidikan '94, Mac 1994)

Figure 12: Number of English Language Staff At IIU According to Gender
(As At 1st July. 1994)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Campus</td>
<td>12</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>Matriculation</td>
<td>24</td>
<td>36</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>53</td>
<td>89</td>
</tr>
</tbody>
</table>

A coding frame was drawn up and coding and entry of data on the computer using SPSS Data Entry started to take place in November as questionnaires were sent back. The data were analysed using SPSSPC+.

6.2 SURVEY RESULTS

The survey shows that to the majority of the teachers the idea of CALL was still new (figure 13):

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9Excluding staff who were on study leave. The information was obtained from the Secretary of the English Language Division, IIU in July 1994.
Figure 13: Almost Never Consider Using A Computer in Teaching

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>124</td>
<td>32.6</td>
</tr>
<tr>
<td>Slightly agree</td>
<td>114</td>
<td>30.0</td>
</tr>
<tr>
<td>Neutral</td>
<td>66</td>
<td>17.4</td>
</tr>
<tr>
<td>Slightly disagree</td>
<td>46</td>
<td>12.1</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>27</td>
<td>7.1</td>
</tr>
<tr>
<td>No answer</td>
<td>3</td>
<td>.8</td>
</tr>
<tr>
<td>Total</td>
<td>380</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The number of users was also still relatively small. Figure 14 shows the number of respondents from each level of education in the survey who have actually used the computers for teaching.

Figure 14: Have Used for Teaching

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td>13</td>
<td>32</td>
</tr>
<tr>
<td>Matriculation</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Secondary Sch.</td>
<td>55</td>
<td>215</td>
</tr>
<tr>
<td>Primary Sch.</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>305</td>
</tr>
</tbody>
</table>

When the age group was analysed it was found that most of the users were between the age of 26 to 35 (figure 15):

Figure 15: Age Group of CALL Practitioners

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not stated - 20</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>21 - 25</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>26 - 30</td>
<td>30</td>
<td>83</td>
</tr>
<tr>
<td>31 - 35</td>
<td>16</td>
<td>77</td>
</tr>
<tr>
<td>36 - 40</td>
<td>8</td>
<td>45</td>
</tr>
<tr>
<td>41 - 45</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>46 - 50</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>51 - 55</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>56 - 60</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>305</td>
</tr>
</tbody>
</table>

Not only was the number of users still small, the teachers’ knowledge of computers seemed to be limited as well. The big percentage of teachers shown in table
6.2a who remained neutral might not know about some of the aspects of computing and hence chose to abstain from giving their opinion on the given statement. The number of those who said that the computers were not flexible, that it is difficult to edit text on the screen and that it could not be used for introducing large amount of information was not big. The percentage of teachers who agreed to the first two statements totalled less than twenty percent. This served to reflect that there were teachers who were quite ignorant of the basic facts about computers. These are some of the issues that have to be tackled in inservice teacher training.

Table 6.2a: Teachers' Computing Knowledge

<table>
<thead>
<tr>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q35. Computers are not flexible, hence they are not good for language teaching.</td>
<td>0.5%</td>
<td>21.1%</td>
<td>33.9%</td>
<td>28.9%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Q44. Computers are used to introduce large amount of information to students</td>
<td>0.5%</td>
<td>4.7%</td>
<td>7.4%</td>
<td>22.9%</td>
<td>39.7%</td>
</tr>
<tr>
<td>Q48. One of the computer's weaknesses is that it is difficult to change the text once it has been typed up on the screen</td>
<td>1.6%</td>
<td>30.0%</td>
<td>26.8%</td>
<td>22.4%</td>
<td>13.4%</td>
</tr>
</tbody>
</table>
6.2.1 DISTRIBUTION OF SCALES

Based on the figures shown in table 6.2b, it can be concluded that the distributions of all the dependent variables in the survey are near normal. The fact that the attitude and perception scales are slightly negatively skewed reflects that the teachers rate the innovation favourably.

Table 6.2b: Distribution of Scales in the Survey (N=380)

<table>
<thead>
<tr>
<th>Scales</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>SD</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>71.8</td>
<td>73</td>
<td>73</td>
<td>8.7</td>
<td>1.054</td>
<td>-.682</td>
</tr>
<tr>
<td>Perceptions</td>
<td>48.4</td>
<td>48</td>
<td>48</td>
<td>7.9</td>
<td>-.131</td>
<td>-.215</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-1.3</td>
<td>-1</td>
<td>-1</td>
<td>3.9</td>
<td>0.312</td>
<td>.014</td>
</tr>
<tr>
<td>Expectations</td>
<td>17.4</td>
<td>18</td>
<td>4</td>
<td>9.3</td>
<td>-.657</td>
<td>.093</td>
</tr>
</tbody>
</table>

6.2.2 INTERNAL RELIABILITY OF SCALES

The internal consistency of the variables are determined by using Cronbach Alpha. It is found that each scale has a relatively high internal reliability. The results are tabulated in table 6.2c below:

Table 6.2c: Reliability of Scales in the Survey (N=380)

<table>
<thead>
<tr>
<th>Scales</th>
<th>No.of items</th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>21</td>
<td>71.8</td>
<td>8.7</td>
<td>0.724</td>
</tr>
<tr>
<td>Perception</td>
<td>12</td>
<td>48.4</td>
<td>7.9</td>
<td>0.673</td>
</tr>
<tr>
<td>Anxiety</td>
<td>21</td>
<td>-1.3</td>
<td>3.9</td>
<td>0.799</td>
</tr>
<tr>
<td>Expectation</td>
<td>4</td>
<td>17.4</td>
<td>9.3</td>
<td>0.701</td>
</tr>
</tbody>
</table>

6.2.3 ATTITUDES TO CALL SCALE

The items which were grouped under the attitude and perception variables are compared with the items which

10SD stands for Standard Deviation.
are produced by factor analysis. "Factor analysis is a statistical technique used to identify a relatively small number of factors that can be used to represent relationships among sets of many interrelated variables" (Norusis/SPSS Inc., 1990:B-125). Items are grouped together based on the responses given by the respondents.

In determining the number of factors to be used in the model, one of the criteria used is to take only factors that account for variances which have an Eigenvalue which is greater than one (Norusis/SPSS Inc., 1990:B-130). In the analysis, sixteen factors were found to have an Eigenvalue of more than one. The cumulative percentage of the sixteen factors is 64.4%. The Eigenvalue of Factor One is 9.5 and its percentage of variance is 16.9%. For Factor Two the Eigenvalue is 4.4 and its percentage of variance is 7.8%. The percentage of variance of the other factors is even lower. It ranges from 1.8% to 5.1%.

A total of twenty-one items were constructed to make up the 'Attitudes to CALL' scale. (See table 6.1a for the list of statements). This was compared with the items under Factor One of the Factor Analysis. Table 6.2d shows that all the items which were categorised under the attitude variable appeared under Factor One of the Factor Analysis. This serves to confirm the content
validity of the measuring instrument.

<table>
<thead>
<tr>
<th>Original Grouping</th>
<th>Items</th>
<th>Factor Analysis (Factor Loading of Factor One)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Q1. Computers as important as textbooks</td>
<td>0.56429</td>
</tr>
<tr>
<td>A</td>
<td>Q3. Comp. training program should be compulsory</td>
<td>0.60816</td>
</tr>
<tr>
<td>A</td>
<td>Q4. Comp. increases teacher-student interaction</td>
<td>0.50117</td>
</tr>
<tr>
<td>A</td>
<td>Q5. Look forward to a wider use of comps.</td>
<td>0.76908</td>
</tr>
<tr>
<td>A</td>
<td>Q6. Comps are not necessary</td>
<td>0.47641</td>
</tr>
<tr>
<td>A</td>
<td>Q8. Comps can improve students' communication</td>
<td>0.59835</td>
</tr>
<tr>
<td>A</td>
<td>Q9. Comps bring more advantages to the teachers</td>
<td>0.67579</td>
</tr>
<tr>
<td>A</td>
<td>Q12. Comps will not improve students' attitude</td>
<td>0.56134</td>
</tr>
<tr>
<td>A</td>
<td>Q19. Comps make language lessons more interesting</td>
<td>0.47851</td>
</tr>
<tr>
<td>A</td>
<td>Q21. Comps make learning easier to the students</td>
<td>0.57999</td>
</tr>
<tr>
<td>A</td>
<td>Q24. Language teaching is better without comp.</td>
<td>0.60884</td>
</tr>
<tr>
<td>-12</td>
<td>Q26. I almost never consider using a computer for teaching</td>
<td>0.46430</td>
</tr>
<tr>
<td>A</td>
<td>Q27. Comps help in learning the four language skills</td>
<td>0.64937</td>
</tr>
<tr>
<td>A</td>
<td>Q28. Comps increase student-student interaction</td>
<td>0.55306</td>
</tr>
<tr>
<td>-</td>
<td>Q32. Comp. arrangement is important</td>
<td>0.51121</td>
</tr>
<tr>
<td>-</td>
<td>Q35. Comps are not good for language teaching because it is not flexible</td>
<td>0.48181</td>
</tr>
<tr>
<td>A</td>
<td>Q36. Comps help to motivate the students to learn</td>
<td>0.66369</td>
</tr>
<tr>
<td>A</td>
<td>Q40. Students are more active in CALL classes</td>
<td>0.66099</td>
</tr>
<tr>
<td>A</td>
<td>Q43. Comps make lang. lessons more interesting</td>
<td>0.74428</td>
</tr>
<tr>
<td>-</td>
<td>Q44. Comps are used to introduce large amount of information</td>
<td>0.45065</td>
</tr>
<tr>
<td>A</td>
<td>Q45. Comps can be used as a private tutor</td>
<td>0.50530</td>
</tr>
<tr>
<td>A</td>
<td>Q46. Comps have little application to language teaching</td>
<td>0.56466</td>
</tr>
<tr>
<td>A</td>
<td>Q49. Comp. usage is not related to the need of the school</td>
<td>0.44954</td>
</tr>
<tr>
<td>A</td>
<td>Q52. Comp. skills are applicable outside the school</td>
<td>0.48068</td>
</tr>
<tr>
<td>A</td>
<td>Q53. Comps make teaching easier</td>
<td>0.58170</td>
</tr>
</tbody>
</table>

Cronbach Alpha was used to compare the internal consistency of the original grouping and the grouping under Factor One. The internal reliability of the original grouping was found to be higher than the grouping under Factor One although this had more items.

11A represents the statement that makes up the 'Attitudes to CALL' scale.
12 - represents statement which has not been selected to make up the 'Attitudes to CALL' scale.
and should, therefore, have the higher alpha value. The results are given in table 6.2e below:

Table 6.2e: Reliability of the Items for 'Attitudes to CALL' Scale (N=380)

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of items</th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Grouping</td>
<td>21</td>
<td>71.8</td>
<td>8.7</td>
<td>0.724</td>
</tr>
<tr>
<td>Factor One</td>
<td>25</td>
<td>84.3</td>
<td>9.2</td>
<td>0.692</td>
</tr>
</tbody>
</table>

It was decided that the original grouping would be used to measure the "Attitudes to CALL" scale. Factor analysis helped to confirm the validity of the instrument. Added to that, the alpha value served to show that the instrument was substantially reliable.

6.2.4 PERCEPTIONS OF CALL SCALE

Twelve of the items which the researcher selected to represent the 'Perceptions of CALL' scale are found under the category Factor Two of the Factor Analysis. (See table 6.1b for the items which were chosen to measure the respondents' perceptions of CALL). The researcher decided to use her original grouping as a measurement for perceptions because the selection was based on her previous findings, and it was not substantially contradicted by the factor analysis results.
Table 6.2f: Items Chosen to Measure Teachers' Perceptions of CALL

<table>
<thead>
<tr>
<th>Original Grouping</th>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Items in Factor Two</td>
</tr>
<tr>
<td>P13</td>
<td>Q10. Lang. teachers must know how comps. work</td>
<td>-.40652</td>
</tr>
<tr>
<td>P</td>
<td>Q13. Better students will gain more</td>
<td>.43896</td>
</tr>
<tr>
<td>P</td>
<td>Q14. The benefit of comps. does not justify its cost</td>
<td>.47674</td>
</tr>
<tr>
<td>P</td>
<td>Q17. Comps. increase students' anxiety</td>
<td>.37561</td>
</tr>
<tr>
<td>P</td>
<td>Q18. Comps. require large changes in teaching methods</td>
<td>.51967</td>
</tr>
<tr>
<td>P</td>
<td>Q20. Only comp. studies teacher should use the computer</td>
<td>.37171</td>
</tr>
<tr>
<td>P</td>
<td>Q22. Comps. could weaken teachers' control</td>
<td>.35474</td>
</tr>
<tr>
<td>-</td>
<td>Q25. Prefer an expert from outside the school</td>
<td>-.39281</td>
</tr>
<tr>
<td>P</td>
<td>Q30. CALL lessons are time consuming</td>
<td>.32380</td>
</tr>
<tr>
<td>P</td>
<td>Q31. Less preparation time is needed for CALL lessons</td>
<td>-.39086</td>
</tr>
<tr>
<td>P</td>
<td>Q33. Comps. are not for tired students</td>
<td>.39785</td>
</tr>
<tr>
<td>P</td>
<td>Q37. Students are more individualistic in CALL classes</td>
<td>.38378</td>
</tr>
<tr>
<td>P</td>
<td>Q47. Teachers must know programming</td>
<td>.52568</td>
</tr>
<tr>
<td>-</td>
<td>Q54. Prefer personal attention from the trainer</td>
<td>.38399</td>
</tr>
<tr>
<td>P</td>
<td>Q2. Comps. decrease role of teachers</td>
<td>.34488</td>
</tr>
<tr>
<td>P</td>
<td>Q15. Fewer teachers will be needed</td>
<td>.24352</td>
</tr>
<tr>
<td>P</td>
<td>Q39. Students are not shy of making mistakes</td>
<td>-.21786</td>
</tr>
<tr>
<td>P</td>
<td>Q51. Comps. are for boys</td>
<td>.33518</td>
</tr>
</tbody>
</table>

\[^{13}P\] represents the statement that makes up the 'Perceptions of CALL'scale.
When the internal reliability of the original grouping and the grouping under Factor Two were compared by using Cronbach Alpha, the internal reliability of the original grouping was found to be slightly lower though still quite high (table 6.2g).

<table>
<thead>
<tr>
<th>Grouping</th>
<th>No. of items</th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>16</td>
<td>48.4</td>
<td>7.9</td>
<td>0.673</td>
</tr>
<tr>
<td>Factor Two</td>
<td>14</td>
<td>44.9</td>
<td>7.4</td>
<td>0.683</td>
</tr>
</tbody>
</table>

The loss in reliability (alpha down from 0.68 to 0.67) as a consequence of using the original grouping was, the researcher decided, more than offset by the gain in validity obtained from the additional four items (Q2, Q15, Q39, Q51) and the deletion of two (Q25, Q54). These four items add significantly to the range of teacher perceptions tapped by the scale.

6.2.5 CORRELATION COEFFICIENTS BETWEEN SCALES

The correlations between the scales were analysed to see if they were significant. The results are tabulated in table 6.2h below:

<table>
<thead>
<tr>
<th></th>
<th>Perception</th>
<th>Anxiety</th>
<th>Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>.1133</td>
<td>-.3572**</td>
<td>.1249</td>
</tr>
<tr>
<td>Perception</td>
<td>.1228</td>
<td></td>
<td>-.0991</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>-.1153</td>
<td></td>
</tr>
</tbody>
</table>

**p<0.001
No significant correlation was recorded between the perception and attitude variables in table 6.2h. This helps to establish the validity of the researcher’s a priori choice of two distinct scales. The result served to show that there was no linear association in the items between the attitude and perception variables. Similar results were obtained with the attitude and expectation variables, and also perception and expectation variables where no significant relation was recorded between them.

Table 6.2h also displays that the teachers’ level of anxiety was strongly correlated to their attitude towards CALL. Since words with negative connotations represent positive anxiety, the negative correlation means that the more positive was their attitude the less anxious they were of its usage in teaching.

6.3 ATTITUDES

Based on her observations and interviews in the previous phases of the study the researcher could not detect any differences between those teachers who have positive attitudes and those who have not. There was no clear line to separate the two groups. Both male and female teachers, young and old seemed to be equally interested or in many cases disinterested in the innovation. Their teaching experience, teaching hours and computing
experience did not seem to have any contribution to their attitudes towards the computer. It was thought that statistical analysis of their attitudes might help to differentiate the two groups.

Where appropriate, correlation coefficients, t-test, and analysis of variance were carried out. The correlation coefficient was used to find the association between two variables. Table 6.3a confirmed the assumptions made in the previous phases of the study where there was no significant correlation between the respondents' attitude to their age, teaching experience and length of teaching hours (p<0.01).

Table 6.3a: Correlation Coefficients Between Attitudes and Teachers' Background

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>344</td>
<td>.0285</td>
<td>NS</td>
</tr>
<tr>
<td>Total teaching experience</td>
<td>344</td>
<td>.0171</td>
<td>NS</td>
</tr>
<tr>
<td>Language teaching experience</td>
<td>344</td>
<td>.0188</td>
<td>NS</td>
</tr>
<tr>
<td>Total hours of teaching</td>
<td>336</td>
<td>.1328</td>
<td>NS</td>
</tr>
<tr>
<td>Hours of language teaching</td>
<td>342</td>
<td>.1334</td>
<td>NS</td>
</tr>
</tbody>
</table>

6.3.1 ATTITUDES AND GENDER DIFFERENCES

When sexes were analysed separately it was found that there was a higher percentage of female users than male who have experienced using the computers (figure 16).

Figure 16: Gender Differences in Computer Usage

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Used Computers</td>
<td>90(60.4%)</td>
<td>165(71.7%)</td>
</tr>
<tr>
<td>Have Not Used Computers</td>
<td>59(39.6%)</td>
<td>65(28.3%)</td>
</tr>
<tr>
<td></td>
<td>149(100%)</td>
<td>230(100%)</td>
</tr>
</tbody>
</table>
However, where CALL was concerned there was a slightly higher percentage of men than women practitioners. This is shown by figure 17 below:

**Figure 17: Gender Differences Among Teachers Who Have Used Computers for Teaching**

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Used Computers</td>
<td>31 (20.7%)</td>
<td>44 (19.1%)</td>
</tr>
<tr>
<td>Have Not Used Computers</td>
<td>119 (79.3%)</td>
<td>186 (80.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>150 (100%)</td>
<td>230 (100%)</td>
</tr>
</tbody>
</table>

The higher percentage of male users did not necessarily mean that they were more positive in their attitude towards CALL. In order to see whether there were any significant differences in the sexes' attitudes to the use of computers for teaching language the t-test procedure was employed. It was used to test the hypothesis about the equality of two means for variables measured on an interval scale (Norusis/SPSS Inc., 1990:B-7). In the case studies which were conducted in the earlier phases, no significant difference could be detected between the male and female teachers with regard to CALL. Hence, the null hypothesis was accepted where it was assumed that there was no difference between the male and female teachers in their attitude towards CALL. A hypothesis of no difference was also used whenever the t-test procedure was carried out on the selected variables in this study (p<0.05). For the t-test to take place, where the groups were of unequal size, the variance of the two independent samples were taken as equal (Howell, 1992).
When the t-test procedure was run, the difference between the male and female teachers were found to be not significant (p<0.05) (table 6.3b). This helps to validate the findings made in the case studies where no difference was noticed between the sexes in their attitudes towards CALL.

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>136</td>
<td>72.0</td>
<td>9.3</td>
<td>-.37</td>
<td>NS</td>
</tr>
<tr>
<td>Female</td>
<td>208</td>
<td>71.7</td>
<td>8.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The lack of difference between the male and female teachers in their attitudes towards CALL signifies that both sexes reacted towards computer usage in the same way. This means that one's gender was not a good indication of how 'friendly' one was going to be towards the innovation.

6.3.2 ATTITUDES AND COMPUTING EXPERIENCE

Table 6.3c illustrates that no significant difference was recorded between teachers who were proficient in using the computers and those who were not, where their attitudes were concerned. Computing experience, computer ownership and access to it were also not significantly related to their attitudes (p<0.05). No significant relation was also noticed between teachers who were waiting for training and those who were not.
Table 6.3c: Differences Between Teachers Grouped by Computing Background and Attitudes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Computer Ownership</td>
<td>86</td>
<td>71.0</td>
<td>7.7</td>
<td>258</td>
</tr>
<tr>
<td>Experience in using computer</td>
<td>235</td>
<td>72.1</td>
<td>8.5</td>
<td>108</td>
</tr>
<tr>
<td>No reason to use a comp.</td>
<td>25</td>
<td>70.0</td>
<td>11.4</td>
<td>319</td>
</tr>
<tr>
<td>No access to a computer</td>
<td>43</td>
<td>73.4</td>
<td>8.2</td>
<td>301</td>
</tr>
<tr>
<td>Access to comps. at work for teaching</td>
<td>156</td>
<td>71.8</td>
<td>8.9</td>
<td>188</td>
</tr>
<tr>
<td>Waiting for training</td>
<td>68</td>
<td>72.1</td>
<td>8.5</td>
<td>274</td>
</tr>
<tr>
<td>Other reason for not using comp.</td>
<td>10</td>
<td>70.1</td>
<td>10.4</td>
<td>334</td>
</tr>
</tbody>
</table>

There was also no significant correlation between teachers' attitudes and how long they had used the computer, and also how proficient they were in using the computer (p<0.01)(table 6.3d).

Table 6.3d: Correlation Coefficients Between Usage and Proficiency with Teachers' Attitudes

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of computer usage</td>
<td>343</td>
<td>-0.0065</td>
<td>NS</td>
</tr>
<tr>
<td>Computing proficiency</td>
<td>343</td>
<td>0.0818</td>
<td>NS</td>
</tr>
</tbody>
</table>

In the case studies, the various differences in teachers' computing knowledge did not seem to influence their attitudes towards the device. People who were familiar with the computers might know what were the advantages and disadvantages of the tool. On the other hand, those who had a limited knowledge of the computers might have an idea what good or harm it could bring based on their

---

14 'Yes' represents positive response whereas 'No' represents negative response. This applies to all the tables which contains these headings.

15 Among the reasons given were they were waiting for computer loan and they had not get the chance to try it out yet.

16 The Alpha value of the Proficiency variable is 0.8637
reading or their contact with people who know about computer. Hence, in terms of attitude they were on equal ground.

6.3.3 ATTITUDES AND USAGE

Although no significant difference was observed between the users and the non-users when their experience with computer was analysed as a whole, upon further analysis it was found that the users, those who utilised the computer for entering students' marks, had a more positive attitude than those who did not (table 6.3e). These teachers might have seen how the device could help make their work smoother and hence the more positive attitudes. The teachers who had not used the computers for this purpose yet might not exactly know how their work could be made more efficient by using the device.

Table 6.3e: Differences Between Teachers Grouped by Computer Usage and Attitudes

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Use for personal reasons</td>
<td>163</td>
<td>72.4</td>
<td>8.3</td>
<td>181</td>
</tr>
<tr>
<td>Use for academic matter</td>
<td>160</td>
<td>72.4</td>
<td>7.7</td>
<td>184</td>
</tr>
<tr>
<td>Use for entering marks</td>
<td>72</td>
<td>73.9</td>
<td>7.1</td>
<td>272</td>
</tr>
<tr>
<td>Use for teaching</td>
<td>69</td>
<td>72.9</td>
<td>6.9</td>
<td>275</td>
</tr>
<tr>
<td>Use for other reasons(^{17})</td>
<td>33</td>
<td>72.4</td>
<td>9.2</td>
<td>311</td>
</tr>
</tbody>
</table>

It is interesting to note that there was no significant difference between the group of teachers who had used the computer for teaching and those who had not. Those who

\(^{17}\)Among the uses quoted were for creating banners and for administrative purposes.
had used the computers might be able to see how it could benefit their students. Similarly, those who had not used it might also share the same idea except that they might not have the chance to use it yet.

The lack of significance in the difference between the CALL practitioners and the non-practitioners was also displayed when their CALL teaching activities were analysed (table 6.3f).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes N</th>
<th>Mean</th>
<th>SD</th>
<th>No N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill and Practice</td>
<td>21</td>
<td>74.4</td>
<td>5.7</td>
<td>323</td>
<td>71.7</td>
<td>8.9</td>
<td>-1.41</td>
<td>NS</td>
</tr>
<tr>
<td>Cloze</td>
<td>24</td>
<td>72.6</td>
<td>6.6</td>
<td>320</td>
<td>71.8</td>
<td>8.9</td>
<td>-0.44</td>
<td>NS</td>
</tr>
<tr>
<td>Question-Answer</td>
<td>29</td>
<td>73.2</td>
<td>7.2</td>
<td>15</td>
<td>73.2</td>
<td>7.2</td>
<td>-0.89</td>
<td>NS</td>
</tr>
<tr>
<td>Multiple-choice</td>
<td>24</td>
<td>73.9</td>
<td>6.1</td>
<td>320</td>
<td>71.7</td>
<td>8.9</td>
<td>-1.22</td>
<td>NS</td>
</tr>
<tr>
<td>Writing</td>
<td>28</td>
<td>73.3</td>
<td>7.0</td>
<td>316</td>
<td>71.7</td>
<td>8.9</td>
<td>-0.95</td>
<td>NS</td>
</tr>
<tr>
<td>Other techniques*</td>
<td>12</td>
<td>73.8</td>
<td>7.9</td>
<td>332</td>
<td>71.8</td>
<td>8.8</td>
<td>-0.78</td>
<td>NS</td>
</tr>
</tbody>
</table>

6.3.4 ATTITUDES AND TRAINING

Table 6.3g below shows that there was a significant relation between training and attitude. The teachers who had attended a recognised training programme had a more positive attitude than those who had not. Preservice and in-house training did not seem to help much in changing the teachers' attitude towards the tool. Instead, the training programmes which were carried out by the Ministry of Education were positively related to their

---

18 Among the uses quoted were teaching simulation, identify and rectify errors and crossword puzzles.
attitude. The tendency for the teachers to regard the courses conducted by the Ministry as more important and relevant was realised previously when the researcher conducted her study at the schools. The teachers of school A asked whether the Ministry was going to arrange for a similar course for them. It might reflect that courses which were organised by the Ministry have more impact on the teachers than those organised by other bodies or personnel, except when the teachers themselves took the initiative to learn as displayed by the figures in table 6.3g19.

Table 6.3g: Differences Between Teachers Grouped by Training Background and Attitudes

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes N</th>
<th>Mean</th>
<th>SD</th>
<th>No N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had recognised training</td>
<td>106</td>
<td>73.5</td>
<td>7.0</td>
<td>238</td>
<td>71.1</td>
<td>9.3</td>
<td>-2.68</td>
<td>.01</td>
</tr>
<tr>
<td>-Preservice</td>
<td>79</td>
<td>71.8</td>
<td>6.4</td>
<td>265</td>
<td>71.8</td>
<td>9.3</td>
<td>0.03</td>
<td>NS</td>
</tr>
<tr>
<td>-In-house</td>
<td>30</td>
<td>73.6</td>
<td>8.3</td>
<td>314</td>
<td>71.6</td>
<td>8.8</td>
<td>-1.17</td>
<td>NS</td>
</tr>
<tr>
<td>-Ministry of Ed.</td>
<td>36</td>
<td>75.1</td>
<td>8.4</td>
<td>308</td>
<td>71.4</td>
<td>8.7</td>
<td>-2.41</td>
<td>.05</td>
</tr>
<tr>
<td>Took the initiative to learn from other organisation/s</td>
<td>17</td>
<td>76.9</td>
<td>5.7</td>
<td>327</td>
<td>71.6</td>
<td>8.8</td>
<td>-2.47</td>
<td>.05</td>
</tr>
</tbody>
</table>

Teachers' preference for a recognised training programme could be one of the reasons why the steps taken by the researcher to promote CALL in the case studies were not successful. The end-results might have been different if teachers were made to pay for the services provided and a certificate awarded at the end of it.

19 Under others, the teachers quoted private computer schools that they attended of their own accord.
A closer look at the teachers who were sent for training and those who were not revealed that there was a significant difference between the two (table 6.3h). However, the relation of those who volunteered with those who did not was not significant. This could be attributed to the fact that the teachers who went for training were selected and they were not expected to volunteer. The fact that they were selected for the courses might actually help to boost their attitudes towards CIE. By attending such courses it indirectly placed the teachers above the others in terms of their knowledge in computing.

Table 6.3h: Differences Between Teachers Grouped by Mode of Attending Training Programmes and Attitudes

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes N</th>
<th>Mean</th>
<th>SD</th>
<th>No N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was sent for training</td>
<td>53</td>
<td>74.8</td>
<td>7.0</td>
<td>291</td>
<td>71.3</td>
<td>8.9</td>
<td>-2.70</td>
<td>.01</td>
</tr>
<tr>
<td>Volunteered to go</td>
<td>75</td>
<td>72.8</td>
<td>7.9</td>
<td>269</td>
<td>71.5</td>
<td>9.0</td>
<td>-1.11</td>
<td>NS</td>
</tr>
<tr>
<td>Other option</td>
<td>29</td>
<td>72.9</td>
<td>6.6</td>
<td>315</td>
<td>71.7</td>
<td>8.9</td>
<td>-0.67</td>
<td>NS</td>
</tr>
</tbody>
</table>

Based on the interviews with the teachers it was found that not all of those who were chosen went for the training. In the interview it was revealed that some of the teachers went as a replacement for their colleagues who could not attend the training programme. It is interesting to see that the attitude of the volunteers was not significantly different from the others. It seemed that the act of volunteering did not help to change the teachers' attitude towards the computer. This means that to make teachers react more positively to the

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innovation the planners have to select rather than wait for them to volunteer.

6.3.5 ATTITUDES OF TEACHERS AT DIFFERENT LEARNING INSTITUTIONS

A teacher’s place of work is normally related to the level of his or her qualification. The ANOVA procedure was used to see if there was any relationship between the place where they were teaching and their qualification with their attitudes.

Table 6.3i: ANOVA: Attitudes by Qualifications and Learning Institutions.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td>3035.54</td>
<td>11</td>
<td>275.96</td>
<td>4.119</td>
<td>0.000</td>
</tr>
<tr>
<td>Qualification</td>
<td>207.74</td>
<td>8</td>
<td>25.97</td>
<td>.388</td>
<td>0.927</td>
</tr>
<tr>
<td>Learning Inst.</td>
<td>1349.90</td>
<td>3</td>
<td>449.97</td>
<td>6.717</td>
<td>0.000</td>
</tr>
<tr>
<td>2-Way Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qual.by Learning Inst.</td>
<td>1504.38</td>
<td>9</td>
<td>167.15</td>
<td>2.495</td>
<td>0.009</td>
</tr>
<tr>
<td>Explained</td>
<td>4539.92</td>
<td>20</td>
<td>227.00</td>
<td>3.388</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>21638.90</td>
<td>323</td>
<td>66.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26178.82</td>
<td>343</td>
<td>76.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.3i indicates that teachers’ place of work was strongly related to their attitudes, and that there was a relation between their qualification and the level of institution that they were teaching. When a ONEWAY analysis was carried out it was found that the school teachers had a more positive attitude towards CALL than the staff who were attached to the Universities (including Matriculation) (table 6.3j). Hence we can conclude that teachers with a positive attitude possessed
a lower level of qualification and were teaching at a lower level of educational institution. Based on this we can deduce that computer implementation is more likely to be successful at schools rather than at the tertiary level because of the more positive attitude shown by the teachers.

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Group</th>
<th>Matriculation</th>
<th>University</th>
<th>Second.</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>65.5</td>
<td>Matric.</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>41</td>
<td>66.3</td>
<td>Univer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>244</td>
<td>72.8</td>
<td>Second.</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>75.4</td>
<td>Primary</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Pairs of groups significantly different at 0.05 level

6.3.6 **SUMMARY OF ATTITUDE SCALE**

From the discussion above we can summarise that the attitudes of the school teachers were more positive than those of respondents teaching at the Universities. Their familiarity with the device did not contribute much to their attitudes towards it except for those who used the tool for entering marks. Sending the staff to a recognised training programme, specifically those conducted by MOE, might be one of the ways of changing the attitudes of teachers.

6.4 **PERCEPTIONS**

Teacher's perceptions might be one of the factors that could influence teachers' decisions whether or not to
adopt the technology in teaching. In the case studies which were conducted in the earlier phases no difference could be detected in teachers’ perceptions in terms of their age, teaching experience and teaching hours. This was also reflected in the results of the survey (table 6.4a). The correlations between these variables and their perceptions were found to be insignificant.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>353</td>
<td>0.0265</td>
<td>NS</td>
</tr>
<tr>
<td>Total teaching experience</td>
<td>353</td>
<td>0.0720</td>
<td>NS</td>
</tr>
<tr>
<td>Language teaching experience</td>
<td>353</td>
<td>0.0489</td>
<td>NS</td>
</tr>
<tr>
<td>Total hours of teaching</td>
<td>347</td>
<td>0.0125</td>
<td>NS</td>
</tr>
<tr>
<td>Hours of language teaching</td>
<td>352</td>
<td>-0.0441</td>
<td>NS</td>
</tr>
</tbody>
</table>

6.4.1 PERCEPTIONS AND GENDER DIFFERENCES

No significant difference was observed between the male and female teachers in the case studies in their perceptions of CALL. The figures in table 6.4b supported the finding where no significant difference was shown between the two sexes (p<0.05).

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>140</td>
<td>48.4</td>
<td>8.2</td>
<td>0.04</td>
<td>NS</td>
</tr>
<tr>
<td>Female</td>
<td>213</td>
<td>48.4</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above findings show that their personal background such as their gender, age, teaching experience and contact hours did not contribute significantly to their
perception of CALL. The findings served to reflect that the teachers shared the same opinion concerning CALL. Their belief about what was involved in CALL which included the need for learning more about the technology might be one of the factors why computer usage was not popular among the teachers yet.

6.4.2 PERCEPTIONS AND COMPUTING EXPERIENCE

The teachers who did not own a computer and have no experience in using one were found to have a more positive perception of the computer (table 6.4c). Those who found no reason to use the device were also more positive than the others. Staff who were waiting for training also had a more positive picture of CALL.

Table 6.4c: Differences Between Teachers Grouped by Computing Background and Perceptions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean</td>
<td>SD</td>
<td>N Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Computer Ownership</td>
<td>87</td>
<td>45.4</td>
<td>266</td>
<td>49.4</td>
</tr>
<tr>
<td></td>
<td>8.3</td>
<td>7.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience in using a comp.</td>
<td>237</td>
<td>47.5</td>
<td>115</td>
<td>50.3</td>
</tr>
<tr>
<td></td>
<td>8.3</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No reason to use a comp.</td>
<td>27</td>
<td>51.4</td>
<td>326</td>
<td>48.1</td>
</tr>
<tr>
<td></td>
<td>5.7</td>
<td>8.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No access to a computer</td>
<td>43</td>
<td>48.4</td>
<td>310</td>
<td>48.4</td>
</tr>
<tr>
<td></td>
<td>7.0</td>
<td>8.0</td>
<td>-0.05</td>
<td>NS</td>
</tr>
<tr>
<td>Access to comps. at work for teaching</td>
<td>165</td>
<td>48.5</td>
<td>188</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>8.4</td>
<td>7.4</td>
<td>-0.21</td>
<td>NS</td>
</tr>
<tr>
<td>Waiting for training</td>
<td>71</td>
<td>50.4</td>
<td>282</td>
<td>47.9</td>
</tr>
<tr>
<td></td>
<td>7.0</td>
<td>8.0</td>
<td>-2.44</td>
<td>.05</td>
</tr>
<tr>
<td>Other reason for not using the computer</td>
<td>10</td>
<td>51.0</td>
<td>343</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>6.6</td>
<td>7.9</td>
<td>-1.06</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 6.4d shows that the longer the teachers used the computers and the more proficient they were in using the computer, the more negative was their perception towards CALL.
Table 6.4d: Correlation Coefficients Between Teachers' Perceptions and Their Length of Computer Usage and Proficiency

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of computer usage</td>
<td>352</td>
<td>-0.2983</td>
<td>.001</td>
</tr>
<tr>
<td>Computing Proficiency</td>
<td>352</td>
<td>-0.2321</td>
<td>.001</td>
</tr>
</tbody>
</table>

Both tables 6.4c and 6.4d display that the teachers' perceptions of CALL were largely coloured by their familiarity with the computers. The decrease in usage among the IIU staff from Phase I to III of this study might be explained by these findings. Some of the instructors in the study were familiar with computer usage and yet they did not make a constant use of the device for teaching, instead it was found that there was a decrease in usage from one semester to the next.

6.4.3 PERCEPTIONS AND USAGE

Teachers who used the computers for i) personal reason, ii) academic matters, iii) entering marks and also for iv) teaching were found to be significantly different from those who did not in that their perceptions were not as positive as the latter (6.4e). These findings were in line with the findings made above. As they knew more about computer usage they might have started to find the 'flaws' in the technology. For example, when a crosstabulation was carried out between variable 'Has taught language by using the computer' with statement Q22\textsuperscript{20} in section four of the questionnaire it was found that out of 75 teachers who have used the computers for

\textsuperscript{20}Q22- Using computers in language classroom would weaken teacher control of the students.
teaching, 57 of them stated that its usage could weaken teachers' control of their class.

Table 6.4e: Differences Between Teachers Grouped by Computer Usage and Perceptions

| Variables                          | Yes | No  | t  | Sig.
|------------------------------------|-----|-----|----|------
|                                    | N   | Mean| SD | N   | Mean| SD |
| Use for personal reasons           | 168 | 46.6| 8.0| 185 | 50.0| 7.4|
| Use for academic matters           | 161 | 47.1| 7.8| 192 | 49.5| 7.8|
| Use for entering marks             | 72  | 46.4| 8.4| 281 | 48.9| 7.7|
| Use for teaching                   | 70  | 46.5| 8.1| 283 | 48.8| 7.7|
| Use for other reasons              | 37  | 46.8| 9.7| 316 | 48.6| 7.6|

When the type of exercises that those teachers who practised CALL were analysed the 'question-answer' technique and 'other techniques' were found to be significant (table 6.4f). Teachers who did not try this kind of exercises have a more positive perception of CALL. It is possible that those who had used this type of exercise found that it was better taught by using the traditional method.

Table 6.4f: Differences Between Teachers Grouped by Techniques Used and Perceptions

| Variables            | Yes | No  | t  | Sig.
|----------------------|-----|-----|----|------
|                      | N   | Mean| SD | N   | Mean| SD |
| Drill and Practice   | 22  | 46.3| 9.4| 331 | 48.5| 7.8|
| Cloze                | 23  | 46.2| 9.3| 330 | 48.5| 7.8|
| Question-Answer      | 30  | 45.4| 9.0| 323 | 48.7| 7.7|
| Multiple Choice      | 24  | 46.2| 9.7| 329 | 48.5| 7.7|
| Writing              | 31  | 47.6| 8.4| 322 | 48.5| 7.8|
| Other techniques     | 11  | 43.0| 8.6| 342 | 48.6| 7.0|

6.4.4 PERCEPTIONS AND TRAINING

Those teachers who had attended a recognised course were less positive in their perceptions of CALL. The type of
training that affected them most seemed to be the one that they had before they started serving (table 6.4g).

In the case studies, none of the teachers who followed computer related courses when they were studying were exposed to computer usage in an actual classroom situation. They might not be aware then what was actually involved in teaching by using the computer. On the other hand, practising teachers might be more aware of the complex nature of teaching, hence the lack of significant difference between them regardless whether they were trained or not.

Table 6.4g: Differences Between Teachers Grouped by Training Background and Perceptions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes N</th>
<th>Yes Mean SD</th>
<th>No N</th>
<th>No Mean SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had recognised training</td>
<td>108</td>
<td>46.8 8.3</td>
<td>245</td>
<td>49.1 7.6</td>
<td>2.47</td>
<td>.05</td>
</tr>
<tr>
<td>-Preservice training</td>
<td>82</td>
<td>45.9 7.9</td>
<td>271</td>
<td>49.1 7.7</td>
<td>3.35</td>
<td>.001</td>
</tr>
<tr>
<td>-In-house training</td>
<td>34</td>
<td>47.7 9.1</td>
<td>319</td>
<td>48.5 7.8</td>
<td>0.55</td>
<td>NS</td>
</tr>
<tr>
<td>-Ministry of Ed.</td>
<td>37</td>
<td>49.0 8.3</td>
<td>316</td>
<td>48.3 7.8</td>
<td>-0.50</td>
<td>NS</td>
</tr>
<tr>
<td>-Took the initiatives to learn from other organisation(s)</td>
<td>17</td>
<td>48.2 9.1</td>
<td>336</td>
<td>48.4 7.8</td>
<td>0.11</td>
<td>NS</td>
</tr>
</tbody>
</table>

The mode of training was also related to perceptions. Teachers who took the initiative, in some cases by practising on their own, were found to be less positive in their perceptions than the others (table 6.4h). This group of teachers seemed to be highly motivated since they went on to learn on their own although they were not selected for the training. An assumption can be made that this group of teachers managed to probe deeper into the intricacies of CALL compared to those who did not.
display the same degree of motivation as they did. The knowledge that they gained also exposed them to what is involved in CALL such as the need for more time to prepare for CALL lessons as opposed to traditional classes.

Table 6.4h: Differences Between Teachers Grouped by Mode of Attending Training and Perceptions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>Mean</th>
<th>SD</th>
<th>No</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was sent for training</td>
<td>60</td>
<td>48.7</td>
<td>7.9</td>
<td>293</td>
<td>48.3</td>
<td>7.9</td>
<td>-0.30</td>
<td>NS</td>
</tr>
<tr>
<td>Volunteered to go</td>
<td>73</td>
<td>47.2</td>
<td>8.7</td>
<td>280</td>
<td>48.7</td>
<td>7.6</td>
<td>1.49</td>
<td>NS</td>
</tr>
<tr>
<td>Other option(s)</td>
<td>29</td>
<td>43.3</td>
<td>7.8</td>
<td>324</td>
<td>48.8</td>
<td>7.7</td>
<td>3.66</td>
<td>.001</td>
</tr>
</tbody>
</table>

6.4.5 PERCEPTIONS OF TEACHERS AT THE DIFFERENT LEARNING INSTITUTIONS

Table 6.4i shows that the place where the teachers were teaching and their qualifications did not jointly affect their perceptions of CALL. However, there existed a relation between the teacher’s qualifications and perceptions.

Table 6.4i: ANOVA: Perceptions by Qualifications and Learning Institutions

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td>2384.1</td>
<td>11</td>
<td>216.7</td>
<td>3.8</td>
<td>.000</td>
</tr>
<tr>
<td>Institutions</td>
<td>265.3</td>
<td>3</td>
<td>88.4</td>
<td>1.6</td>
<td>.199</td>
</tr>
<tr>
<td>Qualifications</td>
<td>1506.5</td>
<td>8</td>
<td>188.3</td>
<td>3.3</td>
<td>.001</td>
</tr>
<tr>
<td>2-Way Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insts. by Qualific.</td>
<td>671.6</td>
<td>9</td>
<td>74.6</td>
<td>1.3</td>
<td>.227</td>
</tr>
<tr>
<td>Explained</td>
<td>3055.7</td>
<td>20</td>
<td>152.8</td>
<td>2.7</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>18815.9</td>
<td>332</td>
<td>56.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21871.6</td>
<td>352</td>
<td>62.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teachers with a lower level of qualification seemed to be
more positive in their perceptions than teachers who have at least a Diploma in Education (table 6.4j). It is possible that the higher their qualification the more exposure they got to the computers, hence the less positive level of perception. It is interesting to note that the place of work did not contribute significantly to perceptions although it did make a difference to attitudes towards CALL. It served to show that it is familiarity with the computers which was more significant in determining their perceptions of CALL.

<table>
<thead>
<tr>
<th>Mean</th>
<th>Group</th>
<th>M.A/Ed</th>
<th>B.Other</th>
<th>B.A/Ed</th>
<th>Dip.of Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.7</td>
<td>M.A/Ed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.8</td>
<td>B.Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.9</td>
<td>B.A/Ed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.4</td>
<td>Dip.Ed.</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49.0</td>
<td>M.Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.0</td>
<td>Cert.Ed.</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.3</td>
<td>SPM 21</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52.3</td>
<td>MCE</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.0</td>
<td>HSC</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Pairs of groups significantly different at 0.05 level

6.4.6 SUMMARY OF PERCEPTION SCALE

Based on the discussion above it seems that the more the teachers knew about the computer and its use the less positive was their perception. Their knowledge might expose them to what was actually involved in its usage. For example, they might come to realise that more time was needed to prepare for their CALL classes especially 21SPM—Abbreviation for Sijil Pelajaran Malaysia. It is equivalent to MCE except that it is taken by the Malay medium students.
if they intended to integrate it into the curriculum.

6.5 ANXIETY

Teachers’ reluctance to use the computer might be largely due to their anxiety. The study done by systematic observation led to this conclusion. However, subjectively no distinction could be made between the teachers as to who had the higher level of anxiety among them. The questionnaire based survey might help to point to this group of teachers.

The following data was collected from Part Five of the questionnaire (anxiety section):

Table 6.5a: Analysis of the Anxiety Scale Data

<table>
<thead>
<tr>
<th>word</th>
<th>sign</th>
<th>freq</th>
<th>word</th>
<th>sign</th>
<th>freq</th>
<th>word</th>
<th>sign</th>
<th>freq</th>
</tr>
</thead>
<tbody>
<tr>
<td>absorbed</td>
<td>+140</td>
<td>98</td>
<td>annoyed</td>
<td>-37</td>
<td>14</td>
<td>aware</td>
<td>-64</td>
<td>9</td>
</tr>
<tr>
<td>ambitious</td>
<td></td>
<td></td>
<td>calm</td>
<td>-14</td>
<td></td>
<td>careless</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>bored</td>
<td></td>
<td></td>
<td>challenged</td>
<td>+260</td>
<td></td>
<td>curious</td>
<td></td>
<td>146</td>
</tr>
<tr>
<td>cautious</td>
<td></td>
<td></td>
<td>comfortable</td>
<td>+106</td>
<td></td>
<td>confused</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>contented</td>
<td>-140</td>
<td>76</td>
<td>creative</td>
<td>+219</td>
<td></td>
<td>displeased</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>dedicated</td>
<td></td>
<td></td>
<td>entertained</td>
<td>-150</td>
<td></td>
<td>excited</td>
<td></td>
<td>192</td>
</tr>
<tr>
<td>efficient</td>
<td></td>
<td></td>
<td>fortunate</td>
<td>-129</td>
<td></td>
<td>frightened</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>fearful</td>
<td>+</td>
<td>47</td>
<td>fortuitous</td>
<td>+129</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>happy</td>
<td>-134</td>
<td></td>
<td>hopeless</td>
<td>10</td>
<td></td>
<td>impatient</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>incapable</td>
<td>-46</td>
<td></td>
<td>inspired</td>
<td>155</td>
<td></td>
<td>interested</td>
<td></td>
<td>289</td>
</tr>
<tr>
<td>joyful</td>
<td>-109</td>
<td></td>
<td>lazy</td>
<td>5</td>
<td></td>
<td>loving</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>miserable</td>
<td>-68</td>
<td></td>
<td>misplaced</td>
<td>50</td>
<td></td>
<td>nervous</td>
<td></td>
<td>103</td>
</tr>
<tr>
<td>organised</td>
<td>-55</td>
<td></td>
<td>overloaded</td>
<td>61</td>
<td></td>
<td>panicky</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>pleasant</td>
<td>-116</td>
<td></td>
<td>pleased</td>
<td>132</td>
<td></td>
<td>productive</td>
<td></td>
<td>193</td>
</tr>
<tr>
<td>pushed</td>
<td>-18</td>
<td></td>
<td>refreshed</td>
<td>119</td>
<td></td>
<td>regretful</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>rewarded</td>
<td>-112</td>
<td></td>
<td>satisfied</td>
<td>131</td>
<td></td>
<td>secure</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>serious</td>
<td>-66</td>
<td></td>
<td>shaky</td>
<td>+25</td>
<td></td>
<td>steady</td>
<td></td>
<td>92</td>
</tr>
<tr>
<td>tense</td>
<td>+</td>
<td>44</td>
<td>terrified</td>
<td>+18</td>
<td></td>
<td>thoughtful</td>
<td></td>
<td>159</td>
</tr>
<tr>
<td>upset</td>
<td>+</td>
<td>17</td>
<td>weary</td>
<td>-14</td>
<td></td>
<td>worried</td>
<td></td>
<td>76</td>
</tr>
</tbody>
</table>

Words which have negative anxiety values have positive connotation (for example, happy) and vice-versa.
Therefore, the higher the value the more anxious were the teachers about computers.

Table 6.5b shows that the correlation between anxiety and the teachers' age, teaching experience and hours of teaching was found to be insignificant. This means that the older and more experienced teachers were not necessarily more anxious than their younger and less experienced colleagues (p<0.01).

Table 6.5b: Correlation Coefficients Between Anxiety and Teachers' Background

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>380</td>
<td>0.0686</td>
<td>NS</td>
</tr>
<tr>
<td>Total teaching experience</td>
<td>380</td>
<td>0.0483</td>
<td>NS</td>
</tr>
<tr>
<td>Language teaching experience</td>
<td>380</td>
<td>0.0648</td>
<td>NS</td>
</tr>
<tr>
<td>Total hours of teaching</td>
<td>372</td>
<td>-0.0259</td>
<td>NS</td>
</tr>
<tr>
<td>Hours of language teaching</td>
<td>378</td>
<td>-0.1170</td>
<td>NS</td>
</tr>
</tbody>
</table>

6.5.1 ANXIETY AND GENDER DIFFERENCES

Although the difference between the male and female teachers was not significant in terms of their attitudes and perceptions, there was a significant difference in their level of anxiety with the females feeling more anxious than the male teachers (table 6.5c). Their lack of experience with technical subjects which in Malaysia is still dominated by the male/might be the reason behind their higher level of anxiety when compared to the male teachers.
Table 6.5c: Gender Differences in Teachers' Anxiety

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>150</td>
<td>-1.9</td>
<td>3.9</td>
<td>2.5</td>
<td>.05</td>
</tr>
<tr>
<td>Female</td>
<td>230</td>
<td>-0.9</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.5.2 Anxiety and Computing Experience

The result of the t-test in table 6.5d shows that there was no significant difference between those teachers i) who owned a computer, ii) who have experienced using the computers and, iii) those who have no access to one with the others. The table also tells us that the teachers who claimed that they had no reason to use the computers were more anxious about its usage. Their anxiety might be the factor behind why they chose not to use the computers.

Table 6.5d: Differences Between Teachers Grouped by Computing Background and Anxiety

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Computer Ownership</td>
<td>93</td>
<td>-1.9</td>
<td>3.6</td>
<td>287</td>
</tr>
<tr>
<td>Experience in using a comp.</td>
<td>255</td>
<td>-1.5</td>
<td>3.7</td>
<td>124</td>
</tr>
<tr>
<td>No reason to use a computer</td>
<td>31</td>
<td>1.0</td>
<td>4.3</td>
<td>349</td>
</tr>
<tr>
<td>No access to a computer</td>
<td>48</td>
<td>-0.3</td>
<td>4.1</td>
<td>332</td>
</tr>
<tr>
<td>Access to comps. at work</td>
<td>176</td>
<td>-1.5</td>
<td>3.8</td>
<td>204</td>
</tr>
<tr>
<td>Waiting for training</td>
<td>76</td>
<td>-1.5</td>
<td>3.8</td>
<td>204</td>
</tr>
<tr>
<td>Other reason for not using</td>
<td>10</td>
<td>0.2</td>
<td>4.2</td>
<td>370</td>
</tr>
</tbody>
</table>

The highly significant negative correlation recorded in table 6.5e between teachers' level of anxiety and their computing proficiency suggests that the more proficient they were the less anxious they became. This shows the
importance of ensuring that the teachers are really proficient in computer usage. The finding supports the assumption made in the systematic observation where the teachers in the study seemed to gain more confidence from one lesson to another (see Table 5.5b for the percentage of teacher talk of one of the teachers in the case studies). The length of usage, however, did not have any significant effect on the teachers' level of anxiety.

Table 6.5e: Correlation Coefficients Between Anxiety with Length of Usage and Proficiency

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficients</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of computer usage</td>
<td>379</td>
<td>-.1082</td>
<td>NS</td>
</tr>
<tr>
<td>Computing Proficiency</td>
<td>379</td>
<td>-.2139</td>
<td>.01</td>
</tr>
</tbody>
</table>

6.5.3 Anxiety and Usage

Table 6.5f shows that those respondents who had used the device for i) personal reasons, ii) academic matters, iii) entering marks and iv) teaching were all less anxious than those who had not used the computers for any of these purposes. Since teachers' level of anxiety was shown to be affected by their proficiency it is possible that as they used the device their proficiency increased and hence the decrease in anxiety. This means that the teachers needed to get acquainted with the programs in order for them to be proficient which in turn would help them to overcome their anxiety over computer usage.
Table 6.5f: Differences Between Teachers Grouped by Computer Usage and Anxiety

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th></th>
<th></th>
<th>No</th>
<th></th>
<th></th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean SD</td>
<td></td>
<td></td>
<td>N Mean SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use for personal purposes</td>
<td>179 -1.9  3.5</td>
<td>201 -0.8  4.1</td>
<td>2.94 .01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use for academic purposes</td>
<td>173 -1.8  3.5</td>
<td>207 -0.9  4.1</td>
<td>2.23 .05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use for entering marks</td>
<td>77 -2.6  3.5</td>
<td>303 -1.0  3.9</td>
<td>3.16 .01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use for teaching</td>
<td>75 -2.3  3.7</td>
<td>305 -1.1  3.9</td>
<td>2.56 .05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use for other reasons</td>
<td>38 -1.5  3.5</td>
<td>342 -1.3  3.9</td>
<td>0.35 NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Upon further analysis those teachers who had used the tool for question-answer, multiple-choice and writing exercises were found to be less anxious about computer usage than those who used other software (table 6.5g). Whether they used the cloze exercises or not did not significantly correlate with their level of anxiety. This could mean that the question-answer, multiple-choice and writing exercises were easier to master than the others. Hence they could be among the programs that could best be used for training purposes to encourage teachers to use the device.

Table 6.5g: Differences Between Teachers Grouped by Exercises Carried out in CALL Classes and Anxiety

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th></th>
<th></th>
<th>No</th>
<th></th>
<th></th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean SD</td>
<td></td>
<td></td>
<td>N Mean SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question-Answer</td>
<td>34 -2.9  3.7</td>
<td>348 -1.2  3.9</td>
<td>2.54 .05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple-Choice</td>
<td>27 -3.0  2.9</td>
<td>353 -1.2  3.9</td>
<td>2.36 .05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloze</td>
<td>26 -1.7  3.2</td>
<td>354 -1.3  3.9</td>
<td>0.57 NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>32 -2.7  3.8</td>
<td>348 -1.2  3.9</td>
<td>2.15 .05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other techniques</td>
<td>12 -3.2  4.8</td>
<td>368 -1.3  3.8</td>
<td>1.69 NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Teachers who had attended a recognised training programme recorded a lower level of anxiety. This is illustrated by table 6.5h below:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>116</td>
<td>-2.0</td>
<td>3.7</td>
<td>264</td>
<td>-1.0</td>
</tr>
<tr>
<td>86</td>
<td>-1.7</td>
<td>3.4</td>
<td>294</td>
<td>-1.2</td>
</tr>
<tr>
<td>37</td>
<td>-1.8</td>
<td>3.5</td>
<td>343</td>
<td>-1.3</td>
</tr>
<tr>
<td>40</td>
<td>-1.7</td>
<td>3.9</td>
<td>340</td>
<td>-1.3</td>
</tr>
<tr>
<td>18</td>
<td>-2.9</td>
<td>4.3</td>
<td>362</td>
<td>-1.2</td>
</tr>
</tbody>
</table>

With training, teachers' computer knowledge presumably increased. This helped towards decreasing their level of anxiety. To confirm whether it is likely that training can cause a reduction in anxiety, an intervention study is needed.

The route teachers took to attend the courses did not affect their level of anxiety (p<0.05) (table 6.5i). In other words, there was no relation between those who wanted to go, those who were asked to go and those who learnt on their own, with their level of computer anxiety.
Table 6.5i: Differences in Teachers' Level of Anxiety and the Mode of Attending Training Programmes

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean</td>
<td>SD</td>
<td>N Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Was sent for training</td>
<td>61 -2.1</td>
<td>4.3</td>
<td>319 -1.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Volunteered to go</td>
<td>82 -1.8</td>
<td>3.6</td>
<td>298 -1.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Other options</td>
<td>30 -1.7</td>
<td>3.6</td>
<td>350 -1.2</td>
<td>3.9</td>
</tr>
</tbody>
</table>

6.5.5 **ANXIETY AND THE DIFFERENT LEARNING INSTITUTIONS**

The relation between teachers' anxiety and their qualification was found to be not significant (table 6.5j). However, its relation with the place where they were teaching was significant.

Table 6.5j: ANOVA: Anxiety by Qualifications and Institutions

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td>442.2</td>
<td>11</td>
<td>40.2</td>
<td>2.9</td>
<td>.001</td>
</tr>
<tr>
<td>Qualifications</td>
<td>50.6</td>
<td>8</td>
<td>6.3</td>
<td>.5</td>
<td>.890</td>
</tr>
<tr>
<td>Institutions</td>
<td>262.3</td>
<td>3</td>
<td>87.4</td>
<td>6.2</td>
<td>.000</td>
</tr>
<tr>
<td>2-Way Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualific. by Insts.</td>
<td>201.4</td>
<td>10</td>
<td>20.1</td>
<td>1.4</td>
<td>.163</td>
</tr>
<tr>
<td>Explained</td>
<td>643.6</td>
<td>21</td>
<td>30.6</td>
<td>2.2</td>
<td>.002</td>
</tr>
<tr>
<td>Residual</td>
<td>5026.5</td>
<td>358</td>
<td>14.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5670.1</td>
<td>379</td>
<td>15.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.5k shows that the mean level of anxiety amongst University staff (including Matriculation) was significantly different from that amongst the school teachers. The staff of the University might feel more anxious because the availability of computers at the department means they were expected to be proficient in its use. The school teachers might not be under as much pressure as the University staff because most of them did
not have easy access to the computers at the school. The Matriculation teachers might be under the greatest pressure to use the device in their work because of the smaller number of support staff at the Centre. The case studies revealed that the academic staff there had to do some of the tasks themselves which involved the use of a word-processor and a database in some cases. They learnt from each other how to use the programs at the office.

Table 6.5k: **ONEWAY: Anxiety by Institutions**

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Group</th>
<th>Second.</th>
<th>Primary</th>
<th>Uni.</th>
<th>Matrics.</th>
<th>----------------</th>
</tr>
</thead>
<tbody>
<tr>
<td>270</td>
<td>-1.9</td>
<td>Secondary</td>
<td>[       ]</td>
<td></td>
<td></td>
<td></td>
<td>----------------</td>
</tr>
<tr>
<td>41</td>
<td>-0.9</td>
<td>Primary</td>
<td>[       ]</td>
<td></td>
<td></td>
<td></td>
<td>----------------</td>
</tr>
<tr>
<td>45</td>
<td>0.2</td>
<td>University</td>
<td>[       ]</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>24</td>
<td>1.5</td>
<td>Matriculation</td>
<td>[       ]</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

*Pairs of groups significantly different at 0.05 level.

6.5.6 **SUMMARY OF ANXIETY SCALE**

After all the variables were analysed, it was found that teachers who had attended a recognised course and teachers who had tried using computers for teaching were less anxious than the others. Apart from that, certain types of software helped in reducing teachers' level of anxiety more than the others. With increasing proficiency there was a decrease in teachers' level of anxiety. Therefore, steps should be taken to increase teachers' level of proficiency in order to decrease their level of anxiety, and this might eventually help to increase computer usage among the language teachers.
6.6 EXPECTATIONS

In the case studies no difference was detected between teachers who had a high expectation of the computers and the others. In the survey, except for two variables, the relation between teachers' expectations and their background was found to be non significant. (See tables i to v in Appendix J for the results of the survey). Table 6.6a below indicates that teachers who could find uses for the computers had a significantly higher expectation of the computers. The teachers who took the initiative to learn registered a higher level of significance as well compared to those who did not take similar efforts in learning about computing (table 6.6b). Their high expectations of the device might be the driving factor for them to learn on their own.

Table 6.6a: Differences Between Teachers Grouped by Expectations of Computers and Computing Background

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Computer Ownership</td>
<td>83</td>
<td>17.7</td>
<td>7.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>238</td>
<td>17.4</td>
<td>9.8</td>
<td>0.30</td>
</tr>
<tr>
<td>Computing Experience</td>
<td>225</td>
<td>17.4</td>
<td>9.1</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>17.6</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>No reason to use a comp.</td>
<td>26</td>
<td>12.7</td>
<td>11.0</td>
<td>2.78</td>
</tr>
<tr>
<td></td>
<td>295</td>
<td>17.9</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>No access to a computer</td>
<td>38</td>
<td>19.8</td>
<td>8.8</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>283</td>
<td>17.1</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Access to comps. at work</td>
<td>155</td>
<td>16.9</td>
<td>9.1</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>166</td>
<td>18.0</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td>Waiting for training</td>
<td>61</td>
<td>18.3</td>
<td>9.3</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>260</td>
<td>17.2</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>other reasons for not</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>using the comp.</td>
<td>8</td>
<td>17.1</td>
<td>11.4</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>313</td>
<td>17.5</td>
<td>9.2</td>
<td></td>
</tr>
</tbody>
</table>
Table 6.6b: Differences Between Teachers Grouped by Training Background and Expectations of Computer

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes N</th>
<th>Mean</th>
<th>SD</th>
<th>No N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Had recognised training</strong></td>
<td>99</td>
<td>18.7</td>
<td>8.7</td>
<td>222</td>
<td>16.9</td>
<td>9.5</td>
<td>-1.56</td>
<td>NS</td>
</tr>
<tr>
<td>-Preservice training</td>
<td>74</td>
<td>18.6</td>
<td>8.6</td>
<td>247</td>
<td>17.1</td>
<td>9.4</td>
<td>-1.22</td>
<td>NS</td>
</tr>
<tr>
<td>-In-house training</td>
<td>30</td>
<td>16.6</td>
<td>7.3</td>
<td>291</td>
<td>17.5</td>
<td>9.4</td>
<td>0.55</td>
<td>NS</td>
</tr>
<tr>
<td>-Ministry of Education</td>
<td>32</td>
<td>15.7</td>
<td>10.0</td>
<td>289</td>
<td>17.6</td>
<td>9.2</td>
<td>1.15</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Took the initiative to learn from other organisation(s)</strong></td>
<td>18</td>
<td>21.8</td>
<td>6.3</td>
<td>303</td>
<td>17.2</td>
<td>9.4</td>
<td>-2.90</td>
<td>.01</td>
</tr>
</tbody>
</table>

The lack of difference in teachers' expectations of computers in terms of their qualifications, place of work and other variables which include their personal (sex, age), teaching (teaching experience, contact hours), computing (computer ownership, length of usage, computing proficiency) and training background meant that they had the same expectation of the computers. In the interviews conducted in phase four of the study, the teachers seemed to be open to the possibilities of using computers in language teaching but they could not see how these could be realised especially when software that could answer the needs of the syllabus could not easily be found. In other words, they might have a high expectation of the computers but with the present problems relating to hardware inaccessibility and software shortage they could not see how the computers could be used for language teaching in a meaningful way.
6.7 TRAINING

Where training is concerned teachers have their own preferences about what the ideal circumstances should be. Some of the teachers' preferences are tabulated below:

Table 6.7a: Percentage of Responses to Questions on Training

<table>
<thead>
<tr>
<th>Q7. It is better to train language teachers to use the computers at the place where they are teaching rather than at a different centre.</th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>21 (5.5)</td>
<td>33 (8.7)</td>
<td>99 (26.1)</td>
<td>83 (21.8)</td>
<td>143 (37.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q16. A computer studies teacher needs to know how to use computers in language teaching before he trains language teachers.</th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>10 (2.6)</td>
<td>13 (3.4)</td>
<td>18 (4.7)</td>
<td>91 (23.9)</td>
<td>245 (64.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q23. Computer teacher is not the best trainer.</th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>53 (13.9)</td>
<td>95 (25.0)</td>
<td>122 (32.1)</td>
<td>78 (20.5)</td>
<td>31 (8.2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q25. I would prefer an expert from outside the school/ university to train me to use computers.</th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>44 (11.6)</td>
<td>46 (12.1)</td>
<td>144 (37.9)</td>
<td>77 (20.3)</td>
<td>68 (17.9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q29. I would prefer a language teacher with knowledge of computing to train me how to use a computer in teaching.</th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>6 (1.6)</td>
<td>17 (4.5)</td>
<td>45 (11.8)</td>
<td>104 (27.4)</td>
<td>205 (53.9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q54. I can do better if the trainer gives his personal attention.</th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>No answer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>4 (1.1)</td>
<td>5 (1.3)</td>
<td>28 (7.4)</td>
<td>117 (30.8)</td>
<td>122 (32.1)</td>
<td>104 (27.4)</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.7a indicates that more than half of the respondents preferred to be trained at their own
institutions rather than at a different centre. Table 6.7b shows that there was a higher percentage of teachers from institutions (all except for primary school teachers) which had access to the hardware who agreed to the statement. The case studies (Chapter Five, section 5.2.1b) have shown that teachers who were trained elsewhere did not necessarily find it easy to adjust to the equipment that they had at their own institutions.

### Table 6.7b: CALL Training Is Best Done At One's Place Of Work

<table>
<thead>
<tr>
<th></th>
<th>Slightly Disagree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Strongly Agree-</th>
<th>Strongly Disagree-</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
<td>2(4.4)</td>
<td>2(4.4)</td>
<td>12(26.7)</td>
<td>15(33.3)</td>
<td>14(31.1)</td>
<td>45(11.9)</td>
</tr>
<tr>
<td>Matriculation</td>
<td>2(8.3)</td>
<td>1(4.2)</td>
<td>5(20.8)</td>
<td>4(16.7)</td>
<td>12(50.0)</td>
<td>24(6.3)</td>
</tr>
<tr>
<td>Primary</td>
<td>4(9.8)</td>
<td>4(9.8)</td>
<td>9(22.0)</td>
<td>6(14.6)</td>
<td>18(43.9)</td>
<td>41(10.8)</td>
</tr>
<tr>
<td>Secondary</td>
<td>13(4.8)</td>
<td>26(9.7)</td>
<td>73(27.1)</td>
<td>58(21.6)</td>
<td>99(36.8)</td>
<td>269(71.0)</td>
</tr>
<tr>
<td>Column Total</td>
<td>21(5.5)</td>
<td>33(8.7)</td>
<td>99(26.1)</td>
<td>83(21.9)</td>
<td>143(37.7)</td>
<td>379(100)</td>
</tr>
</tbody>
</table>

Table 6.7a also reflects that most of the teachers (81.3%) preferred to have a language teacher as their trainer. This percentage was more so among the matriculation staff where 91.7 percent of them agreed to the idea (table 6.7c). At the same time a considerable number of the respondents (38.9%) could accept a computer teacher as a trainer. Table 6.7d points to the fact that the University staff (including Matriculation) were not as keen as the school teachers about having a computer studies teacher as their trainer. If a computer teacher is employed, the majority of the respondents (88.4%)
expected him/her to know about language teaching. Table 6.7e indicates that although they did not mind having a computer studies teacher as their trainer the primary school teachers still preferred somebody who knew about language teaching.

It is interesting to note that out of those who responded to the question on whether or not the computer studies teacher is the best trainer quite a high percentage of them (32.1%) chose to remain neutral on this issue (table 6.7a). Some of the teachers might find it difficult to judge whether the computer studies teacher can be a good CALL trainer since most of them might have not experienced being taught by one.

<table>
<thead>
<tr>
<th>Table 6.7c: Language Teacher Is a Better CALL Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree-</td>
</tr>
<tr>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td>Matriculation</td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Secondary</td>
</tr>
<tr>
<td>Column Total</td>
</tr>
</tbody>
</table>
Table 6.7d: Computer Studies Teacher Is Not The Best Trainer

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
<td>4 (8.9)</td>
<td>7 (15.6)</td>
<td>13 (28.9)</td>
<td>13 (28.9)</td>
<td>8 (17.8)</td>
<td>45 (11.9)</td>
</tr>
<tr>
<td>Matriculation</td>
<td>-</td>
<td>5 (20.8)</td>
<td>7 (29.2)</td>
<td>8 (33.3)</td>
<td>4 (16.7)</td>
<td>24 (6.3)</td>
</tr>
<tr>
<td>Primary</td>
<td>7 (17.1)</td>
<td>15 (36.6)</td>
<td>12 (29.3)</td>
<td>4 (9.8)</td>
<td>3 (7.3)</td>
<td>41 (10.8)</td>
</tr>
<tr>
<td>Secondary</td>
<td>42 (15.6)</td>
<td>68 (25.3)</td>
<td>90 (33.5)</td>
<td>53 (19.7)</td>
<td>16 (5.9)</td>
<td>269 (71.0)</td>
</tr>
<tr>
<td>Column Total</td>
<td>53 (14.0)</td>
<td>95 (25.1)</td>
<td>122 (32.2)</td>
<td>78 (20.6)</td>
<td>31 (8.2)</td>
<td>379 (100)</td>
</tr>
</tbody>
</table>

Table 6.7e: A Computer Teacher Needs To Know About Language Teaching Before Training Language Teachers on CALL.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
<td>-</td>
<td>2 (4.4)</td>
<td>5 (11.1)</td>
<td>13 (28.9)</td>
<td>25 (55.6)</td>
<td>45 (11.9)</td>
</tr>
<tr>
<td>Matriculation</td>
<td>1 (4.2)</td>
<td>-</td>
<td>1 (4.2)</td>
<td>6 (25.0)</td>
<td>16 (66.7)</td>
<td>24 (6.4)</td>
</tr>
<tr>
<td>Primary</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5 (12.2)</td>
<td>36 (87.8)</td>
<td>41 (10.9)</td>
</tr>
<tr>
<td>Secondary</td>
<td>9 (3.4)</td>
<td>11 (4.1)</td>
<td>12 (4.5)</td>
<td>67 (25.1)</td>
<td>168 (62.9)</td>
<td>267 (70.8)</td>
</tr>
<tr>
<td>Column Total</td>
<td>10 (2.7)</td>
<td>13 (3.4)</td>
<td>18 (4.8)</td>
<td>91 (24.1)</td>
<td>245 (65.0)</td>
<td>377 (100)</td>
</tr>
</tbody>
</table>

On the question of whether the trainer should come from their own institution only 23.7% of the teachers agreed to the idea whilst nearly half (48.2%) would rather have somebody from outside the institution (table 6.7a). One of the implications of having a trainer from the same institution would be that the teachers might be taught by their own colleague. Cascade training might not be tolerated by some of the staff. However, when the breakdown of responses was analysed it was found that
there was quite a high percentage of University staff (including Matriculation) who preferred the trainer to come from their own institution (table 6.7f). Competition among the Universities might be the reason behind such an opinion. At University level there is usually a need for the experts in various fields to form part of the teaching staff. Table 6.7f also illustrates that a considerably high percentage of respondents (37.9%) chose to remain neutral on this issue. The lack of trainers in this field might mean that there is not much choice to choose from. Hence, some teachers might feel that having somebody is better than nobody at all where a CALL trainer is concerned.

<table>
<thead>
<tr>
<th>Table 6.7f: A Trainer From Outside The Institution Is Preferable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Slightly Disagree</strong></td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td><strong>n (%)</strong></td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td>9(20.0)</td>
</tr>
<tr>
<td>Matriculation</td>
</tr>
<tr>
<td>6(25.0)</td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>1(2.4)</td>
</tr>
<tr>
<td>Secondary</td>
</tr>
<tr>
<td>28(10.4)</td>
</tr>
<tr>
<td><strong>Column Total</strong></td>
</tr>
</tbody>
</table>

In the case studies, a few of the teachers pointed to the need for personal attention from the trainer. The survey revealed that 59.5% of the teachers in the survey preferred this kind of treatment as well (table 6.7a), and that there was a higher percentage of Matriculation staff who preferred this (table 6.7g). However, it is
not certain how such treatment could contribute to a more successful implementation of CALL. Although personal assistance was offered in the case studies, none of the teachers took full advantage of it. It could be that they preferred the assistance given be made part of a 'recognised' course. It should also be noted that there was a high percentage of teachers who preferred to remain neutral. Some of the teachers might not know of the kind of personal help that they could obtain from a trainer.

Table 6.7g: **Personal Attention From Trainer Is Preferred**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Slightly Disagree-</th>
<th>Strongly Disagree-</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>1(2.3)</td>
<td>5(11.6)</td>
<td>12(27.9)</td>
<td>14(32.6)</td>
<td>11(25.6)</td>
<td>43(11.4)</td>
</tr>
<tr>
<td>Matriculation</td>
<td>1(4.2)</td>
<td>2(8.3)</td>
<td>3(12.5)</td>
<td>10(41.7)</td>
<td>8(33.3)</td>
<td>24(6.4)</td>
</tr>
<tr>
<td>Primary</td>
<td>-</td>
<td>5(12.5)</td>
<td>12(30.0)</td>
<td>15(37.5)</td>
<td>8(20.0)</td>
<td>40(10.6)</td>
</tr>
<tr>
<td>Secondary</td>
<td>3(1.1)</td>
<td>16(5.9)</td>
<td>90(33.5)</td>
<td>83(30.9)</td>
<td>77(28.6)</td>
<td>269(71.5)</td>
</tr>
<tr>
<td>Column Total</td>
<td>5(1.3)</td>
<td>28(7.4)</td>
<td>117(31.1)</td>
<td>122(32.4)</td>
<td>104(27.7)</td>
<td>376(100)</td>
</tr>
</tbody>
</table>

6.8 **ISSUES RELATING TO SOFTWARE**

In the study, it was found that one of the reasons for teachers' lack of interest in practising CALL was the limited number of programs which were available for the teachers to use. Table 6.8a gives an indication of teachers' opinion regarding some of the more important issues on software.
### Table 6.8a: CALL Software

<table>
<thead>
<tr>
<th>Question</th>
<th>Slightly Agree</th>
<th>Strongly Agree</th>
<th>Neutral</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>No answer</th>
<th>n(%)</th>
<th>n(%)</th>
<th>n(%)</th>
<th>n(%)</th>
<th>n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q34. It is difficult to relate available software to the syllabus.</td>
<td>14</td>
<td>61</td>
<td>140</td>
<td>94</td>
<td>67</td>
<td></td>
<td>1.1</td>
<td>3.7</td>
<td>16.1</td>
<td>24.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Q41. The software used in teacher training should be directly related to the syllabus.</td>
<td>2</td>
<td>17</td>
<td>50</td>
<td>127</td>
<td>180</td>
<td></td>
<td>0.5</td>
<td>4.5</td>
<td>13.2</td>
<td>33.4</td>
<td>47.4</td>
</tr>
<tr>
<td>Q42. Teachers need only be taught how to manipulate the software. They can use their own creativity in adapting it to the needs of the students.</td>
<td>10</td>
<td>34</td>
<td>61</td>
<td>145</td>
<td>128</td>
<td></td>
<td>2.6</td>
<td>8.9</td>
<td>16.1</td>
<td>38.2</td>
<td>33.7</td>
</tr>
<tr>
<td>Q55. Language software should be replaced from time to time.</td>
<td>4</td>
<td>6</td>
<td>75</td>
<td>161</td>
<td>129</td>
<td></td>
<td>1.1</td>
<td>1.6</td>
<td>19.7</td>
<td>42.4</td>
<td>33.9</td>
</tr>
<tr>
<td>Q56. Students can learn just as well even if the software is not stimulating.</td>
<td>60</td>
<td>102</td>
<td>134</td>
<td>66</td>
<td>10</td>
<td></td>
<td>15.8</td>
<td>26.8</td>
<td>35.3</td>
<td>17.4</td>
<td>2.6</td>
</tr>
</tbody>
</table>

In the case studies, teachers demanded an on-going acquisition of programs. This need was also seen in the survey, where 76.3% of them agreed that this should be done (table 6.8a). The lack of software in the institutions concerned might be the driving factor that prompted the teachers to ask for such action to be taken. When the breakdown of the responses was analysed there seemed to be a general consensus that suitable programs should be acquired from time to time. Among the groups, the highest percentage of teachers who agreed to the statement came from the primary school (97.5%) where the
software for teaching English language (being created by MOE and MIMOS) was not ready yet for them (Table 6.8b). Among the Matriculation teachers only 68.2 percent of them agreed to the continuous acquisition of software. The lower percentage of positive responses (in comparison to the other groups) could be attributed to the fact that they did not as yet possess any hardware for teaching purposes. However, many of them had already been exposed to some of the English language programs in the workshops given by the researcher in the first phase of the study.

Table 6.8b: Language Software Should Be Replaced From Time to Time

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neutral</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
<td>1(2.2)</td>
<td>10(22.2)</td>
<td>15(33.3)</td>
<td>19(42.2)</td>
<td>45(12.0)</td>
</tr>
<tr>
<td>Matriculation</td>
<td>2(9.1)</td>
<td>-</td>
<td>5(22.7)</td>
<td>9(40.9)</td>
<td>6(27.3)</td>
</tr>
<tr>
<td>Primary</td>
<td>-</td>
<td>-</td>
<td>1(2.5)</td>
<td>18(45.0)</td>
<td>21(52.5)</td>
</tr>
<tr>
<td>Secondary</td>
<td>2(0.7)</td>
<td>5(1.9)</td>
<td>59(22.0)</td>
<td>119(44.4)</td>
<td>83(31.0)</td>
</tr>
<tr>
<td></td>
<td>4(1.1)</td>
<td>6(1.6)</td>
<td>75(20.0)</td>
<td>161(42.9)</td>
<td>129(34.4)</td>
</tr>
<tr>
<td>Column Total</td>
<td>4(1.1)</td>
<td>6(1.6)</td>
<td>75(20.0)</td>
<td>161(42.9)</td>
<td>129(34.4)</td>
</tr>
</tbody>
</table>

Quite a high percentage of the teachers (42.6%) disagreed with the statement that students can learn just as well even if the software was not stimulating. This reflects the teachers' preference for programs which are relevant to their students' needs. Table 6.8c shows that the staff of the Matriculation section were the most particular about the relevance of programs to be used in the classroom (78.2%) whilst the secondary school teachers were the least with only 39.3 percent who
disagreed. The high percentage of teachers who remained neutral might reflect that many had not had enough exposure to what was available and hence could not give their opinion on this issue.

<table>
<thead>
<tr>
<th>Table 6.8c: Students Can Still Learn from Non Stimulating Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree-</td>
</tr>
<tr>
<td>n(%)</td>
</tr>
<tr>
<td>University 7(15.6)</td>
</tr>
<tr>
<td>Matriculation 9(40.9)</td>
</tr>
<tr>
<td>Primary 8(20.0)</td>
</tr>
<tr>
<td>Secondary 36(13.6)</td>
</tr>
<tr>
<td>Column Total 60(16.1)</td>
</tr>
</tbody>
</table>

Table 6.8a also shows that many of the teachers (42.3%) found difficulties in relating the available software to the syllabus. A similar result was found when the responses from teachers of the different level of institutions were analysed (table 6.8d). It is interesting to note that the percentage of primary teachers who agreed with the statement was the highest (62.5%) and the Matriculation the lowest (30.4%). In both cases the teachers had not had the opportunity to practise CALL yet because of the absence of hardware for teaching. However, unlike the primary school teachers, most of the matriculation staff had already been exposed to the possibilities of relating some programs (including YELLOW RIVER KINGDOM, LONDON ADVENTURE, FAST FOOD) to the syllabus by the researcher in the workshops that she
conducted for the IIU staff in the first phase of the study.

Table 6.8d: It is Difficult to Relate Available Software to Syllabus

<table>
<thead>
<tr>
<th>Slightly Disagree-</th>
<th>Slightly Agree-</th>
<th>Neutral-</th>
<th>Strongly Agree-</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>4 (8.9)</td>
<td>6 (13.3)</td>
<td>16 (35.6)</td>
<td>11 (24.4)</td>
</tr>
<tr>
<td>Matriculation</td>
<td>-</td>
<td>4 (17.4)</td>
<td>12 (52.2)</td>
<td>4 (17.4)</td>
</tr>
<tr>
<td>Primary</td>
<td>6 (15.0)</td>
<td>9 (22.5)</td>
<td>13 (32.5)</td>
<td>12 (30.0)</td>
</tr>
<tr>
<td>Secondary</td>
<td>10 (3.7)</td>
<td>45 (16.8)</td>
<td>103 (38.4)</td>
<td>66 (24.6)</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Column Total</td>
<td>14 (3.7)</td>
<td>61 (16.2)</td>
<td>140 (37.2)</td>
<td>94 (25.0)</td>
</tr>
</tbody>
</table>

Table 6.8a indicates that although 71.9% of the teachers stated that they could use their own creativity in adapting the software to the needs of their students, a greater percentage, that is, 80.8% would still prefer the software that is used in the training programme to be related to the syllabus.

Table 6.8e reflects that out of the 41 primary school teachers who responded 92.7% of them preferred software that is directly relevant to the syllabus to be used in the training programmes. At the other extreme end only 64.5% of the University staff agreed to the idea. The University staff might have been more exposed to the possibilities of using software that is not directly relevant to the syllabus for teaching purposes. This could be the reason for the lower percentage of staff who agreed to the statement.
Table 6.8e: **Training Software Should be Directly Related to Syllabus**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neutral</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
<td>2(4.4)</td>
<td>8(17.8)</td>
<td>16(35.6)</td>
<td>13(28.9)</td>
<td>45(12.0)</td>
<td></td>
</tr>
<tr>
<td>Matriculation</td>
<td>2(8.3)</td>
<td>4(16.7)</td>
<td>12(50.0)</td>
<td>6(25.0)</td>
<td>24(6.4)</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1(2.4)</td>
<td>2(4.9)</td>
<td>9(22.0)</td>
<td>29(70.7)</td>
<td>41(10.9)</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>8(3.0)</td>
<td>36(13.5)</td>
<td>90(33.8)</td>
<td>132(49.6)</td>
<td>266(70.7)</td>
<td></td>
</tr>
<tr>
<td>Column Total</td>
<td>13(28.9)</td>
<td>50(13.3)</td>
<td>127(33.8)</td>
<td>180(47.9)</td>
<td>376(100)</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.8f displays that although there was a greater percentage of primary school teachers who asked for software that is directly related to the syllabus they were also more ready to learn to adapt the available programs. This readiness was less so among the University staff (including Matriculation). Since most of the University staff were exposed to more pieces of English language programs, it is possible that they were more aware of the difficulties of adapting some of them to the students’ needs.

Table 6.8f: **Teachers Can Use Their Own Creativity in Adapting Available Software to the Needs of Their Students**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neutral</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
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<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
</tr>
<tr>
<td>University</td>
<td>2(4.4)</td>
<td>8(17.8)</td>
<td>15(33.3)</td>
<td>13(28.9)</td>
<td>45(11.9)</td>
<td></td>
</tr>
<tr>
<td>Matriculation</td>
<td>1(4.2)</td>
<td>4(16.7)</td>
<td>7(29.2)</td>
<td>7(29.2)</td>
<td>24(6.3)</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1(2.4)</td>
<td>4(9.8)</td>
<td>23(56.1)</td>
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<td>41(10.8)</td>
<td></td>
</tr>
<tr>
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<td>45(16.8)</td>
<td>100(37.3)</td>
<td>98(36.6)</td>
<td>268(70.9)</td>
<td></td>
</tr>
<tr>
<td>Column Total</td>
<td>10(2.6)</td>
<td>61(16.1)</td>
<td>145(38.4)</td>
<td>128(33.9)</td>
<td>378(100)</td>
<td></td>
</tr>
</tbody>
</table>

304
6.9 RESPONSES TO OPEN-ENDED QUESTIONS

Teachers who had practised CALL were asked whether they had any difficulties in integrating CALL into the curriculum. Twenty-four teachers responded to the question. When the responses were analysed it was found that the IIU staff who responded did not mention any difficulties when it came to integrating CALL into their daily work. This problem, however, existed among the other teachers. It is possible that the language teaching materials which were distributed to the IIU staff in the second phase of the study have made them aware of the possibilities of such integration although they might have not tried them out yet. They also stated that CALL could easily be integrated because the existence of certain authoring programs made it easier for them to adapt it to their needs, and the worksheet that went with the programs made the exercises look neater and they could be checked easily too. It is worth mentioning that the worksheet was distributed by the researcher. Hence this served to show that the case studies have at least succeeded in making the teachers open to the possibilities of making the computer materials more directly relevant to their courses.

Of the seventeen school teachers who responded only three of them said that it was easy to integrate CALL into the curriculum. Two of them said that they managed to get
programs which were related to the syllabus. The problems that the teachers mentioned were largely related to the lack of suitable programs. Another teacher claimed that it was easy because the students already knew how to use the computers, and any programs would interest them. It seemed that, up to the present no teacher has attempted to create his or her own materials based on whatever program that they have at the school. Since the materials distributed to the IIU staff have helped in increasing their awareness of this issue, it might also be useful to have some samples of prepared materials (based on the programs which have already been distributed to the schools) given to the teachers. These samples could serve as a guide in producing their own teaching materials apart from being immediately useful for their class work.

A number of difficulties which were not related to software were also mentioned by the teachers. Of these only three problems were quoted by the IIU staff. These include having a large class to handle, the computer lab being not easily accessible for preparatory work, and facing administrative problems when an integration into the institutional curriculum was attempted. The problems mentioned by the other teachers were mostly related to hardware and students' lack of proficiency in typing, language and computing skills. The students' different levels of proficiency was also regarded as one of the
obstacles to the integration process. In addition the
time that the students could spend in the lab was limited
to forty minutes only. Based on these we can deduce that
the teachers had not been exposed to exercises which can
be adapted to suit the different proficiency levels.
Class management also seemed to be a problem because with
proper preparation the teachers did not have to spend
more time than it was necessary at the computer terminal.
The computing skills that the students gained from the
Computer Literacy lessons could also be helpful in the
language classes. The typing and keyboard skills can be
applied there.

In the open-ended section of the questionnaire the
teachers were asked whether they observed any differences
in students' use of language in CALL classes. Four of
the IIU staff responded to this question. Two of them
mentioned that there was no difference in that the
students used a mixture of first and target languages in
both circumstances. One of the differences given was
that the language used in the CALL classes was not as
varied in nature as the other language classes. The
program 'fixed' the language that the students were
using. Another difference stated was that they
communicated more and as a result more mistakes were
revealed. Out of the other seventeen teachers who
responded only one said that he noticed no difference in
the language usage. A variety of answers were given by
the others. Among them are: the students used the language more, they were more independent and creative and they enjoyed the lesson more. Two mentioned that the better students gained more whilst one said that it placed the weaker students under less pressure since they could work at their own pace and they were also not afraid to try. Two of the teachers mentioned that the students were more technically inclined and that communicative usage of the language was limited.

As a summary to the above section, it can be said that the different responses that the teachers gave to this question might be coloured by the courseware, the type of students that they have and the personality of the teachers as well. It served to show that just like any other language lessons the outcome of a CALL class can also be varied in nature.

6.10 CONCLUSION

The findings made by using the survey method helped to reveal the groups which were significantly different from the others in their attitudes towards CALL, perceptions of CALL, computer anxiety and expectations of CALL. It also gives an indication of teachers’ needs in relation to training and courseware acquisition and development. The quantitative findings served to strengthen the results of the case studies done in the first three 308
phases of this research work. Both the qualitative and quantitative findings helped to lead to some of the important issues that need to be tackled in order to get a more positive result in the implementation of CALL in Malaysia. This will be discussed further in Chapter Seven and Eight.
CHAPTER SEVEN

RESEARCH DISCUSSION

7.0 INTRODUCTION

This study has revealed a degree of teachers' resistance to change. Although in most cases the innovation was new to both the individuals and the institutions its newness cannot be blamed as the sole reason for the lack of success in attracting a much higher percentage of practitioners among the English teachers. The present study shows that where teachers are concerned a more serious action needs to be taken to ensure that the target, that is, integration of computers into the curriculum can be achieved.

7.1 PHASE OF INSTRUCTIONAL COMPUTING IN THE STUDY

CALL is not only a costly investment but it can also be difficult to practise. The use of computers can influence 'learning, classroom management, curriculum content and curriculum organisation' (Dunn and Morgan,1987:137). Such usage would require special training for teachers. According to McDonald (1978:77) innovations which have the above characteristics, that is, they i. require special training, ii. are difficult to use, iii. are costly,
and iv. conflict with established values, are unlikely to succeed. Although the process of CALL implementation possesses these elements, at the present stage of CALL implementation in Malaysia it is too early to jump to the conclusion that it is going to be a failure. What the educational establishments in the present study have gone through can be compared with the Microelectronics Education Programme (MEP) in the UK and the Minnesota Educational Computing Consortium (MECC) in the US. At the end of MEP in 1986, the majority of the teachers were still not using computers (Foster, 1988). The problems were similar to that of the Malaysian situation where there were very few programs which met the local needs, teachers received very little if any training at all and they were not prepared for a different approach to teaching. The research conducted in this study also revealed that the novelty of the computer was still a fact in many of the schools (Chapter Two, Five and Six). Where no support was given by the Ministry of Education the number and quality of computers purchased were limited by the school budget. Acquiring hardware seemed to be high in the school planning. But co-ordination among staff was lacking, and very little effort was concentrated on purchasing software (Chapter Five and Six). This was also experienced by the American schools in the

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1 The project lasted for about six years.
2 See Chapter Two, section 2.4.3 to 2.4.6 for problems faced by the schools in the case studies in acquiring hardware for the schools' Computer Clubs.
eighties, as stated by Langhorne et al (1989:5), "the availability of computer hardware in those early years was not matched by an equal quantity and quality of instructional software or by the expertise to use it in instructionally meaningful ways." Few efforts were channelled towards integrating computers into the curriculum.

At the schools in this study, the students' familiarity with the technology might force the state-of-the-art of CALL in Malaysia to move into what Langhorne et al (1989:5) defined as the second phase in the MECC project whereby computers were regarded as a tool for instruction rather than a mere novelty. In the case studies conducted in the first three phases of this study, some of the students were more concerned about doing well in their studies rather than about which teaching aids were used by the teachers to achieve their aims and objectives. They preferred to use the device only when there was a need for it and not because it was there (Chapter Five). In some cases the computers were a novelty to the teachers but not the students, especially in situations where the teachers had never used computers whereas the students had started following Computer Literacy classes.

With proper planning it is possible for the Malaysian CALL projects (under MOE and other learning
institutions) to get into the third phase as outlined in the Three-Phase Model of Instructional Computing (based on Langhorne et al (1989: 4)—see page 106 for the model) where the computers would only be used when it is the most appropriate medium for instruction.

7.2 PERSONNEL

Langhorne et al (1989:22) stress the need for a 'key mover and shaker' in order to make the implementation successful. The co-ordinator must be organised and competent at managing resources. They also stressed that he/she should also be an initiator with a pleasant personality and the ability to pursue the goals in an unthreatening way. Langhorne et al (1989:30) also use the term 'match-maker' to suit their role in matching the teachers, software and the curriculum. In the present study such personnel was rarely found at the institutional level. At this level, the position that they hold (as the teacher in charge of the lab) did not come with the authority to change. Added to that they had limited resources to begin with.

At the present stage of the CIE project in Malaysia, it is also impossible to get a trainer who fulfils the description given by Langhorne et al (1989). As CALL is still new in Malaysia, trainers who have a wide experience in utilising the technology to achieve the
objectives of the curriculum are rare. The few around might be threatening in their position if not their personality because they are usually higher up in the professional hierarchy than the teachers. This was one of the problems faced by the researcher when conducting her case studies where professionally her position was higher than the teachers in the study (particularly at the schools). This could be one of the reasons why some of the teachers showed resistance to the innovation (Chapter Five).

A full-time member of staff who can take charge of the lab could help to ensure the success of computer usage in teaching (Langhorne et al., 1982:29). They could help to make the inexperienced teachers more comfortable with the lab, and assist teachers during instruction. However, such personnel did not come with the computers, particularly in schools. Since the teachers in charge have other duties and commitments it is more difficult for them to provide such help to their colleagues. In the case studies, it was also found that where a technician was around it still did not help to promote the use of the technology. The problem lies in an unclear job specification. Neither the teachers nor the technician seemed to be clear about the role that each has to play with regard to computer usage in the lab (Chapter Five).
7.3 TRAINING

Teachers’ lack of training makes CALL not just cost-ineffective but also educationally-ineffective. For it to be successful training should also include teacher trainees apart from the teachers who are already in service. The experience gained in the classroom should be used to influence training. Gandilhon (1989:222) stressed the need for such an action so that the gap between training and classroom practice would not widen.

In the case studies, the researcher did not have the authority to conduct a step-by-step introduction course to CALL for the teachers. Teachers’ time and attendance were needed for that to take place. This proved to be too much to ask. In addition the study has shown that teachers were more sensitive to courses which were conducted by the Ministry of Education (Chapter Six, section 6.3.4). The recognised course that they conducted was more successful in changing teachers’ attitude towards the innovation. However, the present study shows that attitude alone was not the only driving factor for teachers to adopt the technology.

As in the MECC project (Langhorne et al, 1989:49), many of the language teachers who had attended computer
related courses hardly put their knowledge into use (Chapter Six). The brief exposure that they had was not enough for them to be a competent and confident user of the device. Added to that the school teachers specifically had little access to the computers. If Lang's (1992) suggestion is considered many more steps would have to be taken before the objective is achieved. Lang (1992) does not believe that training teachers in the basic concepts and programming and supplying them with computers are enough. He calls for teacher reflection about computer use and education to be included as part of the training programme. Somekh (1990) also shares the same idea.

Langhorne et al (1989) stress the need for a guided and independent practice in order to change teachers' behaviour. Such practice was lacking in the study except in one of the states, namely the state of Trengganu where microteaching was made part of the course. There was a certain degree of success there where one out of two teachers from that state who was interviewed has become a frequent user of the computer lab for language teaching (Chapter Six, section 6.0). Apart from microteaching the presence of the Computer Resource person at the school also helped to provide support to the teachers. Although it was a lone case, this finding was in line with Langhorne et al's argument for a guided and independent practice.
Adams (1985) suggests that teachers should take a more active role in the decision-making process. According to him this could help in increasing the likelihood and the intensity of change. The present study has seen the minimal amount of decision making done by language teachers where CALL was concerned. The idea was imposed on them and their opinion was not sought in most cases (Chapter Five). This might serve to increase teachers' resistance to its usage.

A supportive environment is another factor that can help teachers to learn. The studies done by Becker (1992) and ten Brummelhuis and Tuijnman (1992) lead them to conclude that teachers who are teaching in an environment that is conducive to learning are better prepared to use the computers in their teaching. Such an environment was found to be lacking in the studies. In most cases other than the equipment and the teacher-in-charge (who was not always co-operative), no other support or incentive was given to the teachers who were interested in the technology (Chapter Five and Six).

The school teachers in the case studies did not seem to favour cascade training. This was confirmed by the result of the survey done in Phase Four of the study (Chapter Six, section 6.7). Somekh (1990) has reported similar findings where teachers did not like to be
trained by their own colleagues who attended the courses arranged by the higher authority. She claimed that it was a failure in the UK, and it seems that it will also be a failure in the Malaysian schools if the present trend is continued. The situation was found to be different at the Universities where there was a considerable percentage of the language teaching staff who preferred to have a trainer from their own institution. The different structural organisation of these learning institutions might be the reason behind their different preferences.

In order to ensure a continuing practice among teachers, there might be a need for an extrinsic motivation rather than relying on teachers’ initiative as experienced by Simmons and Wild (1991) in their study on teacher trainees at Loughborough University where a positive result was obtained by forcing the students to word-process their assignment. The same technique could be used in inservice teacher training to help teachers overcome their fears of the technology. The present study has shown that there was a positive change in the attitude of the teachers who were sent as opposed to those who volunteered to go for the training (Chapter Six, section 6.3.4). The process of behavioural change, however, might take time before a promising result is achieved. The survey done by Mullings in the UK (1992) has shown that although the
academic staff there has a much longer experience with IT compared to the Malaysians they still have mixed reactions towards its usage. Based on the result of this survey, it might be quite a while before the Malaysians are able to achieve a satisfactory result in the implementation of CALL.

7.4 COURSEWARE DEVELOPMENT

The success of CALL classes is said to be largely dependent on teachers' creativity (Moore, 1986: XIII, Piper, 1986). However, this study has shown that there is a limited degree to which the teachers can exercise their creativity without the proper support and encouragement. One of the pitfalls in the initial stage of the CIE project was that it did not manage to tackle the problems of getting suitable software to meet the local needs. To begin with there were very few programs available for the teachers to choose from. The case studies and the survey conducted in the present study revealed that the lack of suitable software was experienced by both the school teachers and the staff of the Universities (Chapter Two, Five and Six, section 6.8). Since the role that computer plays is largely dependent on the type of programs used (de Quincy, 1986) teachers were trapped with the limited resources that they had. Added to that the school teachers were not given enough exposure to make them
more open to the possibilities of creating their own materials based on the programs that they had (Chapter Six, section 6.0). Since the technology was unfamiliar to the teachers it might be more difficult for them to be more creative. In this case, guidance might be needed before such creativity could be achieved.

Apart from the limited number of programs, the constraints on time and energy also made it difficult for the teachers in the present study to be more explorative. In addition, the lack of system and technical support frustrates the users further. These elements were often not given their due consideration when a lab was set up (Chapter Five and Six).

In the case studies, it was also observed that where authoring software which could be adapted to address the local needs was used teachers did not really seem to have a strong interest in using it in the classroom (Chapter Five). Hence, it is possible that even after the right software was supplied its usage for language teaching would not last long if no serious steps were taken to encourage teachers to use the device.

7.5 REWARD SYSTEM

O’Shea and Self (1983:218) state that one of the reasons for teachers’ lack of response and resistance
to CIE is that they are not given any incentive to keep up with the technology. This is evidenced in this study (Chapter Five and Six). The absence of any reward system for those interested discouraged the teachers from trying harder. Rewards in terms of money, time or providing courses for the staff might be some of the ways of encouraging teachers to use the innovation.

Time has always been quoted as one of the main factors for teachers' resistance to use the technology (Willem and Plomp, 1993; Mullings, 1992; O’Shea and Self, 1983). This research has also seen the same factor influencing not only teachers' decisions to use (or rather, not to use) the technology but also stopping the teachers who had been trained from helping their colleagues to learn (Chapter Five and Six). As reported by Mullings (1992) of her British study, in this Malaysian study it was also found that staff reluctance and lack of interest were largely linked to their lack of time to learn and to develop computer-based lessons.

7.6 ANXIETY

In Meier’s (1985) study computer anxiety was found to be unrelated to computer experience. However, other studies (Heinssen and Glass, 1986; Heinssen et al, 1987; Raub, 1982; O’Quin et al, 1987 and Powers et al, 1973)
point to computer exposure as the essential way towards
a reduction in computer anxiety. Lambert and Lenthall
(1989:213) added that computer experience can improve
computer related attitude. Similar findings were also
made in this research where anxiety was found to be
reduced with increased proficiency (Chapter Six, section 6.5.2), and there was an inverse relation
between anxiety and attitude (Chapter Six, section 6.2.5). The less the anxiety, the more positive was
the teachers’ attitudes towards computer usage.

In Wresch and Hieser’s (1984) study, a brief exposure
to computers led to an increase in computer anxiety.
In this study, most of the language teachers had only a
brief computer exposure. The length of exposure that
they had to computers was, however, found to be not
significantly related to anxiety (Chapter Six, section
6.5.2).

Todman and Lawrence (1992) distinguished between
relaxed and stressful experience. In most cases in
this study it was a stressful experience because they
lacked the casual and gradual introduction to the
technology. The study shows the significance of their
level of anxiety to CALL implementation (Chapter Six, section 6.5). Their anxiety could be one of the
factors that stopped them from trying harder in making
the implementation works.
7.7 COMPUTER USAGE

In his study, Lang (1992) finds that the male teachers used more computers in lessons than the females. Similar findings were made in this study where out of 150 males, 31 of them (20.7%) have used computers for language teaching compared to 44 out of 186 (19.1%) female teachers who have started practising CALL (see figure 17). However, the difference was very small. The present study differs from Lang’s in that those who did not use the computers in their classes did not only consist of teachers who lack the computing knowledge and skills but also those who were proficient in its usage. They were found to have a negative perception of CALL (Chapter Six, section 6.4).

7.8 LANGUAGE USAGE

The case studies served to support the findings made by Piper (1986) and Jones (1986) where the computers helped to motivate the students to learn. A lack of self-correction of errors was also observed among the learners. The use of the target language was still quite limited. The students tended to use both the target language and their mother-tongue in the CALL classes (Chapter Five, section 5.5.4).

7.9 EQUIPMENT

Some of the teachers in the case studies were not
comfortable with the network. The UNIX operating machine proved to be too complicated to the IIU staff (Chapter Five, section 5.2.5). Hardware malfunctions and program errors which happened with the supposedly more manageable BBC Econet also served to discourage the teachers from using the machine for teaching. The decrease in the production of BBC computers in the UK means it did not only place the UK users into 'a computing dead end' (Last, 1984) but also the Malaysians as well. IIU which made use of the BBC computers for teaching English is now experiencing the same difficulties in term of system support and maintenance. Hawkridge et al (1990:12) mention the tendency of foreign manufacturers to dump their machines in developing countries. This was experienced by IIU particularly with the Atari computers where no after-sales service was provided and the device had to be dismantled because keeping it was not seen as cost-effective (Chapter Two, section 2.5.2).

7.10 CONCLUSION

Many of the findings made served to support studies done in this area. Although the research was carried out on people of a different culture and social background it was found that where information technology and teachers were concerned the problems which were encountered were similar in nature.
CHAPTER EIGHT

CONCLUSION AND RECOMMENDATIONS

8.1 SUMMARY OF FINDINGS

The findings of the present study will be discussed in terms of the objectives outlined in Chapter One.

8.1.1 TO INVESTIGATE THE POSSIBILITY OF OBTAINING GREATER BENEFIT FROM THE COMPUTER FACILITIES AVAILABLE

The case studies have seen that although the items of software for language teaching in the Malaysian educational institutions are still limited it is still possible to carry out CALL classes for the different language proficiency levels provided the teachers have the knowledge of exploiting the pieces of software to achieve the aims and objectives of the syllabus. The materials developed by the researcher for the IIU staff have to a certain extent been successful in making the English language staff there aware of the possibilities of using the software that they have as a supplement to their courses (section 6.9).

The case studies also show that it is possible for teachers to carry out their CALL lessons even in
situations where only one computer is available (for example, at school B). The students can be divided into groups where different tasks can be given to the separate groups. Classroom control can, however, be difficult to achieve if the lesson is not well prepared (section 5.5.2).

The lack of access to computers posed a problem to some of the teachers in the study (section 5.2.4b, section 6.0). In cases where the computer facilities have to be shared a weekly time-table can be posted for teachers to fill-in if they decide to have a computer aided lesson that week. As observed in this study there were times when the lab was not utilised for computer literacy and this slot can be filled by the other teachers. Since the teachers do not necessarily want to take their students regularly into the lab, the weekly arrangement might help towards a more efficient management of the lab. For language teaching purposes, the teachers might not necessarily want to spend the whole lesson in the lab. The absence of a location in the lab where students can do their work away from the computer means that the teachers might be best doing the pre- and post-computer exercise in their own classroom.
8.1.2 TO ASSESS LANGUAGE TEACHERS' ATTITUDES TOWARDS CALL

The findings in the case studies were used to develop the scale to measure teachers' attitude towards CALL. The instrument used was found to be both reliable and valid (table 6.2e).

In the case studies, the researcher noticed that teachers' sex, age, teaching experience, teaching hours, computing experience, computer proficiency, computer ownership, computer access, length of computer usage and the computer courses that they attended in their student days were not significant in determining their attitudes towards CALL (Chapter Five). These findings were supported by the large-scale survey conducted in Phase Four of the study where no significant difference was found between the groups in each of the above variables (section 6.3). It was also found that teachers who used the computers for entering marks had a more positive attitude towards CALL (table 6.3e). Apart from that, the higher teachers' qualification and the higher the level of educational institution where they were teaching, the less positive was their attitude towards CALL (table 6.3i, 6.3j).
8.1.3 TO INVESTIGATE LANGUAGE TEACHERS' ATTITUDES TOWARDS TEACHER TRAINING IN CALL

The case studies reflect the school teachers’ preference for courses conducted by the Ministry of Education (section 5.3.5b). The survey reveals that teachers who attended courses by the MOE were more positive in their attitude towards CALL (table 6.3g). Added to that teachers who were sent for training, and those who took the initiative to learn on their own were also found to be more positive in their attitudes towards CALL (table 6.3g).

The survey shows that most of the teachers preferred to have the training at their own institution (table 6.7b) and that they preferred to have a language teacher or a trainer who is knowledgeable in the area of language teaching as their CALL trainer (table 6.7c, 6.7e). The survey also indicates teachers’ preference for personal attention from the trainer (table 6.7g). When it comes to who should be the trainer there was quite a high percentage of school teachers who were against the idea of cascade training. On the other hand, a considerable percentage of the University staff (including Matriculation) preferred the expert to come from their own institution (table 6.7f).
To Explore Teachers' Perceptions of CALL

The instrument used to measure teachers' perceptions of CALL was derived from the findings made in the first three phases of this study. It was found to be a good predictor of teachers' perceptions of CALL (table 6.2g).

In the case studies, teachers' sex, age, teaching experience, teaching hours and the place where they were teaching could not be used as an indication of their perceptions of CALL (Chapter Five). The survey also shows that the above variables were not significantly related to teachers' perceptions (table 6.4a, 6.4b). In addition to that, the survey displays that computer ownership, computing experience, length of computer usage and computer proficiency had a negative effect on the teachers' perception (table 6.4c, 6.4d). Those who used the computers for, i. personal reasons, ii. academic purpose, iii. entering marks, and iv. teaching were found to have a relatively negative perception of CALL (table 6.4e). Among the approaches used in teaching, the question-answer type was found to have a significantly negative relation to the teachers' perceptions (table 6.4f).

Teachers who took the initiative to learn were found to have a significantly negative perception of CALL (table
6.4h), and teachers who attended computer courses during their student days also had a significantly negative perception of the technology (table 6.4g). The higher their qualification the more negative was their perception (table 6.4j). The findings served to show that the more exposure the teachers had to the computers the more negative was their perception of it. Only those who were waiting for training were rather more positive in their perception of CALL (table 6.4c).

8.1.5 **TO DISCOVER LANGUAGE TEACHERS' EXPECTATIONS OF CALL**

The teachers in the case studies could not be differentiated in terms of their expectations. The survey, however, shows that teachers who could find uses for the computers had a significantly higher expectation of the computers (table 6.6a). The teachers who took the initiative to learn were also found to have a significantly higher expectation of CALL than the others (table 6.6b).

8.1.6 **TO SUGGEST POSSIBLE SOLUTIONS TO THE PROBLEMS THAT TEACHERS FACE IN INTEGRATING COMPUTERS INTO THE CURRICULUM**

The main problem regarding CALL integration into the curriculum is teachers' lack of knowledge on the subject matter particularly on CALL material development. The problem is best tackled at both the
individual and the organisational levels. The individuals can be provided with courses on material development. Samples of CALL materials should be made available to the teachers to give them an idea of how the integration can be done.

At the institutional level, support and encouragement from the administrator can be shown by providing incentives such as salary increments to those teachers who attempt to be more innovative and who are ready to use the technology for teaching. Apart from that the administrators should also ensure that the computers are made easily accessible to all the language teachers. This is among the first steps in ensuring that teachers will take the necessary actions towards integrating CALL into the curriculum.

A committee can be formed to be put in charge of acquiring the already available materials to be distributed to the rest of the staff. At the same time materials can be collected from the staff to be shared with the others. The committee should be given the mandate to purchase software for the department. They should also be able to make arrangements for ongoing courses for the staff. Apart from that they should also be given the power to arrange for a guided practice session when there is a need for one. It is best to choose a co-ordinator who can relate to the
rest of the staff, and who can provide technical and pedagogical support to them.

The committee can also arrange for discussions among staff to give them the chance to reflect about computer use and education. The teachers can use the opportunity to voice their needs and wants with regard to computer usage. The results of the discussion may help in the decision-making process. Data from this and other studies suggest that a more active involvement may help in increasing the likelihood of teachers’ usage of computers, and the intensity of change. Knowing that their ideas are taken into consideration in the process of policy-making may eventually lead to a decrease in teachers’ resistance to practising CALL.

The strength of the committee may depend on how seriously it is taken by the administrators. The tendency for teachers to act on the basis of the administrators’ interest in the subject means that the administrators’ actions may have an influence over teachers’ readiness to adopt the innovation. Therefore, to ensure a more successful result in CALL implementation, the institutions have to take up the technology in a more organised way by using long-range and comprehensive planning in their undertaking.
The administrators should also provide technical support to the staff. Where technicians are available, the provision of their job specification may help to serve as a guide to both teachers and technicians as to the kind of help that should be provided to the teachers.

8.1.7 TO MAKE RECOMMENDATIONS FOR TEACHER TRAINING ON THE BASIS OF THE FINDINGS MADE

At the beginning of the study, some of the teachers expressed their lack of confidence when using computers as an aid in teaching. Both the case studies and the survey lead to the conclusion that an increase in computer proficiency is related to a decrease in computer anxiety (table 5.5b, 6.5e). The survey also reveals that there was a significant decrease in computer anxiety in teachers who have used the computers for personal and academic work, entering marks and for teaching (table 6.5f). Those who have attended training were also found to be less anxious than the others (table 6.5h). This means that more exposure to computers would need to be given to the teachers to help reduce their computer anxiety. This may lead towards a gain in confidence in using the computers for language teaching.

Since the courses arranged by the Ministry of Education
are found to have a positive impact on teachers' attitude, steps should be taken by the Ministry to accelerate the process of training. Further training would need to be conducted for teachers who have already been trained to let them keep up with the latest development of CALL. At the same time more vigorous steps have to be taken to train the newcomers to this area. This might be difficult to achieve over a short period of time because of the lack of trainers. To fill up the vacancies CALL practitioners from schools could be employed to carry out the task. There are further problems in that there were not many teachers who have started practising CALL in Malaysia yet. Hence the first step would be to encourage teachers to use it and a systematic reward system should be exercised in order to ensure that the number of users would increase over time.

Teachers' needs in relation to training should be considered. Among them are the use of similar equipment to those that they are going to use with their students, and the provision of software or the know-how of courseware creation to meet the syllabus requirement. In cases where cascade training is not preferred by the teachers, other alternatives should be considered.

The type of software to be used in the training may
depend on the teachers’ computing background. In the survey, question-answer, multiple-choice and programs for teaching writing were found to have a positive effect on the teachers. They were significant in reducing teachers’ computer anxiety (table 6.5g). These types of programs may be more suitable for CALL beginners. On the other hand, programs such as the question-answer type was found to have a significantly negative relation with teachers’ perceptions (table 6.4f). Since it was found that it is those who were more experienced with computer usage who were more negative in their perception of CALL, it may not be advisable to use the question-answer type of software in the training programmes for the more advanced practitioners of CALL.

8.2 IMPLICATIONS FOR FURTHER RESEARCH

Further research would need to be conducted after more language teachers have been trained to see if there were signs that computers are used when, in a particular situation, they are the most appropriate medium of instruction. A longitudinal study could be carried out to find:

i. whether there is an increase in the percentage of teachers who use the device for teaching language from year to year,

ii. whether there is an increase in the number of

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times a particular teacher use the computers from one year to another,

iii. the type of software that is popular among the teachers and why,

iv. the type of training that suits the teachers most,

v. organisational influence on the success of the implementation.

The attitudes, perceptions and expectations scales which were developed in this study could be used to analyse their attitudes, perceptions and expectations of CALL at the beginning of the study. The same test can be given at the end of the research. The study might reveal:

i. the relationship between computer usage for teaching and their attitudes, perceptions and expectations of CALL;

ii. the type of software that should be presented and discussed as part of the inservice and preservice training;

iii. the content of training that could be used as a guideline for inservice and preservice teacher training.

Although this study has touched on similar aspects, further research would need to be conducted to see whether the outcome of the study would be the same.
when,

i. more teachers have a longer experience of CALL;
ii. a bigger number of programs for language teaching are made available to the teachers;
iii. more training programmes (with varied content) have been organised for the teachers;
iv. more positive steps have been taken by the administrators to assist teachers in using the computers for teaching.

A study should also be conducted to investigate the impact of computers on students' attitudes and motivation in language learning. The result of such study could be used for further planning regarding students' achievement in language learning.
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'Saya Akan Usaha Tingkat Pencapaian Bahasa Inggeris,' [I Will Try to Increase English Language Achievement], (1991) Utusan Malaysia (Kuala Lumpur) 13 March, p.16, col. 1-4, Wednesday.

Appendix A

Permission letter from the Educational Planning and Research Division of the Malaysian Ministry of Education, and the list of State Education Departments which gave the permission for the questionnaires to be distributed.
Cik Nuraihan Mat Daud,
Institute of Education,
University of Hull,
Hull HU6 7RX,
UNITED KINGDOM.

Puan,

Kebenaran Bagi Menjalankan Kajian Ke Sekolah-Sekolah,
Jabatan-Jabatan Dan Institusi-Institusi Di Bawah
Kementerian Pendidikan Malaysia

Adalah saya diarah untuk memaklum bahawa permohonan puan
untuk menjalankan kajian mengenai

"Issues in Call Implementation and Its Implications
on Teacher Training"

telah diluluskan.

1. Kelulusan ini adalah berdasarkan kepada hanya apa
yang terkandung di dalam cadangan penyelidikan yang puan
kemukakan ke Bahagian ini. Kebenaran bagi menggunakan sampel
kajian perlu diperolehi daripada Ketua Bahagian/Pengarah
Pendidikan Negeri yang berkenaan.

2. Puan dikehendaki mengisi 2 salinan Borang EPRD1 yang
dilampirkan bersama-sama surat ini dan mengirimkan semula
kepada pihak kami untuk rujukan selanjutnya.

3. Puan juga dikehendaki menghantar senaskah hasil
kajian puan ke Bahagian ini sebaik sahaja selesai kelak.

Sekian.

"BERKHIDMAT UNTUK NEGARA"
"CINTAILAH BAHASA KITA"

Saya yang menurut perintah,

(b.p. Pendaftar Basar Sekolah-Sekolah dan Guru-Guru,
Kementerian Pendidikan)
s.k.
1. Timbalan Rektor,
   Bahagian Akademik,
   Universiti Islam Antarabangsa.
2. Ketua,
   Bahagian Bahasa Inggeris,
   Universiti Islam Antarabangsa.
3. Dekan,
   Fakulti Sains Kemanusiaan,
   Universiti Islam Antarabangsa.
4. Pengarah Pendidikan,
   Jabatan Pendidikan Negeri Selangor.
5. Pengarah Pendidikan,
   Jabatan Pendidikan Wilayah Persekutuan.
6. Pengarah Pendidikan,
   Jabatan Pendidikan Negeri Perak.
7. Pengarah Pendidikan,
   Jabatan Pendidikan Negeri Sembilan.
8. Pengarah Pendidikan,
   Jabatan Pendidikan Negeri Johor.
9. Pengarah Pendidikan,
   Jabatan Pendidikan Negeri Pahang.
10. Pengarah Pendidikan,
    Jabatan Pendidikan Negeri Melaka.
11. Pengarah Pendidikan,
    Jabatan Pendidikan Negeri Trengganu.
12. Pengarah Pendidikan,
    Jabatan Pendidikan Negeri Kelantan.
13. Pengarah Pendidikan,
    Jabatan Pendidikan Negeri Kedah.
14. Pengarah Pendidikan,
    Jabatan Pendidikan Pulau Pinang.
15. Pengarah Pendidikan,
    Jabatan Pendidikan Perlis.
16. Pengarah Pendidikan,
    Jabatan Pendidikan Negeri Sabah.
17. Pengarah Pendidikan,
    Jabatan Pendidikan Negeri Sarawak.
Permission to distribute questionnaires to the teachers were granted by the following State Education Departments:

1. Selangor
2. Perak
3. Perlis
4. Kedah
5. Pulau Pinang
6. Negeri Sembilan
7. Melaka
8. Sarawak
9. Johor
10. Kelantan
11. Trengganu
12. Pahang
List of Secondary Schools
selected for the
'Learning with Computers'
Project
<table>
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<tr>
<th>Nama</th>
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DISEDIKAN OLEH UNIT KDIP, BAHAGIAN SEKOLAH, KEMENTERIAN PENDIDIKAN MALAYSIA

365
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Appendix C

List of Primary Schools selected for the ‘Computer Aided Learning and Teaching’ Project

Sekolah Kebangsaan Tanjung Karang
Pejabat Pos Tanjong Karang
45500 Tanjong Karang

Sekolah Kebangsaan Sungai Terap
45500 Tanjong Karang

Sekolah Kebangsaan Jeram Batu 20
Pejabat Pos Jeram,
45800 Jeram, Kuala Selangor

Sekolah Kebangsaan Sementa
Pejabat Pos Rantau Panjang
42100 Rantau Panjang

Sekolah Kebangsaan Batu Belah
41670 Klang

Sekolah Kebangsaan Telok Gong
Pejabat Pos Pelabohan Klang
4200 Pelabohan Klang

Sekolah Kebangsaan Bukit Naga
Batu 6, Kampong Bukit Naga
42450 Klang

Sekolah Kebangsaan Bangi
Pejabat Pos Kajang
43000 Kajang

Sekolah Kebangsaan Leftenan Adnan
Sungai Ramal Luar
43000 Kajang
Sekolah Kebangsaan Sungai Serai Hulu Langat
Pejabat Pos Hulu Langat
43100 Hulu Langat

Sekolah Kebangsaan Tun Aziz Majid
Pejabat Pos Hulu Langat
43100 Hulu Langat

Sekolah Kebangsaan Sungai Choh
Pejabat Pos Rawang
48000 Rawang

Sekolah Kebangsaan Batang Kali
Pejabat Pos Batang Kali
44300 Batang Kali

Sekolah Kebangsaan Rasa
Pejabat Pos Rasa

Sekolah Rendah Kebangsaan (2) Kuala Kubu Bharu
Kuala Kubu Bharu
44000 Kual Kubu Bharu
Appendix D

SURVEY OF VIABILITY OF COMPUTER USAGE
IN LANGUAGE TEACHING IN MALAYSIA

Dear language teacher,

We would very much value your co-operation in finding the extent to which computers can be used in the Malaysian educational system. We will use your answer for further planning. Please help by filling in and returning this questionnaire in the reply-paid envelope provided as soon as possible. You need not put your name on the form. Strict confidentiality will be maintained.

PART ONE

1. Sex: Male / Female (Please circle)
   AGE: ........................................

2. Years of teaching experience:
   .............................................

3. Years of experience in teaching language:
   .............................................

4. Language(s) taught:
   .............................................

5. Hours of teaching per week (excluding consultation):
   .............................................

5. Hours of teaching language per week (excluding consultation):
   .............................................

7. Highest teaching qualification obtained:
   .............................................

8. Do you own a computer at home?
   YES/NO (Please circle)

9. Have you had any experience in using a computer?
   YES/NO (Please circle)

   a. If YES, please
      i. state how long have you used a computer:
         ........................................
ii. tick all that applies:
I use the computer for
☐ personal matters eg. writing letters, playing games
☐ typing academic papers
☐ entering students' marks
☐ teaching
☐ other, Please Specify:.............................

b. If NO, please tick all that applies:
I have no experience in using computer because
☐ I have no reason to use one
☐ I could not gain access to a computer
☐ I am waiting for training
☐ other. Please specify:.............................

10. Have you had any recognised training on computers?
YES/NO (Please Circle)

a. If YES, please tick all that applies:
I had a formal training from
☐ the institution at which I was studying
☐ the institution where I am working
☐ the Ministry of Education
☐ Other. Please Specify:
.............................

b. If you have had the formal training were you?
☐ sent?
☐ volunteered?
☐ other. Please specify:.............................

11. Do you have access to the computers at your place of work for teaching?
YES/NO (Please Circle)

12. If you have experienced teaching language using the computers:
 a. Please state two of the programs that you used most often with your students:

   i. .......................... ...........................

   ii. .......................... ...........................

   b. Please tick the exercises that you have carried out in your computer assisted lessons:
☐ Drill and practice
☐ Cloze
☐ Question-Answer
☐ Multiple-choice
☐ Writing
☐ Other. Please Specify:.............................
PART TWO

1. Please circle the number which you feel most closely reflects your own position with regard to your skills in using the computer.

Level of proficiency in using software:
1=zero 3=some proficiency 5=fully proficient
(Responses 2 or 4 can be used if you feel that you are between statements.)

How would you describe your present level of proficiency in using any one of the:

i. word processing programs 1 2 3 4 5
   (eg. Word Star, Word Perfect)

ii. desk top publishing programs 1 2 3 4 5
    (eg. Aldus Pagemaker)

iii. database programs 1 2 3 4 5
     (eg. Dbase, Excel, Paradox)

iv. spreadsheet programs 1 2 3 4 5
    (eg. Lotus 123, Excel, Multiplan)

v. ready programmed teaching materials 1 2 3 4 5
   (eg. Storyboard, Fast Food)

vi. texts that you write by using an authoring program (eg. Storyboard) 1 2 3 4 5

vii. materials which you programmed 1 2 3 4 5
     (eg. using BASIC, LOGO, PASCAL)

viii. data analysis programs 1 2 3 4 5
     (eg. SPSS, SAS)

PART THREE

Please put a cross on the scale to indicate:

i. Your degree of enthusiasm in the use of computer in language teaching
   ________________________________
   not enthusiastic          very enthusiastic

ii. Your expectation of the computer
    ________________________________
    low expectation           high expectation

iii. How much the computer can ease classroom management
     ________________________________
     very little                no change                very much

iv. How much the computer helps in learning language
    ________________________________
    very little                no change                very much
PART FOUR

Please circle the appropriate column to indicate your own view of the following items (even though you have never used a computer before):

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<thead>
<tr>
<th>Strongly agree-</th>
<th>Slightly agree-</th>
<th>Neutral-</th>
<th>Slightly disagree-</th>
<th>Strongly disagree-</th>
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<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

1. In the classroom computers are as important to language students as text books. 
   1 2 3 4 5

2. Introducing computers into language teaching would decrease the teacher's role. 
   1 2 3 4 5

3. A computer training programme should be compulsory for every language teacher. 
   1 2 3 4 5

4. Computers will increase the amount of teacher-student interaction in the language classroom. 
   1 2 3 4 5

5. I look forward to a time when computers are more widely used in language teaching. 
   1 2 3 4 5

6. Language teachers can manage without computers, so computers are not really necessary. 
   1 2 3 4 5

7. It is better to train language teachers to use the computers at the place where they are teaching rather than at a different centre. 
   1 2 3 4 5

8. The use of computers can help improve language students' communication skills. 
   1 2 3 4 5

9. Computers bring more advantages than disadvantages to language teachers. 
   1 2 3 4 5

10. Language teachers must know a great deal about how computers work if they want to use them in language teaching. 
    1 2 3 4 5

11. I prefer to have the technician on standby whenever I decide to use the computers for teaching. 
    1 2 3 4 5
<table>
<thead>
<tr>
<th>Strongly agree-</th>
<th>Slightly agree-</th>
<th>Neutral-</th>
<th>Slightly disagree-</th>
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<td>12. Using computers in the language classroom will <strong>not</strong> improve students' attitudes towards language learning 1 2 3 4 5</td>
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<tr>
<td>13. Better students will gain more from the computer-aided lessons than the weaker students 1 2 3 4 5</td>
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<tr>
<td>14. The benefit of computer usage does not justify its cost 1 2 3 4 5</td>
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<tr>
<td>15. If the schools use more computers, they will need fewer teachers 1 2 3 4 5</td>
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<td>16. A computer studies teacher needs to know how to use computers in language teaching before he trains language teachers. 1 2 3 4 5</td>
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<td>17. Computers will increase the amount of anxiety students experience in the language classroom 1 2 3 4 5</td>
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<tr>
<td>18. The use of computers in language teaching would require large changes in language teaching methods 1 2 3 4 5</td>
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<td>19. Using a computer makes language lessons more interesting to the teachers. 1 2 3 4 5</td>
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<td>20. Only the computer studies teacher should use computers regularly in his teaching 1 2 3 4 5</td>
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<td>21. Teaching language with the aid of computers would make learning easier for all of the students. 1 2 3 4 5</td>
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<td>22. Using computers in language classroom would weaken teacher's control of the students 1 2 3 4 5</td>
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<td>23. A teacher of computer studies is not the best person to train language teachers to use computers 1 2 3 4 5</td>
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<td>24. Language teaching is better <strong>without</strong> the use of computers 1 2 3 4 5</td>
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25. I would prefer an expert from outside
the school/university to train me to
use computers

26. I almost never consider using a
computer in my teaching

27. Computers can enhance students' learning
of the four language skills

28. Computers will increase the amount of
student-student interaction in the class

29. I would prefer a language teacher with
knowledge of computing to train me how to
use a computer in teaching

30. Computer-assisted lessons are time
consuming

31. Less lesson preparation is needed when
computers are used for teaching

32. Computer arrangement in the class is
important in ensuring efficiency

33. Computers should not be used when the
students are tired

34. It is difficult to relate available
software with the syllabus

35. Computers are not flexible, hence they are
not good for language teaching

36. The use of computers helps to motivate the
students to learn

37. Students are more individualistic in
computer-assisted classes

38. Teachers can do other work while the
students concentrate on the exercises
on the computer

39. Students are less embarrassed about making
mistakes in computer aided lessons
40. Students are more active in computer aided language lessons 1 2 3 4 5
41. The software used in teacher training should be directly related to the syllabus 1 2 3 4 5
42. Teachers need only be taught how to manipulate the software. They can use their own creativity in adapting it to the needs of the students. 1 2 3 4 5
43. Using a computer makes language lessons more interesting to the students. 1 2 3 4 5
44. Computers are used to introduce large amounts of information to students 1 2 3 4 5
45. Computers can be used as a private tutor 1 2 3 4 5
46. Computers have little application to language teaching 1 2 3 4 5
47. To use a computer successfully, one needs to learn how to program 1 2 3 4 5
48. One of the computer's weaknesses is that it is difficult to change the text once it has been typed up on the screen 1 2 3 4 5
49. The use of the computers is unrelated to the needs of the school 1 2 3 4 5
50. The computer is good for reinforcement 1 2 3 4 5
51. Boys more than girls benefit from using computers in language learning 1 2 3 4 5
52. The skills taught in computer assisted classes are applicable outside the classrooms 1 2 3 4 5
53. Teaching language with the aid of computers would make teaching easier 1 2 3 4 5
54. I can do better if the trainer gives me his personal attention 1 2 3 4 5
55. Language software should be replaced from time to time

56. Students can learn just as well even if the software is not stimulating

PART FOUR

Read through the list of words. Underline those words which describe how you would generally feel about your position as a language teacher if you were asked to teach by using the computer

absorbed afraid aimless ambitious
annoyed aware bored calm
careless cautious challenged cheerful
cheated comfortable confused contented
creative curious dedicated desperate
disappointed efficient entertained excited
fearful fortunate frightened happy
hopeless impatient incapable inspired
interested joyful lazy loving
miserable misplaced nervous organised
overloaded panicky pleasant pleased
productive pushed refreshed regretful
rewarded satisfied secure serious
shaky steady tense terrified
thoughtful upset weary worried
PART FIVE
Please fill in this section ONLY IF you have used the computers for language teaching.

1. Was it easy to integrate Computer Assisted Language Learning into the curriculum? Please give reasons for your answer:

2. Are there any differences in students' use of language in the computer assisted classes than in other language classes? If yes, please state the differences:
Appendix E

School: .................................................................
Class: ......................................................................

In the following questions please put the number which best indicates your feeling. The meaning of each number is given in the brackets.

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(strongly) (moderately) (slightly) (neutral) (slightly) (moderately) (strongly)
(disagree) (disagree) (disagree) (agree) (agree) (agree)

I.
1. If I were visiting a foreign country I would like to be able to speak the language of the people.
2. Even though Malaysia is relatively far from countries speaking other languages, it is important for Malaysians to learn foreign languages.
3. I wish I could speak another language perfectly.
4. I want to read the literature of a foreign language in the original language rather than a translation.
5. I often wish I could read newspapers and magazines in another language.
6. I would really like to learn a lot of foreign languages.
7. If I planned to stay in another country, I would make great effort to learn the language even though I could get along in Malay.
8. I would study a foreign language in school even if it were not required.
9. I enjoy meeting and listening to people who speak other languages.
10. Studying a foreign language is an enjoyable experience.

II.
1. The English are considerate of the feelings of others.
2. I have a favourable attitude towards the English.
3. The more I learn about the English, the more I like them.
4. The English are trustworthy and dependable.
5. I have always admired the English people.
6. The English are very friendly and hospitable.
7. The English are cheerful, agreeable and good humoured.
8. I would like to get to know the English people better.
9. The English are a very kind and generous people.
10. For the most part, the English are sincere and honest.
III
1. Learning English is really great.
2. I really enjoy learning English.
3. English is an important part of the school programme.
4. I plan to learn as much English as possible.
5. I love learning English.
6. I hate English.
7. I would rather spend my time on subjects other than English.
8. Learning English is a waste of time.
9. I think that learning English is dull.
10. When I leave school, I shall give up the study of English entirely because I am not interested in it.

IV
1. Studying English can be important to me because it will allow me to be more at ease with fellow Malaysians who speak English.
2. Studying English can be important for me because it will allow me to meet and converse with more and varied people.
3. Studying English can be important for me because it will enable me to better understand and appreciate English art and literature.
4. Studying English can be important for me because I will be able to participate more freely in the activities of other cultural groups.

V.
1. Studying English can be important for me only because I will need it for my future career.
2. Studying English can be important for me because it will make me a more knowledgeable person.
3. Studying English can be important to me because I think it will someday be useful in getting a good job.
4. Studying English can be important for me because other people will respect me more if I have a knowledge of a foreign language.

VI.
1. It embarrasses me to volunteer answers in our English class.
2. I never feel quite sure of myself when I am speaking in our English class.
3. I always feel that the other students speak English better than I do.
4. I get nervous and confused when I am speaking in my English class.
5. I am afraid the other students will laugh at me when I speak English.
Please tick wherever it is appropriate

1. I actively think about what I have learnt in my English class
   a) very frequently
   b) hardly ever
   c) once in a while

2. If English were not taught in school, I would
   a) pick up English in everyday situations (i.e. read English books and newspapers, try to speak it whenever possible, etc.).
   b) not bother learning English at all.
   c) try to obtain lessons in English somewhere else.

3. When I have a problem understanding something we are learning in English class, I
   a) immediately ask the teacher for help.
   b) only seek help just before the exam.
   c) just forget about it.

4. When it comes to English homework, I
   a) put some effort into it, but not as much as I could.
   b) work very carefully, making sure I understand everything.
   c) just skim over it.

5. Considering how I study English, I can honestly say that I
   a) do just enough work to get along.
   b) will pass on the basis of sheer luck or intelligence because I do very little work.
   c) really try to learn English.

6. If my teacher wanted someone to do an extra English assignment, I would
   a) definitely not volunteer.
   b) definitely volunteer.
   c) only do it if the teacher asked me directly.
7. After I get my English assignments back, I
   a) always rewrite them, correcting my mistakes.
   b) just throw them on my desk and forget them.
   c) look them over, but don’t bother correcting them.

8. When I am in English class, I
   a) volunteer answers as much as possible
   b) answer only the easier questions.
   c) never say anything.

9. When I hear an English song on the radio, I
   a) listen to the music, paying attention only to the easy words.
   b) listen carefully and try to understand all the words.
   c) change the station.

10. During English class, I would like
    a) to have a combination of English and Malay spoken.
    b) to have as much Malay as possible spoken.
    c) to have only English spoken.

11. If I had the opportunity to speak English outside of school, I would
    a) never speak it.
    b) speak English most of the time, using Malay only if really necessary.
    c) speak it occasionally, using Malay whenever possible.

12. Compared to my other courses, I like English
    a) the most.
    b) the same as all the others.
    c) least of all.

13. If there were an English Club in my school, I would
    a) attend meetings once in a while.
    b) be most interested in joining.
    c) definitely not join.
14. If it were up to me whether or not to take English, I
   a) would definitely take it.
   b) would drop it.
   c) don’t know whether I would take it or not.

15. I find studying English
   a) not interesting at all.
   b) no more interesting than most subjects.
   c) very interesting.

16. If the opportunity arose and I knew enough English, I would watch English TV programmes
   a) sometimes
   b) as often as possible
   c) never.

17. If I had the opportunity to see an English play, I would
   a) go only if I had nothing else to do.
   b) definitely go.
   c) not go.

18. If there were English speaking families in my neighbourhood, I would
   a) never speak English with them.
   b) speak English with them sometimes.
   c) speak English with them as much as possible.

19. If I had the opportunity and knew enough English, I would read English magazines and newspapers
   a) as often as I could.
   b) never.
   c) not very often.
Appendix F

QUESTIONS FOR TEACHERS
(Questions posed varied from person to person)

1. What do you understand by the word CALL?
2. How did you feel when CALL was introduced?
3. What kind of difficulties did you face when teaching by using the computer?
4. Which component of the syllabus did you base your materials on?
5. How did your students react to it?
6. Did you notice anything significant in the students’ attitudes towards CALL classes? (e.g. girls versus boys, good versus poor students, motivated versus the less motivated students).
7. How does the computer affect your role as a teacher?
8. What is your students’ reaction towards you in the CALL class?
9. How well-informed are you of the available program?
10. Do you think a course on CALL could help you to overcome your problems?
11. Does CALL take too much of your time?
12. Does the size of the classroom matters?
13. Do possible technical problems worry you?

STUDENTS

1. How often do you go to the computer lab?
2. Did you have any computer or typing skills when you first attended the class?
3. Do you think that the computer class has been helpful to you? If yes, in what way.
4. How can the computer classes be improved to make it more appealing to you?
5. Would you prefer to do the exercise alone or with your friends?
6. Which of the software have you tried?
7. Why didn’t you try the others?
8. Would you prefer the IBM (Economics lab) or the BBC lab when it comes to doing the exercises on your own?
9. What kind of laboratory would help you in language learning?
10. Do you prefer your teacher to be around when you do the exercise? Why?
NETWORK MANAGER

1. What is the present situation of CALL at IIU?
2. How did the lecturers respond to it?
3. Why do you think they responded in that way?
4. What kind of steps have you taken to remedy the situation?
5. What kind of steps in the future do you plan to take to improve the situation?
6. What kind of training will be given to the Matrics staff?
7. What kind of training is being given to the ESL students?
Q: What do you understand by the word CALL?
A: CALL? Computer Assisted Language Learning, that is, computer assists in the learning of English language, English language. That means besides the teacher teaching the class you can also make use of the computer technology to improve our students' language.

Q: Err...what kind of difficulties that you faced in teaching when, when you were using computers. Did you face any difficulties?
A: When I used the BBC computer lab OK? One of the problems that I faced is getting started for example, some of the terminals are not linked to the what do you call that thing, Q: Console
A: Console and err that, that is one of the problems. So we have got to switch everything off, and start all over again. That's one of the problems. And then sometimes getting students to stick to the programme that I have wanted them to do for that particular day. They tend to be doing some other programmes instead of "today's special" assigned to them. Those are some of the problems.

Q: What kind of students who did that?
A: Well, foreign students because I am only involved with foreign students.

Q: I mean are they the girls or the boys?
A: The boys, the boys usually do that. Not the girls.

Q: The girls won't, just follow instructions.
A: The, the girls just follow instructions.

Q: Are they, the boys, are they the motiv, the motivated ones or all of them?
A: Not all of them, just a few of them.

Q: The naughty ones?
A: Not to say that they are naughty but those who don't like to take instruction maybe.

Q: Ohh..
A: You just try to do something else, instead of following the instruction.

Q: Do they do the same thing in class?
A: Not really. In class they got to listen, they got to listen to what the teacher is explaining. But I don't know. I got to tell, I got to tell him that ...(inaudible).. OK to err concentrate on the program that I have assigned but they kept on or some of them trying some other things which are not relevant on that day.

Q: What, what kind of actions did you take in that case?
A: There are, there are too many student. And there are too many questions asked by the students.

Q: Ehm..
A: So I just, I just told him that he is supposed to do the program assigned for today, and I just leave him on his own.
Q: Do you feel that it makes you work more when you use computers or it gives you more time to yourself?
A: No, not really. I think at the end of a computer class, I feel more exhausted then when I am teaching the class because even with the computer itself, the students, the students just cannot follow the instruction on the screen. They keep on asking the teacher. They are tagging more to the teacher than when attending the classroom.
Q: Ohh... so
A: And I kept telling them that read the instruction on the screen, and they just, just love to see things happening first without really following the instruction given to them. In a, for instance, for example, Press Space Bar OK?
Q: Ehm...
A: Teacher, teacher, what to do, we have to do OK? Whereas it is clearly stated on the screen that they have to press the space bar.
Q: So, they want the teacher to be around?
A: Yes, they want the teacher to be around like for example the enter key ...(inaudible)... Teacher what do I do? OK. You read there 'enter'. I 'enter' here teacher?. OK Then I have to reaffirmed that with my students.
Q: Students
A: So, I think it makes me more exhausted than teaching the class itself. At least I can just put it on the blackboard and they follow my instruction.
Q: But would you say that it gives them more chance to voice out whatever they have on their mind?
A: What? What do you mean by that? To voice what?
Q: Err.. give them the chance to speak up. To speak up.
A: Ehm.. Ya. Maybe they are more talkative than in the classroom where ...(inaudible) if I don't ask them anything they won't say something.
Q: Yea.
A: Ya, it gives more freedom to them to speak.
Q: Ehm..
A: Even though it is not relevant
Q: Ehm..
A: To the lesson we set on that day.
Q: So it is something is good for oral skills. Don't laugh!
(Both laughed)
A: Too formal!
Q: Kalau ada teknikal problem macamana?
A: Teknikal problem? OK. First I would try and...(inaudible). After I have tried several times it doesn't work than S.O.S. (laughter) I just call for help.
Q: Did it, did it stop you from trying?
A: Well, if I tried for a couple of times, it doesn't work then why should I try it some more, OK?
Q: Ehmm..
A: I should asked for help from
Q: The technician
A: The expert
Q: The technician
A: I'll do my best first. I am, I am not that helpless as to get hold of Osman straight away. I will try first but if it
doesn't work then
Q: You know, does it, does it make you, does it frustrate or does it make you stop from going?
A: Yes, of course! You want everything to be running smoothly OK? Like in a classroom situation. So, if there is like power failure or suddenly one or two computer is not working. It is out of order OK? So it sorts of frustrate you also.
Q: Ehm. (laughed) What, what did you see any differences between your motivated and your other students in the class?
A: What motivated?
Q: You know. OK. (laughed) Give, give, I will ask for the definition of motivation from you.
A: OK.
Q: What do you consider as motivated students?
A: OK.
Q: Eh!
A: OK. My definition of motivated students. Students who are interested in their studies OK?, and look err... look at err... look at a lesson in a fresh way OK?. They are always eager to learn. They participate in class well. They respond to the gesture or what to the teacher. They are not sleeping. They are always asking question.
Q: Ohhh..
A: Those are my definitions of motivated students.
Q: Did you see any differences between these types of students in the lab?
A: Ha eh!
Q: With the other students?
A: OK.
Q: So you can compare with your normal classroom? (laughed)
A: OK. If I don't think I see any differences between my motivated students in the class or in the classroom OK?, once they know what they have to do in the lab, then they will be OK. But if the program...(inaudible)...the programs are not so interesting, but most of the programs are interesting so I don't see any differences at all.
Q: I mean you know your motivated students. Maybe in the class you can see the two groups but in the language lab do you see this gap? Do you see any differences between these, the two groups or do they become equal in the class?
A: Sort of equal I think.
Q: In the lab?
A: Because those who are not motivated are, well, I have several classes you see I cannot just focus on one class.
Q: Ya
A: So let say my LE 1000 students OK?
Q: Ehm.
A: All of them are quite motivated students.
Q: Ohh..
A: OK. All of them are quite motivated and even though, even though, even though, they are very poor in English, they are very motivated to learn. So when I take them to the lab, the slow ones are always slow. The good ones are always fast in their work. So I don't see much difference.
Q: Ohh...but they, they try.
A: As long as they could see that I am up to something in the
Q: Lab. OK?
A: And I must make sure that whatever they do in the lab is something that can help improve their English. So as long as they know the objective of bringing them to the lab then they are motivated.

Q: Oh, I see. It doesn't matter.
A: It doesn't matter to them. Maybe I am looking at LE 2000 classes OK? That there, there might be some differences like the not so motivated students and the motivated students but, but I don't think there is a marked difference in the lab with

Q: It differs in class.
A: Slight. Maybe they are quite bored with the lesson. Maybe but err... when given something different then they are on their own now. OK? Like some students who don't like to be, don't like to be told what to do for instance when they are on their own in the lab OK? They work, they have some independence.

Q: OK. How well-informed are you of the programs? Before you go did you prepare?
A: Err... about the program before I go I would first decide what I am going to do today for example clozemaster. So I, I would sort of view the program first. I know what my students will be doing.

Q: Ehmm.
A: For example like word processing, I know they have to use the ABC word processor. I have given them, ask them to prepare something before they come to class or like for example London Adventure, for example ...(inaudible)... I have seen the program or at least I have read about the program, and I know what they are supposed to do.

Q: Did you try to include it in your syllabus? Err... did you base your materials on your syllabus?
A: Which materials? CALL materials?

Q: CALL materials.

Q: Err...how does it affect your role as a teacher when you have computers instead of just you alone?
A: I would feel that the students OK? will be concentrating more on the computer rather than the teacher himself, I think.

Q: Ehmm.
A: And initially it was quite a change for me like for example, I felt left out from the class like for example, my role is not needed anymore. For example, in the beginning when you were not so computer literate for instance, you don't know for example, you don't know what the computer program is talking about. What does a program require of a student and you. Sort of you are handicapped but once you know for example, London Adventure or Podd, what do they expect you to do then the students are relying on you, then you feel that your position as a teacher is not that shaken up.

Q: So you are trying to say that when you first started you felt a bit insecure but now everything is fine.
A: Because whenever the students asking you, you don't know what it is all about. So I think it err.... by being a computer literate it boosts your confidence as a teacher.

Q: Ehmm. Did you feel that if you know, in the preparation, it
takes a longer time?

A: Not really, not, not that long though because the program is already there. And then compared to class integration where you need to suddenly prepare your class lesson OK?

Q: Ehmm.

A: But with the computer once you know the program, you just need to know what the program is all about. The content of that program.

Q: In your opinion, how often should we take the students into the lab?

A: Once or twice a week maybe because of the limited program that we have in the lab. OK? by the end of the, by the end of the semester maybe we will be running out of programs. The students because I see that among the students, they want, they want to play new programs everytime. OK?

Q: Ehmm.

A: So with the, with a lot of things to be covered in our level OK I don't think they have err... we can afford to bring the students to the lab to play, to use the same material.

Q: Ehmm.

A: Everytime they go to the lab.

Q: OK so you would say that even though you want to take the students there, you might not have the time.

A: Ya.

Q: Because of your syllabus or?

A: Yes, because of my syllabus. Because most of the materials OK or the text in our syllabus are not covered in the CALL lab.

Q: Ohh..

A: The CALL lab is just sort of brushing their grammar, sort of to release their tension. Where they are too exhausted to do their lesson in the class, then for a change we would bring them to the lab.

Q: Ehmm.

A: And see that language is to be enjoyed also.

Q: Ehmm.

A: And not to make it as something err.. burdensome to them.

Q: Ehmm. Is it, when you are asked to learn a new program, did you, how did you feel now that your role has changed to a student?

A: Student?

Q: I mean when you are asked to learn a new program, how did you feel?

A: What program?

Q: Any, if like, like,

A: Computer?

Q: Computer program like Storyboard.

A: Storyboard? OK. As a student or as a teacher?

Q: As a teacher and you are asked to learn.

A: I will be interested because it will give err... that will make the class more interesting. The students would love to have new programs when I bring them to the lab.

Q: Ehmm.

A: So it helps to have more programs.

Q: It wouldn't affect you personally if new programs are to be

A: Of course not because with the old programs that we have, I wouldn't want to bring them next semester to the lab. Ah
teacher the same thing again! (laughed) I would like the changes.

Q: Because there are not many people would like to learn something new everytime.

A: It's OK. I, I, my policy is that I like changes and I like my students to feel excited about things OK? I don't want to bring old things to my students or repeat things to my students.

Q: Ohh...ehm
A: Habis dah? (laughed)

Q: OK. Do you think that a course on, on CALL methodology would help to improve, do you think there is a need for such a course?
A: CALL methodology?
Q: Or materials production.
A: I don't think I would have time for that. But if the materials are available someone can be in charge of installing the materials and then just brief us on how to do and then I would be glad.

Q: Ehm...
A: But to attend, well, I don't know. If it is beneficial to my students, why not?

Q: Ehm.. have you got any suggestions on how to go about improving the present situation?
A: Present situation?

Q: Ehm..

A: Well someone must be, must be in-charge OK? To update the program in the computer to make sure that, to make sure that the teachers are always informed of the current development and so on. And then there should be like one hour err.. the timetable should be well-organised for all the classes so that the students can go to the lab instead of making it optional only. OK? so that each and every students should have an equal chance to enjoy themselves when they are in the BBC lab OK?

Q: Do you think it should be opened?
A: The lab? Well, if the teachers would like to bring their students to the lab then they must not be left open. Even the students are not free to do it on their own because our BBC lab OK?

Q: Ya
A: There has to be someone to install the diskette, everything I think. It would be best for the teacher to bring their class and at least highlight instead of just using certain games, but highlight certain things. Then they brush up their weak points.

Q: Ehm..
A: Treat it as a remedial class?
Q: Ehm, so it shouldn't be opened to the public?
A: It shouldn't be opened to the public because of its complexity OK? It is a quite difficult computer lab. Err... Whenever the computer is down for example we won't have time to service the computer. It is best for the teacher to bring the students to the class.

Q: What about the IBM?
A: The IBM computer lab?
Q: Ya, do you have anything?
A: Down there?
Q: Down there, ya.
A: Well, if the students can go to the lab on their own, it will be easier than asking the teacher to because from my experience going to that lab, I felt quite awkward to be there because it is open to all the students.
Q: Ehmm.
A: Maybe if we can have a self-access computer program mainly for the students to improve their English OK, why not?
Q: Ohhh
A: But not a teaching class in there.
Q: Ehmm, just because it doesn't belong to us?
A: Ya, maybe. Well, we like something that belongs to ourselves.
(Q: Laughter)
Q: The size of the present class. Does it affect you?
A: So, so. Well, we are used to that size of class.
Q: No, no, you mean the size of the lab.
A: Of course! As you can see it is pretty small OK?
Q: Ehmm
A: It is quite difficult for the teacher to move around.
Q: Ehmm.
A: If it is to be called an Islamic environment OK? (Laughter) Then the students also...(inaudible). They got to work around the class.
Q: Ehmm.
A: So it sort of defeat the purpose of a computer class. Setting of a computer class.
Q: That is, do you think that, does it affect you in a way? Does it stop you from going there?
A: Not really, not really.
Q: Because of the phobia.
A: That is the best that you have. (laughed)
Q: I think that's it. Do you have anything to add?
A: I wish I could bring my students more to the lab. But some of the programs err.... I just can't relate it to the syllabus that I am teaching OK? Some, some of the words maybe are too difficult for the students and I, I don't know if, if only our materials OK
Q: Ehmm
A: Can be made into some computer programs than our students...
(inaudible)...or some writing programs because that's the major problem faced by our students.
Q: So problems with the programs?
A: Writing, spelling, thesaurus or whatever that could help them.
Q: That they can use the word-processing
A: Yes, word-processing
Q: Spell-checker, thesaurus
A: I have heard of that spelling checker but
Q: You have never seen it.
A: I have never seen it being used.
Q: That, that means we have to use the Economics lab again. Because they have it, we don't.
A: But even then with the Economics lab OK? Setting up, preparing everything takes already half an hour you see?
Q: Time consuming
A: Eh, quite time-consuming.
Q: If only we have our own.
A: That's the thing that I want. Instead of going there to do London Adventure, whatever, to sort of releasing their tension only.
Q: Eh
A: They enjoy it I am sure.
Q: But not, you think that it is not err... they don't really gain much out of it.
A: Maybe because I don't know, I haven't tested them whether they have gained a lot because some of them they didn't get through the game. For example, they just left the room like that.
Q: Eh
A: So you can't really tell. Because maybe it is the weakness on the part of the teacher also maybe class management or whatever during computer class. As I said earlier, I was sort of lost control when it comes to computer lab.
Q: Eh
A: They are much on their own.
Q: Eh. OK.
A: OK.
Q: Thank you very much.
Appendix H

Sample of letters sent to the academic staff of IIU regarding materials development, and materials developed based on the coursebook.
Our Reference
(Rujukan Kami)

30th December
(Tarikh)

To

LE 1600/1800/2000 lecturers

Dear Sir/Madam/Asst. Prof.,

YELLOW RIVER KINGDOM FOR LE 1600/1800/2000

Attached is the third set of CALL materials for LE 1600/1800/2000. The program is available in the BBC lab. The record sheet might help the students in the decision making process.

If you have not received the CALL file which was distributed earlier, you can get a copy either from me or En. Osman Mohd Said, our technician.

Thank you.

Wassalam.

(NURAIHAN MAT DAUD)

c.c. En. Wan Omar Wan Ahmad Rasdi
Dep. Director/Head of Eng. Lang. Div. (L.C)

En. Osman Mohd Said
Technician

P.O. Box 70, Jalan Sultan, 46700 Petaling Jaya, Selangor, Malaysia.
Tel: 03-7555322, 7553122, Telex: ISLAMU MA 37161 Fax: 03-7579598
YELLOW RIVER KINGDOM

Pre-computer Work

a. Normal classroom lesson - introduce vocabularies for a formal debate
b. Divide the students into several groups. Assign roles to the members of the group - Prime Minister, General Minister of Works, Minister of Agriculture and Civil Servant.
c. Ask each student to prepare his/her role for homework.

Computer

I. a. Sit away from the computer. Conduct cabinet meeting with the Prime Minister as the Chairman.
b. When a consensus is finally reached, the Civil Servant can be sent to the computer to feed the results. He is also to report back to the Cabinet before the next season's Cabinet Meeting.

(Adapted from Glyn Jones, 1986)

II. Give the meaning of the following words, based on the context:
   a) predecessor
   b) live off (first screen)
   c) protected
   d) dyke
   e) prevent
   f) prosper
   g) inherited
   h) live off (second screen)
   i) suffered
   j) attacks
   k) starvation
   l) census
   m) reign

Answer the following questions:

1. How many seasons are there in Yellow River Kingdom?
2. What kind of field is referred to in the country?
3. What other ways can you keep rice?
4. What can people die of? (Practice "death from...")
Post-Computer

Discuss with class:

1. The Village Leader's Report (Cabinet's report) of each group.
2. If there is a group who managed to play the game successfully, how did they do it?
3. Where have the others gone wrong?
4. Whether the thieves joined them in the field.

Writing

Write an essay on ways of improving the area that you come from.
Use this sheet to record your decisions and their results:

**Decision & Policy Making: KINGCOM**

**Start:** Population: ______ Baskets of rice: ______

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Appendix I

Program: STORYBOARD
Teacher: TB1
Group: Boys

T: Alright boys please pay attention to the lecturer. Closer long fellow, quickly.
R: Hang on, wait for your friends.
S: Engkau duduk, duduklah.
S: Engkaualah aku tak nak. Aku tak tahu.
S: Cheeh, woi!, woi!
S: Then enter.
S: Asking the way.
S: STORYBOARD
S: Cepat sikit
S: Nak buat smoking?
S: Smoking, smoking
R: Everybody stands there.
S: Enter
S: (All talked at the same time- apa ni?, smoking......)
R: You can look at the text by pressing Y.
S: Y?
R: Y
S: Tekan Y?
(They read the instruction together)
S: Nanti dulu.
T: Read the text. Make sure you understand the text (The teacher’s voice was heard from the back but the students continued reading and discussing among themselves).
R: After you have finished, press the Space Bar.
S: Yang panjang ke?
S: The longest one.
S: Yang panjang, ha, yang panjang.
R: Then you can try... (The researcher was talking from the back, the students continued discussing among themselves).
S: Smoking is very...
R: One word at a time.
S: Smoking, smoking
S: Smoking
C: Smoking ke?
S: Smoking
S: S M O K
R: O.K. Enter.
S: I N G
S: a, a, a
S: A?

1T stands for teacher.
2R stands for researcher.
3S stands for student. Which student is saying what is not differentiated because the research was not concentrated on them. Added to that many students talked at the same time. Only the clearest was included in the transcription.
4C stands for the student who was controlling the keyboard.
R: Eh?
S: Headmaster ada tadi.
S: Headmaster.
S: Doctor ada, audience ada.
S: Headmaster tadikan?
S: O.K. Enter.
S: Doctor, doctor, talk? talk?
S: Students, students.
S: D O C T O R, correct.
S: O.K oh ada.
S: Danger, danger.
S: D A N
S: Students, students
T: (The teacher said something at the back but it was ignored by the students—it was not clear).
S: S T U D E N T
S: D
S: S tekan dulu.
S: Student, S, S
S: Right.
S: Kemudian dangerous
S: Tulis dangerous, danger, danger
S: O.K. dah, dah R O U S
S: Tekan, tekan
S: R
S: Orang dah cakap dah.
S: R O U S
S: Tak nak dengar cakap orang.
S: E R O U S
S: B R, B R
S: At
S: B R
T: The one at the back are you following?
S: B R ke B A?
(The other student took over the keyboard and entered the answer himself)
S: B R I E F
S: B R O.K.lah
S: O.K. itu potong
S: Ini tak ada.
S: Dah, potong?
S: Potong, potong
C: B R I
S: Ini tak ada
S: A brief
S: A brief talk
C: E?, E?
S: E I
S: Talk
S: T tak ada
S: R I E F, T tak ada
S: T tak ada
S: Tekan, tekan yang tu (and several other suggestions).
S: Memang tak boleh dah.
S: Tak ada, O.K. Enter, enter aje.
S: Tekan enter.
S: Tak ada, tak ada.
S: Ah.... unhealthy, unhealthy.
S: From, from, from
S: FOR
C: Tak ada.
S: Talk, talk, talk
S: T
S: Apa tu, eh? Apa tu? O.K.
S: T A
S: Eh, padan mana padan. O.K.
S: E R O U S
S: O O U S
S: Dangerous kemudian
S: Talk, form, fifth, fifth
S: Fifth
S: F I F T H
S: visit
S: T H
S: O.K. Enter.
S: Visit
S: F I F T H
S: O.K.
S: Visit, an, an A N D
S: Mesti ada punya A N D
S: Ai, satu, dua
S: Visit
S: V I, V I, Visit, V I
S: Nanti
S: V I S I T E D, visited
S: E D, E D, E D, O.K.
S: Ha, Kan betul!
S: Secondary, secondary
S: S E C O N D A R Y, Y, Y, Y
S: O.K. School, school, school.
S: S C H O O L, school.
S: Right.
S: School.
S: T O, T O, T O,
S: The, the, the, the, the
S: Mesti ada punyalah
S: An, A N
S: A, A
S: Unhealthy, unhealthy
S: Consider
S: B Y, B Y, B Y dulu.
S: Oh! Bad luck!
S: A doctor visited a secondary school?
S: After, after, after
S: Eh...
S: In the
S: In which
S: Eh, betullah
S: Ini apa
S: Y lah
S: Stop. Tadi sudah test.
S: Sudah, sudah
S: Ha, test tengok
S: About, about
S: O.K.
S: Dangerous, about, about
S: Kita cari siapa yang ada
S: About the bad elements, bad elements (From the people at the back)
S: Bad, B A D ye?
S: B A D
S: Ha!, Of belum.
S: Of, of
S: Ada banyak lagi, inilah
S: Of the headmaster, the smoking, after a brief talk (several people in front read the text)
S: Yang dua ni (The students closest to the computer discussed among themselves).
S: Between, by
S: Dangerous, dah ke tadi?
S: Dangerous dah
S: Endangers
S: By, by
S: Tadi
S: Dah, dah
S: Tadi dah (Discussed among themselves)
S: Tak dapat macam ni.
S: Bedroom! (laugh)
S: Bedroom perginya.
S: Habit, hoi! habit ada oi!
S: Boleh bagi engkau idea.
C: Every
T: Alright change position. Everyone should get a chance. (Teacher’s instruction was ignored by the students).
S: Habit, H A B I T
S: O.K. Habit
S: Habitat
S: Habit, ah, by, by
S: K, K, K
S: O.K.
S: From,
S: F R O M
S: Unhealthy, consider, consider (A number of suggestions at the same time).
S: I N, in, in
S: Nanti kejap ah. A doctor visit a secondary school at the to tolah T O
S: To dah
S: At, at, at, for, at, at
T: ______ take part! (Giving order to one of the students).
S: Át, at, at
S: At the
S: At the school
S: At the school
S: Satu ada C, O, considered, N S I D E, D E, D E, R A T E
S: Eh bukan, bukan. Considered R A T E
S: E, E, A, A, A, A, E, E
S: T E D, considered
S: Considerated
S: Ejaana salah
S: ONSIDERE
S: Students
S: Students dah ada
S: Students dah ada dah
S: Tak apa, tak apa kita...
C: Macamana?
S: UNHEALTHY, T, T, By, by, by
S: Hey! Bad luck?
S: HEALTHY
S: HEA, HEA, L, L? T
S: HEALTHY, LT, HY?
S: Another word. A better word for that.
S: Badness? Another word for bad.
S: Bad, bad, bad, bad
S: Bedroom
S: When you talk of smoking?
S: Danger?
S: O.K.
S: Dah, dah
S: Bad, BAD dah BAD, dah. BADness.
S: LESS, ne? NE
S: Tak ada
S: Bad luck
S: An, an
S: An, an
S: Conference ha, CON, CONFERENCE, NCE
S: Tak nak?
S: Conference
S: Oh at the, dekat mana tadi ha?
S: At the living
S: At the living office
S: To talk about the
S: On? ON
S: Goodlah
(The teacher moved to the front).
S: Apa nak isi dua tu?
S: Din, din, din
S: In, in, in kot
S: On, on, on dah
S: About the
S: To talk about the danger
S: Dah
S: The first line ye. A doctor visited a secondary school
S: At the, at the
S: How did he come then? He just simply come?
S: At the classes
S: At the, it must be a verb. It must be a noun, at the
S: On, on, on
S: Cigarette?
S: Cigarette (They looked at the text)
S: Smoking aje. Cigarette tak ada.
S: Smoke, smoke.
S: Ada ke smoke? Ada ke?
S: Engkau jangan bantai, bantai aje.
T: O.K. Where are You? (The teacher was ignored).
S: Try aje.
S: Smoking, smoking, smoking kot
S: Smoking dah
S: Smoking eh
S: Would, would, would
S: Consider, consider
S: The, a, the, to buy
S: Buy dah, at, at
S: At dah
S: Eja aje
T: Let's get a word from Herman (The teacher was ignored).
S: Is, is, is dulu
T: Yes, yes, it is is
S: Bad luck!
S: It is
S: I T, I T, I T, it is tak da
S: It is, it is, is, is
T: Study the sentence and see what it requires, verb noun
S: Adverb. (One of the students at the back continued)
S: The campaign
S: To, from?
S: The, E, E
S: Leaving, leaving the headmaster
S: About the
S: About the badness
T: It has got something to do with that word. O.K.?
S: About, about the badness
S: About the badness ye?
T: Office of the headmaster. (A student repeated saying pejabat as the teacher talked).
S: Office, office, pejabat, off
S: At the?
T: At the? It has got O I, It begins with I N, T I O N
S: Invent, invasion, interview
T: Interview?
S: Invite
T: Ha!
S: Invite
T: Invite, it should be the noun.
S: Ha, I N V I T I
T: A noun of that
S: Invitation, invitation (Chorus)
S: Lagi, T I, T E, T I, T I
S: Salah, salah oi!
S: T I, T I ye?
S: T E, T I, T I, T I, T I, T I O N (Chorus)
T: Come on
S: Bad luck? (Chorus)
T: At the? Check your spelling
S: I N A I
S: After the word the, it must be a noun T I, T E, T E ajelah, T I O N
S: itu, itu salah, itu tak ada
S: Invite
S: Invite I
S: Look
S: Inviting
T: Skip that word. Skip that, go to another.
S: INVITA (The students kept on trying inspite of the teacher's instruction).
S: O.K. Invitation, T A, T A, Ta, Ha...
T: After that you got T right?
S: Class, class, C L A S S
S: Bad luck!
S: Bad luck (Students laughed)
T: You may escape that word. After that, and then
S: Room, room
T: In dash, after the dash, what, if you can't (Students kept saying room).
T: In dash, the next word is two alphabets right? Two alphabets.
S: It, itu, eight
S: Talk, talk
S: Itu
T: It must be?
S: Talk
S: Talk lah
T: Four, four, four alphabets then
S: In, in, in, by, by, by, was (A number of suggestions)
S: I say the word
S: Was, was, entah apa (laughed) was, was, in (a number of suggestions).
T: It's a past tense there, ye. Keep on guessing.
S: Jadi, jadi, satu, satu
S: Oh tekan tu, O.K shift
S: Shift, shift tak payah sebab you kena
T: Letter Fl. It is a past tense there in which, past tense. Hamid, Hamid you
got the word. What word...
S: Made
T: Try, try
S: M A D E, M A D E, Ha!
T: In which he made
S: Yang tadi hujung dia D E
T: He made it. He made it. Isn't it there? Ha ah.
S: Make (several other comments)
T: Ha? The word there could be an adverb. He made it what?
S: Buat very, very, V E R Y
T: Look
S: Just habit, we
S: Always? always, always
T: It is an adverb there. He made it?
S: He made it from the
S: From
T: Zamani
S: From, from
S: Good? G O O D,
S: Tak boleh, tak boleh. Mana ada good.
T: In which? He made it? It is an adverb there. It starts with a first letter C
S: C, C, C ,C
S: I see
T: It is an adverb. He made it.
S: Crazy
T: Ya, you got the first letter there.
S: Crane, crane, crock, crock (laughed).
S: It's a
T: Five, five numbers there
S: Ya, ya
S: Apa hah?
T: So for example when I explain something O.K. You understand. Is it?
   Besides the word understand what can you say
S: Adverb
S: At the, eh ha what?
T: Understand? Is it
S: Understand
T: When you know, when you know the thing very well
S: Clear
S: Yes... Ha... Betul!
T: It comes from Azaruddin Wahab eh?
S: Ye! (the group)
S: Made it. Made it clear.
T: You study the whole text. You don't study the word.
S: When, when, when, W H E N, H E, H E
T: Wrong, Right? Study the whole sentence. Not word by word. Read again.
    Read again. (The class read the text aloud again).
T: Yes, our Zamani here. Try, try, try your word.
S: I N V I T E
T: Remember the subject is he, he, he, he talks, he reads, he, he, he
S: invited ye, from
T: From who?
S: Our, our
T: He invited guesses from?
S: Our, our
T: From what?
S: From?
S: From our tak boleh
T: Yes, article there?
S: From, from, your from, from from his. Tak boleh. From whom? H I S
S: From boys
S: YA! (Group reply)
T: From his, from his sixth form students.
S: From
T: Students. Ha. Try! Try!
S: Students dah. From his
T: Try!
S: People
T: One more word to go.
S: His, his...
S: Pendapat apa ha? Pendapat?
S: Sembilan, lapan, tujoh, enam, lima, empat
T: The count down has begun ha? From his?
S: from his.
T: Did you use the word students just now? Not acceptable.
S: Students aje?
S: Ha? Students?
C: STUDENT. O.K.
S: Tak ada S lah
S: Tak bolehlah. Aku dah cakap.
T: So what do you call the people who are listening?
S: Audience
T: Students, audience
    E N C E, C E, Ha betul.
S: Alamak! Space bar. Press the space bar.
T: See your, see the text again. Number, number two. See how well you did.
O.K?
S: Berapa dapat?
S: Different words, different
T: Wrong guesses 33
S: Amboi(laughed) lebat o!/(laughed)
T: Help? Check, check. How many times they asked for help. See how well
you did.
S: No sir
T: No help?
S: No sir
T: No help
S: Zero
T: No help. Then help text once?
S: Yes.
R: They have already? Yes, O.K. Each of you take one piece of paper. Take
one and copy down there. Check, check your text. Can you put down your
mark there. Number 11, number 11 please.
### Appendix J

#### i. Correlation Coefficients Between Teachers' Expectations and Their Background

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Correlation Coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>321</td>
<td>-.1236</td>
<td>NS</td>
</tr>
<tr>
<td>Total teaching experience</td>
<td>321</td>
<td>-.1401</td>
<td>NS</td>
</tr>
<tr>
<td>Language teaching experience</td>
<td>321</td>
<td>-.1056</td>
<td>NS</td>
</tr>
<tr>
<td>Total teaching hours</td>
<td>315</td>
<td>.0596</td>
<td>NS</td>
</tr>
<tr>
<td>Language teaching hours</td>
<td>319</td>
<td>.1039</td>
<td>NS</td>
</tr>
<tr>
<td>Length of computer usage</td>
<td>323</td>
<td>.0266</td>
<td>NS</td>
</tr>
<tr>
<td>Computing proficiency</td>
<td>324</td>
<td>.0965</td>
<td>NS</td>
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</table>

#### ii. Gender Differences in Teachers' Expectations of the Computers

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>134</td>
<td>13.06</td>
<td>7.6</td>
<td>0.65</td>
<td>NS</td>
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<tr>
<td>Female</td>
<td>190</td>
<td>13.6</td>
<td>7.3</td>
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#### iii. Differences Between Teachers Grouped by Computer Usage and Their Expectations of the Computers

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>t</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>Use for personal purposes</td>
<td>161 18.2 8.8</td>
<td>160 16.7 9.7</td>
<td>-1.39</td>
<td>NS</td>
</tr>
<tr>
<td>Use for academic purposes</td>
<td>155 17.8 8.8</td>
<td>166 17.2 9.7</td>
<td>-0.58</td>
<td>NS</td>
</tr>
<tr>
<td>Use for entering marks</td>
<td>70 18.9 8.9</td>
<td>251 17.0 9.3</td>
<td>-1.57</td>
<td>NS</td>
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<tr>
<td>Use for teaching</td>
<td>65 18.3 9.0</td>
<td>256 17.2 9.4</td>
<td>-0.82</td>
<td>NS</td>
</tr>
<tr>
<td>Use for other reasons</td>
<td>34 17.0 8.5</td>
<td>287 17.5 9.4</td>
<td>0.33</td>
<td>NS</td>
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#### iv. Differences in Teachers' Expectations and the Mode of Attending Training

<table>
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<th>No</th>
<th>t</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>Sent for Training</td>
<td>51 17.8 9.0</td>
<td>270 17.4 9.3</td>
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<tr>
<td>Volunteered</td>
<td>69 17.5 9.0</td>
<td>252 17.4 9.4</td>
<td>-0.08</td>
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<td>Other options</td>
<td>26 18.8 7.6</td>
<td>295 17.3 9.4</td>
<td>-0.95</td>
<td>NS</td>
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</table>
v. **ANOVA: Expectations by Qualifications and Institutions**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig. of F</th>
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</thead>
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<td>272.15</td>
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<td>.025</td>
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<td>2-way Interactions</td>
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<td>79.39</td>
<td>.92</td>
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<td>Residual</td>
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<td>Total</td>
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