

SCHOOL OF EDUCATION

THE INTEGRATION OF CONTENT AND ENGLISH IN THE TEACHING OF INFORMATION TECHNOLOGY SUBJECTS AT POLYTECHNICS AND COMMUNITY COLLEGES IN MALAYSIA

by

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Abstract

This mixed-methods study investigates the teaching of Iinformation Technology (IT) subjects at polytechnics and community colleges in Malaysia as the policy for the medium of instruction for Science, Mathematics and Technical subjects at primary and seconday education sector changed from Bahasa Malaysia to English in 2003 and back to Bahasa Malaysia again in 2009. However, as polytechnics and community colleges are under the Ministry of Higher Education (MoHE), they are guided by the Malaysia Education Blueprint 2015-2025 (Higher Education*)* (2015). The higher learning institutions in Malaysia do not clearly define English or Bahasa Malaysia as the only medium of instruction due to factors such as internationalization and the needs to be able to produce globally competitive graduates. Due to these factors, the use of English or bilingualism at higher education sector becomes necessary. This research provides an insight into the transition period when the polytechnics and community colleges started receiving the first batch of students who had gone through ETeMS in 2008, and therefore, the lecturers were required to teach Technical subjects through English. The objectives of the study are to investigate the attitudes and motivation levels of the lecturers at polytechnics and community colleges in Malaysia with regards to the policy of teaching IT subjects through English, to examine the strategies the lecturers used to upgrade their English and to explore the strategies the lecturers used to teach their subjects through English.

The quantitative data were collected via a survey during the first phase of the study. 211 out of 265 IT lecturers from polytechnics and community colleges across Malaysia had responded to the survey. The data from the survey provided information regarding the demography of the

population, their attitudes and motivation towards the teaching of content subjects through English, as well as the strategies that they used in order to improve their own English so that they could teach their students better. The survey also gathered information regarding the lecturers' experiences and the strategies they used when they had to teach their students through English. The findings from the survey were used to categorize the lecturers according to their motivation levels and teaching practice. In order to obtain lessons from best practices, a group of lecturers representing positive disposition were selected and finally, seven lecturers managed to participate in the observation sessions. The qualitative phase consisted of observation sessions and in-depth exploration of the lecturers' background and experiences as well as the views concerning the teaching of IT through English. The teaching practice and strategies were then grouped, interpreted and rationalized through research lenses, which include CLIL, Multimodal approach and good teaching practices.

The findings revealed that the majority of the lecturers had positive attitudes and moderate to high levels of motivation with regards to the policy of teaching IT subjects through English. The majority of the lecturers received little training to upgrade their English level, especially while in-service, and they were not self-driven to pursue the upgrading of English through their own initiatives. Learning to upgrade English was mainly obtained through incidental learning. For the teaching strategies, about half of the lecturers used only English for certain functions of teaching IT such as when giving instruction, advice, explanation and introduction or conclusion. Some other lecturers used code-mixing and translation when giving instruction, advice, explanation and introduction or conclusion. The majority of the lecturers also used simple English and English Technical terms, and they also had the freedom to adapt their teaching strategies. The majority of them did not teach English to make the students

understand the lesson on IT. Teachers' personality including years of experience play a role in effective teaching. Teachers with more years of experience were observed to be more able to conduct student-centred and dialogic interactive teaching compared to new teachers. Nevertheless, new teachers could also steer away from being teacher-centred while teaching if they had the initiatives to upgrade their knowledge and skills.

Finally, recommendations were made in order to improve current teaching practices so that both lecturers and students were able to gain benefits. This requires not only the lecturers to be able to embrace change but also the commitment from MoHE, the polytechnic and community college policy makers and administrators as well as the positive attitudes of the students and the public. With the improvements in the teaching practices, it is hoped that polytechnics and community colleges will be able to produce quality graduates that meet the demands of the industries in Malaysia and worldwide.

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List of Abbreviations

BN	Barisan National
DAP	Democratic Action Party
PKR	Parti Keadilan Rakyat
PAS	Parti Islam SeMalaysia
ETeMS	English for the Teaching of Mathematics and Science
MQA	Malaysian Qualifications Agency
JPA	Public Service Department
TCDD	Training and Career Development Division
DPCCE	Polytechnic and Community College Education Department
SPM	Sijil Pelajaran Malaysia (Malaysia Certificate of Education)
TVET	Technical and Vocational Education and Training
IT	Information Technology
ICT	Information and Communication Technology
PCK	Pedagogical Content Knowledge
CLIL	Content and Language Integrated Learning
ELT	English Language Teaching
MUET	Malaysia University English Test
EPU	Economic Planning Unit
UiTM	Universiti Teknologi MARA
CBI	Content Based Instruction
ESP	English for Specific Purposes
EAP	English for Academic Purposes
FLMI	Foreign Language Medium Instruction
CALP	Cognitive Academic Language Proficiency
ESL	English as a Second Language
LRE	Language Related Episodes
SIOP	Sheltered Instruction Observation Protocol
EU	European Union
EOP	English for Occupational Purposes
UPSI	University Pendidikan Sultan Idris
NST	New Straits Times
SMK	Subject Matter Knowledge
BERA	British Educational Research Association
EEP	English Enhancement Programme
CAP	Critical Agenda Project
SCL	Student Centred Learning
OBE	Outcome-Based Education
SRIs	Strategic Reform Initiatives
MoE	Ministry of Education
MoHE	Ministry of Higher Education
CILT	The National Centre for Languages

CHAPTER ONE: INTRODUCTION AND RESEARCH CONTEXT

1.1 Introduction

English was first introduced to Malaysia and used widely in the government and education sectors during the colonization era in 1800 (Hafriza, 2006). As it was regarded as "an indispensable requirement for social and economic mobility", the Malays and the Chinese as well as the Indian immigrants stove to learn the language (Hafriza, 2006, p. 13). This attitude, however, changed dramatically after independence in 1957 when Malay was announced the national language and should be used officially and as the medium of instruction (Asmah, 1992, 1994; Hafriza, 2006). The main reasons were to instill unity and gain national identity as an independent country. The move towards using Malay or Bahasa Malaysia in all aspects of lives, however, reduced the opportunities for the people to use English, and its needs and importance became dwindled. The change of policy in the education of Malaysia in 2002 became a turning point for the polytechnics and community colleges in Malaysia as they started teaching Technical subjects including IT through English in 2008. The study investigated how the lecturers at polytechnics and community colleges coped with the policy change.

1.2 Establishing the Context

English regained its importance when the policy for teaching Science, Mathematics and Technical subject through English was introduced as a top-down policy at primary and secondary schools. It was enacted in 2002 by the former Prime Minister, Tun Dr Mahathir Mohamad for fear that the level of English language proficiency among Malaysians was

steadily deteriorating at an alarming rate (2005, p. 2). The World Bank Report on Malaysia Economic Monitor echoed this in December 2013. Tun believed that Malaysians needed to be able to use intelligible English in order to compete in the globalization era. In a cabinet meeting on 19th July, 2002, it was decided that the Ministry of Education (MoE) was to implement the policy for Year 1 (7 year-old) and Form 1 (13 year-old) students in all primary and secondary schools in Malaysia in 2003. The policy was fully implemented at tertiary levels when the first batch of students who started learning Science and Mathematics in Form One left Form Five in 2008.

When Tun stepped down, many leaders including the nationalists began to question the need to switch the teaching of these subjects to English-medium. After the general election on 8th March 2008, it became clear to the standing government, the Barisan National (BN), that a considerable number of its propositions and policies were not favoured by the public. The BN government only managed to form a simple majority in eight out of thirteen states. Five other states, namely Selangor, Perak, Penang, Kedah and Kelantan, and the Federal Territory of Kuala Lumpur were then ruled under a loose alliance of opposition parties consisting of Democratic Action Party (DAP), Parti Keadilan Rakyat (PKR) or the People's Justice Party and Parti Islam SeMalaysia (PAS). Among the many issues debated and defended time and again by the MoE Minister, Datuk Seri Hishammuddin Tun Hussein, was the policy of teaching and learning Science, Mathematics and Technical subjects through English. This has been widely discussed and reported in mass-media and electronic communications. Finally, after much contemplation on whether to retain or abort the policy, the decision was made based on studies carried out on the policy implementation. Ever since its implementation in

2003, many studies have been carried out at schools, teacher training institutions and universities in Malaysia (M. Mohamed, Nordin, Aziz, & Hashim, undated; Noraini Idris, 2007; Pandian & Ramiah, 2007).

Among the issues debated with regard to the teaching and learning of Science, Mathematics and Technical subjects through English are: the capabilities of the teachers; the rural students' lack of interest and motivation to learn English which resulted in poor performance in Science and Mathematics; the attitudes towards the policy; the knowledge gap between the urban children (associated with more exposure to English and accessibility to private education) and the rural children (associated with the lack of exposure to English and limited accessibility to private education) (*Malaysia and the Knowledge Economy*, 2007); nationalism; nationism; and the impacts of globalization. Studies on the readiness and success of the policy implementation show that many students and teachers encountered difficulties in teaching and learning through English (Mohamed, undated; Noraini Idris, 2007; Tan, 2008). It was reported that at schools, many teachers refused to teach in English despite the fact that ETeMS (English for the Teaching of Maths and Science) programme was entering its fifth year of implementation (The Star "Many still refusing to teach in English," 2007). That contributed to the urge to change the policy of teaching Science, Mathematics and Technical subjects from using English to Bahasa Malaysia.

Besides that, this policy has brought about endless popular debates on its effectiveness and its impacts on nationalism. Writers such as Alis Puteh (2006), Abdul Latiff Abu Bakar (Utusan Malaysia"PIBG pertahan Sains, Matematik dalam bahasa Inggeris di bidas," 29th

September 2008), Khairy Jamaluddin (New Strait Times, 9 September 2008), Royal Professor Ungku Aziz (New Strait Times, 4th September 2008) and Elizabeth John and Aniza Deris (New Strait Times, 7th September 2008) believe that there is no direct relationship between the global economy and the use of English. Citing the examples of advanced monolingual countries such as Japan, German and Korea, Alis Puteh lashed out at the government that had proposed the policy and MoE for failing to implement it successfully after only several years of its launching.

Inevitably, due to public pressure in 2009, the reversal of the policy for teaching Science, Mathematics and Technical subjects from English to Bahasa Malaysia became a reality and made newspaper headlines (Atan, 9th July 2009; "Back to BM," 9th July 2009). The short-lived policy in Malaysia enunciates clearly that Malaysians are not ready for this approach. However, the change of the policy only affected the primary and secondary school students, and did not affect Form Six and university instructions which would remain in English. The Deputy Prime Minister Tan Sri Muhyiddin Yassin said that, "They can continue in English as this is preparatory time for them before they go to university" ("Muhyiddin: No change in Form Six," 9th July 2009, p. 4). At higher education levels, including polytechnics and community colleges in Malaysia, all the Technical subjects including Science and Mathematics could continue to be taught through English. With the launching of the Malaysia Education Blueprint 2013-2025 (2013, p. 111), MoE believes that "Structural changes that go beyond merely improving the quality of English language teaching to creating a more immersive English language environment will be required".

The needs and requirements of the students at school level are different from those of students at tertiary levels, however the factors affecting the needs such as quality education, conducive learning environment and quality teachers are the same. For instance, the pool of all the lecturers and teachers at the public universities, polytechnics, colleges or schools in Malaysia actually derive from the same academic systems in Malaysia or overseas, where only those from higher institutions that are accredited by the Malaysian Qualifications Agency (MQA) and recognized by the Public Service Department (JPA) are allowed to work in the government sectors. Sharing the same alma mater, teaching and learning contexts, and academic background may indicate that they are faced with similar challenges. Therefore, integrating content subjects with English is affecting the lecturers and teachers in Malaysia in much the same way. The only difference is in how they face the challenges and tailor their approach according to their contexts and students.

In order to realize Vision 2020, the Ministry of Higher Education laid out the Higher Education Strategic Plan in 2007 which was to be be implemented in four phases: the stage to set the foundation (2007-2010); the stage to upgrade and enhance (2011-2015); the stage to achieve excellent higher education (2016-2019); the stage of excellence, competitiveness and global resistance (beyond 2020). The ultimate aim of the Higher Education Strategic Plan is to produce human capital with 'first class mentality' which is outlined as the second thrust of the Ninth Malaysia Plan in the hope to move the nation towards an advanced country. I have illustrated the connections between the concepts as in Figure 1.1. In Figure 1.1, the roles of higher learning institutions including polytechnics and community colleges are in building the nation. In addition to that, the Ministry of Higher Education has to embrace globalization and

its consequences. One of the steps taken to achieve this is through using English as the medium of instruction.

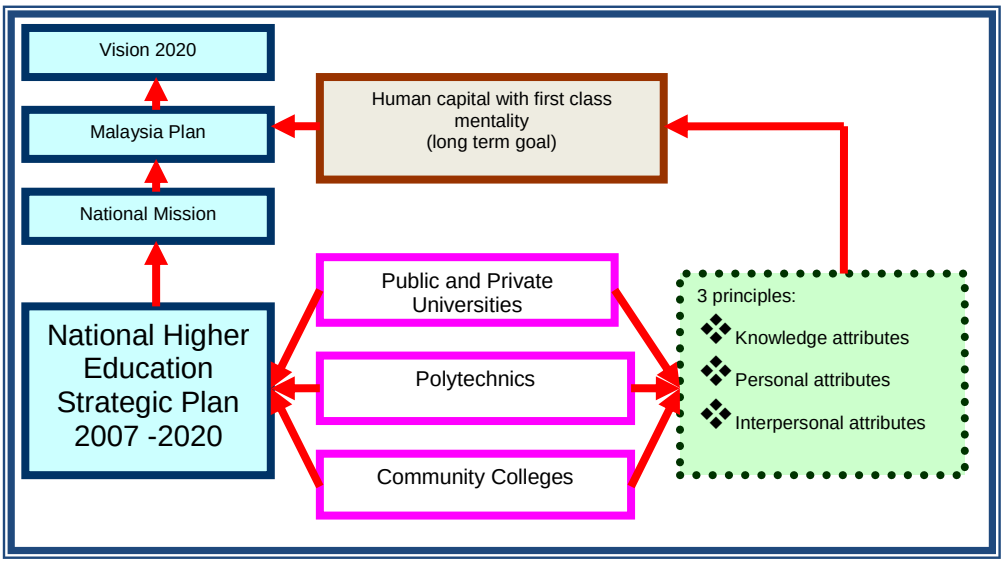


Figure 1.1. Roles of higher education institutions in nation building.

Malaysia's aspirations to be a fully developed nation by the year 2020 through Vision 2020 clearly outline the challenges to be overcome by the people. The National Mission 2006-2020 materializes the aspirations towards the development of the nation through its five thrusts (*The National Mission*, 2009). Among the aims of the country are: first thrust- "to move the economy up the value chain" (*The National Mission*, 2009, p. 14) and second thrust- "to raise the capacity for knowledge and innovation and nurture 'first class mentality'"(*The National Mission*, 2009, p. 15). In order to intensify the economic activities, Malaysia aspires to be globally competitive and move towards "a human capital driven economy" (*The National Mission*, 2009, p. 14) that is knowledge based. Developing human capital involves providing the right education that enables knowledge advancements that stimulate

innovations. The development of human capital is based on three principles: knowledge attributes, personal attributes and interpersonal attributes. Through the holistic approach of higher education, it is aspired that the human capital will not only be knowledgeable and innovative, but also be equipped with firs- class mentality.

One of the ways to ensure that the people in Malaysia are equipped with the latest development in Science and technology is through the language of the knowledge provider. Therefore, in order for advanced knowledge to be transferred to Malaysia, scientists, academicians, educators and researchers need to possess the language of the developed nations. To start with, Malaysians need to acquire the most common language of the knowledge source. In this era, English is the lingua franca to interact in the global world as it resonates with power over economy, technology, Science, military and culture (Crystal, 2003; Kachru, 1996; Marsh, 2006; Spring, 2008). At this stage of the nation, it is, therefore, wise for Malaysians to be able to use English proficiently as second language alongside the national language, Bahasa Malaysia (Asmah, 1992). To encourage Malaysians to be bilinguals in Bahasa Malaysia and English is in line with 'Malaysia Education Blueprint 2013-2025' (2013). For those who are already bilinguals, pushing themselves for other languages of power will give them an edge that characterizes them as possessing human capital with added value. To learn an additional language is also encouraged by MoE as it has recognised that these strategies will better prepare the students to enter the global workforce (Malaysia Education Blueprint, 2013). In relation to the use of language at higher learning institutions and the national missions, I propose the roles of languages to be viewed in the perspectives as illustrated in Figure 1.2.

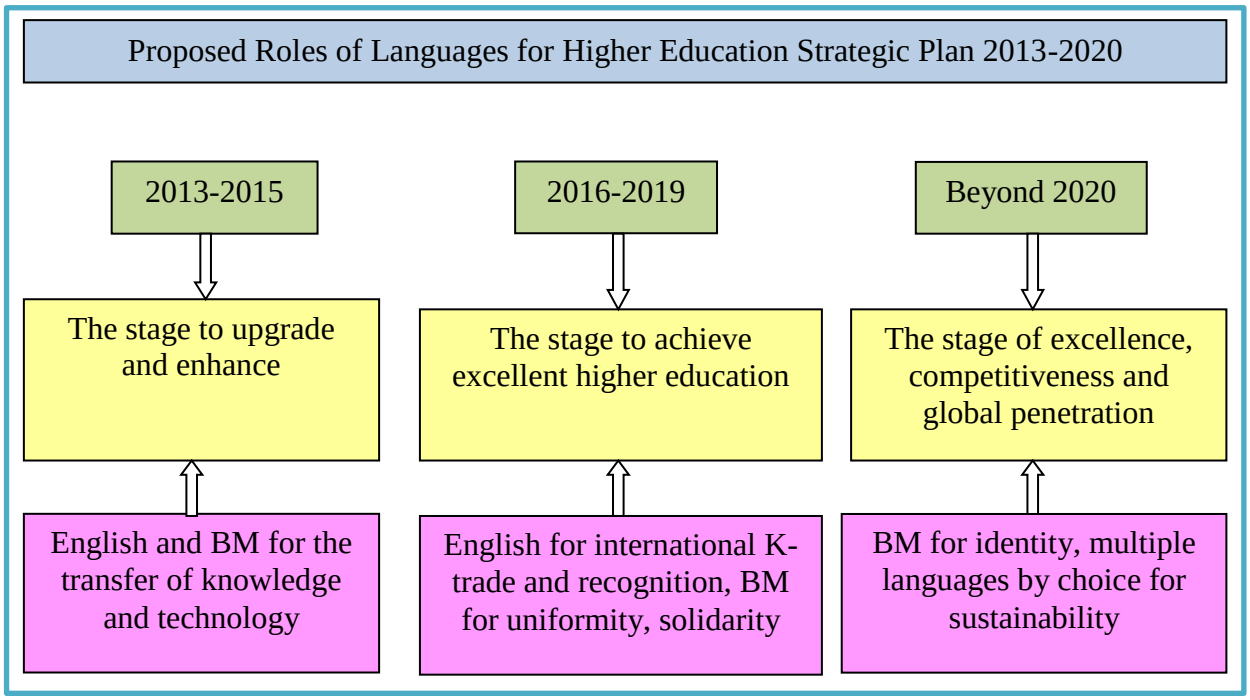


Figure 1.2. Proposed roles of languages for higher education strategic plan 2011-2020.

Figure 1.2. illustrates my perceptions of the roles of languages for higher education. From 2013 until 2015, I perceive that English and Bahasa Malaysia are used for the transfer of knowledge and technology in order for the the education of its people to be upgraded and enhanced. Between the years 2016 and 2019, Malaysians should acknowledge the importance of English for international relations especially in knowledge trade and recognition in order to achieve excellent higher education, whereas Bahasa Malaysia is for uniformity and solidarity. Beyond 2020, Bahasa Malaysia is recognised as the identity of the country, but Malaysians should be encouraged to learn multiple languages by choice in order to ensure sustainability as well as excellence, competitiveness and global penetration.

Some Malaysians as mentioned earlier believe that Malaysia should insist on using Bahasa Malaysia in all aspects and industries by following the examples of Japan, Germany or South Korea. However, I believe that Malaysia's technology and economy is a far cry from Japan, Germany or South Korea as they are developed countries that produce innovations and technology. Because they are developed nations, other people may find the need for them to learn the languages of these countries. For Malaysia on the other hand, to emulate them by restricting the use of other languages is a hindrance for Malaysia to develop economically. Even then, English is still taught as a compulsory subject in many developed nations such as Hong Kong, Japan, Taiwan and South Korea (Nunan, 2003). Malaysians should realise by now that being competent in English is a necessity for lingua franca, and we have to catch up with the world that has moved on to add other supercentral languages to their linguistic repertoire namely Mandarin, Spanish, Arabic and other big popular languages to sustain in the new economy (Graddol, 2006).

By referring to Figure 1.2, I propose that Malaysian higher education strategically recognise the importance of English as the lingua franca for knowledge and technology transfer, be it from external resources to Malaysia or vice-versa. For higher education, the internationally acceptable academic language is still English (Nunan, 2003). He stated that,

> English is currently the undisputed language of science and technology, and scientific journals in many countries are now switching from vernacular to English. In specific disciplines, English appears to be the universal language of communication.
>
> (Nunan, 2003, p. 2)

Malaysians should take this opportunity to be part of the intellectual community in order to assist in the building of our nation. When Malaysians have become bilingual, innovations and knowledge transfer will be more accessible. It is at this stage that Malaysia can strive towards achieving excellent higher education. However, if Malaysians are too slow, there will be a penalty for Malaysia. When global English has become the mainstream, it no longer provides the competitive edge as the rest of the world has moved on to multilingualism (Graddol, 2006). Beyond 2020, Malaysians need to realize, as the United Kingdom and the United States have been warned now, that "English is not enough" (Graddol, 2006). As China and India become more robust in the new economy, Malaysians should also equip themselves with Mandarin and other languages of the world trade in order to sustain the economic growth. At this stage, Malaysians' use of any language in a context is not due to monolingual restriction but a matter of choice and purpose.

1.3 Statement of the Problem

The lack of stability and enforcement to strengthen English language at all levels of education, has now taken its toll on Malaysia's development. The National Economic Advisory Council (*New Economic Model for Malaysia: Part 1*, 2009: 21) reported that,

> We are not developing talent and what we have is leaving. The human capital situation in Malaysia is reaching a critical stage… the education system is not producing the skills demanded by firms. Skill shortage, together with complaints about inadequate creativity and English proficiency, consistently ranks high among the top obstacles faced by firms according to studies on Malaysia's investment climate.

If we do not take drastic actions to rectify this problem, it may persist and, "Malaysia runs the imminent risk of a downward spiral and faces the painful possibility of stagnation" (New Economic Model for Malaysia: Part 1, 2009, p. 22). In addition to that, nowadays, private companies constantly demand prospective employees who are competent in the official job description, and also, more often than not, who are able to communicate in more than one language. This phenomenon was also noted by Asmah Haji Omar (1994). Besides that, in the globalisation era, the users of English are no longer limited to the native speakers of English. It has now become global English, used not only internationally but also locally especially when involving different nationalities as workers become more mobile and trade becomes borderless. In other words, when job competition is stiff, being at least bilingual is definitely an asset.

In supporting the national aspirations, polytechnics and community colleges play as important roles as the universities in producing competitive graduates. In an unpublished report by the Career Development and Training Division, Department of Polytechnic and Community College Education, Ministry of Higher Education (2008), English was highlighted as the medium of instruction for Technical subjects at all polytechnics and community colleges beginning August 2008. This effort was made to ensure that the lecturers were ready to receive the form five school leavers who had gone through ETeMS or English for the Teaching of Mathematics and Science system. The student intakes between 2008 and 2014 were slightly different from the previous students they have taught. Compared to the previous batches of students, these students have been taught Science and Mathematics through English since they were 13 years old (Form One students in 2003). The wider exposure to English also

means that they had better adaptability to use English at tertiary level. Therefore, in 2005, it was necessary for the lecturers to start using English for the instruction of Technical subjects in stages.

As in any other higher learning institutions in Malaysia, the majority of the lecturers at polytechnics and community colleges are also non-native speakers of English. Many of them had their own education in Bahasa Malaysia and had been teaching through Bahasa Malaysia before the implementation of the policy. The policy for teaching content subjects through English demands the lecturers to upgrade their own English language proficiency levels.

At tertiary level, the determination of MoHE to implement the policy was reflected through various means by which they tested, trained and monitored the institutions. Before the separation of polytechnics and community colleges in 2010, the Training and Career Development Division (TCDD) of Polytechnic and Community College Education Department (DPCCE) was in charge of monitoring the progress of the implementation of the policy and the training of the lecturers so that they could cope with the task. To start with, between July and August 2006, a diagnostic test was carried out by DPCCE to gauge the lecturers' English language proficiency level.

The study carried out by the DPCCE is relevant to this study because it gauged the polytechnic and community college lecturers' English language proficiency levels and their ability to deliver their subjects in English. After analyzing the test results, it was found that

many of the lecturers scored below 30 out of 50 objective questions given. Based on the report by TCDD in (2008), the mean for the diagnostic test scores for 1,867 lecturers studied was 28.56 (out of 50). To overcome the lecturers' difficulty with the transition from Malay to English, three phases of training were carried out at all the institutions. The aim set by the department was for the lecturers at the institutions to be able to teach 30% of their subjects in English by July 2006 (50 % by December 2006, 75% by July 2007 and 100% by December 2007). This effort brought improvements to the marks for the post test which was administered at the end of 2007. For the same participants, the mean for the post test was 35.01 and that indicated an increase of 12.84% from the diagnostic test.

In order to assess the lecturers' readiness to teach Technical subjects in English, TCDD appointed 15 directors, deputy directors and heads of departments to observe 121 lecturers of various disciplines while they taught their subjects. Eighty six (86) lecturers were from ten polytechnics and thirty-five (35) lecturers were from eleven community colleges. The observation focused on several aspects; lesson organization, language skills, social expression, and class dynamics.

The distribution of the scores in Table 1.1 showed that many of the lecturers were able to implement the policy. For lesson organization, the total marks were 40, and an acceptable score was above 20. 50.41% of the lecturers scored above the mean that was 27.38 for lesson organisation. For language skills, the total marks were 35, and an acceptable score was 17.5. 43.8% of the lecturers scored above the mean that was 23.12 for language skills. For social expressions which include greetings, thanking, apologising, etc., the total marks were 15, and

an acceptable score was above 7.5. 47.11% of the lecturers scored above the mean that was 9.45 for the use of social expressions. For class dynamics, the total marks were 35, and an acceptable score was above 17.5. 52.07% of the lecturers scored above the mean that was 23.46 for class dynamics. The findings of the study by DPCCE showed that for all the categories, approximately half of the lecturers scored above the mean ("Readiness of polytechnic and community college lecturers in using English as a medium of instruction," 2007). This has led the department to conclude that a considerable number of the lecturers were ready to teach their subjects in English (ibid).

Table 1.1

Findings from the Observation Sessions at Polytechnics and Community Colleges.

No.	Observations Aspects (Total marks)	Percentages of lecturers who scored above acceptable marks (mean)
1.	lesson organization (40)	50.41% (20)
2.	language skills (35)	43.8% (17.5)
3.	social expression (15)	47.11% (7.5)
4.	class dynamics (35)	52.07% (17.5)

Besides getting ready for the first batch of students under English for the Teaching of Mathematics and Science (ETeMS) system, the Department of Polytechnic Education and the Department of Community College Education have also been preparing to support the Higher Education Strategic Plan which highlights its mission to intensify internationalisation (*Pelan Tindakan Pengajian Tinggi Negara Fasa 2 (2011 - 2015): Mencetus Transformasi Pengajian Tinggi*, 2011). This policy has also made the use of English a necessity at higher education

intitutions in order to attract international students. In a positive light, the multicultural diversity and abundant exposure to the English language should provide a conducive environment for the local higher education students to be more versatile and competitive to prepare them for work later.

The determination of MoHE in educating students to be skilful as well as communicatively competent in English requires strategic steps to be taken towards achieving the aims. Even though various studies have been carried out in Malaysia on the readiness level of the teachers, the effectiveness of the implementation of the policy and the impacts of the policy on the teachers and students, very few of these studies have actually related the policy for teaching content subjects through English to the principles underlying the approach and examined how the teachers deliver the lessons in detail. The principles such as the Canadian Immersion described by Grabe and Stoller (1997), Sheltered Instruction as described by J. Echevarria, Vogt M. E and Short D. J (2009), as well as Content snd Language Integrated Learning (CLIL) as described by Coyle, Hood and Marsh (2010) should be taken into consideration when planning to use a second language for the medium of instruction. In order for the stake holders at polytechnics and community colleges including MoHE to produce graduates who do not only have academic qualifications but also bilingual abilities, the stake holders should have a full understanding of what is required of them to ensure the dual aims of the approach are achieved, thus enabling them to make informed decisions in terms of revising the policy and improving its implementation in the future.

The contexts of polytechnics and community colleges are slightly different from the contexts of schools. Not only are the students older than those at schools (school leavers are 18 and above), they have also been streamed according to their academic achievement after their Sijil Pelajaran Malaysia (SPM) or Malaysia Certificate of Education. The students who have obtained higher grades in their academic achievement normally go to universities or matriculation institutions to prepare them for university education. The students who prefer practical work, can now go to the universities, polytechnics or community colleges where Technical and Vocational Education and Traning (TVET) is emphasized.

Due to its unique context at polytechnics and community colleges, research is needed to study the best models for the teaching and learning of Technical subjects through English, the underlying principles of teaching and learning methodologies that could enable the stake holders to understand the rationales for certain strategies, the different characteristics of students and teachers as well as the support that the authority could give in order to tap the potential of the human capital and educate them to the best of their ability. Such research could usefully be carried out on the lecturers themselves and the patterns in which they carry out the teaching given the low level of English language proficiency among the students at both polytechnics and community colleges.

One of the courses at polytechnics and community colleges that requires the learners to have some English is the IT Course. In the Information and Communication Technology (ICT) era, the uses of the computer enable people to be globally connected. The wide use of English in much computer software including computer games necessitates the ability to use English

among the computer users. Being an international language, English becomes the lingua franca between the players and the computer programmes. This phenomenon reflects that having at least an additional language competence, which in this case is English language, is important among not only players of computer games but also the students who are taking computer based courses at higher education. Computer technologies such as the popular Facebook and Twitter originate from the English speaking countries like the United States of America and England that use English to run their applications.

The lecturers play vital roles as they determine the kind of language and 'English' used for the delivery of the content, the interactions with the students and the assessment. It is crucial that the content lecturers also possess a good command of English because it influences the students' English language performance with the way they speak and use the language. In the light of this, the study commenced with the findings on the lecturers' perceptions, motivation and attitudes towards the policy because how they perceive the vitality of the policy, the implications of the policy on their students and their attitudes towards it determine the strategies that they will use in upgrading their English and in teaching. In addition to that, some information was also gathered to investigate the initiatives the lecturers had taken to upgrade their English and the strategies the lecturers had been using in order to ensure that the students could grasp the content as well as learn the content through the English language.

1.4 The Objectives of the Study

In relation to the discussion above, this study investigated the perceptions and attitudes of IT lecturers at polytechnics and community colleges towards the policy of IT subjects through English, their demographic backgrounds, the patterns in which they learned English to upgrade themselves and the teaching strategies they used to implement the policy. The focus on IT lecturers was made in order to provide a level of homogeneity in the sample. Even though the lecturers may have come from different family and academic background, they have been exposed to the same content subjects and some of them may teach the same or similar types of students. This study also assumed that the lecturers with English language learning autonomy and positive attitudes would enhance their mastery of English language and perform better in teaching. In addition to that, the extent to which English language was used during the teaching delivery, and classroom interactions including verbal and non-verbal verbal classroom communications were also researched.

The specific objectives of the study are to:

1. Identify the lecturers' perceptions, attitudes and motivation towards teaching their subjects through English.
2. Identify the strategies the lecturers use in upgrading their English language proficiency.
3. Identify the strategies the lecturers use in teaching IT through English.

There are three research questions for this study. They are as follows:

1. What are the lecturers' perceptions, attitudes and motivation towards teaching IT subjects through English?
2. What are the strategies the lecturers use in upgrading their English language proficiency?
3. What are the strategies the lecturers use in teaching IT subjects through English?

1.5 Conceptual Framework

In this study, for the survey, a few independent and dependent variables are at play. The following diagram illustrates the connections between the variables.

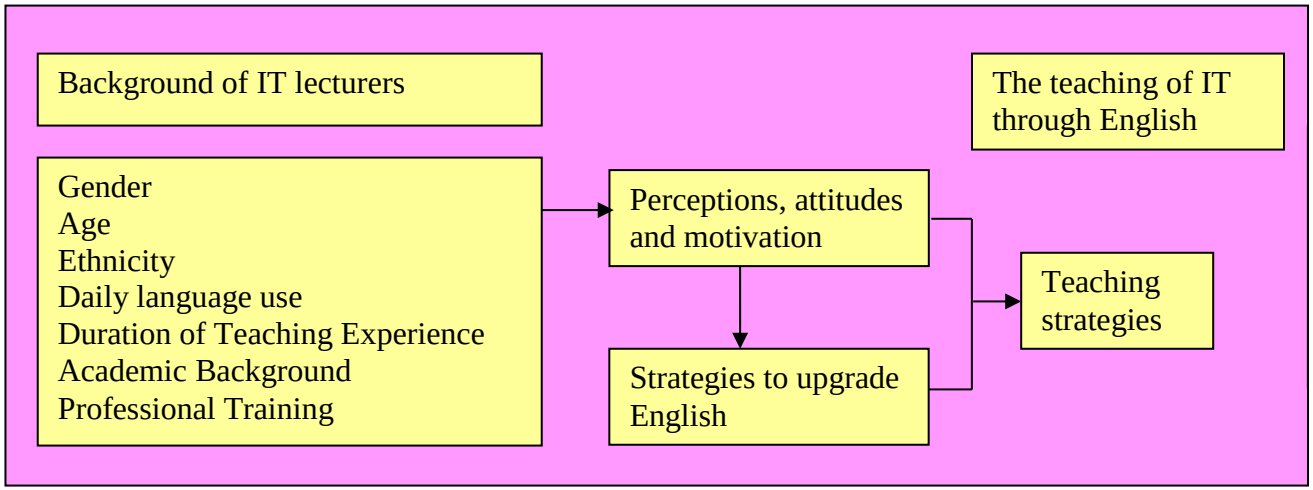


Figure 1.3. The conceptual framework for the teaching of Information Technology subjects through English by lecturers at polytechnics and community colleges.

The variables in the conceptual framework in Figure 1.3 represent the constructs in the questionnaire and the relationship between them. The first section of the questionnaire is on the background of the lecturers that includes their gender, age, ethnicity, daily language use, the duration of teaching experience, academic background and professional training. The second section is on the perceptions, attitudes, and motivation of the lecturers towards teaching IT subjects through English. These variables were investigated in order to determine if they made a difference in the lecturers' actions regarding their strategies to upgrade their English language, and the strategies the lecturers used to deliver IT through English. The first phase of the study, which was the survey, provided an overview of the population's background, their perceptions, attitudes, and motivation towards teaching IT through English, and the strategies they used to upgrade their English language proficiency levels and the strategies they used to teach IT through English. In the second phase of the study, the results from the survey were used to select the lecturers for the observation sessions. The lecturers' perceptions, attitudes, and motivation as shown in the survey were used to rationalize the strategies they had used to deliver their lessons.

In the second phase of the study, the elements under scrutiny were more intricate aspects of pedagogy and were in some respects interconnected as shown in Figure 1.4. The aims for the pedagogy are twofold: mastery of content and English language mastery. As the teacher delivers the content to his or her students, he or she uses the Subject Matter Knowledge (SMK) on IT. The language for instruction is English and it acts as scaffolding for the content subject. It involves the teacher's ability to balance and monitor English language use, usage and register while focusing on delivering the content. Register is the jargon experts

use to discuss their areas of expertise (Holmes, 1992). There is specific vocabulary associated with particular groups of people or specific situations of use. Register variation is also known as occupational style (Holmes, 1992).

In order to achieve the aims of the lessons that are to enable the students to acquire both the IT content and the English language for the IT lesson, the teacher uses his or her discretion to consider a multitude of other elements. As student factors, the teacher needs to consider not only their previous subject knowledge, but also their second language background. The contextual factors are the elements such as the size of the class, the setting, the nature of the topic and the duration of the lessons. One of the elements that teachers sometimes forget to consider is the teacher factor. Teachers have gone through different training and have acquired specific skills and knowledge that might blend into their unique lesson delivery. Besides that, the teacher's personality traits are also the contributing factors for a successful lesson.

The teacher can also be creative by using different modes in teaching in order to enhance learning. With the use of multimodal interaction, the students are able to verify their understanding of specific lesson objective through different means such as verbal communication, visual material, gestures, body position, etc. The support to enhance teaching and learning is also crucial. For instance, the teacher can refer to materials in English or consult another teacher who is good at English for help before the lesson in order to ensure that the teacher are able to deliver the terms and explanation appriopriately. Finally, the teacher should also search for the best teaching approach to deliver the topics under the IT

subject through English. The teacher with the right Pedagogical Content Knowledge (PCK) for Content and Language Integrated Learning (CLIL) will be able to make informed choices in the techniques that he or she uses during the lessons that in turn will contribute to the lesson aims and objectives. The PCK is made up of the teacher's knowledge of IT in English, and his/her pedagogical skills for teaching IT as well as the pedagogy for teaching English.

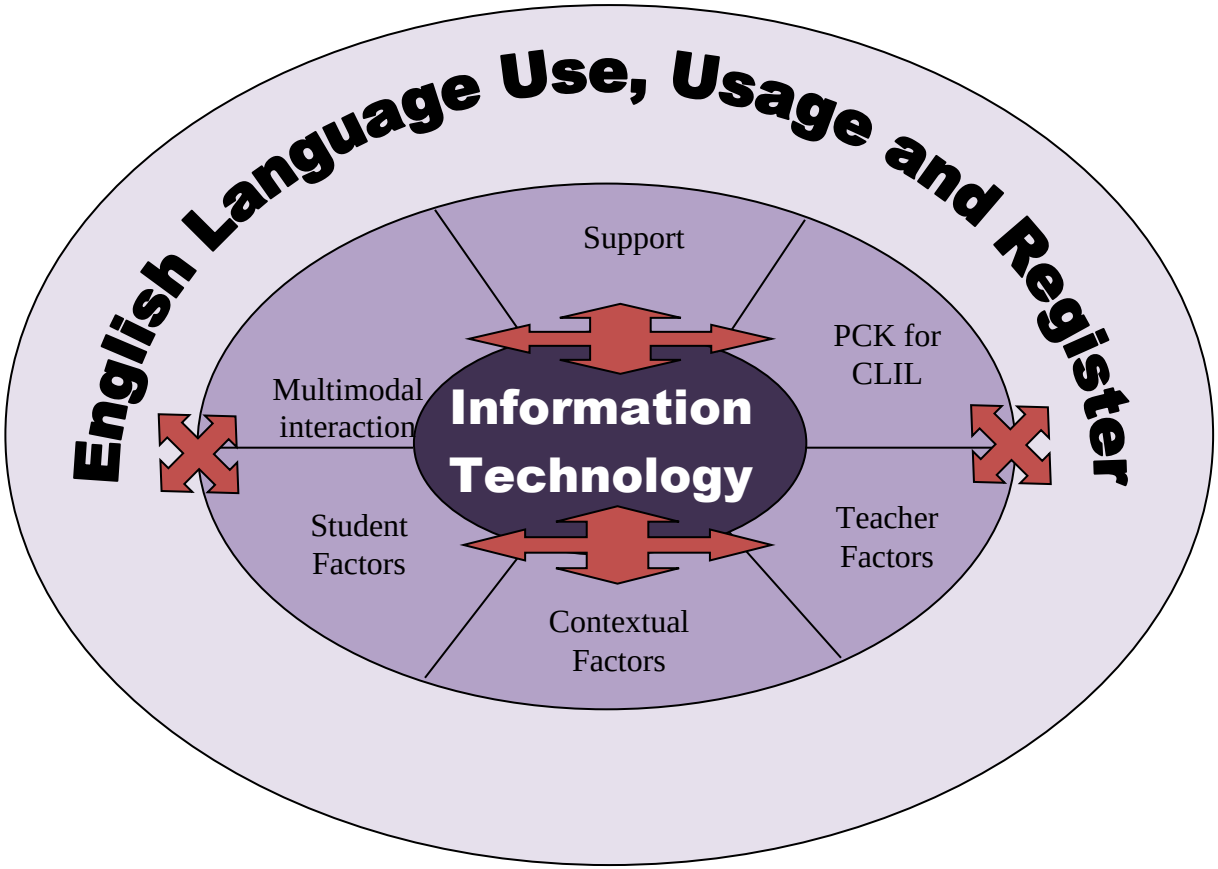


Figure 1.4. The pedagogy for the integration of Information Technology as a content subject and English language.

1.6 The Significance of the Study

One key player in teaching and learning contexts is of course the teacher. This study focuses on the teachers' perceptions, attitudes and motivation, and how these elements impact on the strategies they used in learning English to upgrade their proficiency levels and teaching IT subjects through English. The teacher is the provider of knowledge. Therefore, a study of how the teachers perceive and react to the changes is vital in order for the government to monitor the implementation of the policy at the operational level. This study provides both a sampled bird's eye view, and through a range of cases an in-depth view of these key players at polytechnics and community colleges, and their responses to the requirement to teach content subjects through English.

In this respect, it means to examine the strategies the teachers used to upgrade their English language proficiency levels and the strategies they used to teach IT to their students. The study by DPCCE showed that most of the lecturers who taught content subjects did not have high English language proficiency (*Polytechnics Prospectus 2007*, 2007; "Readiness of polytechnic and community college lecturers in using English as a medium of instruction," 2007). As such, this study examined the initiatives the lecturers took particularly in learning English in order to facilitate the teaching of IT through English. This was achieved not only through a survey on how the IT lecturers said they carried out their lessons, but also through a series of lesson observations. This analysis was used to examine the actual lesson delivery in the classrooms.

As the policy to teach Technical subjects through English was expected to commence in July 2008 at polytechnics and community colleges in Malaysia, the practice can be considered relatively new. Furthermore, the reversal of the policy at primary and secondary levels in 2009 made it more difficult to promote the integration of English and content at higher education level. Very few studies have been carried out at these institutions on the teaching and learning of content subjects through English and its status is scarce. Therefore, it is vital for Malaysia to encourage teachers to examine the best practices in teaching content subjects through English across the globe. CLIL has been developed over the past twenty years in Europe based on a strongly perceived need to develop an educational approach that could educate children to master both the discipline areas and a vehicular language like English in order for them to meet the global demands. CLIL models grew from sound underlying principles of teaching and learning which also underpinned other similar models such as immersion, and content-based instruction.

In order to extract possible lessons to support the education at polytechnics and community colleges in Malaysia, the study also provides a review of the other methods throughout the world, and the design that is closest to the Malaysian context will be analysed in detail. In relation to that, the research will also highlight the observed patterns of the IT teaching strategies at polytechnics and community colleges as discovered by previous research. Finally, the study aims to provide information on effective teaching strategies for teaching content subjects through English so that the lecturers at polytechnics and community colleges can obtain insights, and develop appropriate pedagogical skills, and become teachers that are more effective. The findings from the study could inform the policy makers at the ministry of the types of training needed by the teachers in order to ensure that the English language imparted to the

students through the teaching of content is of a good standard. This study is important because it portrays the readiness of the lecturers to deliver the content subjects though English, which may result in the students' getting exposure to and be more familiar with the English language register in their discipline. The outcome desired of this implementation is the graduates with a good command of English that can fulfil the needs of the industries locally and abroad.

It is hoped that this study is able to provide an indicator of the optimal ways to teach IT that is integrated with English language. As the study explores the implementation of the teaching of content subjects through English in Malaysia, it is hoped that the findings of this study may address the current dearth of knowledge in the respective field. To date, no such research in this department has been carried out in Malaysia. Obviously, some exploration of this area is indispensable. More studies in this area are crucial, not only at polytechnics and at community colleges, but also at public and private universities due to global demands. Hopefully, it offers a new field of research and can shed insightful ideas for the government, policy makers, stake holders, administrators and lecturers alike.

1.7 Conclusion

The first chapter has introduced the topic, established the context, stated the problem under investigation, identified the objectives, illustrated the conceptual framework and explained the significance of the study. Due to globalization, it is vital for Malaysia to embrace the challenges bravely by taking strategic action plans that could steer the country towards a more developed nation with first class minded human capital. The higher education institutions under the

Ministry of Higher Education are accountable to educate and produce graduates who meet the aspirations of the national mission. The graduates who plan to tread an auspicious career path should equip themselves with appropriate knowledge, personal and interpersonal attributes. To be competitive in the global market, the current and future industries require talented individuals who are not only skillful and knowledgeable but also proficient in communicating the content using global English. According to Hafriza (2006, pp. 21-22):

> Malaysians who are also proficient in English are considered an employment asset in high-paying and prestigious jobs in medicine, law, international affairs, diplomacy, Science and technology in both government and private sectors today….The best jobs go to those fluent in English and compared to those who are less proficient in English, the former face fewer difficulties where promotions are concerned.

The next chapter will review the literature related to globalization issues, content and language integrated teaching and learning models throughout the world. In addition to that, it will also consider in brief, the literature on attitudes and motivation, PCK and teacher training.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature that directly relates to the study on the integration of IT subjects through English is extremely rare especially in Malaysian context. Therefore, the literature for this study is chosen prudently to explain the contexts and elements that might be involved in the research, and contribute to the aims of the research. This chapter will start with the discussion about globalization and nationalism as people in Malaysia are trying to put the use of English and Bahasa Malaysia in balance. Then, the chapter will review research into the pedagogy of English for the teaching of the content subjects. For this purpose, a section on Content Based Instruction (CBI) is provided, followed by Immersion, Sheltered Instruction and Sheltered Instruction Observation Protocol (SIOP), and CLIL. In addition, the Literature Review chapter will also provide subsections on Attitudes and Motivation, as well as PCK.

In the Knowledge Economy, it is no longer sufficient for people to have only specific skills or knowledge. Nowadays, many people have sought other skills and knowledge to add values to their credentials in order to obtain the edge in jobs or businesses. To start with, the literature review chapter will examine the impacts of globalization and nationalism on the demands for the mastery of content knowledge in English language. In Malaysia, using English is associated with being less nationalistic. This is in conflict with the policy of the higher education sector in Malaysia that promotes internationalisation.

At higher education institutions, teachers have to prepare themselves to teach content subjects through English when classes involve international students in order to achieve one of the thrusts of the National Higher Education Strategic Plan that is intensifying internationalisation. Hence, the teachers have to have both, the subject matter knowledge and English language competence. In this way, English Language Teaching (ELT) has also evolved to meet the growing demands of the learners. To discuss the teaching of content subjects through English further, a section on Content Based Instuction is presented to provide an overview of the issues that relate to the integration of content and English.

The integration of content and language is actually grounded in firm underlying theories derived from learning theories as well as empirical studies. The schools of thought in second language acquisition and learning have evolved from theories of Behaviourism/ Structuralism to Rationalism/ Cognitive Psychology and Constructivism indicating not the importance of the paradigm shift but of the continuum on which balanced decisions should be made based on careful linguistic and contextual considerations. The following subsection begins with the deliberation of globalization and nationalism in relation to Malaysian context.

2.2 Globalization and Nationalism

After the colonization era, as discussed by Asiah Abu Samah (1994); Abdul Rahman Embong (2000); Abdul Rahman Embong (2004); Jomo K.S. (2004); Hazita Azman (2005); Abdul Rahman Embong (2005), the Malaysian leaders have fought for the sovereignty of this country and the unity through a national identity despite the pluralistic backgrounds of its citizens. Now,

Malaysia is still in a crisis of national identity because of globalization and the hegemony of English. In order to advance, Asiah Abu Samah (1994); Abdul Rahman Embong (2000); Abdul Rahman Embong (2004); Jomo K.S. (2004); Hazita Azman (2005), Abdul Rahman Embong (2005), believe that Malaysians need to embrace the most modern technology available in the global market and play the same game as is played by the more developed countries in the world which includes having the ability to transfer knowledge through English. Nowadays, industries can expand through borderless technology and the use of international English as a lingua franca.

Through time, the use of English no longer identifies, whether it is British, or American English, because it has become more of 'Global English', 'World English' or 'English as a Lingua Franca'. Crystal (2003, pp. 140-141) states that, "…the largest-English speaking nation, the USA, turns out to have only about 20 per cent of the world's English speakers…it is plain that no one can now claim sole ownership." In addition to that, the number of English language speakers in India may increase to be more than there are in the United Kingdom (ibid). In the globalisation and internationalisation era, English still remains the lingua franca not only due to its hegemony and diaspora but also the gaining in status of global English (Graddol, 2006). In fact, ELT should also consider the needs and demands of English language users worldwide by adapting the methodology in teaching and learning (Cook, 2003; Graddol, 2006).

Harford (2007, pp. 214-5) relates globalisation to migration, exchange of technology, and cross-border investments in financial assets, as it involves, "..more trade, and more direct investment by companies from rich countries, such as building factories in poor countries". He explains how China grew rich from letting foreign investors such as American and Japanese

firms invest in transport and electronics which provided jobs for its skilled and productive workers, and turned the country into a 'high-technology manufacturer". In cases like this, workers who are able to communicate in English will be highly valued as the lack of competency in English may result in miscommunication and slow production.

According to Altbach and Knight (2007, p. 290), globalisation is defined as, "the economic, political, and societal forces pushing 21st century higher education toward greater international involvement" in order to emerge as the "knowledge society." Globalisation results in,

> The integration of research, the use of English as the lingua franca for scientific communication, the growing international labor market for scholars and scientists, the growth of communications firms and of multinational and technology publishing, and the use of IT.

(Altbach & Knight, 2007, p. 291)

The development in these areas shows that there is a trend where societies across the globe are striving towards globalization in order to emerge as developed countries. Globalisation poses challenges as well as opportunities for Malaysia to race against the wealthy countries that are dominating the world's economy and politics (Tun Razak, 2010). Thus, the Prime Minister urges the local industries to be more competitive yet cautious and alert with the impacts of the borderless technology. He believes that one of the ways to become a nation that is more competitive, knowledgeable, technological and scientific is by, "...educating oneself on communicating in languages other than Malay…(because) the society's ability to communicate

fluently in various languages serves as a significant attraction factor" for "…shared services, outsourcing, back office operations and regional centres" (Tun Razak, 2010, p. 75).

In order to transfer the technology, Malaysians need to be able to communicate with the foreigners in various disciplines at the international level by using the lingua franca of the world today: the English language. One of the strategies to upgrade the level of English language among its citizens was once reflected through the short-lived implementation of the education policy of teaching and learning Science, Mathematics and Technical subjects in English. Fortunately today, English is still allowed for instruction at higher learning institutes especially involving international students (*Higher Education Malaysia Internationalisation Policy 2011*, 2011). The government's current policy on English is that for the language to be strengthened through English language education. At higher education, there is a demand to include the teaching of content subjects through English due to its policy on internationalisation. Asmah Haji Omar (1994) delineates the context of English in Malaysian education system before the internationalisation policy for higher education was formulated,

> …in the schools and Malaysian universities, English as a rule is taught as a subject, not as a medium of instruction. No doubt it is a compulsory subject to be taken by the undergraduates. However, it is not a prerequisite for admission into the university…When a language is not fully used as a medium of academic discourse, the students' mastery of it cannot be expected to attain a level it would reach had the language concerned been used as medium of instruction.
>
> (1994, p. 81)

This excerpt shows that the students could have better mastery of the language when the content is taught through English rather than in separate English language class. Furthermore, the students will develop mastery of the specific register in the disciplines they specialize.

English has been regarded as a means to achieve nationism including employability ever since the British first came to Malaysia (Asmah, 1992). According to Asmah Haji Omar (1992), nationism is a state where a language is maintained in the country for the purposes other than nationalism. Currently, the diminishing roles of English has contributed to the decreasing number of proficient English language speakers, the unmotivated English language learners due to the limited environment to practise English, and the declining standards of English (Hafriza, 2006). This, in turn, would not only affect the country's economy negatively, but also limit individuals' opportunities to upgrade their economic status. Despite the national aspirations, there are many complaints about local graduates who lack the ability to communicate in English. The previous Higher Education Minister, Datuk Mustapa Mohamed revealed that 29.2% of the 120,000 local graduates scored in Bands One and Two in the Malaysia University English Test (MUET) which categorize them respectively as extremely limited and limited users of English (The Star "Poor marks for English," 2007).

Hafriza (2006), in her study on 219 Malay university students and professionals, found that more than 77% of the students indicated that their ability to understand English was average and below average and were found to have less favourable attitudes towards the English language. These students would represent the new generation of Malay workers and the declining English language standards among them is a cause for concern as it may mean more

limited opportunities for Malaysia to advance economically and socially in the global world. Hafriza (2006) believed that when people with less favourable attitudes towards English do become professionals and hold prominent jobs, the roles and status of English may further decline and this unfortunately, may hinder Malaysia in acquiring knowledge in advanced technology such as genetic engineering, astronomy, marine biology, computer, nuclear technology and others.

Past research indicates that students with low English language proficiency also have difficulty in understanding lectures, comprehending English language texts, and visual materials on the content areas (Rosniah Mustafa, 2005). A study by Paramjit Kaur (2005) shows a strong relationship between English language proficiency level and the extensiveness of the materials the ESL students read. Consequently, only a small percentage of the certificate leavers are interested in or capable of continuing studies at diploma level and further especially when it requires them to reference using English texts or attend lectures in English. Given the students' weak English language proficiency level at polytechnics and community colleges, this study takes the initiatives to investigate the ways in which the lecturers deliver the Technical subjects through English to their students.

In the study by Asmah Haji Omar (1992) at the University of Malaya in 1980, she found that 95.9% of the university students perceived English as very important in getting jobs especially in the judiciary and legal services, banking, public administration including internal and external affairs, medicine and dentistry, and private businesses (Asmah, 1994). The same views were still shared by the university students in the 21st century. The students were aware of

the importance of English, however, the employers found that many of the graduates were not competent English language speakers (*Malaysia and the Knowledge Economy*, March, 2007). The concerns about the declining English language proficiency level of the local graduates were reported by the Economic Planning Unit (EPU), the Prime Minister's Department (*Malaysia and the Knowledge Economy*, March, 2007). The report discusses the needs for Malaysian universities to improve the quality in order to meet the demands of the industry, internationalisation and globalisation (ibid). It stated that, there are,

> …growing numbers of unemployed graduates since 2000…(due to) : (a) the capacity of the economy to absorb the expanding output of graduates; (b) the quality of tertiary education; and (c) the mismatch between what higher education institutions are producing and the skills demanded by the employers.
>
> (*Malaysia and the Knowledge Economy*, March, 2007, pp. xx)

It was found that quality is determined by several factors such as academic programs, language of instruction, teaching quality and methods of delivery, and the students as well as student learning (ibid). It is claimed that many of the Malay graduates had low levels of English language proficiency because they went to the public universities which used Bahasa Malaysia as the language of instruction except for UiTM which uses English (ibid). The majority of the non-Malays, on the other hand, go to private schools and private universities because they offer English as the medium of instruction (ibid).

Malaysian students who graduated from private universities or colleges did not face problems with finding jobs because "..they are more proficient in the English language and are better prepared to meet the demands of the employment market" (V. Navaratnam, 2006, p. 138). On the other hand, the unemployment rate from local public university graduates was reported to

be between 18,000 to 80,000, and V. Navaratnam (2006) believes that the sources of the problems were due to the students' poor academic results, low quality academics, and too many students doing Malay, religious studies, geography, history and performing arts may result in excess access because the market could not provide too many jobs in those areas.

In Malaysia, many graduates are unemployed because they lack the necessary skills to perform effectively in challenging workplaces. According to Suehiro (2008, p. 290), in Japan, the educational sociology emphasizes ".. the mutual relationship between educational institutions and job-hunting/recruiting activities…" where in recruitment, personnel are selected and distributed to fit the market. The mismatch between the graduates and the skills needed by the industries is evident in Malaysian market. The National Economic Advisory Council (*New Economic Model for Malaysia: Part 1*, 2009) reports a critical shortage of skilled workers in IT, technical and professional fields especially those with creativity and English language competence. Evidently, there is a healthy job market. Therefore, the higher learning institutions should equip students with the appropriate skills by focusing on what is needed by the market so that more graduates could fill the vacancies and not become unemployed.

In the Higher Education Strategic Plan, it is suggested that Malaysia follows the example of South Korea that has intensified internationalisation by using English for teaching 30 percent of the courses at Korea University. Currently, there are approximately 86,919 international students and 6,008 international academic staff at public and private universities in Malaysia (*Pelan Tindakan Pengajian Tinggi Negara Fasa 2 (2011 - 2015): Mencetus Transformasi Pengajian Tinggi*, 2011). The private universities that cater largely for international students

contribute RM1.3 bilion annually to the national income (*Pelan Strategik Pengajian Tinggi Negara Melangkau Tahun 2020*, 2007). By the year 2015, Malaysia aspires to attract 150,000 international students and have 10% of the academic staff from overseas (ibid). Due to the influx of foreigners to study at higher institutions in Malaysia, universities have to use English for the medium of instruction for activities involving international students. Local Malaysian undergraduates should perceive this as a golden opportunity to be exposed to more diverse cultures including strengthening their English language competence by engaging in academic communication between different nationalities.

Among the policy statements that could benefit the Malaysian students are:

> English is used as a medium of instruction in the management and academic aspects of higher education involving international students. (The higher institutions should) Provide academic programmes that are internationally recognised and relevant to meet global demands.
>
> (*Higher Education Malaysia Internationalisation Policy 2011*, 2011, pp. 63-64)

The Ministry has laid out specific measures on how the institution should implement this policy. However, it did not detail the pedagogy for the teaching of content through English. Once again, it is up to the teachers' discretion to choose the appropriate pedagogy. In order to understand the principles underlying the policy, the intricate connections between the theories of Second Language Acquisition and Second Language Learning will be discussed in relation to CBI and Immersion respectively. The following models delineate the strategies used in teaching content through a second language.

2.3 Content Based Instruction (CBI)

CBI attempts to generate both fluency and accuracy. In relation to the teaching and learning of content through a second language, Grabe and Stoller (1997), reiterate that CBI started with second language immersion programs and English for Specific Purposes (ESP) programs. It gained popularity and has been used widely in English for Academic Purposes (EAP) programs. They and Troncale (2002), believe that Krashen's (1983) comprehensible input hypothesis provided a rationale for the development of CBI.

The Acquisition-Learning Hypothesis by Krashen (1982) clearly illustrates the distinction between acquisition and learning. This theory suggests that fluency can be acquired through immersion where comprehensible input is abundant whereas accuracy comes from more formal learning. Krashen (1982) believes that English language users could check the utterances acquired in the second language by applying the monitor based on the rules, which they have learned. In spite of Krashen's (1982) claim that adults still have the ability to acquire a second language the same route naturally taken by children learning their first language, he believes that second language acquisition has little impact on error correction. When learning is done with conscious efforts, error correction plays a significant role.

In explaining the Monitor Hypothesis, Krashen (1982) states that learning monitors acquisition through planning, editing, and correcting the output. According to him, language learners can be divided into three types of monitor users. The first group of learners are the monitor over-users. The characteristics exist in introverts, perfectionist, and those who lack

confidence. They tend to over correct their linguistic performance. The second group is the monitor under-users, who are generally extroverts, and do not practise self-correcting their linguistic performance. The third group is the monitor optimal-users, the second language learners who are able to self-correct their mistakes whenever appropriate without interfering with the flow of communication, and perform the best practice of error correction. Based on this theory, learning a second language explicitly through formal instruction is beneficial in developing second language mastery of form similar to children learning their first language formally and explicitly.

CBI is defined as the "instruction that focuses upon the substance or meaning of the content that is being taught" (Sticht, 1997, p. 1). In CBI, language is considered as the 'by-product' of the contents learned. The proponents of CBI believe that when learners learn content subjects, they indirectly learn the language.

Past studies show that CBI is developed because of the concerns that language learning should be provided with content in order to capture the interest and motivation of the learners. Learning the content makes learning a language more meaningful. One example can be derived from the study by Chapple & Curtis (2000). They researched how students responded to film as a source of content in a CBI course at the Chinese University of Hong Kong. The university is officially using English and Cantonese as the medium of instruction and the students have had 14 years of English learned from the kindergarten, through primary, secondary and university education. However, the students' language proficiency levels vary. The elective CBI course called, "Thinking through the Culture of Film" is offered to second and final year undergraduates

by the ELT Unit. Throughout the semester, the course utilized eight films as stimuli for learner-centred discussions. At the end of the semester, the students responded believed that their language skills and content knowledge have increased. Besides being more confident, students also revealed that they also developed other aspects of learning namely analytical/critical thinking, different perspectives/broadened understanding and content/Technical film knowledge.

The report by Han and Dickey (2001), from Kyongju University in Korea that introduced Foreign Language Medium Instruction (FLMI) as one of the courses taken by the students also gave a favourable outcome. The students there were given the choice to choose either Japanese or English as their second language (L2), and they expressed favourable responses for the opportunities to use L2, and were motivated to use it. Kirschner & Wexler (2002), who used the film, Caravaggio (1986) by British director Derek Jarman including reading materials in art and history as the resources for an interdisciplinary content-based EAP/ESP unit at Tel Aviv university in Israel obtained similar results where students were motivated to use English.

In order to enhance the learning of another language, many innovations have been invented. Troncale (2002), also recommends the use of cooperative learning and cognitive academic language proficiency (CALP) in CBI for 7-12 ESL students so that they become self-directed learners and are prepared for their higher education pursuits. Being student-centred, the use of cooperative learning allows the students to collaborate with each other in small groups and foster learning autonomy. Stoller (2002), a strong advocate of CBI, believes that by teaching the content through another language, the students are able to be equipped with not only the content knowledge but also the linguistic skills. Both are required by the students to venture into the real world.

Even though CBI may suggest the use of academic topics other than language as stimuli, many have also chosen to use topics that revolve around language and culture. This allows more opportunities for the students to learn language explicitly as well as develop more understanding of the issues surrounding language learning and acquisition. Garner and Borg (2005), for instance, used CBI to produce a content-based English pre-sessional course illustrating a proposed ecological framework. They argued that in 'an ecological approach' to language, the elements of language are regarded as very diverse but common in certain aspects making them holistic, dynamic, interactive, and situated. In implementing the course to new pre-Master's level international students at a university in the United Kingdom, they used a textbook, 'Global Issues' by John Seitz to develop the students' knowledge in the area as well as to provide focused, integrated and contextualized academic reading, writing, speaking and listening activities. Thus, the content, the language of thinking which accompanies EAP themes and language rules, are all learned together in a meaningful and holistic way.

However, many of the CBI approaches are adopted by the language teaching units rather than by the departments of content subjects. This implies that the language is also taught explicitly while the content of the subjects attracts the students' interest. Due to this, the CBI approach moves away slightly from the true immersion methodology and is closer to the ESP. As CBI is adopted by language teachers or departments, it cannot escape from making the teaching and learning of the language explicit through the formal address of the aims in enhancing linguistic competence and performance as well as the conscious efforts made to achieve the aims. Dickey (2004), views CBI as a continuum of teaching and learning with one end being

content and the other, being second language. The dichotomous view of CBI presents the struggle the implementers have to deal with when deciding on the teaching and learning activities, resources and evaluation. In a more sceptical note, he believes that CBI is suitable in order to:

> 1. prepare learners for an immersion environment ("native speaker school").
> 2. prepare learners to write on their subject area in world-class foreign language journals.
> 3. motivate learners through use of interesting topics/materials outside of traditional language study area.
> 4. other campus purposes (which may have little relation to the learners).
>
> (Dickey, 2004, p. 24)

His views on CBI reflect his beliefs that CBI inclines more towards the perfection in language learning rather than a balanced approach in learning towards the attainment of content knowledge and linguistic skills.

A preference for accuracy is displayed in the paper on content-focused feedbacks vis-a-vis form-focused feedbacks by Mohamed Ismail (2003), who delineates the implementation of CBI for the teaching of literature in Malaysian schools to develop students' English language proficiency. He studied the extent to which negative feedbacks and teachers' feedbacks that were focused on form were made available to the students. The participants were two teachers and 80 students. The student-teacher interactions were audio taped. His study revealed that the teachers' feedbacks were more focused on content than on linguistic forms. Mohamed Ismail (2003) perceived that the classroom interactions were inconsistent with the theories of Second Language

Acquisition as suggested by Long and Robinson, 1998; Schachter, 1984; and Swain, 1985, required the teachers to provide the students with more feedback on syntactic forms.

The use of teaching techniques in CBI is not widely studied. One experiment carried out by Leeser (2004), which also focused on form and accuracy, was on the use of dictogloss to induce language related episodes (LRE)s. In the research, he grouped twenty-one pairs of adult L2 Spanish learners at university level according to their relative proficiency (high-high, high-low, or low-low) which corresponds with the amount, type (lexical or grammatical) and outcome (correct, unresolved, or incorrect) of language related episodes (LRE)s produced during a passage reconstruction tasks (dictogloss). It used the dictogloss task in four sections of a fourth semester course on content–based Spanish American Geography.

When using the dictogloss task the learners have to listen to a short, dense passage without writing anything down, then in the second time listening, write down notes in incomplete sentences and lastly, they share their notes in pairs or small groups. This gives the learners the opportunity to produce language-related episodes (LRE)s while they search for the correct words or form. The findings revealed that the more proficient the students are, the more LREs they were able to produce and the more successful they are at focusing on form. When paired with higher proficient members (high-high), the higher proficient learners are able to focus more on form compared to if paired with lower proficient members (high-low).

A study on the effectiveness of CBI was recently conducted by Rodgers (2006). His research at a university in the United States investigated whether CBI classes are effective in

promoting and developing both content knowledge and linguistic ability particularly in the expressive skills. His subjects were 43 third semester university students who learned content-based geography course in Italy as a second language. The students had to undergo 3 tasks consisting of a composition (related to Geography), a cloze test, and selective oral interviews at the beginning and end of the semester. He found that the students could do well in content knowledge and linguistic abilities, with the latter requiring a little more improvement.

The benefits of CBI should not be overlooked. Describing CBI as combining language learning and content of subject matter, Kavaliauskienė (2004), cited Rivers' (1994, p. 41) for the benefits of CBI based on major empirical research findings;

> In CBI, it is found that;
> 1. thematically organized materials are easier to learn and remember,
> 2. coherent and meaningful information is deeper and better processed,
> 3. a common outcome of CBI is a link between learner motivation and interest,
> 4. the sequence of complex tasks enable the learners to develop expertise in a topic.

CBI, as the name suggests, should be an instruction that is based on content. However, a more prominent focus on content will only be established if the instruction is an outcome of the collaboration between content teachers and language teachers. The search for a balance of focus between content and second language has led to the development of Sheltered Instruction and SIOP and the foundation of CLIL which is dubbed dual-focused learning. Before moving towards these approaches, the following subsection examines the immersion programmes which had spurred the development of the newer versions of the content and language integration.

2.4 Immersion

In contrast to the CBI where English language teaching and learning strategies were more conscious and explicit to enhance second language competence while there was still a focus on the content, the immersion programs aim for the students to acquire language naturally and implicitly while mainly focusing on the content. The immersion programs are the earliest form of teaching content subjects through a second language. Genesee (1994), pointed out the differences between the immersion programs and the conventional grammar-based approaches.

In immersion programs, the communicative context is rich and meaningful, and the focus is more on meaningful communication than on grammatical perfection among students and teachers. This is crucial in order to ensure that comprehensible input via the natural communicative input is achieved as illustrated by (Krashen, 1989) in the Input Hypothesis where language should be encountered at i+1 level that is one step beyond the learner's current linguistic competence in order to be acquired. In relation to the Input Hypothesis, Swain and Lapkin (1995) offer the Output Hypothesis to stress the importance of language production in determining the success of language learning.

Studies have found that human beings have an innate ability to acquire language in the form of universal grammar commonly observed in children acquiring their first language (Brown, 2000; Cook, 1993; Ellis, 1985). In fact, the Natural Order Hypothesis states that grammatical structures are innately acquired in a certain order (Krashen, 1982). One of the challenges to people acquiring language naturally, however, is that they could find it hard to

explain the grammatical rules explicitly.

According to Brown (2000, p. 67), children who are exposed to more than one language acquire languages more naturally than adults because they are "compound bilinguals who have one meaning system from which both languages operate" as opposed to coordinate bilinguals who have two meaning systems. This situation led many people to believe the Critical Period Hypothesis which states that one needs to be exposed to other languages before puberty in order to be compound bilingual or multilingual. The opponents of the hypothesis such as Stephen Krashen (1982) and Ellis (1985), however, believe that second language can still be acquired even after puberty provided that some conditions are met. This was the belief that triggered the theorists to search for ways to emulate the criteria that enable a second language to be acquired naturally. One such initiative was made through the immersion programme.

In immersion, learning the language is considered a secondary goal as compared to academic achievement but it must 'co-requisite' as the students develop their academic achievement. To learn the content, the students also need to use English, and to build one aspect of the goals means to develop mastery in both, academic content and language. In this respect, as the students focus more on learning the content, the second language is acquired.

According to Genesee (1994), since its introduction in 1965 in Canada and the United States, extensive evaluations of the programs have been carried out by researchers in both countries. A study by Grabe and Stoller (1997), revealed the limitations of the Canadian

immersion programs which they claimed were able to make the learners master the comprehensible input mainly in reading and listening skills, and less so for the development of their output production namely the speaking and writing skills. However, the teaching was teacher centred and did not give much opportunity for the students to practice their speaking and writing skills. The lack of two-way communication between the teacher and the students was compensated by having the students using the target language when speaking with each other, thus improving their fluency.

Genesee (1994), believes that despite their limitations, much can be learned from the immersion programs. Through the naturally rich environment that encourages comprehensible input and output as well as the use of language for specific functions, the students have ample opportunities to learn the second language (ibid). In the two way immersion programmes, the students benefit from the native students who share the same class (ibid). They also benefit from both the implicit and explicit language that is embedded in the curriculum (ibid).

A close scrutiny of the two-way immersion programs can be observed in the study by Senesac (2002). He describes the Inter-American Magnet School in Chicago, the oldest two-way bilingual immersion school in the Midwest, during the course of 10 years of study that was from 1991-2002. The school was founded in 1975 because parents wanted their children to become bilingual and experience the culture of Spanish besides English. It offered preschool to eighth grade with half the population came from low income group. The students selected (enrollment around 573-651) were based on their ethnicity in order to maintain the family atmosphere with around 64.2% Hispanic, 18.8% European-American, 15.5% African American, 1.7%

Asian/Pacific Islander, and .5% native American. The staff consisted of bilingual teachers and administrative staff with 64% from Hispanic heritage with most teachers possessing master's degrees and many had received recognition awards for outstanding teaching. The staff was described as highly supportive of each other's professional effort with a lot of interest to learn from one another and encouragement for creativity and invention.

The goals of the education system were; 1. to enhance bilingualism and biliteracy while the students were learning the subject matter, 2. to enable the students to obtain high academic achievement, 3. to develop positive attitudes toward themselves and other cultural groups. At the pre-school grade, it used 80/20 ratio of Spanish to English model with all core subjects taught in Spanish except English reading for English dominant students and English as a Second Language for Spanish dominant group. At fourth grade, Spanish and English ratio became 60/40 and by sixth grade 50/50 model was fully implemented. The curriculum was described as "an enriched and integrated double curriculum" (Senesac, 2002, p. 6).

The encouraging academic results of the students, high attendance rates and parent satisfaction at Inter-American school prove that the school is successful at achieving its objectives due to these characteristics (Senesac, 2002, p. 12):

> 1.A challenging core curriculum with students heterogeneously grouped for instruction;
> 2.A nurturing family atmosphere with high expectations for learning and personal development;
> 3.A dedicated, collegial and highly trained staff;
> 4.The pedagogical approaches and strategies are student-centred, fostering interaction and active engagement in learning;
> 5.A thematic curriculum reflecting the culture of the students,
> 6.Parent and community collaboration.

The success of this school is fascinating due to the added values including an extra language mastery gained by the students resulting from the "enriched and integrated double curriculum" concept adopted.

The success of the school has attracted other schools to follow in its foot steps. Christian (1996) reports the growing trends of the schools in the U.S. that employ the two-way immersion education where students learn the content of the academic subjects in two languages. The benchmark of success is indicated through the students' ability to develop high levels of proficiency in both languages, and to perform at or above average levels in academic areas in both languages as well as their ability to demonstrate positive cultural attitudes and behaviours and high levels of self-esteem. About 169 schools with the majority of them using Spanish and English as the languages of instruction were involved in her study.

The allocation of languages at these schools is designed in three ways (Christian, 1996, p. 70):

> 1. by content areas (e.g., social studies and math are taught in Spanish, while Science, art and music are taught in English);
> 2. by time (e.g., instruction is in each language on alternate days,); and
> 3. by person (e.g., one teacher uses only Spanish and another uses only English).

Some of the schools use 90/10 model for the native and the target language at the beginning of the grade. Later, the exposure to the target language increases when the grade goes higher, while the other schools use the 50/50 ratio approach for the native and the target language. The results of the study show that the evaluation of the programs at the schools around the U.S. report the effectiveness of these schools with the students showing high levels of bilingual proficiency without sacrificing academic achievement.

Apparently, in immersion programs, conscious efforts are also made to maintain high motivation to learn the target language. The immersion programs reveal that second language acquisition can be attained through being immersed in the natural linguistic environment which includes the use of the target language for the instruction of content subjects. The newer version of the immersion program is the Sheltered Instruction.

2.5 Sheltered Instruction and the Sheltered Instruction Observation Protocol (SIOP)

The United States of America is an example of a very culturally diverse country that has people born into families of non-native speakers of English or migrating from other non-English speaking countries. For school students whose mother tongue is other than English, they would have difficulty understanding the content subjects. In an English speaking country like America, the aims of these students are two-fold: to learn the academic subjects and to master English language. Funded by the U.S. Department of Education between 1996 to 2003, Jana Echevarria, Mary Ellen Vogt and Deborah J. Short from California State University and Center of Applied Linguistics developed the SIOP to monitor sheltered programmes about more than a decade ago in order to help English language learners understand academic subjects (J. Echevarria, Vogt, & Short, 2009). There are hundreds of schools from 50 different states in the United States of America and several other countries worldwide which use the Sheltered instruction Model and the SIOP (Pearson Education, 2010).

It is inspired from the immersion programmes where the teacher provides an environment

that is conducive for the students to understand the subjects taught. They work closely with content and ESL teachers at schools and higher education institutions, teacher educators, course developers and others by providing constant support and advice. Rosen (1997, p. 35) stated that:

> In sheltered English, content-area teachers use a variety of language teaching strategies to enhance understanding of grade- and age-appropriate subject-area concepts. Such sheltered lessons provide cognitive and linguistic scaffolds for English language learners: Through modeling, demonstration, and interaction with the teacher and their classmates, students use English skills to demonstrate comprehension of content-area objectives.

In the beginning, the observation ptotocol was administered on four experienced teachers from three universities who observed six video recordings of teachers engaging in sheltered instruction achieved a Chronbach's alpha score of 0.9 or above (Guarino et al., 2001).

Having proven itself as an empirically validated protocol, it has become quite popular in the U.S.. It consists of eight instructional strategies that address the students' academic and linguistic needs (J. Echevarria, Mary Ellen & Short, 2011). The components are:

- Lesson Preparation
- Buiding background
- Comprehensible Input
- Strategies
- Interaction
- Practice/Application

- Lesson Delivery
- Review/ Assessment

The components can be a lesson plan checklist or protocol for the teachers or teacher observer to indicate the proper development of the teaching session that takes into considerations the aspects that could maximize the learning of content through another language (J. Echevarria, Vogt, & Short, 2008). For preparation, both the content and language should be stated clearly for the students. The content in the target language should be adapted and supported with appropriate content concepts, terms, and supplementary materials that take into consideration the students' age and background. The teacher should plan activities that are meaningful and integrated between the content and the four language skills. For building background, the teacher should explicitly link the new concepts and the students' background and experiences, and emphasize the key vocabulary.

In Sheltered Instruction, comprehensible input is achieved using appropriate language for the students' level, clear academic tasks, and a variety of techniques and non-verbal communications. There are two types of strategies. The first is for the teachers to use the scaffolding techniques constantly to support the students and the second is for the students to be given the opportunities to use various strategies to learn including problem solving, analyzing, categorizing, etc. Interaction is highly encouraged. Teachers should provide the opportunities for the students to discuss with them or with peers through 'group configurations that support language and content objectives'. That includes waiting time, taking questions from the students

and helping peers understand the key concepts by using L1. For practical and application session, the activities should be hands-on and integrate both content and the target language, as well as provide opportunities for the students to apply the new content knowledge and make use of all linguistic skills. The lesson delivery should support the content and language objectives clearly while the students are engaged most of the time on the tasks that are designed to be appropriate for the students' level. Lastly, the review and assessment part means the teacher should give a review of the key vocabulary and content concepts, provide feedbacks on the content and language, and assess the students' comprehension based on the lesson objectives.

There are differences between conversational English and academic English (Short, Vogt, & Echevarria, 2011). The SIOP Model suggests that academic English does not only entail the terminology used but also the entire language system that is associated with the delivery of the content. Therefore, it is "…essential for success in school and that it is more challenging to learn than conversational English especially for students who are acquiring English as a new language" (Short et al., 2011, p. 4). There are two types of academic English: the content specific language and general academic language, which are used across disciplines (ibid). To enable the students to develop proficiency in academic English, the teachers need to give the opportunity to the students to internalize what they have learned by producing the knowledge through language output (ibid).

For English speaking students, attending schools that offer the Sheltered Instruction enables them to learn another important language for communication such as Spanish or French. One such program in the mid-Atlantic region uses both SIOP and Two-way Immersion

Education and is called TWIOP (Howard, Sugarman, & Coburn, 2006). In this programme, English and Spanish are used in a 50/50 approach at elementary and secondary levels (ibid). In summary, the Sheltered Instruction

> …has a dual purpose: to systematically and consistently teach both content and language in every lesson. Content and language objectives not only help focus the teacher throughout a lesson, but also (perhaps even more importantly) focus students on what they need to know and be able to do during and after each lesson as related to both content knowledge and language development.
>
> (Short et al., 2011, p. 13)

The immersion programmes and the Sheltered Instruction are popular in Canada and America to enable learners to master a target language of the majority of the community or a strong language of the minority. There is a similar version that often uses a foreign language as the target language, which is more popular in the United Kingdom and Europe. It is called CLIL. To compare with CLIL, the next section will discuss CLIL history, its practice overseas and in Malaysia.

2.6 Content and Language Integrated Learning (CLIL)

CLIL was popularized by the European Commission, which manages the European Union (EU) consisting of 27 member states of Europe (Briney, 2009; Steve Darn, 2006). The EU promoted bilingualism in the 1990s in an effort to increase financial and political unity throughout Europe (Steve Darn, 2006). In the 21st century, the European Commission has moved towards plurilingualism educationally, culturally, and economically based on the slogan, “Languages means business” ("European Commission," 2008). Since then, various efforts have been made,

including providing funding, and exercising common assessment through the Common European framework of reference for language by the Council of Europe (Creswell & Kane, 1958), in order to encourage the people in Europe to acquire more than one language.

Nevertheless, the immersion programs and CBI, as the earlier versions of the teaching and learning of language and content, are still quite popular. They are slightly different from the approach adopted by CLIL. The immersion programs concentrate on having the learners immersed in the socio-cultural aspects of the target language whereas CBI is mainly adopted by the language teaching and learning unit to enhance the learning of the target language by using content to provide meaningful communication. CLIL applies to the teaching of discrete subjects and elements of the curriculum through an additional language and is often more restricted in the time allowed than immersion. In terms of the aims, CLIL is more similar to the Sheltered Instruction because both are geared towards achieving and mastering the target language and content.

Compared to foreign language for general purposes, foreign language teaching for work purposes (ESP) and cross-curricular foreign language teaching which are language-led approaches, CLIL,

> …is entirely subject-led and the subject dictates what language support is needed. The language is one part of the process, rather than an end in itself. It is assessed on subject knowledge.
>
> (Deller & Price, 2007, p. 6)

On a continuum of language and content, CLIL is nearer to content but without bias to either one, and the teacher must be able to recognize this. The teacher must also be able to delicately

integrate language and content in a "mutually beneficial way so as to provide value-added educational outcomes for the widest possible range of learners" (Coyle, 2006). This implies that CLIL is suitable for all ages of learners in any levels or contexts.

In using CLIL, the teacher can be an expert in the content subject, teaching it through the target language of the learners, of which he/she is also proficient in, or the teacher can be a language expert who has considerable amount of knowledge in the content area he or she is teaching (Coyle, 2006). However, she insists that there is not a single model that fits all the different contexts and that transfer of programmes from one country to another is not possible without amendments; hence, she suggests collaborations in terms of sharing of ideas. Darn (2006) lists the benefits of CLIL in terms of "cultural awareness, internationalisation, language competence, preparation for both study and working life, and increased motivation". In the last decade, the CLIL approach is increasingly popular. Lured by the benefits of CLIL, many countries throughout the world including America, Australia, New Zealand, the Middle East, South Africa, Hong Kong, India and Asia have adopted the approach and researches have, ever since then, been carried out to study its effectiveness.

2.6.1. CLIL Overseas

CLIL is described as teaching a content subject through the medium of a language other than that normally used ("European Commission," 2008). The language for the medium of instruction is called a vehicular language (Coyle, Hood, & Marsh, 2010). Do Coyle (2006) provides more input by placing language and content on a continuum of equal weight and

stresses the importance of the teacher as the agent who infuses the balance in a 'mutually beneficial way so as to provide value-added educational outcomes for the widest possible range of learners'. In CLIL, English is learned naturally while learning the content. This is supported by Steve Darn (2006) who states that, CLIL is based on language acquisition rather than enforced learning. Therefore, fluency is more important than accuracy and errors are a natural part of learning. Peeter Mehisto, David Marsh, and Maria Jesus Frigols (2008, p. 11) delineate the dual focus of integration which is the essence of CLIL:

> 1) Language learning is included in content classes (eg, maths, history, geography, computer programming, science, civics, etc). This means repackaging information in a manner that facilitates understanding. Charts, diagrams, drawings, hands-on experiments and the drawing out of key concepts and terminology are all common CLIL strategies.
> 2) Content from subjects is used in language-learning classes. The language teacher, working together with teachers of other subjects, incorporates the vocabulary, terminology and texts from those subjects into his or her classes. Students learn the language and discourse patterns they need to understand and use the content.

David Marsh coined CLIL in Finland (Newberry, 2001) in 1994, and developed a model for teaching and learning content subjects through a target language, and CLIL was later made popular by the EU in order to promote multilingualism (Darn, 2006). CLIL instruction, based on previous studies on related models such as English Across the Curriculum, Immersions, and CBIs such as ESP, EAP and EOP (English for Occupational Purposes), is grounded in firm underlying theories of second language teaching and learning and second language acquisition (Newberry, 2001; Wan Nor Aishah, 2009).

When a curriculum adopts CLIL as the teaching and learning methodology, it is paramount to take sociolinguistic challenges into consideration. Hudson (1995) defined sociolinguistics as the study of language in relation to the society. Learning a foreign language entails learning not only the systems of the language but also its functions in the society. One challenge of implementing CLIL is the shortage of teachers who are competent to teach both the content and the target language (Mehisto, Marsh, & Frigols, 2008). Besides that, in order to implement CLIL, teachers need to give their co-operation and spend more time in preparing for the classes as it takes conscious effort to set content, language and learning goals in a student-centred environment. Therefore, in realizing its aim to produce competitive graduates, a higher learning institution should not lose sight of the importance of keeping their teaching staff skilled and well-trained.

In South Africa, Margaret Probyn (2001) studied teachers' reflections on the learning and teaching of content subjects through the medium of English as an additional language. The focus of the study is the ex-DETS schools / African schools where English is the main medium of education but at the same time it is an additional language (EAL). Probyn believes that African students are facing difficulties in learning because they have poor English. Besides that, she also points out to the lack of training in the areas of teaching in EAL which contributes to the tension of learning in EAL in the classrooms. The main purpose of the study was to investigate the teaching practice through teachers' perceptions and teaching strategies. To answer her research questions on teachers' perceptions, assumptions, attitudes and classroom practices, Probyn decided to carry out an in-depth study by conducting classroom observations and interviews on five excellent teachers in South Africa.

Probyn (2001) found the teachers' perceptions were similar in the following aspects; 1. students who had poor English failed their examinations; 2. the teachers and students had to use a lot of code-switching; 3. teaching through EAL was time consuming and stressful to both the teachers and students; 4. the teachers focused on communicating the content rather than on the grammar of the language. Even though some of the findings reflect negative reactions towards the policy, they help to prompt steps to be taken to resolve the problems by the government and policy implementers. Among the strategies that are considered helpful to the students are having teachers who are sensitive towards students' cognitive, language and affective needs; using diversed strategies including non-linguistic strategies to mediate the meaning such as allowing longer 'wait-time', body language and visual aids; and allocating more time for the subjects that are taught through a second language. The study also concluded that teachers' professional development was important to train the teachers to use English as a second language for the medium of instruction for informed practice.

Many CLIL teaching strategies are developed to help learners cope with both the content knowledge and linguistic skills. Beckett & Slater (2005), recommends project-based instruction to effectively attain higher level academic literacy: language, thinking skills, and content knowledge. They conducted a study using interviews, and project portfolio of 57 upper-intermediate students (based on TOEFL results) and their teacher in three content-based, undergraduate classes for 14 weeks at a Canadian university. Contrary to the earlier study on project work by Beckett in 2002 which shows the students' lack of interest because they have different expectations for language classes, the findings of this study revealed that once the students understood the goals of project work, they were able to carry out the projects that

integrate language skills and content knowledge with greater satisfaction.

This is supported by Schleppegrell and de Oliveira (2006) who reported a project where secondary school history teachers were able to integrate language and content during history lessons. The linguistic constructs of the discussions between the teachers and their students when analyzing passages from history textbooks show that teaching a second language can be made contextualized and situated with the focus on content and language.

Lasagabaster (2008) observed that CLIL is also becoming a popular trend in the schools throughout Europe. In England, Coyle (2006) stated that CLIL is becoming prominent as a National Languages Centre (CILT) Survey reported 47 schools promoting CLIL, and funding was received for a national pilot for CLIL through the CILT and in partnership with the University of Nottingham in 2002. In the Basque region of Spain, where the citizens are already bilingual (in Basque and Spanish), they make English their third language by including it in the curriculum, even though English is not commonly used outside the school setting. In Europe, being multilingual is important and almost nine out of ten citizens in many of the countries in Europe (excluding the United Kingdom and Ireland) can speak at least two languages. Using the CLIL approach is beneficial as it exercises the students' productive skills and increases their vocabulary, lexicon, and morphology (Lasagabaster, 2008).

In his study on 198 secondary education (SE) students (aged between 14-16 years old) at four different schools in Spain, Lasagabaster (2008) tested the students' English language

competence (grammar, listening, speaking and writing), and compared the results of the students who went through CLIL programmes with those who did not take CLIL programmes. The results of the study clearly showed that the students who went through CLIL programmes progressed in English far better than the students who did not go through CLIL programmes by more than one year.

Due to the global spread of English, many English language speakers do not only come from the inner circle countries such as Britain, America, Australia and New Zealand but also from the outer (India, Singapore and Philippines) and expanding circles (China, Iran, Japan, Korea, Nepal and Malaysia) (Kachru & Nelson, 1996). Looking through the sociolinguistic perspectives, there are indeed a few challenges faced by the non-native teachers/lecturers who have to teach content subjects through English. Among the challenges are non-native varieties of English, issues surrounding intelligibility, register, verbal repertoire, language choice, and code switching and mixing. The non-native speakers of English produce non-native varieties of English which are an interlanguage between the speakers' first and the target language. In most cases where English is taught to nonnative speakers by nonnative speakers, the input influences the output variety of English which becomes the identity of the speakers in the community (Kachru & Nelson, 1996). In addition to that, even in the U.S., some teachers are not only non-native speakers of English, they are also learners of the English language (Kersaint, 2009). In this case, teachers' inadequate or inappropriate language input may risk students' language competence. According to Lasagabaster (2008), lecturers need to provide adequate language input in a CLIL environment in order to improve the students' language competence.

Another challenge faced by the lecturers while implementing CLIL is to enable the learners to understand the content of the lesson. An example of a challenge is found in the study by Probyn (2001) when some of the terms in English did not have the same terminology in the students' first language. As the English language used in the classroom is a non-native variety, intelligibility is unequivocally an issue of concern both in written and spoken output by the students and the teachers. The decreasing standards and correctness of English may lead to intelligibility problems. According to Kachru and Nelson (1996), intelligibility consists of word-level recognition where intelligibility is achieved when what is heard or read is recognized as English. Hudson (1995) stated that intelligibility is a matter of degree, ranging from total intelligibility down to total unintelligibility, and it is more of a relation between people, rather than between varieties. Therefore, an interaction is only mutually intelligible when the speakers can understand each other (Kachru & Nelson, 1996).

Besides the issues related to non-native English varieties and intelligibility, the lecturers also have to deal with the appropriate register to use in content classes. This is apparently different from the English language used daily or in English language classes. Michael Halliday (1978, p. 33) offered three general types of dimension of register:

> Field- the purpose and subject matter of the communication (why and about what)
> Mode- the means by which communication takes place (speech or writing) (how)
> Tenor- how the speaker defines how he sees the person with whom he is communicating.

In this context, different registers are employed depending on the field, mode and tenor.

He also suggested that there are four combinations of formality and Technicality: the formal and Technical, the formal and non-Technical, the informal and Technical, and informal and non-Technical. For instance, in IT education, *"Modify the fonts in the interface"* is formal and Technical while "*Modify the letters on the screen"* is formal but non-Technical. On the other hand, "*Change the fonts in the interface"* is informal but Technical and "*Change the letters on the screen"* is both informal and non-technical. Based on this explanation, to connect with the scenario in Malaysian contexts, it is obvious that the non-native lecturers at polytechnics and community colleges who are also English language learners require special training that enables them to master the appropriate register which they can apply while teaching content subjects.

This discussion leads to the verbal repertoire that the lecturers need to possess when implementing CLIL. Verbal repertoire is the range of linguistic resources available to an individual or a community either productively (speaking and writing) or receptively (reading and understanding spoken language) (K. Sridhar, 1996). A multilingual individual possesses the systems of different languages including their grammatical, lexical, pragmatic, and sociolinguistic rules and conventions (norms). Multilinguals also have varying degrees of commands of the different languages and registers (functional varieties), as well as selective functional competence in their repertoire (K. Sridhar, 1996). The choice between the mother tongue or the target language depends on the users, the range, the content and the functions. The *range* is the context or domain in which English functions (for example during the induction, instruction, question and answer session, or conclusion). According to Sridhar (1996), researchers are investigating language use in different domains such as language use in intimate (e.g., family, friends, neighbourhood) versus utilitarian (e.g., place of work, government offices,

banks). As such, in a pluralistic society, each language plays certain roles and the lecturers are expected to be able to use the felicitous languages to fit into these roles.

Lecturers in a CLIL environment should ideally be bilingual or multilingual. K. Sridhar (1996, p. 56) said that, "When two or more languages exist in a community, speakers frequently switch from one language to another". According to him, code-switching is unconscious and occurs within domains, involving a lot of overlapping of codes which are not attitudinally evaluated. Code-switching occurs in response to a change in situation, a change of the users, a change in a stylistic or textual function, or a change in tone. The switching of languages within sentences is referred to as code-mixing. Code-mixing involves grammar as it occurs at every lexical and syntactic level. Instead of showing lack of language ability, K. Sridhar (1996, p. 58) claims that code-mixing "…presupposes the ability to integrate grammatical units from two different language systems into a more complex linguistic structure". As such, it is common and natural for CLIL lecturers to be using a lot of code-switching and code-mixing while teaching their students, and for that, they should not be condemned or labeled as incompetent.

In the light of recent development in bilingualism and multilingualism, the term 'Translanguage' has become popular (Lewis, G., Jones, B. & Baker, C. 2012). The use of translanguage in CLIL classrooms has been regarded as beneficial and even necessary in order to encourage the learning of content subjects through the target language as it impinges on the Vygotskian principle of 'Zone of Proximal Development' and makes active use of the first and second languages to enhance learning (ibid). This means the use of translanguage that includes code-switching and translation in CLIL classrooms is highly encouraged and in contrast to the

previous regiment that values monolingualism in the delivery of content subjects. In fact, the teachers in the study by Probyn (2001), suggested the use of translanguage, where the first language is used along side the target language (the second language), be legitimized so that the teachers do not feel guilty in using the first language to scaffold the second language.

To conclude, CLIL offers an alternative and systematic approach with strong underlying 4C principles as an organizing principle for planning to integrate the content with English. However, the sociolinguistic challenges pose critical concerns for CLIL implementers as these elements are crucial in CLIL instruction. The sociolinguistic challenges do not only concern the lecturers' linguistic ability solely, but they also relate to the lecturers' ability to communicate the content of their subjects to their students effectively, and their ability to make the students achieve their lesson objectives successfully. However, Genesee (1994), states that there are benefits of CLIL which are useful to learning, and they include providing a real purpose and motivation for meaningful classroom communication in a natural environment, and developing the students' social and cognitive capabilities. Instead of viewing the sociolinguistic challenges negatively, recent development shows that the elements such as non-native Englishes, intelligibility and translanguage could be used wisely as the elements that could support the learning of the content subjects through a second language. Finally, the CLIL framework (Coyle et al., 2010) outlines the strategies that teachers can adopt to overcome their weaknesses and create effective CLIL lessons. Coyle (2006, pp. 10), offered the 4C's curriculum for successful CLIL lesson that consists of:

Content- Progression in knowledge, skills and understanding related to specific elements of a defined curriculum
Communication- Using language to learn whilst learning to use language
Cognition- Developing thinking skills which link concept formation (abstract and concrete), understanding and language
Culture- Exposure to alternative perspectives and shared understandings, which deepen awareness of otherness and self.

In this respect, she believes that CLIL instruction can become effective when the second language is seen as the tool for learning the content of a specified curriculum. If the students learn to use the second language concurrently via dynamic, interactive and collaborative as well as cognitively stimulating activities, then this in turn makes content, language and culture interweave harmoniously. Many successful CLIL courses around the world, as discussed in the previous section, portray these elements. Interestingly, CLIL success overseas is also largely contributed by the fact that massive encouragement to learn languages comes from not only the government of their own country, but also from the union of many countries that are speeding towards advancement in economy, politics, and social status (Coyle et al., 2010). In fact, the people in Europe and other parts of the world now have a real rationale to race towards being bilingual and multilingual in order to be competitive at the global market.

2.6.2. CLIL in Malaysia

The teaching through the medium of English has long been adopted in other Asian countries including India, Sri Langka, Singapore, and Philippine in order to equip their citizens with the necessary skills to compete in the 21st century ("National policies on English," 17th June 2007). Other Asian countries such as China, South Korea, Hong Kong, Vietnam, and Japan also begin

to make the learning of English compulsory at schools and universities (Nunan, D., 2003). For different countries, there are different reasons for people using English. In many parts of the non-native English-speaking world, the ability to communicate in English portrays the speakers' higher social and economical status. This is particularly true in China (Nunan, 2003), and India, where a study showed that the Indian middle-class who had easier access to English remained in control of power and privileges whereas the lower income and lower caste groups were deprived of access to English resulting in them not being able to break the poverty cycle (Ramanathan, 1999). This is called 'elite bilingualism' (Cook, 2008). In Malaysia, the upper class and upper middle class also fall into this category where bilingualism happens by choice. Nowadays, however, as people become more aware of the importance of English, they learn it to communicate internationally not necessarily with native speakers of English but also with people from other origins. English has apparently escaped the 'linguistic imperialism' once owned by the UK and now moves on to become an entity shared by the global community as a lingua franca (Cook, 2008).

As Malaysia struggled to develop its identity through Bahasa Malaysia as an official national language, its citizens were becoming less proficient in English (Asmah, 1992) and steps were taken to amend the level of English language proficiency through the change of policy for the teaching and learning of Science and Mathematics from Bahasa Malaysia to English in 2002. It became a heated debate because it involved teachers who have limited English to teach the content subjects (Pandian, & Ramiah, 2007). Except for the findings from the study carried out by Peter Hudson and Tan Juat Ngoh (2007), the interpretations of the results from Pandian's study were echoed by the findings gathered by Sinnadurai (2003), Mohini Mohamed and Aziz

Nordin and Noraini Idris (undated), Noraini Idris, Loh Sau Cheong, Norjoharuddeen Mohd Nor, Ahmad Zabidi Abdul Razak and and Rahimi Md. Saad (2007). The findings of these studies show that a considerable number of the teacher trainees, teachers and lecturers were ready to teach in English but many of them still used Bahasa Malaysia to communicate with and explain to the students due to several factors. Despite the in-service training they received, they still did not know how to teach the students because they were not taught using English when they were doing their training at the teacher training college. The students with low English language proficiency had more difficulties in understanding the content subjects when it was taught through English compared to Bahasa Malaysia.

Many of the teachers participated in the studies expressed undue restlessness at either having to teach the content through the language that they are not fluent in, or that the students do not understand because of their very limited linguistic competence. Eventually, the political and public pressure had pushed the government to revert the policy to Bahasa Malaysia on July 9, 2009. Unlike the positive outcomes of many CLIL instructions overseas (S. Darn, 2006; Genesee, 1994; Schleppegrell, 2006), CLIL in Malaysia was faced with animosity and resulted in the reversal of the policy at primary and secondary school levels (Hamidah, July 9th, 2009). The studies carried out in Malaysia highlighted the causes for the failures of CLIL to be due to, among others, the poor English language proficiency of the students and the teachers (M. Mohamed, Nordin, & Hashim, undated; Nordin, 2005; Pandian, undated; Sinnadurai, 2003). This, however, does not entirely mean that CLIL does not work in these contexts. On the contrary, the descriptions of the contexts of these studies reflect that the characteristics of CLIL only partially exist in these environments.

In Malaysia, the change of policy by stressing that English should be used to teach Science and Mathematics raised conflicting issues especially when it involves teachers who have limited English to teach the content subjects (Ambigapathy Pandian & Revathi Ramiah). He studied the reactions of 88 Mathematics and Science Form One (13 year-olds) teachers towards the policy of teaching the content subjects through English. They all came from 16 schools located in urban, semi-urban and rural of Perak, Malaysia. 32 were male and 56 were female reflecting the population of teachers in Malaysia.

The findings from Pandian's study showed that 76.1% of the respondents believed that the switch from Bahasa Malaysia to English was timely and necessary. However, 85.2% of the teachers had problems explaining the concepts in English. So, 81.8% of the teachers used Bahasa Malaysia to communicate with and explain to the students. 70.5% of the teachers were also aware of the differences between general English and the English used for Science and Mathematics which has different register, syntax and semantic properties. However, despite the in-service training they received, they perceived that they still did not know how to teach the students. One of the main reasons given was that they were not taught using English when they were doing their training at the teacher training college. The teachers also believed that students with low English language proficiency had more difficulties in understanding the content subjects compared to the students that were more proficient.

When it concerns English, Malaysian students are more proficient in the receptive skills than the productive skills (Sinnadurai, 2003). The teachers who started teaching content subjects were also having difficulties teaching their subjects through English due to the lack of language

skills. In order to find out the preparation made to execute the policy, Sinnadurai used a set of mailed questionnaires to study 65 Mathematics and Science lecturers from five Teacher Training Colleges, 86 Form One (13 year-olds) teachers in Terengganu, and 71 teacher trainees majoring in Mathematics or Science in one of the Teacher Training Colleges in Malaysia.

The findings of the study show that all groups of respondents were positive about the change in the policy. The teacher trainees received little training through the English language even though a cross-check with the lecturers reflected that they were prepared to train through English. The trainees claimed that they were exposed to 20% more English at the university as compared to when they were at the Teacher Training College. On the other hand, the teachers teaching at schools expressed satisfaction over the in-service training received through ETeMS courses to help them upgrade their English language proficiency level.

The perspectives from 175 tertiary education lecturers from eleven faculties from two universities in Malaysia were gathered by Mohini Mohamed (2008). She distributed a questionnaire to find out their views regarding the implementation of the new policy where Science and Mathematics were to be taught through English from 2003. The majority of the lecturers (93.83%) felt the change in the policy contributed to the internationalization of the university and enabled the students to get training to compete in the globalized world (89.4%) and job market (93.21%). However, they perceived that compared to other international students, Malaysian students were passive (61.53%), and those who dominated the discussions used English as their first language (77.39%). They believed that Malaysian students' lack of training in using English made the lecturers focused on the students' academic knowledge instead of

focusing on their inability to transfer English fluently (Mohamed, 2008).

To complement Pandian's and Sinnadurai's studies on the perceptions of the teachers, Aziz Nordin (2005) carried out a study to find out the perceptions of the students on the teaching and learning of Mathematics in English at three rural schools in Johor, Malaysia. Two hundred and seventy nine (279) lower secondary school students (aged between 13-15 years) responded to a 16-item questionnaire. The English language proficiency level of the majority of them was at lower intermediate based on their national examination when they were 12 years old.

The results revealed that the majority of the students did not speak with their friends and teachers in English during Science and Mathematics classes. The explanations for Science and Mathematics were made in Bahasa Malaysia both cognitively and verbally, and the majority of them spoke and read in Bahasa Malaysia at home. So, the majority of them preferred learning Science and Mathematics in Bahasa Malaysia to English. Nevertheless, 73.4% still agreed that English was important for career path. In short, he found that, even though the students acknowledged the importance of English for their future, they faced difficulty in learning the content subjects particularly Science through English, and only the students who were proficient in English performed well in Science and Mathematics (Nordin, 2005). This coincides with the findings by Probyn (2001) and Pandian.

This was further supported by a study carried out by University Pendidikan Sultan Idris (UPSI) published in NST on 7 September 2008. 3,000 eleven year old primary school students

and 2,800 fourteen year old secondary school students throughout Malaysia participated in the study which revealed that they found it hard to learn Mathematics and Science in English. As a response to the study, the online NST invited comments from the public on the issue. Ironically, the majority of the comments coming from parents and adults supported the prolonged use of the policy instead of using Bahasa Malaysia to teach Mathematics and Science. The concerns of the public towards the declining English among Malaysian students were heeded and MoE began to place importance on the needs for the students to be bilingual and proficient in both Bahasa Malaysia and English as shown in the Malaysia Education Blueprint 2013-2025 (2013).

The policy on the language of instruction in Malaysian higher education provides a threshold for the development of CLIL in Malaysia. The training of the teachers plays a vital role in ensuring that the policy is able to sustain itself and benefit the students. To implement the policy, the teachers need to be professionally prepared. A survey on fifty (50) pre-service teachers from a Malaysian institute who were trained in teaching Science through English was carried out by Peter Hudson and Tan Juat Ngoh in 2007. The teachers had completed their first year degree in Education Studies (Primary Science) when they responded to the open-ended questionnaire asking their perceptions on their preparation for learning to teach Science using English. The results of the study by Hudson and Tan (2007) revealed that the training which was conducted fully in English helped them in constructing their academic knowledge more effectively as well as understanding scientific terms better.

Another study on the professional preparation of Malaysian teachers in the implementation of teaching and learning of Mathematics and Science in English was carried out by Noraini Idris, Loh Sau Cheong, Norjoharuddeen Mohd Nor, Ahmad Zabidi Abdul Razak and

Rahimi Md. Saad from the University of Malaya in 2007. The researchers adopted a cross-sectional design by conducting a survey on 72 Form One (13 year-olds) Mathematics / Science teachers from 33 schools from all the states in Malaysia. The results were collected via a questionnaire and the respondents reported that the pre-service and in-service training was adequate in preparing them for teaching their subjects in English but as many as 31.4% of them still reported that they were not confident in speaking in English. The majority of them (84.7%) of them perceived that they needed training on helping the students especially those who were weak in English to learn through English (Idris, et al., 2007).

Many studies (Probyn, 2001; Pandian; Nordin, 2005) revealed that by teaching the content through another language, it puts the students with poor target language proficiency at a more disadvantaged state than the students with better target language proficiency. Except for the study by Hudson and Tan (2007) which showed the positive responses from bilingual education, many of the teachers who participated in the other studies expressed undue restlessness at either having to teach the content through the language that they are not fluent in, or that the students do not understand because of their very limited linguistic competence. Nevertheless, many studies showed that the majority of the respondents recognised the importance of English for career, internationalisation and overall success (Sinnadurai, 2003). Unsurprisingly, the scenario in Malaysia, where the subjects are taught through English by teachers who are non-native speakers of English, is a phenomenon shared by many other CLIL instructions throughout the world (P. Mehisto, Marsh, & Frigols, 2008). However, the studies on the teaching of content subjects through English in Malaysia showed that both the teachers and the students were having difficulties in implementing it. Therefore, this study was carried to investigate if the same

issues persisted at polytechnics and community colleges in Malaysia, and search for the solutions to address the lack of English language command among the graduates. One of the strategies is to study the best practices in the world on how they have successfully integrated content with English and adapt it to the Malaysian context.

2.7 Attitudes and Motivation

Teachers need to possess the right attitudes and motivation in order to drive and equip themselves with the necessary knowledge and skills that will enable to assist them in teaching the content subjects through English successfully. Teachers with positive attitudes and motivation are generally more resilient towards policy change and new ventures in their career than teachers with negative attitudes and low motivation. When teachers need to upgrade their own English language proficiency vis-à-vis the students, they have to plan strategies to learn English as well as strategies to teach the content so that their students can master both; the content and English. According to Christopher Day (2007, p. 233),

> …for commitment to flourish and for teachers to be resilient and effective, they need a strong and enduring efficacy- the ability to handle new situations confidently, believing that they will make a difference- and they need to work in external and internal environments which are less bureaucratically managerial, less reliant on crude measures of performativity…They need to work in schools in which leadership is supportive, clear, strong and passionately committed to sustaining the quality of their commitment.

Attitude and motivation are two terms that are widely researched in psychology. Maslow (1970, p. 15) states that, "…the starting point for motivation theory are the so-called physiological drives". He further states that, "Human beings to some extent yearn for their goals, purposes, and ends, rather than being driven by blind impulses and drives. The latter of course also happens but not exclusively. The full picture requires both" (Maslow, 1970, p. 174). Therefore, people strive to acquire knowledge and make systems because these are strategies to achieve basic safety or express self-actualization (Maslow, 1970). Due to that, people tend to perceive events as representatives of categories and not "…in their own right, as unique and idiosyncratic" (Maslow, 1970, p. 198).

McGroarty (1996) adopts the definitions of 'attitude and motivation' by Gardner (1985) as the two psychologists, Gardner and Lambert, generated early work on the models of attitude and motivation in 1972. Gardner (1985, p. 5) stated that 'Attitude' is defined as having 'cognitive, affective, and conative components (i.e., it involves a person's beliefs, emotional reactions, and behavioural tendencies related to the object of attitude)', and 'Motivation' is defined as '…the combination of desire and effort made to achieve a goal' (McGoarty, 1996). Similar definitions with a little addition to the meaning are noted in Dörnyei (1994). 'Attitude' relates to the function of the relationship and patterns in the context of a society whereas 'Motivation' relates more to the individual and his/her personality traits and needs for achievements (ibid).

Perceptions, individual belief systems, attitudes, and motivation affect human's behaviors in certain ways. The theory of planned behaviour was proposed by Ajzen and Cote (2008, pp. 300-301). The description of the theory is presented as follows:

> Briefly according to the theory of planned behaviour, human action is influenced by three major factors: a favourable or unfavourable evaluation of the behaviour (*attitude toward the behaviour*), perceived social pressure to perform or not perform the behaviour (*subjective norm*), and perceived capability to perform the behaviour (self efficacy; Bandura, 1997, or *perceived behavioural control*). In combination, attitude toward the behaviour, subjective norm, and perception of behaviour control lead to the formation of a behaviour norm, perception of behavioural control lead to formation of a behavioural intention. As a general rule, the more favourable the attitude and subjective norm, and the greater the perceived behavioural control, the stronger should be the person's intention to perform the behaviour in question.
>
> (Ajzen and Cote, 2008, p.300-301)

The description clearly delineates how positive attitudes and motivation may lead a person to perform certain actions. Thus, it could be deduced that some actions are indeed the outcome of the performer's inner emotions and mental activity. The 'Theory of planned behaviour' as proposed by Ajzen and Cote (2008) and Maslow (1970) provided an important highlight in the research methodology for this study. Even through it focuses much on the strategies the lecturers had used in teaching IT through English, the theories suggest that the attitudes and the motivation of the lecturers who implemented the policy should also be taken into consideration.

When discussing CLIL, Coyle at al. (2010) highlight that CLIL promotes motivation and positive attitudes and these elements are important in order to ensure successful teaching and learning in CLIL environment. Dörnyei (2005, p. 66) states that, "…motivation concerns the fundamental question of why people think and behave as they do". Maio & Haddock (2009, p. 4) conclude that attitude involves making an 'evaluative judgment' that is whether the person likes or dislikes, favours or less favour about a particular issue, object or person 'based on cognitive, affective, and behavioural information'. They further state that attitudes can predict behaviour depending on the domain of behaviour, the function of the attitude, the strength of the attitude, the person, and the situation. These definitions have become the basis of related and current work on attitude and motivation.

In terms of language learning, Tremblay and Gardner (1995) claim that motivation plays a vital role to determine its success. Dörnyei (2005) also believes that motivation is very important for second language acquisition and L2 learning in order to achieve long term goals. He explicates three phases of research in L2 motivation namely the social psychological period (1959 to 1990), the cognitive-situated period (during the 1990s), and the process-oriented period (in the 21st century). The social psychological period witnessed the work of Gardner and his students who conceptualized 'Integrative Motivation' which includes 'Integrativeness', 'Motivation' and 'Attitudes towards the learning situation' (ibid).

In the Malaysian context, the sense of integrativeness reflected through positive attitudes and the motivation to learn English is crucial for the implementation of teaching and learning that involves the use of English. The cognitive-situated period was influenced by the cognitive theories in educational psychology which links motivation to classroom situations (ibid). Among the determinants for L2 success are self-determination, language attributions and task motivation (ibid). The process-oriented period examines the dynamic characteristic of motivation and its temporal variation (ibid).

The process-oriented period has more contemporary perspectives in which motivation integrates with the contexts that are, "… complex and dynamic organic systems emerging and evolving over time" (Dörnyei & Ushioda, 2011, p. 32). It derives from the socio-cultural theories originated from Vygotsky. The principles that stress social interaction in order to facilitate learning and cognitive skills are also the foundation for the Coyle CLIL framework (Coyle et al., 2010). Teachers who thrive on positive elements tend to give a lot of effort to learn throughout their lives and make initiatives to better their teaching methods, approaches and techniques in order to be effective teachers. For these teachers, they want to make an impact in the students' learning.

In relation to that, teachers can also contribute to the students' positive attitudes and high motivation by having a motivating teaching personality. For teachers, intrinsic motivation is more important than extrinsic motivation such as high pay and promotion (Day, 2007). There are strategies that teachers can adopt in order to motivate their students to learn both the content and English. Dörnyei (2005, p. 115) stated that, "…the teacher's motivation has significant bearings

on the students' motivational disposition and, more generally, on their learning achievement." In relation to L2 teaching and learning, Dörnyei (2005) conceptualized a framework for teacher's motivational strategies to generate and maintain motivation in the learners. There are four dimensions of teachers' motivational teaching practice:

1. Creating the basic motivational conditions
2. Generating initial student motivation
3. Maintaining and protecting motivation
4. Encouraging positive retrospective self-evaluation

(Dörnyei, 2005, p.112)

According to Dörnyei (2005), teachers play a vital role in uplifting the students' spirit and motivating them to do well in their studies. A positive environment promotes a conducive learning experience. Teachers can create a motivating atmosphere through their behaviour, their surroundings and establishing appropriate norms. Teachers can contribute to the students' positive attitudes towards L2 by enhancing the L2 values, increasing the students' success rates, and goals, and making the learning relevant and realistic to the learners. It is important for the teachers to maintain and protect the students' motivation. Teachers can achieve this through strategies that are geared towards motivating teaching and learning. Teachers should set specific learner goals in order to preserve the students' self-esteem and self-confidence. Teachers can build the students' positive social image by promoting cooperative learning. Teachers can also empower students with learning autonomy by promoting self-access learning strategies. Finally, according to Dörnyei (2005), it is important for the teachers to encourage retrospective self-evaluation. The elements include motivational attributions, motivational feedback, learner

satisfaction, motivating rewards and grades.

The earlier motivational model by Tremblay and Gardner (1995), includes the assessments for language attitudes. Factors of language attitudes contributing to motivational behaviour which leads to achievement are goal salience, valence and self-efficacy. This is supported by McGroarty (1996), who reiterates that language policies can be powerful tools in promoting positive attitudes towards language learning and motivating language learners to succeed. The relationship between attitudes and the success in learning the target language is clearly presented by the study carried out by Seven Inal, Ilke Evin and A. Seda Saracaloglu (Undated) on 421 students in the high schools in Afsin and Elbistan towns, Kahramanmaras, Turkey. The findings show that the students with more positive attitudes were able to obtain better results in both academic and foreign language.

Grabe and Stoller (1997), cite the work of other researchers such as Alexander, Kulikowich & Jetton (1994); Krapp, Kiddi, & Renninger (1992); Tobias (1994); and Turner (1993) that connect motivation, and positive attributions which include higher self-esteem and positive perceptions of themselves, and interest to the success in achieving CBI goals that are attainment of content knowledge and linguistic skills. They also claim that the use of CBI also enable the students who are interested in the content to develop intrinsic motivation to learn at higher levels of complexity that also involves the test of their linguistic abilities in contexts.

Kavaliauskienė (2004) who conducted a research on CBI also found that the participants in her study had positive attitudes and responded positively to her research instruments. Her participants comprised 220 first and second year students, who had 100 hours and 200 hours of ESP instruction, respectively. The data were collected over the course of four years through self-assessment questionnaires, interview and testing the performance of the participants at a university in Lithuania. The findings showed that the students perceived that they had increased their abilities in the aspects of recognition of vocabulary and writing skills. She also found that most of the students viewed making presentations and doing projects as essentials in learning through CBI.

The above studies show that the students need to have positive attitudes and high motivation in order to learn a second language and perform well in a CLIL environment. In CLIL contexts, the students learn L2 more naturally as the content subject becomes the source of the students' motivation to succeed academically. The language learning conditions in CLIL (even though the lessons may be isolated) can mimic to an extent how people learn language from birth or when they are immersed in the culture of the target language. On the other hand, second language classes have to strive hard to emulate the real world for ELT. In the real world, people use languages to perform functions in life. When a second language is required to perform the tasks, people are encouraged to use it appropriately in order to communicate their needs. In the process, they learn the second language naturally.

In conclusion, past research on immersion, CBI and CLIL point towards the importance of positive attitudes and motivation in students as well as teachers to ensure that effective teaching and learning take place. This means that the success of the teaching of content subjects through English at higher education institutions in Malaysia including at polytechnics and community colleges depends very much on the policy as well as the teachers' positive attitudes and motivation to teach not only the content subjects, but also English. Teachers' positive attitudes and motivation towards the integration of content and English undoubtedly contribute to the students' success in academic and language ability. The next section examines pedagogy and discusses its relationship with teacher training especially in relation to CLIL.

2.8 Pedagogical Content Knowledge (PCK) and Teacher Training

When teachers teach, they draw from their knowledge of the subject and from their knowledge of how to go about teaching the subject. Some teachers who know the subject very well, may not be able to make the students understand the content because they do not know how to deliver it to the students successfully. In other words, teachers need to have both: the SMK and the PCK. Shulman (2008) came up with this concept in order to explain the knowledge that teachers need to have for teaching. According to him, by using the right PCK, teachers can also enhance their students' understanding of the subject matter knowledge . He said,

> … the category of pedagogical content knowledge I include, for the most regularly taught topics in one's subject area, the most useful form of representations for those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations—in a word, the ways of representing and formulating the subject that make it comprehensible to others… Pedagogical content knowledge also includes an understanding of what makes the learning of specific topics easy or difficult: the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of those most frequently taught topics and lessons.

PCK requires the teachers' knowledge of the general pedagogy and content. It develops "…through practice, and…many years of face to face interaction with students" and is normally possessed by experienced instructors (Koppelman, 2008, p. 126). Teachers in a CLIL environment require a new hybrid of knowledge that derives from a combination of a few types of knowledge: the knowledge in general pedagogy, and the SMK for both the content and the vehicular language. In this study, the teachers should equip themselves with the PCK for the integration of IT and English. The following diagram illustrates the types of knowledge that teachers need to possess for the teaching of IT in a CLIL environment:

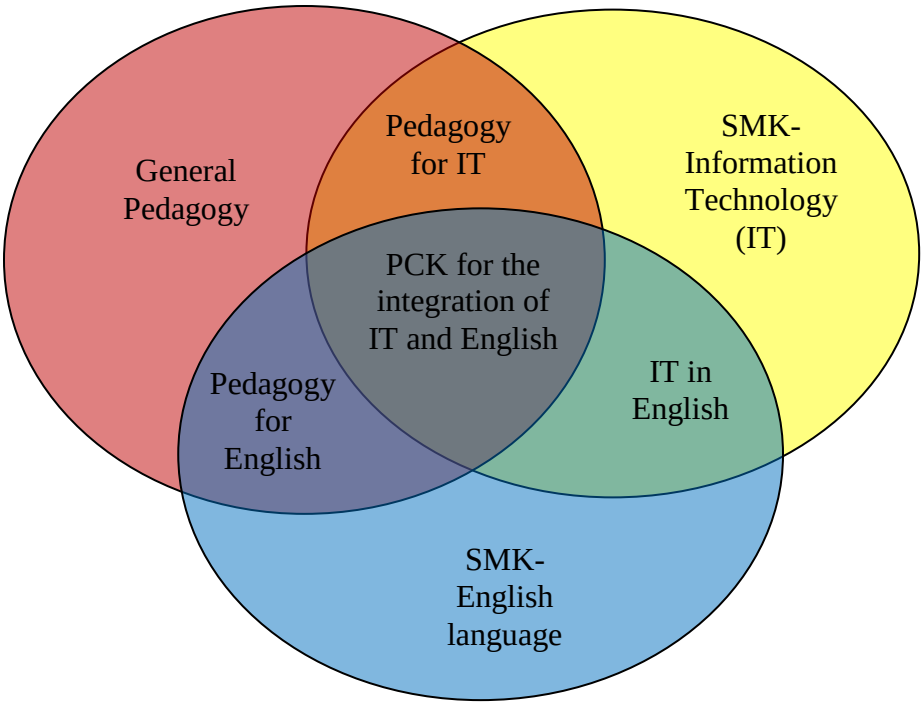


Figure 2.1. The PCK for the integration of Information Technology subject and English

For teachers to be effective in implementing CLIL, it is not enough for them to have just the knowledge on the general pedagogy, IT and English language in separate compartments. Nor it is enough for the teachers to have separate knowledge of the pedagogy for IT, or the pedagogy for English, or just IT in English. The teachers must be able to assimilate all the intersecting types of knowledge in order to form a new type of knowledge that is the PCK for the integration of IT and English. This knowledge informs the teacher of what and how CLIL scaffolding elements can be incorporated into the preparation, the delivery and the assessment of the lesson. Figure 2.3 presents a diagram to illustrate all the intertwining elements vital for the success of CLIL pedagogy specifically for IT subjects and English language.

At higher education institutions including community colleges and polytechnics, the teachers are required to produce lessons that cater for Outcome-based Education (OBE) and problem-based learning (*Pelan Tindakan Pengajian Tinggi Negara Fasa 2 (2011 - 2015): Mencetus Transformasi Pengajian Tinggi*, 2011). Outcome based education focuses on the desired outcomes that are achieved through practical and student-centred learning activities (Killen, 2000). There are two types of outcome indicators: the tangible (test results, completion rates, post-course employment rates, etc.), and the less tangible (students' knowledge and skills) (ibid). Problem based learning is also a learner-centred approach because it capitalizes on small group teaching and learning to generate communications that require higher thinking skills such as critical thinking and problem solving skills (Arzuman, 2010). As CLIL also promotes student centredness in teaching and learning, outcomes based education and problem based learning are supportive of the principles of CLIL. By designing lessons to be student centred, the teacher allows the students to practise using the language through working on the content. Thus, this practice will enable teachers to achieve the dual aims of CLIL to achieve the mastery in both, content as well as in English.

In order to master the art of PCK, pre- and in-service training is indespensible. Watzke (2007) found four consistent patterns of teachers' PCK from the interviews carried out on nine beginning teachers namely: Prior knowledge that frames instructional decisions, attitudes toward teacher control in the classroom, instructional goals for daily lessons, and considerations for responding to student affect. The study found some changes in the elements involved as the teachers reflected on their two years teaching experiences at four different points (ibid). He reported that the teachers demonstrated similar patterns of change in their PCK regardless of

whether they had been teaching in urban or suburban schools (ibid). Therefore, teachers who attended preservice teacher education should also attend inservice training for professional development (ibid).

Hiebert, Morris, Berk and Jansen (2007) propose four skills for beginning teachers to analyze teaching in order to learn and improve teaching. The four skills are: 1. Specify the learning goal(s) for the instructional episode (What are students supposed to learn?); 2. Conduct empirical observations of teaching and learning (What did the students learn?); 3. Construct hypotheses about the effects of teaching on students' learning (How did teaching help (or not) students learn?); 4. Use analysis to propose improvements in teaching (how could teaching more effectively help students learn?) (Hiebert et al., 2007, pp. 51-56). They propose for the framework to be included in teacher training programs so that prospective teachers can retrospectively evaluate and improve their own teaching performances (ibid).

To improve teaching performances, teachers should not solely teach but they should also carry out research on their students' and the best practices or teaching methods (Good, 1999). Good (1999, pp. 550) suggests,

> Adjustments in many higher institutions…must be made in teaching load, and facilities for research provided, if any considerable number of instructors are to do independent research. Certainly, the teacher who periodically conducts an investigation in the field of his interest will bring to the classroom or laboratory an inquiring and critical attitude which should prove stimulating to students.

Recent developments in teacher training highlight the importance of including sustainable education in its program design. Educational sustainable development is a holistic approach that

covers all social levels, and includes lifelong learning (Erkilic, 2008). For sustainable education to be effective, there should be empowerment, participation and environmental responsibilities as well as balance of theory and practice (ibid.). According to Erkilic (2008, p. 5), teacher training should focus on developing teachers' potentials and abilities in "general, knowledge related private area, and general culture area…moderately" as it is "unreasonable to expect, one individual to have all the required competencies".

In conclusion, for the implementation of CLIL, studies suggest the need for adequate amounts of training, which includes the PCK for the integration of content, and English, the SMK on both the content subject and English before the trainees enter the teaching profession as well as periodically while in-service. Besides moulding good teacher characteristics and promoting continuous retrospective self-evaluation of teaching performances, teacher-training programs should also promote educational sustainable development. The contexts of educational sustainable development demand that managers empower a teacher to make decisions and develop as a person and member of the society (Erkilic, 2008). Besides that, it requires the involvement of administrative participation in the institution and classroom to cultivate social skills, and the cultivation of environmentally responsible behaviour to enable the teachers and learners to relate teaching and learning with the demands of the environmental issues (ibid.).

2.9 Conclusion

The literature suggests that there are demands for Malaysian undergraduates to learn content subjects through English to keep abreast with the world population that has become very competitive due to the impacts of globalization. The higher institutions in Malaysia carry the responsibility to produce human capital that possess high quality knowledge, personal and interpersonal attributes in order to develop the country. With globalization and Malaysia's aspiration to elevate higher education to world-class status by intensifying internationalization, the IT becomes indispensible and, English as an international lingua franca becomes a necessity to communicate in the borderless world. Due to that, it is inevitable for students as well as teachers in Malaysia to be able to possess the skills of communicating their content knowledge through English as studies have shown that people with creativity and English are in demand.

Teachers should be aware that there are teaching methodologies and approaches that could appropriately educate the students to be competent at both the SMK and English. Studies on CBI, immersion, Sheltered Instruction and CLIL throughout the world suggest that teaching and learning through a vehicular language such as English has been popular and improvised constantly to suit the diverse contexts. In this regard, the education stakeholders in Malaysia should cultivate the right attitudes and motivate the teachers to develop not only their SMK but also their PCK for the integration of content and English in order to educate their students towards achieving mastery in academic subjects and English. Consequently, the higher learning institutions should stipulate high quality professional development training programs for prospective teachers as well as existing teachers so that teachers will be able to make informed decisions and planning for teaching purposes.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The study aims at investigating how the IT lecturers at polytechnics and community colleges in Malaysia teach IT subjects through English in order to gauge the best practices that could be used to identify issues and to highlight some positive ways in teaching methodology for the teaching of content subjects through English. For that purpose, the study proceeds with identifying the profile of IT lecturers which includes their demographic data, and educational background. In order to examine how the lecturers implement the policy of teaching content subjects through English, the study first identifies the attitudes of the lecturers towards the teaching of content subjects through English and their motivation levels. Their attitudes and motivation levels determine the extent to which the lecturers made the initiatives in upgrading their own English language proficiency levels through autonomous learning and in improving their teaching performances in order to improve lesson delivery.

To achieve the objectives of the study, a sequential explanatory design of mixed-methods approach is most suitable as it mixes quantitative and qualitative data in order to arrive at a general overview of the research findings as well as in-depth information of the contexts for more enriching knowledge. As such, the research started with a survey on the IT lecturers to obtain the information which was used as the criteria for selecting the participants and framing the analysis for the observation sessions. To explicate the process for the research methodology, this chapter commences with a discussion on the epistemological and ontological stance, the

design of the study, the procedures undertaken for the collection and analysis of the survey and observation data, and ends with a brief explanation for the ethics process.

3.2 Epistemological and Ontological Stance

The epistemological and ontological stance refers to the philosophical positions the study takes as the basis for carrying out the research, collecting, analyzing and interpreting the data, and drawing the conclusion of the research. Bryman (1984, p. 75) suggests that epistemology is, "…the appropriate foundation for the study of society and its manifestation". According to Crotty (1998, p. 3) the term epistemology means, "the theory of knowledge embedded in the theoretical perspective and thereby in the methodology." The ontology on the other hand is,

> ..the study of being. It is concerned with 'what is', with the nature of existence…for each theoretical perspective embodies a certain way of understanding what is (ontology) as well as a certain way of understanding what it means to know (epistemology).
>
> (Crotty, 1998, p. 10)

These statements about epistemology and ontology suggest that the underlying principles of a theory related to the topic or issues affect the methodology for research and not vice versa. However, many researchers find it difficult to separate the explanation for the epistemology and the ontology of a research topic (Crotty, 1998). In relation to that, the epistemology and ontology of a research topic also determine the processes and procedures undertaken for the design of the research methods. As a result, they also help to explain the findings.

This study combines qualitative and quantitative approaches, which assume the positions of positivism as well as constructionism. The study views teaching pedagogy as part of teachers'

dispositions, affected by their background, upbringing, education, training, etc. Even though the teachers' demographic data in the survey constitute facts and fixed information about them, the teachers' perspectives, which reflect their attitudes and motivation, and opinions on the frequency of activities related to learning and teaching strategies, are prone to changes as the world is evolving and constantly constructing new meanings for each individual teacher. As the survey represented the teachers' viewpoints at the particular time, the scales were made to seek their agreement or disagreement to the statements, or to quantify the activities described in the questionnaire items. As such, the survey method is a quantitative methodology which derives from the positivist philosophy. According to Alan Bryman (1988, pp. 14-15), positivism comprises:

- A belief that the methods and procedures of the natural Sciences (in which the objects such as people and their attributes and characteristics) are appropriate to the social Sciences.
- A belief that only observable phenomena can 'validly be warranted as knowledge'.
- -Scientific knowledge which is empirically arrived at through the inductive process of accumulating verified facts.
- A belief that hypotheses are derived from scientific theories, and the findings of the empirical test, which deductively examine the entities, can inform if the theory must be revised.
- A particular stance in relation to values in two senses: First, to purge the scientist of values which may impair his or her objectivity and so undermine the validity of knowledge; and second, to draw a sharp distinction between scientific issues and statements on the one hand and normative ones on the other because the positivist believe that normative statements cannot be verified in relation to experience.

In order to gauge the strategies the teachers actually used in the classrooms when teaching IT subjects through English, classroom observation was indespensible. Classroom observation in this study is a qualitative method that involves fewer numbers of participants (compared to survey) in order to ensure an exhaustive description of each participant for more

enriching data. As the survey was a census study of the research population, the findings helped to categorize the lecturers and provided the basis for selecting the participants for the qualitative research. The combination of the information gathered from the survey, which delineated the strategies the teachers said they had used for teaching, and the reality as captured on the video clips, is significant in explaining the teaching phenomenon where the IT subjects were taught through another language that was English. Besides, the observation sessions provided a more in-depth view of the actual interactions between the teachers, the resources and the students.

The epistemology for qualitative research is 'constructionism' (Henwood, 1996). Crotty (1998, p. 42) believes that contructionism is, "…the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context". Alan Bryman (1988) classifies qualitative research into: phenomenology, symbolic interactionism, *verstehen*, naturalism, and ethogenics. Among these, symbolic interactionism seems to have a connection with the study that involves classroom observation where teachers strive to deliver the lesson by utilizing strategies that will accelerate learning. According to Bryman (1988, p. 54), "Symbolic interactionists view social life as an unfolding process in which the individual interprets his or her environment and acts on the basis of that interpretation". Crotty (1998, pp. 75-76) describes interaction as role taking associated with symbolic interaction due to,

> …the 'significant symbols'- that is, language and other symbolic tools- that we humans share and through which we communicate. Only through dialogue can one become aware of the perceptions, feelings and attitudes of others and interpret their meanings and intent.

According to Bryman (1988), qualitative and quantitative researches are paradigms. They have different epistemology, theoretical perspectives, methodology and methods (Crotty, 1998). Another paradigm which has become popular currently is the mixed methods research. The epistemology for this paradigm is pragmatism. Pragmatism naturally complements qualitative and quantitative researches where a "key feature of mixed methods is its methodological pluralism or eclecticism, which frequently results in superior research (compared to monomethod research)" (Johnson & Onwuegbuzie, 2004, p. 14). In definition, the mixed methods research is "…the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson & Onwuegbuzie, 2004, p. 17). For instance, for qualitative research, the epistemology could be constructionism, the theoretical perspectives could be interpretivism, and symbolic interactionism and the methodology could be participant observation. Bryman (1988, p. 126) states that, "… when quantitative and qualitative research are jointly pursued, much more complete accounts of social reality can ensue."

Based on the literature for epistemology and ontology, a research carried out on teaching strategies could use the methodology that utilizes both the qualitative and quantitative data. In relation to this study, the primary focus is to examine the patterns for teaching IT subjects through English, both at macro and micro levels. Due to that, the study has to investigate the overall attitudes of all the lecturers in the population towards teaching IT subjects through English, their motivation levels in relation to teaching IT subjects through English, and the patterns for autonomous learning to upgrade their level of English. In order to investigate, the real nature of teaching and learning in the classroom, classroom observations were deemed

necessary; hence, were carried out on selected lecturers.

3.3 Design of the Study

In this study, quantitative research precedes qualitative research in order to gauge the breath of the subjects' demography, and an overview of the population's attitudes, and their strategies to upgrade their English and to deliver IT through English, as well as to facilitate in the selection of the participants for the observation sessions. Combining quantitative and qualitative research methods is strongly recommended by prominent authors such as Bryman (2004), Silverman (2006), Dörnyei (2007) and Creswell (2009) .

In a sequential explanatory design, Creswell (2007, 2009a) and Ivankova, Creswell, & Stick (2006) suggest that the researcher should collect the quantitative data, do the analysis and use the quantitative results to inform the qualitative data collection. The quantitative and qualitative data are analysed separately but connected especially in the interpretation of the entire analysis. The strength of this design is the clear stages in reporting the data, but the drawback is it takes longer as the data collections and analyses are in two separate phases, and especially so if equal weightage and priority are given to each phase (ibid).

At the beginning of this study, the methods of data collection and analysis were quantitative in nature since the instruments used were in the form of questionnaires, and statistical tools were employed. Later in the study, the data collected gradually became

qualitative in nature as the study narrowed down to a few selected participants who could represent the population in terms of their attitudes, and the strategies that they used in learning the target language and teaching the IT subjects through English. Then, the findings from the survey were triangulated by using the observations carried out with the selected subjects and field notes. It was hoped that at this stage, more in-depth analysis could be drawn to identify the lecturers' patterns and designs in teaching, areas of difficulty, strengths and weaknesses, and aspects to be maintained, modified, or improved.

Previously, a mixed methods research, combining a quantitative and qualitative approaches, was carried out at the national level by the Department of Polytechnic and Community College Education (DPCCE), Ministry of Higher Education itself ("Readiness of polytechnic and community college lecturers in using English as a medium of instruction," 2007). It was aimed at investigating the lecturers' readiness at teaching Technical subjects through English. The quantitative approach adopted by the study was in the form of the lecturers' English language proficiency scores in the tests administered before they attended English language proficiency training and after the training. The tests were called the English language proficiency pre-test and post-test, and the qualitative approach was the observation sessions. Therefore, there were two phases. The first phase involved 2428 lecturers from various fields and disciplines were randomly chosen from 13 polytechnics and 18 community colleges, and the second phase was the observation sessions. To carry out the research, a panel selected by the Training and Career Development Division (TCDD) observed 180 lecturers. They were from across disciplines and were selected from the list of the lecturers in the first phase. The evaluation of the teaching performance used in the research was benchmarked against a checklist

developed based on general pedagogy.

The difference between the study by the DPCCE and this study is that the study by the DPCCE was a prescriptive research whereas this study took an exploratory approach. In this study, the first phase explored the lecturers' perceptions, attitudes, and motivation, the strategies they used to upgrade their English language proficiency levels and the strategies they used to teach IT through English. In the second phase, the research analysed the strategies the lecturers used in teaching IT through English, and the exploration of the existing elements in the teaching that could enhance teaching. On the other hand, using the top-down approach, the DPCCE had prescribed to the lecturers the levels of attainment in English language proficiency required of the lecturers, the design of English language proficiency training they had to undergo, and the elements that they looked for in teaching such as the ability to use English while teaching Technical subjects.

It is hoped that this study could complement the previous study carried out by DPCCE through investigating the issues from different perspectives, and using approaches tailored according to the aims specified only for this study. As mentioned before, there were two stages of data collection and analysis: the survey and the observation. The rest of this chapter will provide further information regarding the two phases of the study, the analysis of the data, and the ethics.

3.4 Questionnaire Data

For the discussion of the survey and its administration, factors such as the location, sampling and the measurement procedures are taken into consideration. The following subsections discuss the details.

3.4.1 Location/ Setting

At the time of the data collection, there were about 21 polytechnics and 37 community colleges in Malaysia. However, only a few of the institutions offered IT courses. The diagram and the map that follows, show the states and the location of the polytechnics and community colleges in Malaysia which offered IT courses.

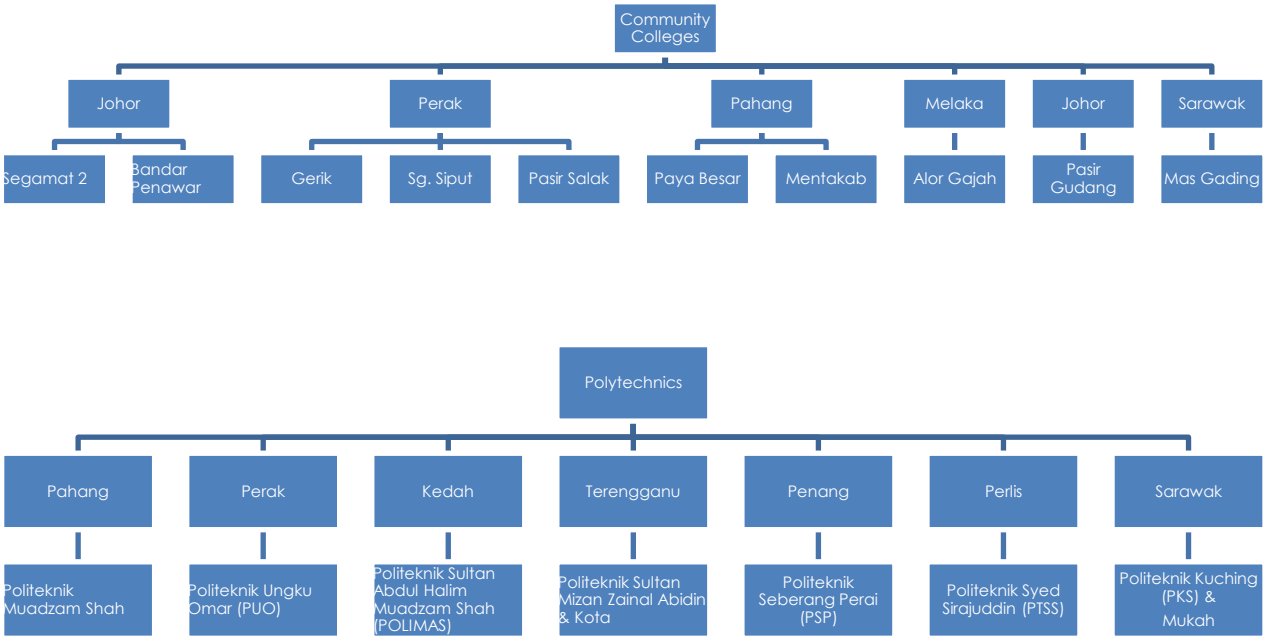


Figure 3.1. The diagram shows the states in relation to the polytechnics and the community colleges



Figure 3.2. The map shows the states in Malaysia

Selangor had two community colleges and one polytechnic that ran IT courses but they had been reserved for the pilot study. Figure 3.1 excludes Selangor and shows that 9 polytechnics and 10 community colleges in 9 states ran IT courses. Balik Pulau Polytechnic and Bentong Community College are also not in the diagram because they were not officially opened yet. The states that were not involved were Sabah, Kelantan, Negeri Sembilan, the Federal Territories of Kuala Lumpur, Labuan and Putrajaya. Some of the institutions were located in the urban areas and others in the suburban and remote areas. The probability of the location of the institutions affecting the differences in the data collected was low because the lecturers and the students may not necessarily have come or been brought up from the areas. They came from all over Malaysia and were interested to study the courses offered (in this case IT) regardless of the locations of the polytechnic.

3.4.2 Sampling

The subjects of the study were polytechnic and community college lecturers in Malaysia. These subjects were the respondents for the questionnaires that examined their perceptions, attitudes towards teaching IT through English, as well as the strategies that they use to upgrade their English language and to teach IT through English. To triangulate the findings and enrich the data, the study focused on the lecturers' teaching strategies and more in-depth investigation in the form of classroom observations were carried out.

Based on the data gathered from the Department of Polytechnic and Community College Education, Ministry of Higher Education, there were approximately 482 lecturers and staff who specialized in IT nation wide. However, not all of them were based at the polytechnics or community colleges that ran IT courses and taught IT subjects. Some of them had to work at the administrative levels either at the Ministry of Higher Education, or institutional levels. Besides that, the institutions in Selangor were used for the pilot study. After a crossed checked through phone calls to the respective institutions, it was identified that 265 lecturers taught IT subjects at nine polytechnics and ten community colleges in Malaysia.

For the questionnaire, it was disseminated to all the IT lecturers at the polytechnics and community colleges. The list of polytechnics and community colleges involved were as follows:

Table 3.1.

The Number of Lecturers at Polytechnics and Community Colleges

Polytechnics	Number of lecturers
1. Ungku Omar Polytechnic, Perak (PUO)	34
2. Sultan Abdul Halim Muadzam Shah Polytechnic, Kedah (POLIMAS)	19
3. Sultan Mizan Zainal Abidin Polytechnic, Terengganu (PSMZA)	5
4. Seberang Perai Polytechnic, Penang (PSP)	40
5. Syed Sirajuddin Polytechnic, Perlis ((PTSS)	30
6. Kuching Polytechnic, Sarawak (PKS)	30
7. Mukah Polytechnic, Sarawak	20
8. Balik Pulau Polytechnic, Penang	0
9. Muadzam Shah Polytechnic, Pahang	2
10. Kota Polytechnic, Terengganu	19
Total	**199**

Community colleges	Number of lecturers
1. Pasir Salak Community College, Perak	6
2. Sungai Siput Community College , Perak	11
3. Gerik Community College, Perak	7
4. Paya Besar Community College, Pahang	5
5. Mentakab Community College, Pahang	7
6. Alor Gajah Community College, Melaka	11
7. Segamat 2 Community College, Johor	5
8. Mas Gading Community College, Sarawak	3
9. Bandar Penawar Community College, Johor	5
10. Pasir Gudang Community College, Johor	6
11. Bentong Community College, Pahang	0
Total	**66**

Total number of participants 265

3.4.3 The Instrument

The instrument used for the survey was a questionnaire. It was divided into five sections: the demography (Section A), the perceptions and attitudes as well as the motivation of the IT lecturers towards the teaching and learning of IT through English (Section B), the lecturers' learning strategies (Section C), the lecturers' teaching strategies (Section D) and the teaching and learning environment (Section E). The questionnaire was written in two languages; Bahasa Malaysia and English in order to provide an alternative to the respondents.

To test the readability of the questionnaire, a pilot study was performed. The focus of the respondents for the pilot study was the participants in Selangor. Out of 47 questionnaires distributed, 37 questionnaires were returned. The findings of the pilot study revealed that:

1. 19 people had chosen to answer the questionnaires in English, 16 chose Bahasa Malaysia, one anwered both, and one answered in mixed languages.
2. Many people chose the middle answers. Therefore, the five scales originally ranged from'Never', 'Seldom' 'Sometimes', 'Frequently', to 'Always' had to be changed to four scales that are: 'Never', 'Rarely', 'Often', 'Always' to avoid the tendency of choosing the middle answer. The dichotomy will represent two extreme ends for frequency. As such, the scales that show agreement to the statements were maintained at four choices: 'Strongly Disagree', 'Disagree', 'Agree', and 'Strongly Agree'.
3. B11 that was, 'Mastering English is an exciting challenge for me to become a more knowledgeable person' received absolute positive answers, and B4, 'My students

need to use English when they further their own education' also received almost total agreement with the statement. Hence, they were omitted from the actual questionnaire because these statements do not help identify the differences between respondents' preferences. The statements prompted the potential respondents to give positive answers.

4. Many people had misunderstood questions B13 through B16 to be multiple choice questions instead of individual questions. Therefore, in the actual survey, the questions were written as individual questions and became B11 through B28.

Further explanation of the five sections in the questionnaire is as follows. Section A aims at finding the information about the lecturers' biodata including their experiences while learning and teaching IT through English. Section B aims at gauging the lecturers' perceptions towards teaching IT through English, which in turn reflect their attitudes and motivations' levels. As there are different types of motivational factors, the questions cover the aspects related to the teaching and learning of IT through English. Section C consists of questions related to the ways the lecturers use to upgrade their English language proficiency levels in order to use English well while teaching IT. Section D is devoted to questions that measure how the lecturers implement the policy of teaching IT through English. Section E is a shorter section that covers the aspects related to the practical sessions including how activities are carried out. In Section B, the scales used aim to measure the lecturers' levels of agreement and disagreement with the statements given, while in Section C, D and E, the scales are in the form of the frequency of times certain activities are carried out. A part of Section D also asks if the activities affect the four language skills namely: listening, speaking, reading and writing. Besides the close-ended questions, there

are also open-ended questions to allow the lecturers to state other issues, that might have been missed out, or are unique only to him/her, and to provide room for the lecturers to express their opinions.

3.4.4 Measurement Procedure

The participants of the pilot study were selected from all the community colleges and polytechnics that ran IT courses in Selangor which consisted of 2 community colleges and 1 polytechnic. At the beginning, the researcher contacted the heads of the IT units at the community colleges and the head of the IT department at the polytechnic to inform them about the survey which would be mailed to them. Then, a letter as shown in Appendix D was sent to them and the directors. It was sent together with adequate numbers of questionnaires, participant information sheets and consent forms as well as 'thank you' gifts. The heads were responsible for distributing and collecting back the questionnaires as well as the participant information sheets and consent forms. The Participant Information Sheet and Consent Form informed them about the research and sought their consent to participate in the research. The sample for the Participant Information Sheet and Consent Form are as indicated in Appendix C. The total number of respondents for the pilot was 37, which was 78.7% return rate.

The remaining 265 IT lecturers from the other states became the samples for the questionnaire in the actual study. Once the questionnaire was revised and finalised, preparations were made to mail it. Similar revisions were carried out for the questionnaire in Bahasa Malaysia. Each participant received the questionnaires in Bahasa Malaysia and in English and

they could choose which version to respond to. As indicated earlier, the findings of the pilot study showed that excluding the participants who answered in both languages, those who answered solely in English consisted of 51.4%. Therefore, the same procedure was replicated for the actual study due to the high return rates.

The directors and heads of programs and units were contacted before the bundles were mailed to them. The way to administer the questionnaire is described in Appendix E. Compared to the pilot study, the actual data collection involved a bigger number of respondents from many institutions. In order to avoid confusion and make coding easier, the questionnaires were printed on different coloured papers and numbered according to their institutions. When the researcher received the completed questionnaires, 'thank you' letters as shown in Appendix F were mailed to the directors and heads of the departments and programs.

The survey was distributed to the whole population of IT lecturers at community colleges and polytechnics. Due to that, it became the main instrument used to gain insights into all the lecturers' overall background, and their perceptions towards the teaching of IT through English including their attitudes and motivation levels as well as how they upgraded their English language proficiency levels and how they used their resources to teach IT subjects through English. As such, the findings from the questionnaire were used to classify the lecturers according to how they had responded to the questionnaire. The classification of the lecturers was performed by SPSS Version 16.0 and the results are shown in Appendix O.

Through the findings of the survey, it was hoped that they would reveal categories of lecturers based on their attitudes, and motivation levels as well as whether they taught IT through English. A few lecturers would be selected from each category to represent the population. For the observations, the participants were selected based on how they had responded in the survey.

3.5 Observation Data

As mentioned earlier, the participants for the observation sessions were selected from the survey participants. The observation sessions were carried out by using a video recorder in order to capture what really happened in the classroom environment where the content subjects were taught through English. The interview was not used as the method for data collection because responses to interview questions can only be considered as a "display of perspectives and moral forms" instead of "true or false reports on reality" (Silverman, 2006, p. 144). The responses to interview questions would have only echoed those gathered through questionnaires; hence, using the observation as an instrument to verify their claims in the questionnaire through a record of real life teaching and learning events was considered more worthwhile in this case. Therefore, it was determined that the best research methodology for investigating what was really happening in the classroom was through classroom observation. The findings from the data gathered through classroom observation could then, be used as a cross reference with the data gathered from Section D of the questionnaire.

Silverman (2006, pp. 19, 249, 201) believes that video recording is useful to understand the 'organisation of talk, gaze and body movements' and study semiotics ('the Science of

‘signs’’) in ‘naturally occurring’ situations. Visual images such as the videos recorded in this study are the data gathered so that the findings will not only be limited to the classroom talk but also the other elements existing in the classroom and to provide a wider perspective to answer the research question on teaching strategies. Visual data is one of the ways to analyse ‘naturally occurring material in its own right’ (Silverman, 2006, p. 244).

In short, for the purposes of this study, the survey phase would be followed by the observation phase. To discuss the methodology for collecting the observation data, this section is divided into a few subsections: location/setting, sampling and measurement procedure.

3.5.1 Location/ Setting

Compared to the data collection for the survey, not as many people were keen on having their classroom activities especially the way they teach recorded. Some of the emerging issues were concerning the lecturers’ English language proficiency, confidence level, available time for repeated observation sessions, anxiety and nervousness as well as teaching preparation. As it was not easy to get the participants for the observation sessions, the locations are difficult to be predetermined. Based on the results of the survey, the participants were grouped according to their motivation and attitudes levels. Then, a few participants to represent the motivation and attitudes of the population were selected. A few telephone calls and emails were made to the respective participants to inform them about the data collection and to arrange the dates and time for the data collection. At the beginning, a few states were identified as the locations for the observations namely Perlis, Penang, Melaka and Terengganu. The geographical positions of the

observation prospects could be determined from Figure 3.3.

Finally, only seven participants had managed to complete the data collection process and the participants came from Perlis, Penang, Selangor and Melaka.

3.5.2 Participants

The selection of the participants for the observation sessions were based on the findings gathered from Section B of the survey. The items in Section B were about the lecturers' perceptions, attitudes and motivation. The findings indicated that there were a few categories of lecturers. Referring to Appendix O, there were at least four categories: Group A- High motivation and high practice, Group B- High motivation, and low practice, Group C- Low motivation, high practice, and Group D- Low motivation and low practice. These categories became the reference for the selection of the lecturers.

Besides that, other criteria were also taken into consideration. Besides the gender of the participants, the students taught during the observation sessions also became the determinants for participant selection. In order to reflect the population, the number of male participants should be 1 to 3 female participants. The students should be those who were doing certificate levels instead of diploma levels in order to ensure that no vast difference would be observed in terms of the difficulty of the subjects and the English language used by the lecturers for the delivery of the lessons.

Even though the lecturers, who were also the respondents for the questionnaire, had already been informed about the research, the researcher had taken the initiative to obtain the participants'permission and willingness to participate in the second phase of the data collection. The lecturers that fell under the categories mentioned earlier were contacted through email, phone and letters. Only a few of them were willing to participate due to various reasons. The following map in Figure 3.3 shows the location of the earlier participants before only seven managed to be involved in the research.

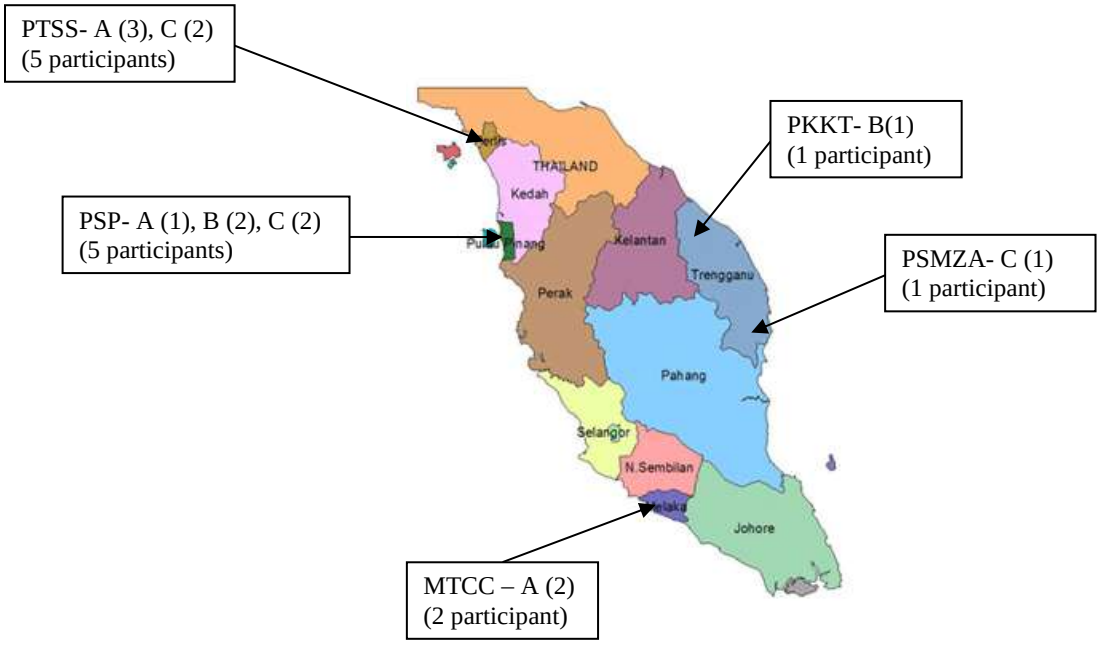


Figure 3.3. The location of the participants selected earlier for the observation sessions.

Despite careful considerations given to the selection procces, a few of the lecturers withdrew their participation at the last minute. In order to obtain more observation participants, the scores in the questionnaire were regrouped to make way for a few more categories. Table 3.2 shows the new categories in detail.

Table 3.2.

Criteria for Categorizing The Observation Participants

Variable	***Intrinsic Motivation F3***	***Extrinsic Motivation F5***	***Transformative Motivation F6***	***Practice***
	Motivation			
High	F3, F5 and F6 are above 3			>3.18
Moderate	Two factors are above 3 and one is below 3			From 2.5 to 3.18
Low	Two factors are below 3 and one is above 3 OR all are below 3			Below 2.5

To get enough participants to represent the groups, the participants from the pilot study were included. Since one of the purposes of the study is to investigate the lecturers' teaching strategies, the researcher endeavoured to find participants who demonstrated moderate to high motivation and practice so that there were positive elements for lessons and improvements. Due to that, only one participant who showed moderate motivation and low practice for teaching IT through English was chosen to participate in the second phase of the data collection. Finally, seven people had agreed to have their teaching and learning sessions in the classrooms video taped. Based on the set criteria, the participants were found to have certain levels of motivation and practice. Table 3.3 shows the positions of the lecturers in relation to motivation levels and practice.

Table 3.3.

The Categories of the Observation Participants

Participants	Motivation	Practice
A	High	High
B	Moderate	High
C	Moderate	Low
D	Moderate	High
E	Moderate	Moderate
F	Moderate	High
G	High	Moderate

The findings on the classification of the lecturers were the impetus for the analysis of the teachers' teaching styles and the strategies they would use to implement the teaching of IT through English. The following subsection provides further information for data collection and discusses the measurement procedure undertaken for the observation data.

3.5.3 Measurement Procedure

In order to avoid analyzing the data from diverse topics taught in the classrooms as experienced by Dalton-Puffer (2007), this study limits the discipline to be researched to only the subjects taught under IT programme. As in Dalton-Puffer's study, the lecturers to be observed in this study were also asked to conduct their lessons as they would normally do in the classrooms. Before the sessions began, each of the lecturers was contacted individually to ask for their

preferences while having their lessons video taped. Some of the lecturers indicated that they thought having a stranger in the classroom was intrusive and would disrupt the classroom environment. They were willing to video tape the lessons themselves, while others were not concerned. For the lecturers who were willing to be video taped, the arrangements were made to schedule the dates, time, and classes for the observation sessions. In addition to that, a permission and information letter as in Appendix H were sent to the lecturers.

Based on the previous research on CLIL, an observation checklist might be necessary to indicate if the lessons had CLIL elements. An existing checklist was available in Mehisto et al. (2008). In order to use it for Malaysian contexts, some adaptations were made. Permission to adapt the checklist was sought and obtained from Fortune (2000), on 22nd January, 2010 as in Appendix L. The adapted checklist was named 'CLIL Obseervation Protocol' and it is enclosed in Appendix M.

Travelling preparations were made including checking for the usability of the video equipment, and the documents necessary for on-the-site observations. The participants were contacted to remind them of the observation sessions and the researcher established rapport with them before and after she entered their classrooms to ease the tension for the participants. Field notes were gathered in the process to study more about the participants including their background, experiences, perspectives and students as well as to give participants the opportunities to voice out their opinions and views so that the information gathered was not only based on what was really happening in the classroom, but also the rationale that could have led the lecturers to deliver the lessons in certain ways. For each of the participants, a few of their

classroom sessions were video recorded in order to examine the patterns and styles of their teaching. At the end of the observation sessions, a thank you letter as in Appendix K was sent to them.

After the data collection processes and procedures had been completed, the data were analysed. The methods undertaken for analyzing the data will be discussed in the following subsection.

3.6 Analysis of Data

In this study, there are two sets of data: quantitative and qualitative. By applying the explanatory sequential design of mixed methods, the quantitative data had to be first collected and analysed to provide the necessary information for the next phase of the study that involved qualitative data collection and analysis. The following subsections discuss the processes further.

3.6.1 Analysis of the Questionnaire

The quantitative data were collected via a survey gathered through questionnaires distributed to all the IT lecturers at polytechnics and community colleges in Malaysia. The items in the questionnaire were divided into a few constructs to investigate their perceptions, attitudes, motivation levels, learning strategies, teaching strategies and classroom practical activities. In line with the objectives of the study to find out about the lecturers' attitudes and how they implemented the teaching of IT subjects through English, Section B were analysed using Factor

Analysis so that the lecturers could be categorized according to the patterns which are revealed based on how they had responded to the questionnaire. From the questionnaire responses, the lecturers who showed a certain level of positive attitudes, motivation and who had started to implement the policy were selected. The feedback of the lecturers are categorised and four variables (Intrinsic Motivation, Extrinsic Motivation, Transformative Motivation and Teaching Strategies) were identified as relevant to the desired categories for the observation sessions.

In addition to that, all the constructs were analysed using descriptive statistics, to calculate the frequencies, mean, mode, variance and standard deviations. The Cronbach's alpha levels for the reliability analysis for all the sections were also examined. Besides that, SPSS Version 16.0 was utilized to analysed the inferential statistics where One-way ANOVA was employed to measure the correlations between the lecturers' motivation levels and their teaching strategies. For the detailed outcome of the data analysis, refer to Chapter Five.

The analysis for the second phase of the study was qualitative in nature. As such, the focus of the analysis was not the breath of the data, but the depth in which the lecturers explicated issues and performed the elements under the research enquiry. The following subsection discusses the analysis for the observation data.

3.6.2 Analysis of the Observation

For the observation sessions, the data gathered were in the forms of video clips of the recorded classroom activities and field notes gathered from the conversations with the participants before and after the sessions. In the beginning, the researcher screened and scanned each of the video clips to identify the patterns in which the lecturers carried out the lessons. As in the data collected, each of the lecturers had taught more than one class, the teaching patterns were noticeable.

The second stage was to transcribe the verbal communications available during the video recording. The verbal communications included both the lecturers' and the students'utterances in Bahasa Malaysia and English, the waiting time, other sounds the teachers and students made, and the terminology used. Besides the verbal communication, non-verbal communications were also vital to ensure the smooth delivery of the lessons. In the third stage, the video clips were scrutinized again to extract the multimodes adopted as part of the teaching strategies. A sample transcript is enclosed in Appendix I.

3.7 Ethics

Before any research on the field was carried out, the researcher had applied for the ethics approval by using the British Educational Research Association (BERA) form (2004) in late August 2008. For the application, the instruments for the research, the Information Sheet and the Participant Consent Form were also submitted (See Appendix E and C). The Information Sheet

explained the nature and design of the study as well as the purposes of carrying out the research. It also informed the participants that they could ask for further explanation and more information by contacting the researcher and her supervisors. The Participants Consent Form informed the participant how she/he was going to be involved in the research and how the data gathered from the research were going to be used and stored. This form also informed the participants that by signing the form, they were giving the researcher their consent to how the data was going to be used.

The panel subsequently asked for the documents to be improved by giving more information about the research and sent back to the panels in the United Kingdom. Eventually, the Ethics approval was obtained from the Ethics Co-ordinator in the United Kingdom on 25th September 2008 as indicated in Appendix B.

Besides obtaining the ethics approval from the University of Nottingham, a research project carried out at polytechnics and community colleges in Malaysia should also seek the permission from the Department of Polytechnic and Community College Education. A letter explaining the study, together with the research proposal and the instruments used for the research, were sent to request for the permission. On 4th September 2008, the permission was granted from the Centre of Research and the Polytechnic and Community College Development, the Department of Polytechnic and Community College Education, Ministry of Higher Education Malaysia. A scanned copy of the permission letter is enclosed in Appendix A.

3.8 Conclusion

The research methodology stage is a crucial phase because it designs and determines how the study will be executed and analysed. A sound research methodology entails reliable research findings, which in turn, will provide useful information for the specific related disciplines and contribute to the knowledge in general.

Due to that, careful considerations were made based on previous literature and experiences of prominent researchers in the fields, including the epistemological and ontological factors in order to ensure that the best methodology is adopted to research the topics undertaken by this study. The research in this study had followed a systematic procedure in designing the methods for collecting the data, planning for the data collection and analysis, developing the materials and in adhering to the ethics protocol.

CHAPTER FOUR: RESEARCH LENSES

4.1 Introduction

This chapter explains the research lenses applied in the study in order to provide the perspectives in which I have opted to take in order to examine the data gathered from the field. There are several dimensions to consider when discussing the data. All of these are related to the content of the data while five prominent elements are: the nature of good teaching (Cruickshank, Jenkins, & Metcalf, 2006; Goldberg, 2003; Woolfolk, 1993), consisting of effective teaching in general and CLIL teaching specifically; discourse (Kress, 2010), consisting of classroom discourse and CLIL teacher discourse (Dalton-Puffer, 2007); the multimodal approach (Jewitt, 2006, 2009b; Kress, 2009a, 2009b, 2010); the education policy change and training. These variables are the prevalent elements to be taken into consideration while undergoing the investigation on teachers' teaching strategies and should, therefore, be given due considerations in order to interpret the data.

4.2 Teaching

Defining or even describing good teaching is not an easy task. As a profession, successful teachers are measured by their impact on students' learning. In order to make a difference to students' learning, the vocation no longer solely depends on a teacher's subject knowledge and an undefined innate ability and natural talent for teaching, but it also requires other qualities, which could be nurtured to make teaching more effective. Consequently, a positive teaching scenario is not considered to be just the delivery of information and knowledge, that is a teacher-focused activity; it is also a complex learner-centred process which composites different

elements and especially teaching strategies which interact with each other and result in a genuine knowledge and skills transfer and development.

Many factors contribute to effective teaching. In terms of experience alone, besides initial and continuing teacher training, teachers who gained considerable number of years of teaching experience may have also learned to use various strategies to teach according to the needs of the students, the curriculum, and the contexts in general. As the years go by, they may have tried and accumulated the teachniques or strategies that work best for different contexts. Through time, the teacher's teaching skills may have become more polished and this knowledge may become subconscious repertoire, which they themselves find it difficult to describe. The study by the National Center for Analysis of Longitudinal Data in Education Research found that teachers who performed well in the early years of teaching continued to do so in subsequent years and some more successful teachers were even more successful at teaching after a few years in the career (Goldhaber & Hansen, 2010).

To expedite the quest for the best teaching strategies, teachers from all over the world can share and exchange their knowledge through various means including modern technology so that research on the strategies deemed the best teaching methods in some parts of the world can be emulated in other similar contexts. We might assume that teachers of ICT are well placed to take advantage of this. The following subsection discusses the characteristics and strategies that contribute to effective teaching.

4.3.1 Effective Teaching

To be effective, teaching demands a teacher to use and tailor all his/her teaching faculties to match with the students' needs. Some teachers are born with natural talents as they have the personality traits and characteristics that synchronise with the characteristics of good teachers. Many authors indicate that having suitable personality traits contribute to effective teaching (Cruickshank, Jenkins, & Metcalf, 2006; Goldberg, 2003; Woolfolk, 1993).

Stronge (2007, p. 100), deliberates the epitome of an effective teacher as a person who, "…cares deeply, recognizes complexity, communicates clearly, (and) serves contientiously". He developes a set of checklists which assess the teachers' skills at teaching including classroom management, and instructional strategies. The scales are divided into five categories (Stronge, 2007, p. 109):

> Master : The teacher exhibits the quality such that others would be able to use him or her as an expert for how to work with students. The teacher not only has a sense of the quality, but demonstates an understanding of the essence of the quality.
> Professional : The teacher exhibits the quality most of the time.
> Apprentice : The teacher demonstrates the quality to the degree necessary to make the classroom function. The teacher may lack fluidity of use, but the result is still effective.
> Ineffective : The teacher would benefit from more work on the quality in terms of working with the teacher at the professional or master level or taking classes.
> Not Observed : The observer has not seen evidence of the quality, either through demonstration or observation.

Checklist 1 views the teacher as a person, and the qualities identified are, "caring; shows fairness and respect; interaction with students; enthusiasm; motivation; dedication to teaching; and reflective practice" (Stronge, 2007, pp. 110-111). Checklist 2 focuses more on the classroom management and organization, and the qualities identified are "classroom management; organization; and discipline of the students" (Stronge, 2007, pp. 111-112). Checklist 3 focuses on the planning and organization for instruction, and the qualities identified are 'importance of instruction; time allocation; teachers' expectations; and instruction plans' (Stronge, 2007, p. 112). Checklist 4 is on implementing instruction, and the qualities identified are 'instructional strategies; content and expectations; complexity; questioning and student engagement' (Stronge, 2007, p. 113). Lastly, checklist 5 is on monitoring student progress and potential, and the qualities identified are 'homework; monitoring student progress, and responding to student needs and abilities' (Stronge, 2007, p. 114). In the checklists, indicators refine the qualities and are utilized for benchmarking using the scales provided earlier.

The checklists provided show that to be effective and make the impact on the students' learning, teaching should focus on the social aspect that involves making a connection with the students and how they learn the content. This indicates that the teacher's knowledge of the subject matter alone is not significant unless he or she is able to deliver it to the students effectively. The teacher's ability to correspond with the students' needs through interaction, feedback and questioning is crucial for learning to take place. As such, teachers should analyse the contexts of the students, the setting and the cultures before trying to make the connection between the lesson and the students.

4.2.2 CLIL Teaching

CLIL teaching is slightly different from other language or content teaching as it requires more effort from the teachers as they do not only teach the content but also the target language (Mehisto et al., 2008). Due to that, it requires the teachers to make careful planning in terms of the lesson's objectives, the teaching materials, the amount of scaffolding needed, the language to be used and the amount of content to be delivered before even starting to teach.

In Malaysia, a substantial amount of resistance is still evident (Mohamed, Nordin, Aziz, & Hashim; Noraini Idris, 2007; Pandian & Ramiah, 2007). Among them are teachers' lack of readiness due to low English language proficiency, limited professional training, low confidence, poor attitude and low motivation. Due to the political and public pressure, people in this country have become very reserved in their quest for learning other languages besides Bahasa Malaysia. For instance, using the English language in public is still associated with being less nationalistic (Asmah, 1992), arrogant and absurd. This discouraging environment is very de-motivating to second language learners.

Stephen Krashen's Affective Filter Hypothesis highlights the important roles of affective variables namely motivation, self-confidence, anxiety in second language acquisition (1982). It explains that when the affective filter is high, the second language performers are faced with low motivation, low self-confidence and high anxiety, which will impede second language acquisition. These are regarded as attitudinal factors that "tap the acquired rather than the learned system" (Krashen, 1982, p. 31). CLIL studies in Europe have certainly demonstrated the high motivational quality of the programmes and this consequently lowers the affective filter

even when the challenge level is high. CLIL teaching should also be structured around good scaffolding approaches (Coyle et al., 2010). Where this is done the students are motivated, but of course before that teachers need to be motivated to adopt the right approaches and attitudes. Due to this rationale, the way the observation participants were selected had to be based on their motivation levels and attitudes towards the policy.

By adopting the right attitudinal factors, lecturers will be more receptive towards second language learning and acquisition, and hence, be able to develop full understanding of the sociolinguistic factors involved in teaching and learning through a second language, which undeniably involve code-switching, language transfer and interference, and ultimately, be able to implement CLIL better.

4.3 Discourse

Discourse is defined as the knowledge that is constructed socially and involves language and material realizations (Kress & Leeuwen, 2001). In a social semiotics perspective, when writing about 'discourse' as mentioned by Michel Foucault, Fendler (2010, p. 36) states that Michel Foucault compared discourse with the internet where 'discourse is everything we can access with our minds,… created by people', but discourse does not control or cannot be controlled by our minds.

People use discourses to make sense of the world at the larger level (Foucault, 1982). According to Kress (2010), discourse functions as an organization of meaningful resource and, in

reference to his earlier work, it refers to ‘institutions’ such as education from which knowledge is produced and shaped (Kress, 2010). There are significant differences between Discourse Studies and Critical Discourse Studies (or Critical Discourse Analysis) (Wodak & Meyer, 2009). Among them are the constitutive problem-oriented, and the interdisciplinary approach of Critical Discourse Studies and it is ‘not interested in investigating a linguistic unit per se but in studying social phenomena which are necessarily complex and thus require a multi-disciplinary and multi-methodical approach’ (Wodak & Meyer, 2009, p. 2). Leeuwen (2009, p. 144) stated that as discourse means ‘an extended stretch of connected speech or writing’ Discourse Analysis means analyzing a text or type of text. He, therefore, builds on the work of Foucault to construct discourse in social manner where the ‘context-specific frameworks’ make ‘sense of things’ (Leeuwen, 2009, p. 144). A study on discourse can be associated with the Bakhtian research. It popularizes the term ‘dialogic’ in relation to discourse where other aspects of language are also given attention in order to have a sustainable and comprehensible input. The following section discusses classroom discourse and how it relates to discursive psychology, the Bakhtian research and how this study may use the information for discussing the data.

4.3.1 Classroom Discourse

There are several themes in discourse research: as social action where it is constructive, functional and meaningful; discursive practices which relate to the appropriate discourse and content in context; and the discursive space and the politics of representation where discourse and power are interrelated to provide meaning (Wetherell, 2001b). According to Billig (2001), discursive psychology relates to the domain under social psychology which involves social

interaction, especially discursive interaction. For a research that involves social psychology, it is suggested that the researchers study the interaction, examine the ways language is used in practice by participants and observe the interaction closely in order to interpret the messages. An example of a research using discursive psychology is a study of the conversations that examine memory-claims and people's actions. Similar to that, the Bakhtian research on social psychology also focuses more on the language used in action, though quite unlike the linguists who focus more on the grammatical rules. Bakhtian believes that social interactions should be analysed using "practical linguistics" (Billig, 2001, p. 211).

In this study, one of the objectives is to investigate how the teachers teach IT subjects through English. As teaching involves discourse, I examine the elements which relate to discourse in general. Based on the table titled 'Mapping Diversity' provided by Wetherell (2001a, p. 381) the disciplines, domains, forms of data and discourse traditions can be mapped as the following table :

Table 4.1

Mapping Diversity

Disciplines	Domains
Psychology Sociology/Cultural Studies Social policy Anthropology Education Linguistics Politics and international relations	Social interaction Mind, selves and sense making Culture and social relations
Forms of Data	**Discourse Traditions**
Interviews Focus groups Documents and records Media representations Naturally occurring conversation (in institutional and other settings) Political speeches	Conversation analysis Foucauldian research Critical discourse analysis and critical linguistics Discursive psychology Bakhtinian research Interactional sociolinguistics and the ethnography of speaking

Based on the table provided, the study that involves observing how teaching is carried out relates to the discourse which is 'Naturally occurring conversation (in institutional and other settings' and follows discursive psychology and the Bakhtian research (Wetherell, 2001a, p. 38).

For IT classes at polytechnics and community colleges, most of the classes consist of hands-on activities. A theory class precedes the practical classes so that the students know the theory and information regarding the projects that they have to do later. For the theory classes, it

is not uncommon for these classes to be delivered through lecture. According to the website on E-learning provided by the Multiprofessional Faculty Development of London Deanery ("What is lecturing?", 2012) a lecture is considered a discourse in the form of an instruction given to an audience. The discourse here is defined as "a verbal interchange of ideas; formal, orderly and usually extended expression of knowledge and thought on a subject" (ibid).

Based on the rationales provided, the study that investigates the interactions in the classroom is indeed a study of classroom discourse. Thus, the elements investigated should not only be limited to text or linguistics alone but should also include other elements that contribute to an effective interaction where messages delivered are understood by all the interlocutors. The following section explains the sine-qua-non of CLIL Teacher Discourse and highlights its special features that set it apart from the normal classroom discourse.

4.3.2 CLIL Teacher Discourse

There are limited numbers of studies that focus on studying the features of a CLIL teacher discourse especially at higher education. Vivian Cook (2008) suggested ways that teachers can make the first language useful for teaching the second language in the classroom such as explaining grammar to the students, conveying meaning, giving instructions and explaining tasks and exercises to the students, making the students use the first language within classroom activities and managing the classroom. In small group activities, students tend to code switch because it is normal in bilingual situations when both speakers share the same first language

(Cook, 2008). In this situation, the teacher can use the first language to provide scaffolding for collaborative dialogue to learn the second language (ibid).

There is an advantage of having a teacher that shares the same first language with the students. The non-native speaker teachers can provide a model of a proficient L2 user in action or a model of a person who has successfully learnt a second language (Cook, 2008). Besides that, the non-native speaker teachers can also provide more appropriate training and background which includes fluency in the second language (ibid). In addition to that, a teacher who has gone through similar experiences while learning the second language will be able to understand the students better. The language models may not necessarily come solely from the teacher. In order to provide more authentic input from native English language speakers, the teacher may use native speaker speech models from materials and media such as videos, CD-ROM, and audio learning resources. Nevertheless, the students should also be made aware that nowadays, with global English becoming the trend, English is more widely used by international speakers and has become less synonymous with people from English speaking countries as mentioned in the Literature Review Chapter.

An example of a study that investigates CLIL classroom discourse can be derived from the work of Dalton-Puffer (2007) who describes the discourse in the classroom where CLIL was practiced in Austria. Among her global empirical purposes of the study of CLIL classroom discourse which are related to this study are to examine how the content of the subjects is delivered using the target language in the CLIL lessons, the role of questions and answers, and

how the typical academic language functions are represented in the data. She collected the data of classroom discourse in a natural CLIL context via audio-recordings of 40 lessons by ten secondary school teachers between November 2001 and February 2003 from seven schools. This study provides a strong foundation for other studies to analyse similar themes in other contexts. The following section examines the elements of multimodality that contributes to CLIL classroom discourse.

4.4 Multimodal Approach

In this study, two types of instruments were used: the questionnaire and the observation. For the observation, the video recorder was used to collect rich data and they can be analysed and interpreted in various ways. When an observation session is analysed, the data gathered contain not only text or verbal forms, but also a host of other modes such as teaching aids, gestures, body movements, facial expression, etc. working together to ensure that the messages are delivered. Due to that, the analysis should take all the modes into consideration. In relation to multimodality, two perspectives of multimodal approaches are prevalent: the social semiotic approach and multimodal interaction approach.

Multimodality, basically, means the different modes of communication, which become meaningful when people socialise (Jewitt, 2006, 2009b; Kress, 2009a, 2009b, 2010). It is "the potentials of each mode such as speech, architecture, image and gestures in social semiotics" (Kress, 2010, p. 61). The idea was founded by Halliday's social semiotic theory of communication (Halliday, 1978). Fairdough describes 'semiosis' as a discourse where

"meaning-making is an element of social process" and "semiotic multimodalities (means)…language is only one (others are visual images and body language" (2009, p. 163).

According to (Kress, 2010, p. 61), Multimodal Social Semiotics theorizes meaning came from three 'perspectives':

1. Semiosis that is making meaning from all representation, communication and media of communication.
2. Multimodality concerns with issues common to all modes and to the relations between modes.
3. Of dealing with specific mode, the theory has categories that describe forms and meanings which are appropriate to the specificities of a given mode.

As such, multimodal social semiotics involves sign makers who make signs according to their needs and interests in the environment (ibid). How the makers make the signs, shape the meanings, select the discourses according to the genres, select the texts, their representation and communication functions as well as the modes are the essence of social semiotics (ibid). Kress (2010, p. 105) suggests that by having both the social semiotic and multimodal perspectives, it "provides an encompassing theory of representation and communication". To further understand the connections between the multimodal social-semiotic theory and discourse, I produce the following diagram based on my reading of the book by Kress (2010):

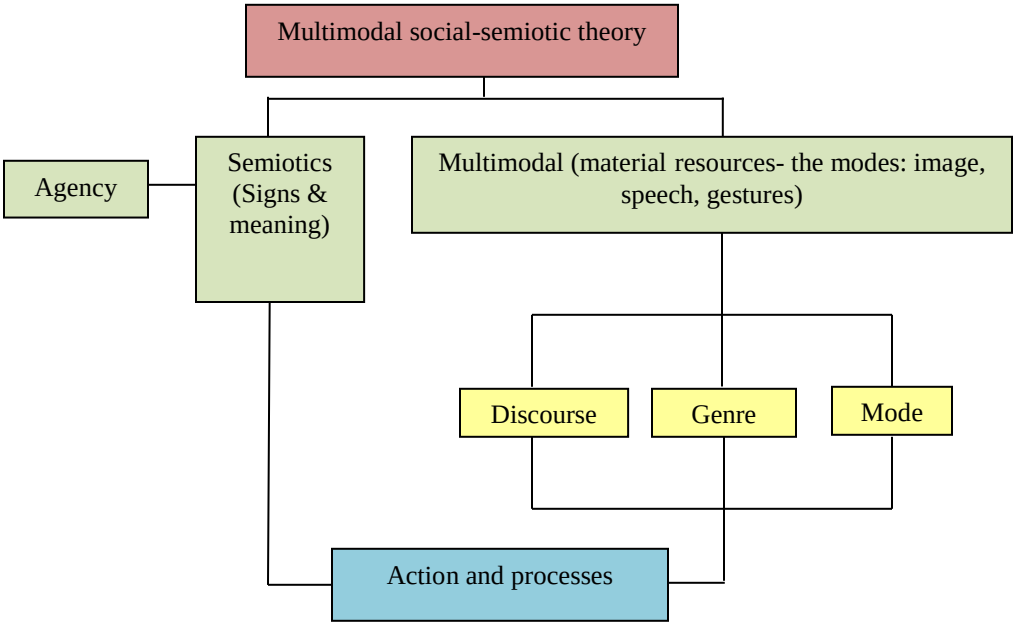


Figure 4.1. Kress's (2010) multimodal social-semiotic theory

In this diagram, the multimodal social-semiotic theory describes the action and processes which the human agency take and go through when communicating with others. This involves semiotics where signs and meaning are made, and multimodality, which includes the discourse, the genre and the mode used to deliver semiotics. According to Silverman (2006, p. 249), semiotics '…offer a valuable way of understanding the mechanism through which images produce a particular meaning, and does so in a more sophisticated way than content analysis'.

In terms of multimodal data and transcription, the theory provides ways in which we can derive meaning from the transcripts (Flewitt, Hampel, Hauck, & Lancaster, 2009). This means that analyzing the transcripts involves not only looking at the written language or its content, but also the images, materials, sound, digital and technological communication, and bodily

movements (ibid). In multimodal transcription, the analysis takes into consideration 'the situated, social activity…relating more to how participants make meaning in naturally occurring interactions, where information about the setting, manipulation of objects, body language, etc. may need to be integral to transcription' (Flewitt et al., 2009, p. 45). In contrast to the traditional transcription of spoken discourse where context is a secondary element, in multimodal transcription, context becomes primary as the interconnection between the different modes provides meaning to the discourse (ibid).

As this study uses the classroom and the interaction as its source of data for the observation sessions, the analysis that utilizes the multimodal interactional approach is more suitable. It emphasizes the notion of context and situated interaction where the social actors or the speakers utilize the modes to deliver meaning (Jewitt, 2009a). Norris (2004, p. 4) explains that the main aims of Multimodal Interactional Analysts are to "… understand and describe what is going on in a given interaction. We analyse what individuals express and react to in specific situations, in which the ongoing interaction is always co-constructed". In multimodal interaction analysis, the elements called 'modal density' and 'modal configuration' become prominent. In order to differentiate modal density and modal configuration, Norris (2009) explicates that modal density as the construction of higher-level action which determines the intensity and/or complexity of the event whereas modal configuration relates to the hierarchical sequence of the higher-level action modes used by the speaker.

Modal density can, thus, be described in relation to two conditions: its intensity and its complexity. The modality becomes dense when the higher-level action is high. The higher level

action is a purposeful interactional unit made up of many small interactional units called lower-level action, ".. in which the social actor draws upon a communicative mode such as gesture, posture, spoken language or layout, and constructs meaning" (Norris, 2009, p. 82). Modal intensity signifies the weight the mode carries, and modal complexity shows how "intricately intertwined the multiple modes are" (Norris, 2004, p. 77). The higher weight or intensity, and the more complex they are, the higher the modal density.

According to Norris (2009, pp. 87-88), in order to analyse the data by using the concept of modal configuration, three questions should be asked by the researcher:

> Which modes are absolutely necessary for the social actor to perform the (higher level) action?; Which modes are not as necessary to perform the higher level actions but are utilized anyway?; and What modes are irrelevant to this higher level action?.

In CLIL, SIOP, and other bilingual education models, the use of multiple modes such as visual aids like pictures, charts and diagrams, linguistic representations are encouraged to support understanding and learning (Deller & Price, 2007; Rosen & Linda, 1997). In fact, the teaching aids become more essential in CLIL lessons in order to provide the right scaffolding for both the content and the target language. To compare, the SIOP teaching pedagogy also recognises the use of teaching aids. The implementation of SIOP is assessed in terms of:

> the instructional practices that are critical for English language learners, such as making connections with students' background experiences and prior learning, modulating teacher speech, emphasizing vocabulary development, using multimodal techniques, promoting higher-order thinking skills, grouping students appropriately for language and content development and providing hands-on materials.
>
> (Pearson Education, 2010)

In short, a research that involves classroom observation should no longer be limited to discourse or conversation analysis, but should encompass other aspects of interactions which include other modalities such as gestures, facial expressions, body language, teaching aids, etc. The other modes of interaction that contribute to a meaningful conversation or communication in the classroom deserve to be recognised as prominent elements that make up the messages sent between the speakers.

In addition to a need to analyse using multimodality, the analysis of the effects of policy change also plays an important role. This process causes the stakeholders to take on and perhaps also express attitudes towards the implementation of the policy. The following subsection discusses the policy change in relation to education, the teachers and the students.

4.5 Education Policy Change

The education system in Malaysia regularly experiences changes in policy which affect not only the teachers but also the students. For instance, in 2009, the policy for teaching Science and Mathematics in English which was formulated in 2003, was reversed to using Bahasa after only a few years of implementation. The change impacted not only primary and secondary school students but also teachers. When it was in the early stage, a lot of preparation was undertaken where teachers were sent for ETeMS trainings, and new books and modules were created to support its implementation. In addition to that, teachers made many efforts to revise and modify their lessons and activities in the classrooms in order to suit the lesson's new objectives. When

there is a change of policy in the system, the stakeholders have to make the necessary adjustments to ensure that the implementation of the policy is carried out accordingly.

At Polytechnic, the change of the policy for teaching Technical subjects from using Bahasa Malaysia to English since 2007 has been implemented at a more gradual pace taking into considerations the needs of the lecturers, the students and the materials to adapt to the new approach. The gradual process gives more room for all the stakeholders to improve themselves to meet the requirement to teach and learn Technical subjects through English at polytechnics. The policy has been quite consistent since 2007 because the Polytechnic, being the main trainer of human capital in Malaysia, is also impacted by the demands of globalisation which include providing quality education and training that enables the graduates to use an international language at global workplace. In addition to that, as part of the higher education institutions, the polytechnics and community colleges have to also comply with the Ministry of Higher Education's Strategic Plan (2007) that is to intensify internationalization. Currently, as the main providers of the Technical and Vocational Education and Training (TVET) semi-professional workforce in Malaysia, the polytechnics and community colleges have to produce a considerable number of quality graduates every year.

At community colleges, it has become more difficult to carry out the policy of teaching Technical subjects through English because there is a change in the program structures where the students learn according to the modular system that enables them to take short modules. Previously, all the full time students had to enrol and complete two years of training before being awarded a Community College Certificate. In contrast, the current system allows for a particular

module to be taken individually and completed within three to six months in order to receive a certificate for that module. The students who complete the whole set, which takes two years, are qualified to be awarded a National Modular Certificate. The high turnover of the students makes it difficult for the lecturers to apply a new approach as it normally takes time for the new students who are used to learning Technical subjects through Bahasa Malaysia to suddenly change it to English.

Policy changes may also cause teachers to change their beliefs, and practices (Fullan, 2006). The changes may be difficult for some teachers and may cause them to feel at loss and helpless. It may take some time for some teachers to recuperate and be resilient with the constant change of the policy. Teachers' attitude towards the change in the educational system can be observed in the ways they teach their subjects. The teachers who accept the policy change may regard it as a new challenge and react to it positively whereas the teachers who are hesitant, in doubt of or reject the policy change will show their perceptions and attitudes through their negative actions including while delivering the lessons in the classrooms. The section that follows describes the training for the lecturers to teach content subjects through English.

4.6 Training

The training for the lecturers on how to deliver content subjects through English especially the ones directly related to the lecturers' own field is scarce be it at college, polytechnic, or university level. It is generally assumed that the training provided for the Technical lecturers on improving their English language proficiency is sufficient for the lecturers to use English when

they teach their subjects. The courses are generic and are applicable across all disciplines and basically, they are to enable the lecturers to feel more confident and comfortable in using English to teach their subjects. In terms of specific teaching pedagogy, the lecturers normally use their own discretion to decide on what approaches to apply and how to design the lesson which requires the content to be taught through a second language, English. In this case, the teachers have the freedom and opportunity to experiment using the CLIL modules in their classroom.

However, not all teachers are self-trained or are innovative enough to initiate the moves to search for the best approaches to teach Technical subjects through English. Teachers may need to be guided and assisted to improve their teaching and learning approaches from time to time to keep up to date with the current demands.

The recruitment of new lecturers before entering the profession is as important as keeping the existing lecturers skilled at teaching. The selection of new lecturers should thus be handled with care. As such, people who are interested to be teachers should be trained to become knowledgeable and skilled at teacher training institutions so that they will graduate as qualified teachers. A teacher trainee needs to be guided on how to utilize his/her natural gifts optimally. For instance, having a certain quality of voice may be a teacher's best asset, but being able to use the voice for effective teaching may contribute a lot more to students' learning. Consequently, teacher training becomes essential as teachers are guided to intensify the effectiveness of using the voice and to utilize it to impart knowledge in a multitude of different ways to enhance learning. Many teaching techniques demand the teacher to use his/her voice for interaction purposes in the classrooms.

The lack of teacher training in the specific teaching approaches such as on the underlying principles and how to teach the content subjects through English may result in teachers being oblivious to the main aims of the lessons and being unable to understand the purposes of designing the lessons in certain ways. As such, it is inappropriate to use the protocol for CLIL observation as an evaluation form for teaching effectiveness on teachers who have never gone through or been trained on using the CLIL modules. On the other hand, the protocol was used as a guideline to improve the quality of existing teaching so that lessons can be learned on how the content subjects can be taught through English more effectively.

4.7 Conclusion

In conclusion, the elements of teaching, discourse, the multimodal approach, policy change and training affect the data in complex ways. The main aim of the study is to examine how the teachers teach the content subjects through English. Apparently, the act of teaching according to the new demands of policy change is influenced by the teacher's attitudes and beliefs of what he/she thinks is the best ways to teach, and how resilient the teacher is towards the policy change, as well as the training that enables him/her to carry out the teaching effectively. Besides that, when analysing the observation data which involves the teaching of the content subjects through English, the outcome expected of the lesson should be the anchor that decides the approach used, and in doing so, all the modes contributing to a successful teaching delivery will prevail, thus should also be given due credits. As such, the study will use the CLIL observation protocol (Mehisto et al., 2008), CLIL model (Coyle, et al., 2010) and the multimodal

approach (Jewitt, 2006, 2009b; Kress, 2009a, 2009b, 2010), which derive meaning from modal density and modal configuration as a reference in analyzing the observation data.

CHAPTER FIVE: PRESENTATION AND ANALYSIS OF SURVEY

5.1 Introduction

As explained in the Research Methodology Chapter, this study adopted the sequential explanatory design of the mixed methods approach. In this design, the quantitative method is combined with qualitative method in two different phases where the qualitative data helps to give meaning or explain the quantitative data (Creswell & Clark, 2007; Dörnyei, 2007; Ivankova & Creswell, 2009). In this study, the quantitative data from a survey were gathered in order to capture the broad picture of the scenario and the findings were used to narrow down the study further. As a result, there were two phases of data collection: the survey and the observation.

This chapter discusses the first phase of the data collection, the survey. It was conducted to investigate the overall attitudes, and perceptions of the lecturers towards having to teach their subjects through another language- English. Besides that, the survey also asked the lecturers about their motivation to implement the policy, their initiatives in developing their English language skills in order to carry out the policy effectively, and dealing with the lessons in the classroom.

The survey aimed to answer these research questions: What are the lecturers' attitudes and motivations towards teaching IT subjects through English?; What are the lecturers' strategies

to upgrade their English language proficiency levels?; What are the lecturers' teaching strategies when they have to teach their subjects through English?.

The detailed description of the questionnaire and procedures used in carrying out the survey has been discussed thoroughly in Chapter Three. The list of the lecturers who taught IT subjects at all the community colleges and polytechnics in Malaysia was obtained from the Division of Training and Career Development, Department of Polytechnic and Community College Education, Ministry of Higher Education Malaysia. There were 265 IT lecturers on the list. The questionnaires were posted to the research population (all the lecturers who teach IT subjects) at all nine polytechnics and ten community colleges that conducted IT courses in Malaysia including Sarawak in March 2009. The lists of polytechnics and community colleges that took part in the research are:

1. Gerik Community College, Perak
2. Pasir Salak Community College, Perak
3. Sungai Siput Community College, Perak
4. Mas Gading Community College, Sarawak
5. Segamat Community College, Johor
6. Bandar Penawar Community College, Johor
7. Pasir Gudang Community College, Johor
8. Masjid Tanah Community College, Melaka
9. Mentakab Community College, Pahang

10. Muadzam Shah Polytechnic, Pahang

11. Sultan Mizan Zainal Abidin Polytechnic, Terengganu

12. Kota Polytechnic, Terengganu

13. Seberang Perai Polytechnic, Penang

14. Syed Sirajuddin Polytechnic, Perlis

15. Ungku Omar Polytechnic, Perak

16. Sultan Abdul Halim Muadzam Shah Polytechnic, Kedah

Figure 5.1 shows the number of institutions according to the states. Based on this list, only one community college and polytechnic did not manage to return the questionnaires even after follow-up calls were made. Another polytechnic in Mukah, Sarawak told that they had posted the questionnaire but it did not reach the researcher to date. The questionnaires took different amount of time to come back; some as quickly as a month and some others came back only a few months later after several calls and follow ups were made to the heads of the departments or programmes. All in all, 211 or 79.62% lecturers of the whole population were able to complete the questionnaires. This is considered a very good response rate because according to Bryman (2004) the higher the response rate, the more useful the analysis is to represent the population.

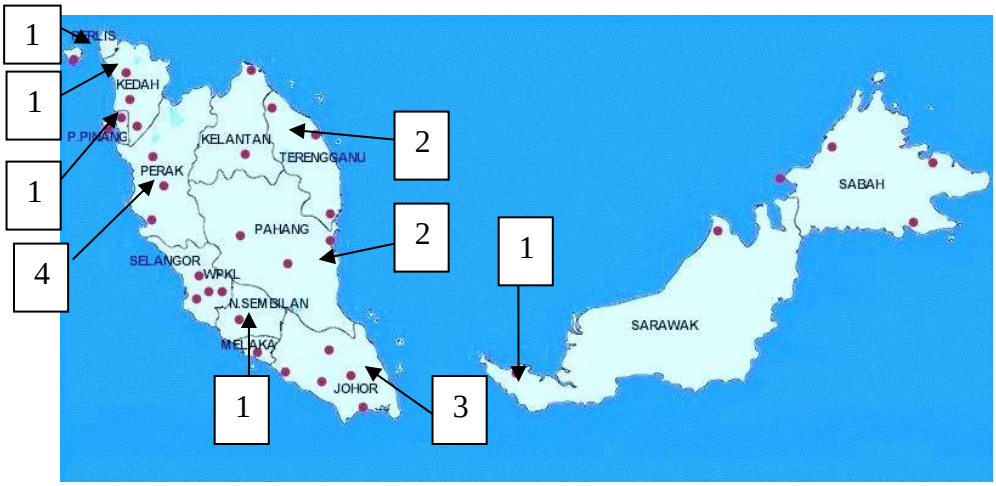


Figure 5.1. The number of participating institutions according to the states.

There were one polytechnic and two community colleges in Selangor that had IT course but the lecturers there had already participated in the pilot study of this research. The other polytechnics and community colleges in the other states of Malaysia such as Sabah, N. Sembilan and Kelantan did not offer IT course.

This chapter reports the responses gathered from the constructs as presented in the questionnaires by using Descriptive Statistics in the SPSS Version 16.0. The survey questions were set to gauge the lecturers' background, their motivation and attitudes towards having to teach IT through English, their learning strategies, their teaching practices as well as their practices on issues related to sociolinguistics.

5.2 The Pilot Study

The pilot study was carried out via mail between October to December 2008. Thirty seven lecturers from two community colleges and one polytechnic in Selangor took part in the pilot study. There were three bundles addressed to the heads of the departments or programs and complete with cover letters to them and the directors of the institutions. In the bundles, a self-addressed express mail envelope and gifts to all the people involved were also enclosed. The heads had to administer the questionnaire on behalf of the researcher and send back the questionnaires to the researcher once completed. Each lecturer was given an Information Sheet, a Consent Form and two sets of the same questionnaires that were in different languages: Bahasa Malaysia and English. The questionnaires were translated to Bahasa Malaysia so that the lecturers could choose to answer in their mother tongue if they preferred to, and would not have to face intimidation if otherwise. As soon as the bundles were returned, the heads of departments or programs were sent appreciation letters to thank them for their support.

The analysis of the feedback revealed some problems with understanding some of the items in the questionnaire which might be due to the structure and format. They were revised, reformatted and simplified. Some of the questions in the questionnaire especially those that received absolute positive feedbacks were omitted to reduce the number of questions so that it became easier for the respondents to answer the questions in the questionnaire. Besides that, there was also a tendency to choose the middle option as the answer. To avoid that, the answer scales were reduced to four options. More detailed description of the changes that took place is explained in the Research Methodology Chapter.

Once the questionnaires in Bahasa Malaysia and English were ready, preparations were made for the actual survey. As the procedure for the pilot seemed to be effective in getting high response rate, the same procedure was replicated. However, it was rather painstaking as the real survey was a census study that involved 19 institutions with 265 participants and they were scattered all over Malaysia. The bundles were posted in stages and the last bundles were posted in March 2009. While waiting for the questionnaires to be returned, follow-up calls were made to each institution. Every time a completed bundle of questionnaires was sent back to the researcher, the institution would receive a letter of appreciation to thank them for their involvement in the research. Eventually, the last bundle was returned to the researcher in August 2009. The findings gathered from the actual survey will be presented under a range of subheadings in the rest of the chapter.

5.3 Demographic Data

The findings revealed that 76 lecturers were from community colleges and 135 lecturers were from polytechnics with the total of 52 (23.4%) males and 159 (71.6%) females. This shows that the population of the lecturers at polytechnics was bigger than those at community colleges and female lecturers dominated the teaching profession in the field of IT. The difference in the numbers of lecturers at polytechnics and community colleges did not, however, affect the findings, i.e the ways the lecturers teach as there weres no differential criteria set about employment in either type of institution. In fact, these lecturers were allowed to move between the institutions as long as there was a vacancy for the subject taught in that institution.

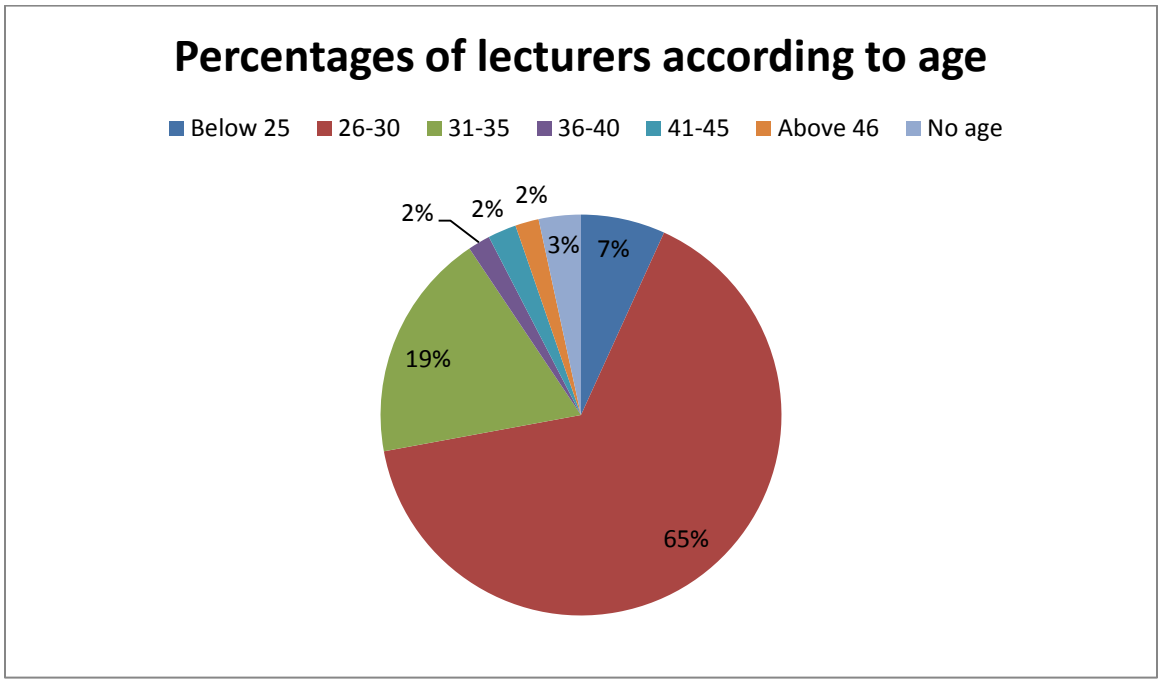


Figure 5.2. The percentages of lecturers according to age.

The demographic data (Figure 5.2) revealed a lot of similarities between the lecturers. In terms of age, 6.8% were below 25, 68.3% were between 26-30 years old, 18.5% were between 31-35 years old, 1.8% were between 36-40 years old and 2.3% were between 41-45 years old. Only 1.9 % of the lecturers were above 46 years old and about 3.4% did not state their age. The item on the duration of teaching period showed that 53.6% had been teaching about a year or less, 31.5% about two years, 8.3% about three years, 1.8% about four years. Only 4.8% had been teaching more than five years. These figures show that the majority of the IT lecturers were young, just graduated from universities, and only had between one to two years of teaching experience (85.1%).

It was also found that 96.7% were Malays, 0.9% were Chinese, 1.4% were Indians, and 0.9% were from the indigenous group. Consequently, 99% of the respondents indicated that they used Bahasa Malaysia as their first language and 75.4% of the respondents indicated that they used English as their second language and 1.9% as a third language. Nevertheless, as the questionnaires were available in Bahasa Malaysia and English, it is interesting to note which questionnaire the lecturers chose to answer. It was found that 38.4% or 81 of the lecturers preferred to use English when answering the questionnaire while the others (61.6% or 130) used Bahasa Malaysia. This indicates that some of the lecturers had no problems using English at work even though it was not their mother tongue and they were not forced to use it.

97% of the lecturers graduated from universities in Malaysia. A small number of them went to overseas either for their bachelor or further studies. 1.9% did not state their education background and 0.5% graduated as diploma holders from polytechnics. In terms of learning IT through English when they studied it at the universities, 51.8% chose the affirmative answer while 43.2 % gave negative response. However, when asked for how many years they had studied it through English, many respondents did not give any feedback. Only 20.4% of the respondents said that they had attended pre-service training on how to teach IT through English and 78.7% said that they did not receive any pre-service training. About 0.9% did not give any response. Nevertheless, 43.2% of them said that they received in-service training to teach IT through English while 50.9% said that they did not receive in-service training, and 0.9% did not give any response. From the statistics shown in this section, it can be safely assumed that, the reason for not being able to attend the in-service training for about half of the group might be due to the fact that many of them were very new in the teaching profession, and were yet to be sent

for training.

In conclusion, the statistics showed that the participants were quite homogenous in terms of their age, race, academic background, and their language use. The differences lie in the way they experienced learning IT through English, and the amount of pre-service or in-service training they received. These areas need further investigation, as undoubtedly, they will affect the way the lecturers teach IT in class. The following sub-sections will discuss the constructs as laid out in the questionnaire : Attitudes and Motivation, Learning Strategies and Teaching Strategies.

5.4 Attitudes and Motivation

The study of the attitudes of the lecturers at polytechnics and community colleges in Malaysia towards the policy of teaching Technical subjects through English has not been widely researched yet as it has only been implemented since 2008. Therefore, it was vital for this study to investigate the attitudes and motivation levels of the targeted lecturers in this study. Section B contains the data where the four-point Likert Scale ranges from Strongly Disagree marked as '1' and Strongly Agree marked as '4'. They were aimed at finding out the lecturers' attitudes towards teaching through English and their motivation to implement the policy. Generally, the respondents portrayed positive attitudes towards the policy for teaching content subjects through English where 80% of the respondents believed that Technical subjects should be taught through English. 96.7% of the respondents wished for better communicative skills in English, 94.7% of

the respondents aimed to develop their abilities to teach IT through English, and 79.4% of the respondents did not think that teaching IT through English had a negative effect on motivation. The overall attitude and motivation levels of the majority of lecturers indicated that the policy of teaching Technical subjects through English has the potential to thrive despite the challenges.

In the survey, some of the findings revealed the language anxiety of the lecturers. 95.2% of the respondents believed that teaching should focus more on the content, which was taught using specific register, than on the English language. This belief is consistent with the principles of CLIL. Coyle (2006) suggested that it is through the teaching of the content which is delivered in the target language that the students would be able to develop the proficiency of the language. 85.7% of the respondents also believed that English language corpus to teach IT was different from that used in the English language class. This calls for English language training for specific content to be given to content subject lecturers instead of the general English language training for all content subject lecturers as currently being practised.

In this study, the data from Section B were used for selecting the participants for the observation phase. Therefore, Factor Analysis was employed in order to reduce and group the items from a number of variables into reasonable constructs that hung together and hence, could be used to describe the participants (Leech, Barrett, & Morgan, 2008; Pallant, 2007).

In this section, the factorability of the 30 variables was examined to determine the lecturers' attitudes and motivation levels. Principle component analysis was used as the

extraction method and Oblimin with Kaiser Normalization as the rotation method. Based on the structure matrix, the items congregated into six factors. The internal consistency for each of the variables was examined using Cronbach's alpha in order to check whether the items correlate with each other. Item B15 (The implementation of the policy is problematic due to the teacher factor) and item B16 (The implementation is problematic due to the student factor) appear to be in different factors because B15 demonstrates that the lecturers have situational anxiety (Factor 2) whereas B16 demontrates that the lecturers have language anxiety (Factor 4). Item B13 (Currently, the implementation of this policy is satisfactory) and item B14 (Currently, the implementation of this policy is ineffective) appear to be in different factors because B13 demonstrates that the lecturers have transformative motivation (Factor 6) whereas item B14 demontrates that the lecturers have language anxiety (Factor 4). Item B15 was taken out while item B28 was reversed to increase the factor loading. Leech (2008) suggested that a scale that has .60 alpha indicated minimally adequate internal consistency reliability, .70 alpha indicated reasonable internal consistency reliability, and .80 indicated good reliability.

The factors were labeled based on the literature on attitudes and motivation mainly by Dörnyei (1994) , Tremblay and Gardner (1995), Gardner (1997), Dörnyei and Schmidt (2001) and Csizer and Dörnyei (2005). Anxiety, for instance, refers to negative emotions which might include anxiety in studying a second or foreign language such as English, or anxiety due to situational obstacles and challenges (Tremblay and Gardner, 1995). More information on attitudes and motivation can be obtained from Chapter Two, on the literature review.

Table 5.1.

Structure for the Lecturers' Motivation and Attitudes: Item No., Item Wording, Factor Loading, and Cronbach's Alpha

Item No	Item Wording	Factor Loading	Cronbach's Alpha
Factor 1	**Dismissive Reaction Towards the Policy**		0.758
B11	The policy should be abolished.	.759	
B19	By learning content subjects through English, the national language is jeopardised	.755	
B2	Having to teach IT through English affects my motivation negatively.	.678	
B27	When Malaysian citizens are equipped with English, the Malaysian unique identity will diminish.	.657	
B28	(Reversed) My goal is to develop my abilities to enable me to teach IT through English.	-.615	
B21	Learning this way makes our level of patriotism diminishes.	.604	
B6	Teaching through English is time consuming.	.488	
B9	The English language corpus we need to teach IT is often different from that used in the English language class.	.487	
Factor 2	**Situational Anxiety**		0.633
B24	By learning content subjects through English, the knowledge gap between rural and urban students will become wider	.805	
B15	(Taken out) The implementation is problematic due to the teacher factor.	.748	
B20	Learning this way also makes us become westernized.	.518	
B17	The implementation is problematic due to the nature of the subjects taught.	.489	
B22	By learning content subjects through English, the unity between various ethnic groups is at stake.	.472	
Factor 3	**Intrinsic Motivation**		0.575
B5	I need to be proficient in English in order to advance in my professional development and career.	.788	
B8	I often wish I could communicate better in English.	.726	
B12	The policy should be revised and improved.	..693	
Factor 4	**Language Anxiety**		0.588
B16	The implementation is problematic due to the student factor.	-.710	
B14	Currently, the implementation of this policy is ineffective.	-.582	

Item No	Item Wording	Factor Loading	Cronbach's Alpha
B18	The implementation is problematic due to …...(please state)	-.545	
B7	Teaching should focus more on the content than on English.	-.471	
Factor 5	**Extrinsic Motivation**		0.699
B4 (i)	I receive external motivation, encouragement and support to teach IT through English from : i. My superiors	.663	
B4 (ii)	I receive external motivation, encouragement and support to teach IT through English from : ii. My colleagues	.633	
B4 (iii)	I receive external motivation, encouragement and support to teach IT through English from : iii. The ministry	.703	
B3	I receive adequate training for my professional development with regards to the teaching of IT through English.	.601	
Factor 6	**Transformative Motivation**		0.738
B25	When Malaysian citizens are equipped with English, we will be more prepared to compete in the global market.	-.775	
B26	When Malaysian citizens are equipped with English, the economy of our country will become more prosperous.	-.739	
B10	The policy that requires the teaching and learning of Mathematics, Science and Technical subjects through English at polytechnics and community colleges should remain as it is.	-.689	
B13	Currently, the implementation of this policy is satisfactory.	-.686	
B1	I believe Technical subjects should be taught through English to support a brighter future for the students.	-.640	
B23	By learning content subjects through English, the students will master an international language.	-.630	

From the table, it was found that Factor 3 and 4 had alphas that were below 0.6 which indicated insufficient reliability coefficients. For Factor 4, it can be deduced that the reasons for the low alphas were likely because the items were not related to each other and that there were very few of them. For Factor 3, the reason for the low alpha was due to the small number of items. Dörnyei (2007) pointed out that alpha results were affected by the internal consistency of the items and the number of items that made up the scale. He suggested that, "it is easier to achieve appropriate internal consistency with 20 items than with three" (Dörnyei, Z., 2007, p. 206). Based on the results and the reasons, further analysis was pursued.

One-Way Anova was then performed, and the results showed that there was a significant effect of the lecturers' experience or lack of experience in learning IT through English on their dismissive motivation levels, F (1, 209) = 10.947, $p < .001$; there was a significant effect of the lecturers' experience or lack of experience in learning IT through English on their transformative motivation levels, F (1, 209) = 13.111, $p < .001$; and there was a significant effect of the lecturers' experience or lack of experience in learning IT through English on their extrinsic motivation levels, F (1, 209) = 6.942, $p < .01$. There was also a significant effect of the lecturers' experience or lack of experience in pre-service training to teach IT through English on their transformative motivation levels, F (1, 207) = 16.317, $p < .001$; and there was a significant effect of the lecturers' experience or lack of experience in pre-service training to teach IT through English on the lecturers' strategies to learn English, F (1, 206) = 7.807, $p < .01$. Lastly, there was a significant effect of the lecturers' experience or lack of experience in in-service training to teach IT through English on their transformative motivation levels, F (1, 207) = 12.073, $p < .001$.

From the findings, the lecturers were classified according to their motivation levels and their feedbacks on the strategies they used to teach IT through English. The lecturers who gave poor feedback on their attitudes, motivation levels and their practice in teaching IT through English were omitted from the selection of participants for the observation. Only the lecturers who showed positive attitudes, motivation levels and practice in teaching IT through English were chosen in order to observe and gather as many effective teaching strategies as possible from the observation phase. The lecturers who met the criteria were identified, and contacted to discuss the data collection methods for the next phase. Many lecturers, however, were not willing to participate due to various reasons. In order to increase the number of participants for the qualitative data, the respondents who participated in the pilot study for the survey were also asked whether they were willing to participate in the observation phase. After much persuasion, seven lecturers agreed to video-record their teaching sessions. The following details display the participating lecturers based on the criteria for selection:

Table 5.2.

The Criteria for Selecting the Lecturers for Observation

Teacher	Intrinsic Motivation	Extrinsic Motivation	Transformative Motivation	Teaching Strategies
A	= 4	> 3	> 3.15	> 3.18
B	< 3	> 3	> 3.15	> 3.18
C	< 3	> 3	> 3.15	> 2.5
D	= 4	> 3	< 3	> 3.18
E	> 3	< 3	> 3	> 3
F	> 3	< 3	> 3	> 3.18
G	= 4	> 3	> 3.15	> 3

The data collected during the observation phase are discussed further in the next chapter which covers the presentation and analysis of the observation.

5.5 Strategies to Upgrade English

Sections C, D and E mainly consisted of the data that were rank ordered in terms of the frequency of the activities. There were four levels, 'Never', 'Rare', 'Often', and 'Always'. The distance of time between the categories was not exactly equal and depended on the respondents' discretion. Leech, Barret, and Morgan (2008) suggested to label the data that have only three or four values that are ordered and not normally distributed as ordinal variables. As such, they should not be analysed and presented using means and standard deviations as usually used for continuous or interval/continuous data because if the data were not normally distributed, "means and standard deviations may not give meaningful answers" (Leech et al., 2008, p. 19). However, it is quite normal to find ordinal data presented using means (Bryman, 2004). Bryman (2004) added that ordinal variables are best presented in bar chart or pie chart. Taking these into considerations, the ordinal data in these sections will be presented in percentages and illustration unless when mean is required to show the inclination of the choices the lecturers made.

Section C was dedicated to asking questions on the lecturers' learning strategies in order to upgrade their English language proficiency levels. This section relates to the previous chapter on attitudes and motivation, as these aspects are also required to learn the second language. Nunan (1999, pp. 232-3) refers to motivation as "…the combination of effort plus desire to achieve the goal of learning the language plus favorable attitudes toward learning the language".

Language learning strategies are, "the mental and communicative processes that learners deploy to learn a second language" (D. Nunan, 1999, p. 55).

The Cronbach's alpha level for the reliability analysis of this section was .792, which indicated satisfactory requirement for the internal consistency level. It was found that a number of the lecturers did spend time on the activities that could improve their English language. However, it was not as frequent as it should be in order to give enough practice. For instance, 66.5% of them rarely spoke or conversed in English, and only 29.2% reported to speak and conversed in English regularly. The same went for writing reports and notes in English (57.1% for 'rarely' and, 32.4% for 'often' and 6.7% for 'always'). For English language input such as reading English books, articles and magazines in English, listening to English music and news, and watching English programmes on TV, more lecturers reported higher involvement (band three, and four). For instance, 57.6% indicated high frequency for reading, 60.5% for listening and 82.4% for watching English TV programmes.

About 45.5% of the lecturers reported that they enhanced their English through in-service training. This information co-relates very well with the information they had given on whether they had received in-service training in the demographic section where 43.2% of them gave affirmative answers. Most of the lecturers also claimed to be responsible for their own learning. When asked if, 'I take responsibility for my own learning', 58.1% indicated 'often', and 25.7% indicated 'always'. A cross check with the activities that require conscious learning reveals that only 50% of the lecturers enhanced their English through off-line self-access learning materials such as workbooks, digital disks and videos. 56.9% of the lecturers rarely sought feedbacks on

their performance in English' and 4.8% indicated 'never' used this strategy before. In terms of their own self initiatives in learning English, only 20.5% indicated that they had used online study packages, and 86.2% believed that they enhanced their English through incidental learning such as watching the TV, listening to the radio and talking to people in English.

In spite of that, a higher percentage did reflect on the English language that they had used (49% for often and 7.6% for always respectively). Nevertheless, 61.7% of the lecturers did not seek feedback on their performance. The reason for these might be due to the fact that most of the lecturers thought that the environment did not allow them to practice English well. 60% of them claimed that the environment was not conducive for them to speak in English.

A graphic that illustrates a detailed description of the lecturers' strategies to upgrade their English can be observed in Figure 5.3.

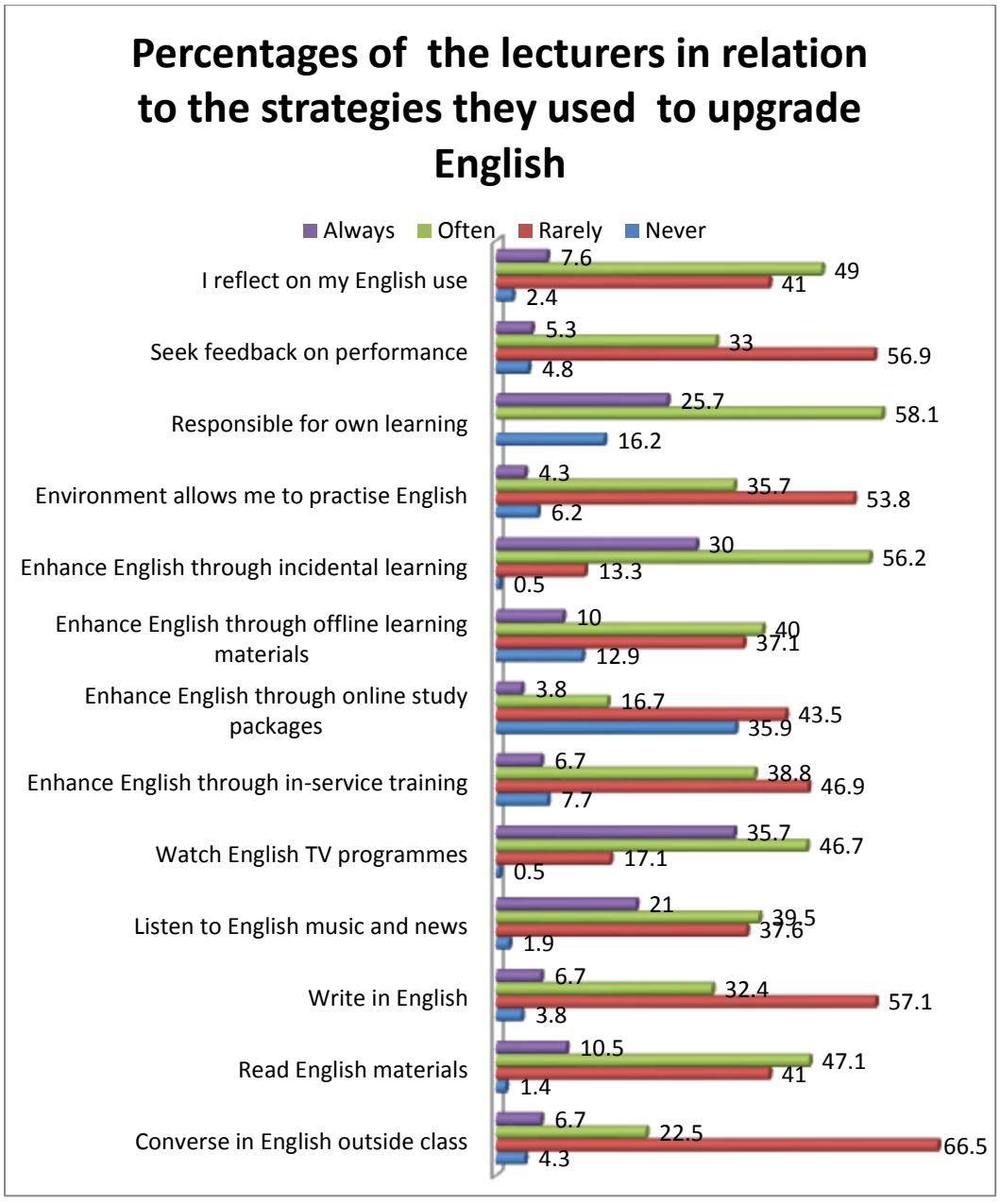


Figure 5.3. The percentages of the lecturers in relation to their strategies they used to upgrade English.

Based on these results, it can be concluded that the majority of the lecturers had the awareness to improve their English language proficiency levels, but many of them preferred to

learn the language passively and subconsciously. Based on the types of activities that the lecturers were engaged in, apparently, many of them did not actively apply any strategies to upgrade their English. According to Nunan (1999, p. 57) "…effective language learners use strategies more frequently, and use greater variety of strategies, than students who were designated as less effective". Besides that, the lack of conducive environment to induce the motivation to learn English seemed to be the reason that hindered the lecturers from being more rigorous in practising and learning English.

5.6 Teaching Strategies

This section will combine the findings gathered from Section D and E in the questionnaire. The Cronbach's alpha levels for the reliability analysis of both sections indicated good internal consistency with Section D at 0.872 while the Cronbach's alpha level for Section E was at 0.861. Section D was dedicated to the questions related to the strategies the lecturers used to teach IT though English. These strategies were gathered from other studies which researched the pedagogies on teaching content subjects through English (Pandian & Ramiah; Pandian & Ramiah; Probyn, 2005; Yahaya et al., 2009). These studies were carried out in Malaysia and South Africa where a lot of similarities could be gathered. The CLIL teaching strategies that are more developed and advanced such as those being practised in Europe were not highlighted thoroughly in this survey because these lecturers did not have any training in CLIL teaching in the first place. Section E was about the environment surrounding the teaching and learning processes which involved the students and the tasks that they were required to accomplish during the lessons.

The first few questions in Section D asked about how much the lecturers used English while carrying out specific tasks in class. The findings show the types of language/es (i.e. using only English, a mixture of English and BM or translation) used by the lecturers when giving instructions, advice, explanation and conducting introduction/conclusion sessions. From the findings, a deduction can be made to indicate that for certain functions of language, the lecturers would prefer to use certain types of language. In order to focus more on the delivery of the IT subjects, a table is drawn. Table 1 shows the frequency of the lecturers in using English during

the instruction. The frequency scales range from 'Never' (N), 'Rarely' (R), 'Often' (O) and 'Always' (A). In this table, the prominent percentages are highlighted for discussion. The table shows the comparison in the number of lecturers in percentages (N=211) who used only English, code-mixing or code-switching, or translation for certain purposes in class.

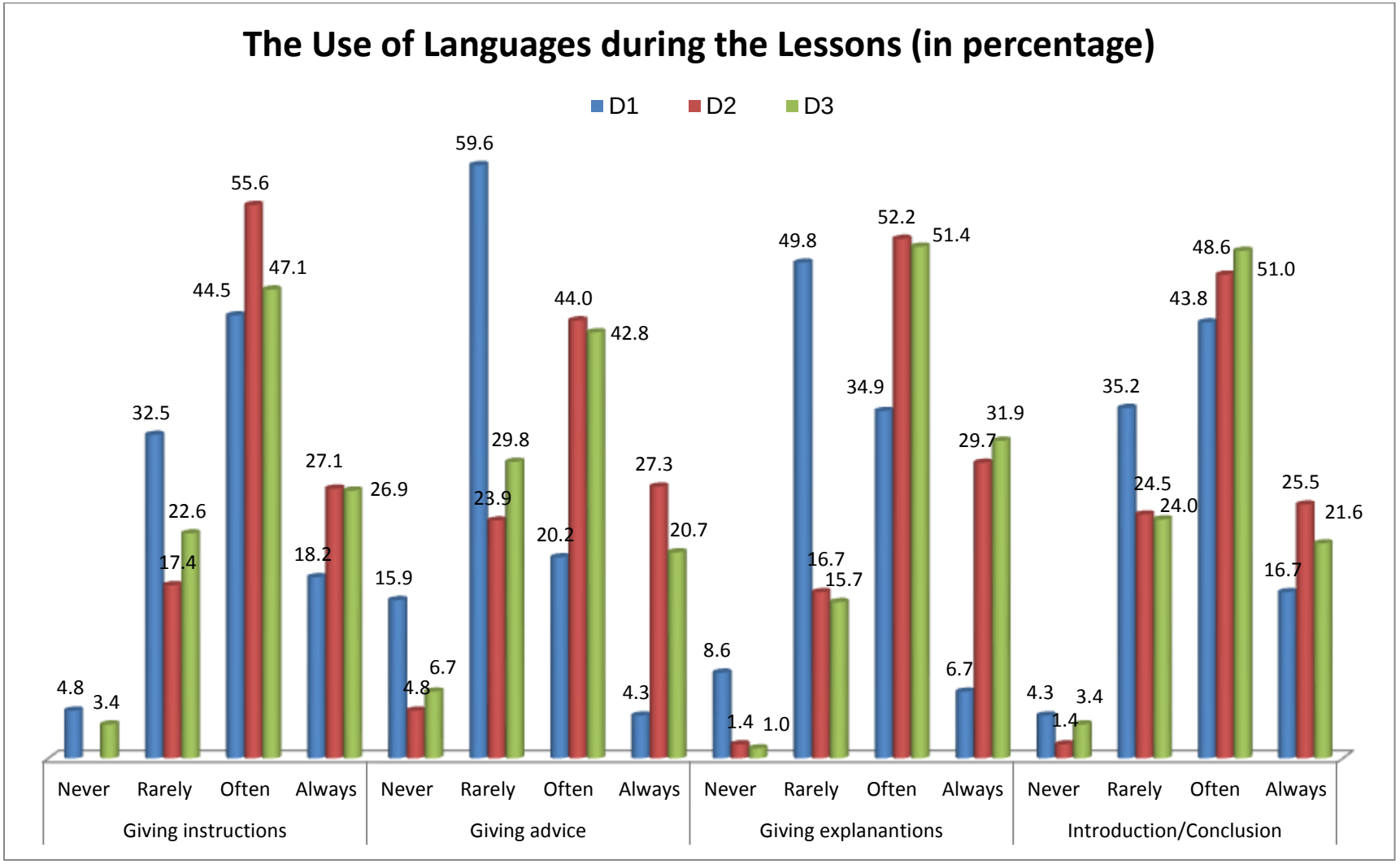
Table 5.3. and Figure 5.4. show the findings gathered from Section D presented in both table and bar graph. In the table, N refers to 'Never', R refers to 'Rarely', O refers to 'Often', and A refers to 'Always'. In the bar graph, 'I use ONLY English in these situations' refers to item D1, 'I mix English and Bahasa Malaysia in these situations' refers to item D2, and 'I translate English and Bahasa Malaysia in these situations' refers to item D3.

Table 5.3

Frequency of using Bahasa Malaysia and/or English

Functions	**Instruction**				**Advice**				**Explanation**				**Introduction/Conclusion**			
Frequency (%)	*N*	*R*	*O*	*A*	*N*	*R*	*O*	*A*	*N*	*R*	*O*	*A*	*N*	*R*	*O*	*A*
D1	4.8	32.5	44.5	18.2	15.9	59.6	20.2	4.3	8.6	49.8	34.9	6.7	4.3	35.2	43.8	16.7
D2	0.0	17.4	55.6	27.1	4.8	23.9	44.0	7.3	1.4	16.7	52.2	29.7	1.4	24.5	48.6	25.5
D3	3.4	22.6	47.1	26.9	6.7	29.8	42.8	20.7	1.0	15.7	51.4	31.9	3.4	24.0	51.0	21.6

Figure 5.4. The percentages of the language use during the lessons.



Based on Table 5.4. and Figure 5.4., 59.6% of the respondents rarely used English for giving advice. 62.7% of the respondents either ‘Often’ or ‘Always’ preferred to use only English for giving instruction and 60.5% for introduction or conclusion. More respondents had been using a mixture of Bahasa Malaysia and English or the translation of English to Bahasa Malaysia in all categories. When combining the figures for ‘Often’ (O) and ‘Always’ (A), it was found that 82.7% often or always used a mixture of Bahasa Malaysia and English for giving instruction, 81.9% for giving explanation, 73.1% for the introduction or conclusion and 71.3% for giving advice. When combining the figures for ‘O’ and ‘A’, it was also found that 83.3% often or always used the translation of English to Bahasa Malaysia for giving explanation, 74.0% for giving instruction, 72.6% for the introduction and conclusion, and 63.5% for giving advice. In short, the results show that the respondents have been using more mixture of languages and translation than only English in all domains during their IT (IT) classes. This is consistent with the findings of the previous research and work that showed a lot of code-switching were used in CLIL instructions (K. Sridhar, 1996; M. Probyn, 2001; M. J. Probyn, 2005). Further findings can be observed in the following bar graphs as shown in Figure 5.5.

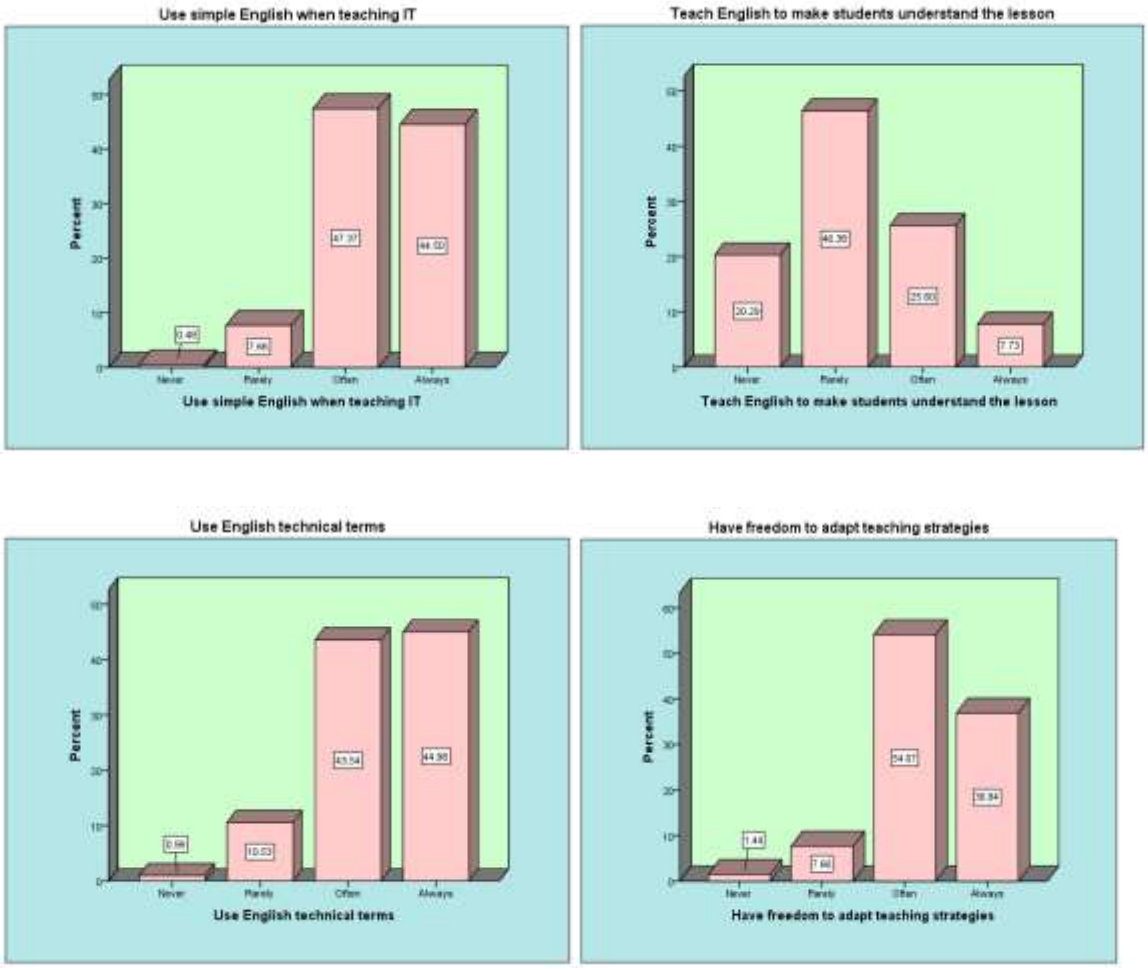


Figure 5.5. Bar graphs showing the percentages of activities.

Based on the bar graphs, a total of 91.87% of the lecturers simplified their English to teach IT, however, most of them (66.67%) did not directly teach English so that the students could understand the session. A total of 88.5% of the respondents used English Technical terms, while only 11.49% did not or rarely used English Technical terms.

In order to teach IT through English, the lecturers believed that they needed to upgrade their English especially in speaking (94.7%), writing (76.9%), reading (62.0%), and listening

(60.1%). Indirectly however, the improvement in their English could already be observed when they started teaching IT through English. They reported that they had improved their skills in English where 80.1% reported to show improvement in their speaking abilities, 60.7% in writing, 47.8% in reading and 45.1% in listening. This goes to show that by actually speaking in the target language during the CLIL instruction in the classrooms, the lecturers were practising their own English language skills. This is consistent with the strategies suggested for learning a second language (Brown, 2000), and hence, by doing so, the lecturers showed some progress in their own English language competence as well as confidence in using the language verbally.

In order to increase intelligibility, the respondents had obviously adapted a few strategies to teach IT through English. 54.1% of the lecturers said that they were often given the freedom to adapt their teaching strategies to suit the students' needs and 36.8% said they were always given the freedom. In addition to that, to aid the delivery of the content through English, the lecturers used instructional materials such as textbooks, workbooks, software, and task sheets when the activities involved reading (72.8%), writing (68.9%), speaking (52.9%) and listening (48.1%). More lecturers (51.9%) believed that the materials do not have to be designed to allow listening activities than those (48.1%) who believed that the listening activities were as important. In the next question, the lecturers were asked whether the reasons for simplifying English were because the students were weak in certain language skills or if these reasons were not applicable to their students (meaning the students were not weak or they were weak in areas besides the language skills). In the findings, the lecturers responded that they resorted to using simple English because they believed that their students were weak in speaking (81.7%), writing (70.7%), reading (66.7%) and listening (59.1%). The lecturers also used a lot of translation for the

activities that involved speaking (74%), reading (54.3%) and writing (52.4%). Lesser number of lecturers (47.1%) believed that translation was needed for listening activities. Figure 5.6. illustrates the data.

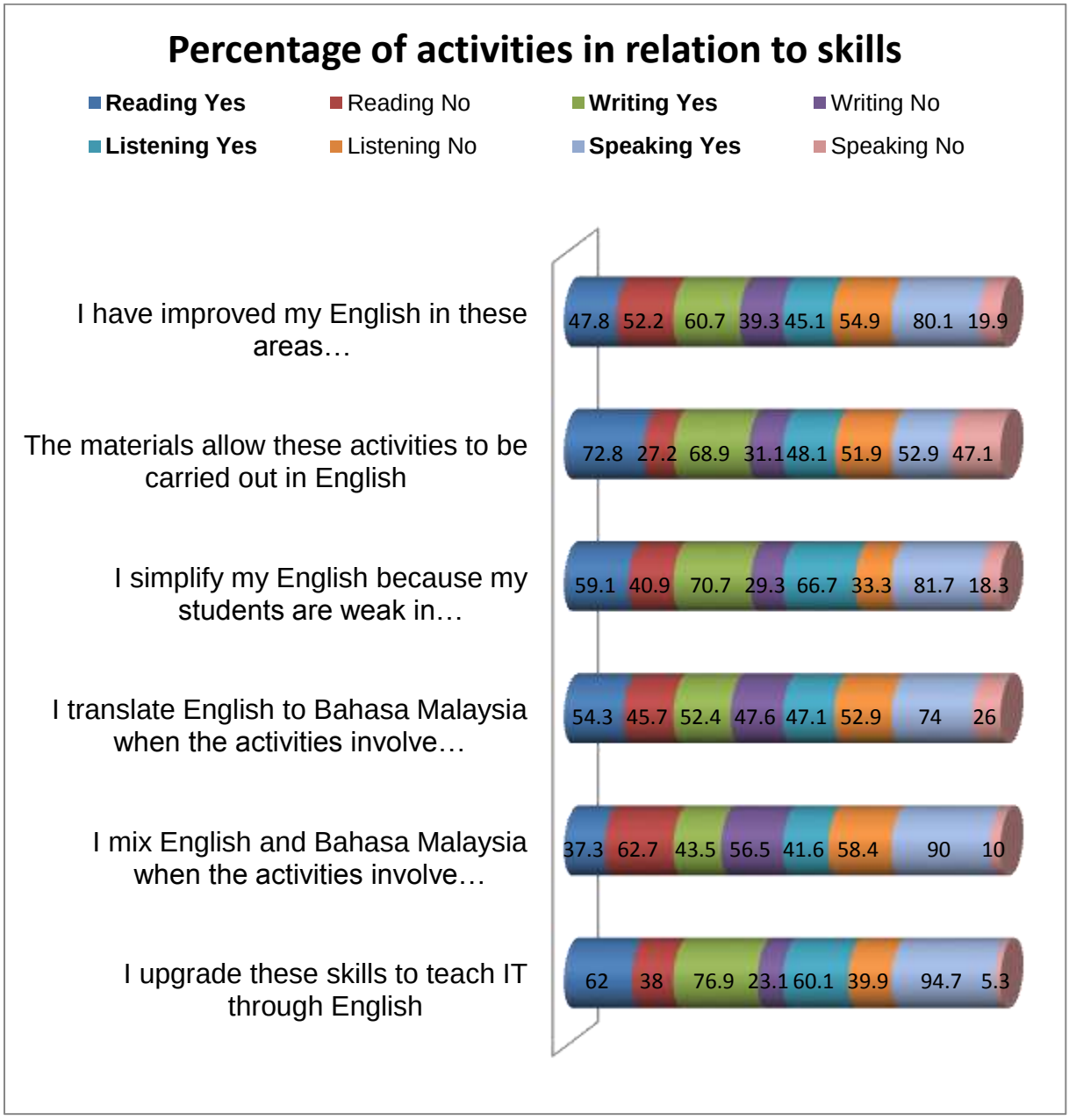


Figure 5.6. Percentages of activities in relation to skills.

In addition to that, the lecturers also found that they needed to mix English and Malay especially when the activities involved speaking (90.0%). For the other skills there was far less need to do this, as is shown by the comparison of the figures for the other three skills, writing (43.5%), listening (41.6%), and reading (37.3%). Similarly the lecturers found that they needed to translate English to Malay when the activities involved speaking (74.0%), but less so for reading (54.3%), writing (52.4 %), and listening (47.1%). 89.2% (44.7% for 'Often' and 44.5% for 'Always') of the respondents used simple English to teach IT. The lecturers found that they needed to simplify their English because their students were weak more generally than in the above examples, again especially in speaking (81.7%), but also in writing (70.7%), listening (66.7%), and reading (59.1%). These figures show that many of the lecturers thought that their students had poor English language skills especially in speaking.

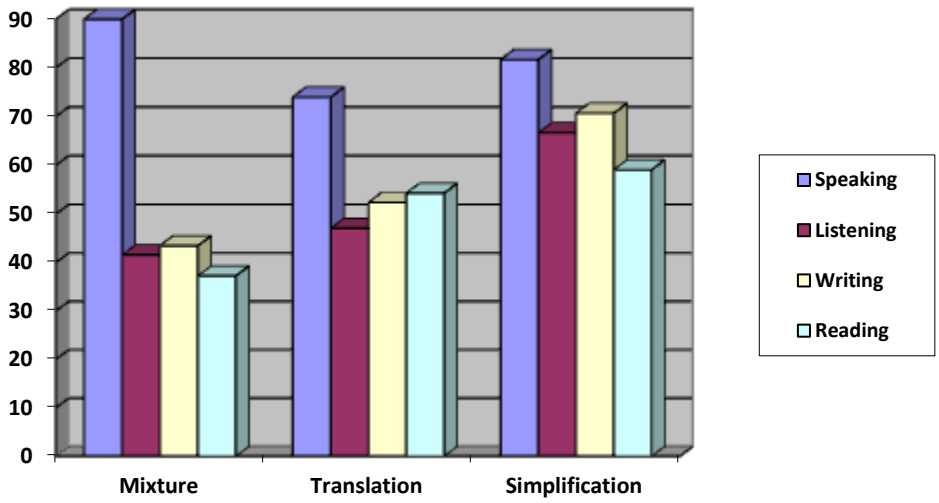


Figure 5.7. The lecturers' language use in relation to the four language skills.

Figure 5.7 displays the lecturers' language use in relation to the skills. Generally, most classroom activities presuppose the speaking ability of the lecturers and the students in order to be successfully carried out. The lecturers mixed the languages and had to translate from English to Bahasa Malaysia mostly during speaking as compared to when the activities involved other skills. Higher percentages of the lecturers also tended to simplify the English language because they believed that their students were weak in speaking. This is an interesting finding in that the language used by the lecturers in speech or writing first needed to be processed. The requirement to use speech as a response is in some ways a separate demand after comprehension and so this part of the questionnaire has perhaps captured some illogical views. This could be researched further in the future.

For the types of activities in the classroom, the scales were also in frequency. To indicate which band was picked the most, the mean was calculated. The ranges of the bands were from 1 for 'Never', 2 for 'Rare', 3 for 'Often' and 4 for 'Always'. The means for all the items showed that they were between 2.41 and 3.20. The activities required the students to listen to the content being delivered in English (mean= 2.69), to speak in English (mean= 2.45), to read in English (mean= 2.79) and to write in English (mean= 2.55). The reason for the moderate mean is likely because the lecturers used a lot of code-mixing and switching as shown in Figure 5.7. Figure 5.8. confirms the findings where it shows that the students were regularly required to read and listen more as compared to speak and write.

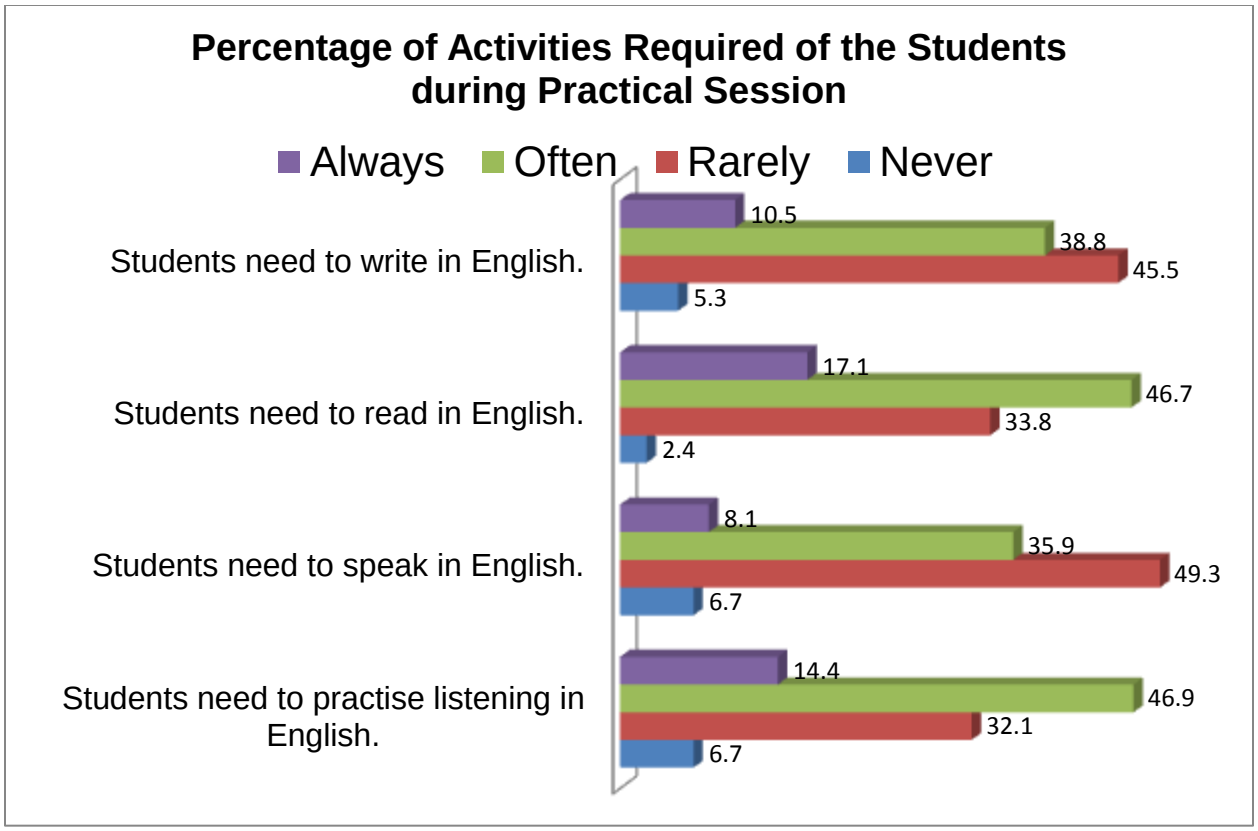


Figure 5.8. The percentages of the activitites required of the students during the practical sessions.

It could be safely assumed that Bahasa Malaysia was used as much as English during the delivery which reduced the amount of English exposed to the students. On the other hand, the reason why the lecturers resorted to using Bahasa Malaysia instead of English was because they believed that the students found it difficult when the activities involved having to speak and discuss in English (mean= 3.02), to understand English verbal communications (mean = 2.93), to write in English (mean = 2.89), and to read in English mean= 2.73). Figure 5.8. shows the percentage of lecturers who believed the students faced difficulties during the practical session.

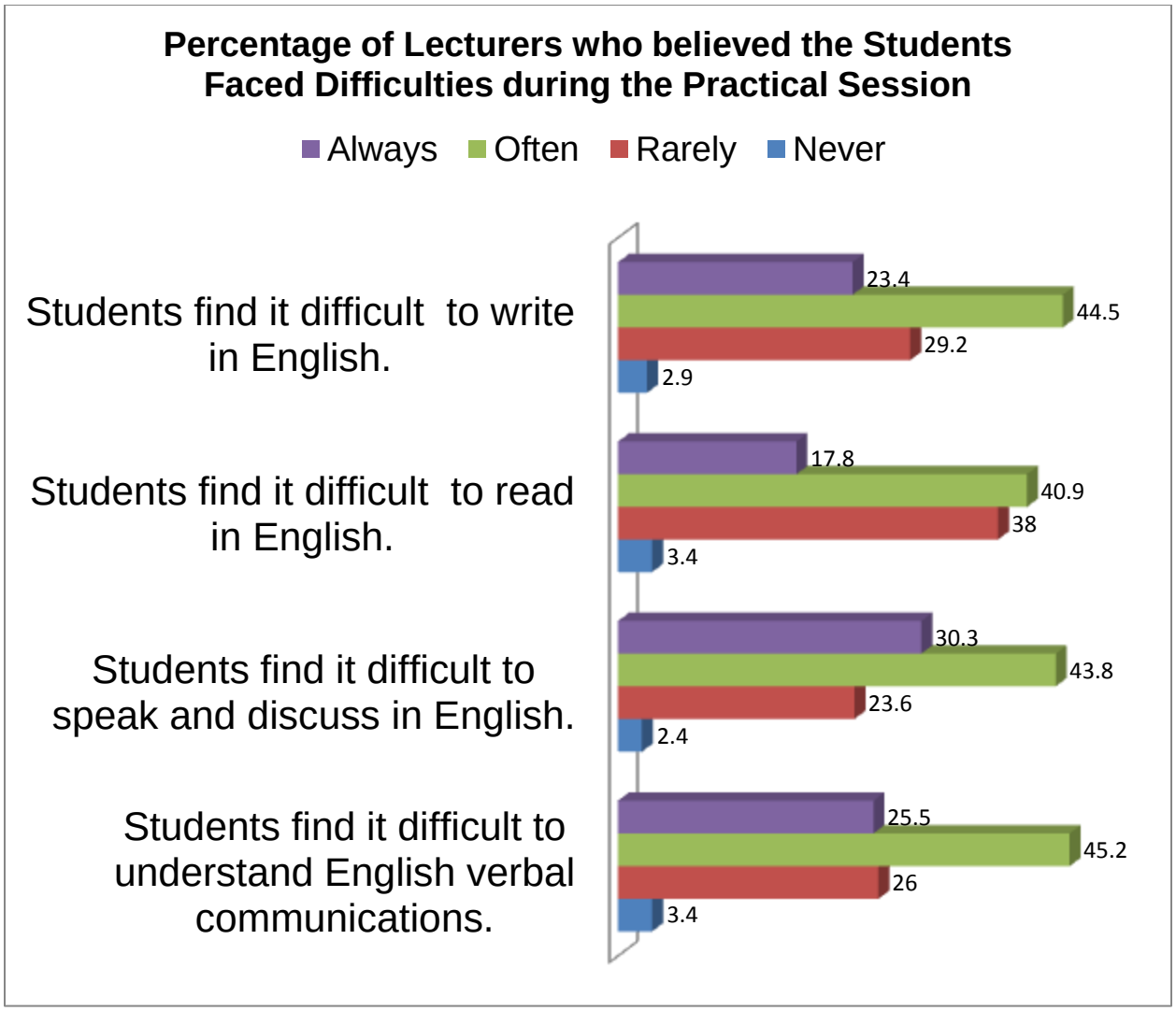


Figure 5.9. The percentages of the lecturers who believed the students faced difficulties.

In percentages, as shown in Figure 5.9., it is reported by the lecturers that 74.1% of them found that the students had difficulties the most when the activities involved speaking and 70.7% of them found that the students had difficulties in listening. As compared to speaking, writing and listening, a higher percentage of the lecturers thought the reading activity is the least difficult for the students which accounts for 41.4%.

The types of activities required of the students were various. Figure 5.10., illustrates how frequently certain activities were carried out with the students where the number of lecturers who carried out the activities were presented in percentages. The bar chart reveals that many lecturers claimed that they varied the activities with the students, and more than 73.9% of them integrated the content with English. 87.5% of the lecturers regularly required the students to share the information followed by 86.6% of the lecturers who regularly required the students to work in small groups.

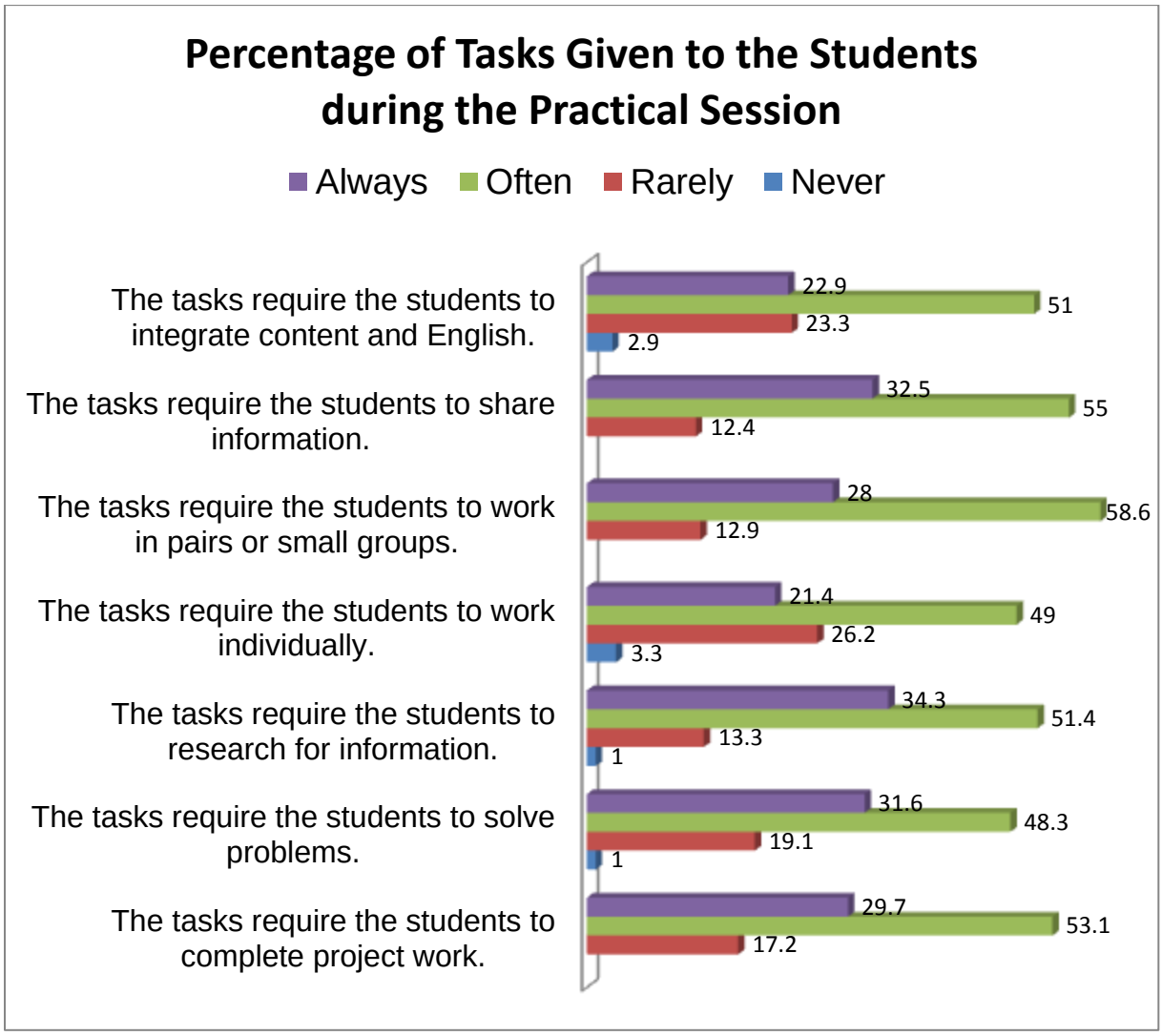


Figure 5.10. Bar graph showing the tasks the students have to carry out.

When asked if 'learning IT through English affects their students motivation positively', 50.3% of them believed that it was rarely the case. The reason for this was most probably due to the difficulties the students experienced when carrying out the activities in English as indicated in the earlier questions. Nevertheless, 31.41% of the lecturers found that it happened quite often whereas 9.4% of the lecturers claimed that the students were always motivated when learning IT through English.

5.7 Conclusion

In order to teach IT through English, the survey has found that the lecturers at polytechnics and community colleges dealt with the policy that required them to teach IT through English with positive attitudes albeit with a lot of restraints. About half of the lecturers in the study were not trained to teach IT through English, be it in the pre-service training or in the in-service training. The environment seemed not very encouraging as well as many of them reported not being able to practise their English especially verbal communication outside the classroom. Many of them did not participate in any conscious learning to upgrade their English due to the lack of support and relied on incidental learning. In terms of having to teach IT through English, the lecturers who were non-native speakers of English had to deal with different registers and the problems of intelligibility arose so the lecturers had to resort to using Bahasa Malaysia by code-switching and mixing as well as translation. As a result, they developed certain strategies that could ensure smooth delivery of content. Nevertheless, this could be sacrificing English language usage to a certain extent. In order to investigate this matter further, a closer look at how the lecturers delivered their lessons in the classroom was gathered from the observation phase.

Indeed, the lecturers at both polytechnics and community colleges should be equipped not only with considerable knowledge on the pedagogy of IT teaching, but also the subject matter in English language. In addition to that, they had to increase their verbal repertoire in order to make appropriate language choices suitable to the contexts. With perseverance and commitment, both the lecturers and the students who possess positive attitudes towards the policy of teaching content subjects through English will continue to upgrade, not only their SMK but also their English language competence.

CHAPTER SIX: PRESENTATION AND ANALYSIS OF OBSERVATION

6.1 Introduction

In this study, there were two sequential phases of data collections where a quantitative data collection, which was in the form of a survey on all IT lecturers in polytechnics and community colleges in Malaysia, was followed by a qualitative data collection which involved a series of observations on the lecturers teaching IT lessons through English. The analysis of the quantitative data was presented in the previous chapter. The aim of this chapter is to present the results of the qualitative data.

The qualitative data were gathered from the observation sessions carried out on the teachers teaching IT subjects at polytechnics and community colleges in Malaysia. The teaching sessions were video recorded. The verbal communications were transcribed (For example, refer to Appendix I). The non-verbal communications were analysed by referring to the video clips and recording the multi modes used during the observation sessions in a table such as the one provided in Appendix J.

The lecturers were a purposive sample group, chosen based on the results of their feedbacks in the questionnaires, and their willingness to participate in the research. Only the lecturers who showed a certain level of positive attitudes, motivation and who had started to

implement the policy were chosen to participate as the study intended to capture the strategies the lecturers used to deliver their lessons through English (Refer to Chapter Five for details). From the survey, the feedback of the lecturers on four variables (Intrinsic Motivation, Extrinsic Motivation, Transformative Motivation and Teaching Strategies) was examined.

High scores indicated positive attitudes, motivation and use of strategies in teaching IT through English (Refer to Chapter Five). All the filters for Intrinsic Motivation, Extrinsic Motivation, and Transformative Motivation were set above 3 except for Teaching Strategies which had to be lowered to 2.5 in order to include Teacher C. Previous research reports showed that positive attitudes and motivation led to positive actions (Z. n. Dörnyei & Schmidt, 2001; Tremblay, 1995). Based on the questionnaire, all the participating lecturers had to show that they were implementing the policy in order to qualify for the observation sessions because the main purpose of the observation was to observe how the lecturers taught their subjects through English.

Based on these criteria, seven lecturers were observed and labeled as Teachers A, B, C, D, E, F and G. Three teachers (A, D and G) scored high on all the variables. The other lecturers scored high on three variables including Teaching Strategies. Each lecturer was observed between two and four times in order to gauge the patterns of their teaching styles. A total of 36 hours of observation sessions were recorded on an audio visual memory card.

In the beginning of this chapter, the profiles of the participants will be presented in the form of their backgrounds, their previous experiences and their hopes and aspirations in relation to the teaching and learning of IT and English language. Knowledge about the participants will provide windows to understanding why certain actions were taken by these lecturers. In addition to that, the nature of the lessons will be discussed in terms of the topics taught, the objectives of the lessons and the curriculum as well as the language of instruction. Following that, the pedagogy of the lessons will be analysed based on the pedagogic models presented by Jewitt (2006), and CLIL principles. Next, the teacher's personality and characteristics which contribute substantially to effective teaching will be discussed. Finally, before concluding this chapter, an analysis on Modal Density and Modal Configuration as proposed by Norris (2009) for Multimodal Interaction Approach and the extent to which multimodality can provide a scaffolding for CLIL will be presented. For this, the Modified CLIL Observation Protocol as attached in Appendix M will be used as a reference.

6.2 The Profile of Participants

This section provides the information about the participants in the observation sessions. The information was gathered from field notes, informal meetings over lunches, online communication and phone calls, as well as from the qualitative sections of the questionnaire. Setting up the sample was difficult as some lecturers were reluctant to participate in formally recorded interviews and the research ethics procedures had to be carefully explained in order to reassure them. Interviews were semi-structured and the tone was informal. Basically, of the seven participants, two were males and five were females. Based on the survey, the population of

IT lecturers at polytechnics and community colleges in Malaysia consists of 23.4% males and 71.6% females. This is equivalent to the ratio of 1 male to every 3 females. Therefore, an appropriate proportion within the participants was drawn from the population. The participants are named Teachers A through G in order to safeguard their identities. The names of the institutions, where they were teaching during the observation sessions, are also not disclosed to protect the organizations.

Teacher A was a female lecturer in her late 20s. She had a Higher National Diploma in IT from a university in Kuala Lumpur 2002. Then, she furthered her study in the same university and graduated with a bachelor degree in Networking in 2006. During her four years at the university, she learned all the IT subjects through English. She found it easy to learn IT through English because the reference books and terms were in English. All the presentations, assignments and the medium of communication at the university were in English. It was not long after that that she started her career as a lecturer at the community college, and at that time, teaching IT through English was newly implemented.

She said she was confident with her English when she started working, even though she did not have any training before or while in the service. At first, she used a lot of English especially when it came to terminology. However, gradually, the environment including the students restrained her from using much English. She said the students were weak in academic subjects including English, and it was difficult for them to understand the lessons when the lesson was carried out through English. So, she used two languages most of the time, English, mainly for Technical terms which were already known in English. She used both languages for

quizzes, tests and assignments. She said one of the problems of implementing the policy of teaching IT through English was that the teaching modules were still in Bahasa Malaysia. Nevertheless, she believed the students should be exposed to English while learning the content subjects as they would have to use some English when they started working. She also believed that the students could understand the teaching if properly conducted using simple English. Based on the results of the survey, she scored highly on all the four constructs set for the selection of the observation participants.

Teacher B was also a female lecturer in her late 20s. She graduated from a polytechnic with a certificate and diploma in IT in 2002. Then, she pursued her bachelor degree in Computer Science, specializing in Networking and graduated from a Technical University in 2005. She got her Master in Education in 2008. She had never experienced learning IT through English nor had she any training for teaching IT through English before or while in the service. The reason for the lack of in-service training was because she had just entered the teaching profession about a year before. She believed that the teaching and learning of IT through English should be carried out in stages so that both lecturers, and students would be able to embrace teaching and learning through English properly. She scored high on Extrinsic Motivation, Transformative Motivation and Teaching Strategies, but low on Intrinsic Motivation.

Teacher C was a female lecturer in early 30s. She had a Certificate and Diploma in IT from a college in 1994 and 1996 respectively. Then, in 1999, she got a degree in Computer Science, specifically in database and programme development of IT from a university in Sabah. She said, at this university, the medium of instruction was in English because the majority of the

lecturers were from Saudi Arabia and Jordan. Therefore, she learned her subjects through English for about 3 years.

She said, in her ten years of teaching experience, she used mostly Bahasa Malaysia and some English. She also translated a lot of English to Bahasa Malaysia when requested by her students. She said she had some in-service and pre-service training in teaching IT through English. She believed that the implementation of the policy was problematic because of the peoples' attitudes. She also thought that everybody should learn English in order to compete in the globalization era. She scored highly on Extrinsic Motivation and Transformative Motivation. Her score on Teaching Strategies was just above 2.5 which fell under the moderate range of practice.

Teacher D was a female lecturer about 25 years of age. She graduated with a bachelor degree in Computer Science specializing in Information Engineering from a Science university in 2004. She did not learn IT through English and did not attend any training to teach IT through English during pre- or in-service. At the time of the observation, she only had about two years of teaching experience. She thought her English could be categorized as average or below. However, she said her two years of working experience before becoming a lecturer and the experience of having to teach IT through English since 2007 improved her ability to teach IT through English. Besides, she always referred to you-tube and articles in English to update her knowledge on website development. She scored highly on Intrinsic Motivation, Extrinsic Motivation and teaching Strategies. She was the only lecturer observed who taught her lessons mostly in English.

Teacher E was a female lecturer in her mid-twenties. At the time of the observation, she only had had about half a year of teaching experience. Previously, she graduated from a university in Terengganu with a bachelor in IT specifically Software Engineering. When she was at school in Kuala Lumpur, she believed that her English was not good and she had very low confidence in English classes. At the time, she felt the all Malay students in the class restrained her from practising her English. She only became motivated to learn and speak English when she went to the Matriculation Centre where students came from different races. It built her confidence to speak in English, even though it was broken and mixed between English and Bahasa Malaysia, because her friends gave her support and they helped each other. Besides that, during the first year at matrix, Science and Mathematics were taught through English. Therefore, in order to pass well in the examination and MUET (Malaysian University English Test), she worked hard to master English starting from the simple and fun activities like listening to songs and watching English movies without subtitles. She said, her English improved significantly when she entered the university.

Even though she only had a brief experience in teaching IT through English, she felt that it was very challenging because the students had very low English language proficiency. Therefore, they did not have the courage or skills to communicate in English. This made it very difficult for them because IT is a discipline that uses a lot of English for terminology and work related industries. However, she believed that even though the students found it hard to understand the terminology at first, gradually, they could improve their English language mastery. In time, communication using simple English would not pose any problems for them. In the survey, she scored high on Intrinsic Motivation, Transformative Motivation and Teaching

Strategies.

Teacher F was a male lecturer below 30 years of age. He studied for a Diploma in Computer Science from 1999 to 2003 at a college in Sabah. Then he furthered his studies at a university in Malaysia and obtained a Bachelor in Computer Science in Software Engineering. He learnt his lessons in English while he was at the university and had no problems with English especially because most of the books were in English.

After graduation, his first job required him to do a lot of presentations in English in order to sell software products. He did not have any problems with that, but his trouble was to communicate with and understand his Iranian project manager and his Filipino office mate who spoke in English but with their own accents. Due to the fact that he used English most of the time, he became confident and improved his English language proficiency level. When he changed his job to be an IT lecturer, he found he could not communicate with his students in English because they were weak in English and could not understand him. When he tried to teach fully in English in order to implement the policy for teaching Technical subjects through English, he would not get any response from the students. Therefore, after six months later, he mixed English and Bahasa Malaysia including translating from English to Bahasa Malaysia for the students to understand the lessons. For the Technical terms, he preferred to use English rather than Bahasa Malaysia because the Bahasa Malaysia translation for some of the words such as 'Tetikus' for 'Mouse' sounded strange to him. Therefore, he asked the students to memorize the English terms. He thought the students should use the English terms because these would be the terms they will use when they leave education and work in the industry. He said, even the shops

used English terms for items like ‘Mouse’ or ‘Joystick’ instead of ‘Tetikus’ or ‘Kayu ria’ respectively. In the survey, he scored high on Intrinsic Motivation, Transformative Motivation and Teaching Strategies.

Teacher G was a male lecturer below 35 years old. He learnt content subjects though English while he was studying for a bachelor Degree in IT at the Centre for Preparatory Studies, in Shah Alam between 1996 and 1997. Then, he continued his first degree at the a university in Malaysia from 1998 to 2002 in the same field. He obtained his diploma in education from a Teacher Training Institute in 2004.

His career in teaching started since 2003. The first institution he went to was Johor Bharu Polytechnic. There, he was attached to the Computer Unit in Science and Mathematics Department, and taught IT Computer Application, Operational System and Applied Mathematics. All modules were in Bahasa Malaysia. He only experienced learning English formally when there was an English for Communication course held by the Department of General Studies. In 2007, he moved to a community college in Selangor and worked under the IT Unit. He said the teaching and learning environment in the community college was similar to the polytechnics he went to. When the policy for teaching Technical subjects through English started to be implemented in 2008, he used English for the terms and texts that were already in English. For the texts, he had to orally translate them in order for the students to understand the lesson. He believed that teaching through English should be implemented and he complimented MARA University of Technology and International Islamic University for using English as the language of instruction at their universities. From the survey, he scored high on all the variables.

Based on the profiles of the observation participants, a few similarities and differences can be gathered. Based on the findings of the survey as presented in Chapter Five, it was found that three of the lecturers scored 4.0 on Intrinsic Motivation, four lecturers scored at least 3.0 on Extrinsic Motivation, four lecturers scored at least 3.15 on Transformative Motivation and six scored at least 3.0 on teaching strategies which meant that they claimed to use English regularly, whether a mixture of English and Bahasa Malaysia, translation of English to Bahasa Malaysia or just using English for the terminology. Three of the participants (one male and two females) scored high on all the variables. All the lecturers expressed positive attitudes towards using English to teach the students and believed that the students needed to have the proficiency in English. However, when faced with the challenges such as weak students and discouraging environments, many of them resorted to ways of making the students understand the content first before working on the language. That included using Bahasa Malaysia to explain the content. On the other hand, this would result in less use of English to scaffold the content. A good CLIL practice should generally integrate the content and the vehicular language (Coyle et al., 2010).

Six out of seven of the lecturers graduated from a public higher institution in Malaysia where Bahasa Malaysia dominated the medium of instruction. Only one of them (Teacher A) graduated from a private higher institution which uses a lot of English as the medium of instruction. Based on her scores in the survey, she had shown to have high motivation and high practice. This fact, however, could not be used as a factor to predict whether she would persevere in using English to teach IT because the result showed that she only used English mostly for terminology and she mixed and code-switched English and Bahasa Malaysia most of the time during the instruction. Phipps and Borg (2009) found that teachers' beliefs and practices are not

always in alignment with each other due to students' expectations and preferences, and classroom management concerns. On the other hand, the lecturer who used English almost throughout her lessons (Teacher D) graduated from a public university in Malaysia where she did not learn IT subjects through English. The reasons for her persistence in using English to teach IT were evident in the survey where she showed high motivation and positive attitude, as well as initiatives in studying online materials in English. Besides that, her feedback on the attitudes and motivation scales in the questionnaire showed that her intrinsic and extrinsic motivation scales were on the high side.

The majority of the lecturers were young and their ages range from 25 to 35 years old and that also indicated that they only had a few years of teaching experience. This also mirrors the real population of IT lecturers at polytechnics and community colleges where 90.6% of them were below 35 years old. The most senior among them was Teacher C with ten years of teaching experience, and Teacher G with seven years of teaching experience. Due to the limited number of years in service and also because of the absence of CLIL training in the staff development and teacher training, none of them had any appropriate training to teach content subjects through English such as described for CLIL models in Mehisto, Marsh, and Frigols (2008) and Coyle, Hood and Marsh (2010), or SIOP (Structured Instruction Observation Protocol) in Echivarria, Vgot and Short (2008) or Fortune (2000).

The training provided by the Department of Polytechnic and Community College Education (DPCCE) since 27th March 2004 in order to implement the policy of teaching Technical subjects through English is called English Enhancement Programme (EEP). In this

programme, a few strategies have been carried out (Lee, 2011):

> -Translation of curriculum from Malay language to English Language.
> -Producing new curriculum in English by phases.
> -Proficiency training of teaching staff by phases beginning from 2006
> -Preparation and procurement of teaching and learning modules and multimedia materials in English.
>
> Accessed from: http://jppkk.gov.my/v2/?p=program&s=eep (6th October 2011)

The training was carried out mainly at the institutions (polytechnics and community colleges throughout Malaysia) by English language lecturers who have been trained to carry out the task. The aim of the training for the lecturers at the institutions was to increase their English language proficiency level. Even though one of the parts in the training requires the lecturers to plan and teach their own subject areas in simulated environments, the training itself was not guided by established models for teaching content subjects through another language such as CLIL, or SIOP models, and hence no reference was made to these.

In order to identify whether the lecturers' pedagogy reflects a sufficient integration of content and English, an adaptation of the CLIL observation checklist by Mehisto et al. (2008), which was originally adapted from Fortune (2000) was developed (Refer to Appendix M). However, all the teachers in the observation sessions except for Teacher D did not teach fully in English. Consequently, the checklist will not be used exhaustively to evaluate their teaching styles. On the other hand, to be fair to the participants, the study will also incorporate the framework on multimodality and best teaching practices to extract the strategies the lecturers in this study used to deliver their content subjects through English.

The following subsection will discuss the nature of the lessons by examining the topics taught, the aims, and the language of instruction in relation to multimodality.

6.3 The Nature of the Lessons

To examine the teachers' strategies in teaching IT subjects through English, it is crucial to identify the internal factors affecting the delivery of the lesson. Among the factors subsequently contributing to the way the lesson is taught are the topics, the objectives of the lesson, and the language of instruction. The topic to be taught is a major contributing factor as the topic decides the delivery of the lesson. For instance, if the topic for the day is on Navigation, and the objective is to enable the students to incorporate navigation properties in a website, the lesson should be held in a computer lab where each student can get access to a website in order to create their own navigation system within a website. Consequently, the lesson tends to be more hands-on with the teacher facilitating the students as they work on the right computer tools. During one-to-one sessions, the lecturer would have more opportunities to check the students' comprehension when he/she uses English for the medium of instruction. However, the time spent on individual students may result in longer hours and poor time management. Whether it is designed to be a theory class, hands-on class, or practical with group or individual activities, it obviously contributes to the way the teachers teach. Lastly, the language of instruction will also affect the teaching strategies used as it is a teaching mode that acts as the communication tool between the teacher and the students, the students and the materials, and the students themselves.

There are other factors that contribute to the teachers' teaching strategies, which are also of high importance, but discussed in the other chapters or subsections. There are the higher

education teaching and academic policy (discussed in Chapter Four), the teachers' attitudes and motivation (Chapter Seven), and the teachers' SMK, and PCK (subsection on the Profile of Participants in this chapter). In addition to that, the students' factors such as their academic and language abilities, their attitudes and motivation towards having to learn IT through English, and their knowledge schema of the topics taught are also vital, but they are not covered due to the limited scope of this study. In this thesis, the students' factors were discussed from the point of view of the lecturers in Chapter Seven. In short, for this subsection, the discussion on the teaching strategies will be focused on the nature of the lesson, and how multimodality is used as a scaffolding technique to improve and enhance the delivery of the lesson.

6.3.1 The Topics

Teachers deliver their lessons according to the topics to be taught, among others. The teaching materials play important roles when the content is taught through another language. The use of different modes to accompany the spoken communication especially when it is in another language is crucial as the content is delivered to the students via more than one source. Each mode impacts on each student differently but in multimodal instruction, the modes combine to make the lesson more meaningful to more students. Bearne (2009, p. 184) reported that,

> …there are differential balances between modes and the media through which each text-maker communicates meaning that work towards the rhetorical force of each text. It is in the complementary of the modes that the meaning resides and so it is possible, through a common frame, to show how integrated texts work to communicate meaning.

This goes to show that the more modes used in the delivery of the lesson, the better the students will understand the content.

During the observation sessions, all the teachers had made use of either one or more of these teaching aids: the whiteboard, the handouts and the computer applications projected on the white screen or at the students' work stations. In spite of being the subjects under IT Course, some lessons were not carried out in a computer lab or using the computers. For instance, Teacher E conducted her two-hour lessons on 'Combination Circuit' and 'Simplify Combination Circuit' in a seminar room. The topics were included under the subject, Digital System, and required the students to understand the terms and formulas without any need to use the computer. She extensively used the whiteboard to explain and write the formulas to the students as well as give the students some exercises at the end of the lessons to test their understanding. In contrast, for her 'Excel Operation' classes which lasted four hours each, she opted to conduct her classes in the computer lab, and the class teaching time was spent on the students' working on their computers to complete the tasks taught to them using the computer application, while the teacher monitored their progress by moving around the class. The students' understanding was tested based on the outcome of their work at the end of the lessons.

Three out of 18 lessons were conducted in the computer lab but the teachers rarely used the computer. The computer was used as an artifact only once in a while. Instead, the whiteboard was used to draw graphics, and write notes. The teachers made a reference to these exhaustively as they spoke to explain the procedures and terms. An example of this is the class on 'Input, Output' under the subject, 'Computer Assembly'. In the one hour class, Teacher F chose to use

the whiteboard to deliver the content of the lesson as much as possible, and tested the students' understanding by asking them to answer some questions related to the topic taught. Teacher A conducted her two-hour lessons in a similar way. In the class where she taught 'Basic Computer Networking' using the authoritative and non-interactive modes, she used the notes, and the graphics on the whiteboard to illustrate her explanation and highlight the important terms as she spoke enthusiastically almost throughout the lesson. Like Teachers F and A, to supplement their lessons, the other teachers also used the course modules as reference.

Two other teachers made use of the LCD to project the content of their lessons. Teacher G used a website as a source while Teacher B used a courseware. For teaching 'Introduction to Ubuntu Linux Operating System' and 'The Pros and Cons of Using Ubuntu Linux', Teacher G used the LCD to project the website image and text on the white screen. Besides that, he also requested the students to use their computers, and the search engines in the internet to search for the equivalent Ubuntu terms for the application they normally used in Microsoft Office. Teacher B also used the same setting, but instead of using the LCD to project an image from a website, she used courseware to teach the students 'Network Fundamentals' and 'The importance of the Internet Protocol (IP)'. In addition to that, she also used the interactive courseware features for testing the students' understanding. The interactive testing feature is attractive if carried out properly as moving image is different from the conventional reading texts (Bearne, 2009). The courseware that Teacher B built and designed for a topic consisted of interactive questions in the form of multiple choice questions, cloze texts, and matching activities where individual students could log in to complete the activities. When the students had finished doing the exercises, the answers were discussed as a whole class activity with some opportunities for a few students to

come to the main computer in front of the classroom to show their friends and teacher how they had answered the questions. For the lessons by teachers B and G, besides answering the teacher's questions orally in class, the students' understanding was checked through their anwers on the computers. The way the activities were designed limited the opportunities for the students to interact and discuss with their peers. Both teachers B and G utilized these teaching tools almost throughout the lessons which were conducted in computer labs. Teacher G used the multi media information on a few websites such as Wikipedia, Linux, and a video clip for his reference tools and resources for activities to check understanding.

The other topics were taught in a way whereby the students were required not only to extensively utilize the computer application tools but also peer interaction to steer learning which was not found much in the lessons described earlier. In these classes, the students were given more rooms for peer interaction, thus creating a livelier learning environment. This could be observed in the three classes for 'Computer Application' subject taught by Teacher C. The lessons were for teaching topics, 'Spread Sheet 1', 'Spread Sheet 2' and 'Microsoft Office Project'. Even though they were also short period classes ranging from one to two hours, the topics had successfully been taught in a more interactive and dialogic manner as compared to the earlier topics discussed. Equally interactive classes were observed when 'Website User Interface 1', 'Repetition of Website User Interface 2' and 'Navigation' were taught by Teacher D. These topics were under the subject, 'Website Development'. Another subject delivered in a similar mode during the observation session was 'Visual Basic programming'. The topics, 'Selection Structure' and 'Repetition Structure' were taught by Teacher F. All the lessons by teachers D and F took two hours each. As in the previous example, Teacher F had used a non-interactive mode

for teaching 'Computer Assembly' subject, it shows that the teachers probably selected and planned the modes to use for teaching the subjects based on the nature of the topics taught rather than based on their own pedagogic preference.

It seems that the subjects, 'Computer Application', 'Website Development' and 'Visual Basic Programming' had enabled the teachers to use the computer as the main teaching aid to assist the learning of IT subjects in a more student-centred and interactive manner using more English than Bahasa Malaysia. In addition to that, the teachers' ingenuity and willingness to empower the students during the teaching and learning process was reflected in the way they allowed the students to communicate with and learn from each other to solve the problems. In the Modified CLIL Observation Protocol (Appendix M), among the CLIL teacher's aims should be to, '…create a rich learning environment (through) numerous opportunities for students to speak and write, (and) promote extended student output by promoting learning from and with peers'. As the protocol is developed based on rigorous research on the teaching and learning of content subject through an additional or vehicular language, it is proposed that the pedagogy for teaching Technical subjects at polytechnics and community colleges in Malaysia is devised towards a more dialogic and interactive manner that will harness the students' and teacher's communication skills in the target language, while keeping the content as the centre of the discussion.

Besides the classes that were already deemed interactive, the other lessons in the observation sessions could also be improved. For example, another subject whose classes could have been made more interactive was the 'Software Application' classes where the students were

required to apply their skills in operating Excel over the duration of four hours. From the record, it was observed that the individual tasks were solitary and did not allow much communication between the teacher and the students, and between the students to take place. As such, the longer hours which could have allowed the teacher to create more peer interaction activities to dwell on communication as a tool for accelerating learning, were not optimally utilized. For the other shorter classes, a restructure of the curriculum is required so that a heavy topic could be delivered in two separate lessons which would allow more interactive activities to be carried out.

In conclusion, the teachers designed their lessons according to the way they believed the topics should be taught . Ideally, to implement CLIL, equal focus should be given to both content and language (Coyle et al., 2010). Unfortunately, implementing a multi focal task is difficult for most teachers (P. Mehisto, 2008). A few factors relating to the topics are identified: the amount of time allocated, the need to apply the knowledge, and the need to use artifacts and illustrations. The duration given for the topics to be taught is given by the syllabus. So, within the time frame given, the objectives of the lesson should be covered by the teacher. For the topics that require the application of knowledge to develop their skills, the students should be given more hands-on experiences. At polytechnics and Community Colleges in Malaysia which run TVET programmes (IT Programmes included), more than 60% of the lessons should be spent on practical and hands-on activities compared to theory classes. Under the IT Course, the students need to be able to handle the computer equipment and run the applications efficiently. Besides that, some topics require the use of artifacts and illustrations to demonstrate to the students but it depends very much on the availability of the resources. In spite of the constraints, more interaction and delivery in English besides Bahasa Malaysia could be promoted provided the

teachers are willing to learn from the more established practices in the world. This move will enable the students to be familiar with English terms and expressions and it is in line with the recently launched 'Malaysia Education Blueprint 2013-2025' which states that every student should have a bilingual proficiency in Bahasa Malaysia and English (2013).

6.3.2 The Aims

The aims of the lessons are the objectives the teachers hope or are required to achieve after teaching the syllabus to the students. To ensure that they achieve their aims, teachers plan and use strategies. The students reflect their understanding of the content by being able to perform the tasks assigned to them. According to Woolfolk (1993, p. 437), 'an instructional objective...is a clear unambiguous description of your educational intentions for your students', that promotes planning, systematic organization of activities, testing and improved communication. In this study, it was found that the aims of the syllabus were towards having the students grasp the knowledge delivered, in other words, mastering the content of the lessons.

In this subsection, the aims for teaching two subjects which had allowed peer interaction are presented. For instance, for the subject, 'Website Development' the aims were to:

a) Identify the necessary elements of web page

b) Design a web page

c) Develop a web page using MS FrontPage

d) Publish a web page

In order to achieve the aims of the subject, topics such as ‘Website User Interface’ and ‘Navigation’ were taught. The specific objectives for the two lessons were:

1. For ‘Website User Interface’,

- Start FrontPage
- Create web pages using Wizards and Template
- Adding and formatting texts in web pages
- Adding, formatting and displaying Marquee
- Choosing themes in Front Page 'Putting files into web pages’
- Changing web page properties

2. For ‘navigation’,

- Insert, use text hyperlink and e-mail link
- Constructing navigational structure and navigation bar
- Creating bookmarks and image maps

From the records, it was observed that Teacher D demonstrated how to perform the tasks on her own computer and project the interface of her computer on the white screen in front so that the students who were equipped with a computer each could follow her step by step. For these lessons, the objectives were considered achieved when the finished product of the students’ websites met the criteria set by the lesson plans, and syllabus.

Some of the lecturers also carried out whole class assessment and peer tutoring before each student worked on the tasks individually. In the observed lessons, Teacher C demonstrated the procedures and taught the students how to use Microsoft Excel before calling up volunteers or names to perform similar tasks. The way the tasks were performed in front and the answers would be evaluated by the teacher and his/her peers. When a wrong procedure was detected, the teacher prompted the student in order for him/her to arrive at the correct answer. If the student was unable to proceed, other students were encouraged to help. That would initiate two ways communication in a mixture of English and Bahasa Malaysia between the teacher and the students and among the students. The aims for the subject 'Computer Application,' taught during the observation sessions, were to:

a) Identify and describe computer software, hardware and use of windows operating system

b) Use word processing applications to produce documents

c) Apply spreadsheet software to manage large amount of data

d) Present findings using presentation application software

e) Conduct communication electronically using internet

In order to achieve these, the topics such as 'Microsoft Office Project', 'Spread Sheet 1' and 'Spread Sheet 2' were developed around the activities which required the students to use and practise the application tools.

From these examples, the aims were not only behavioral, they revolved around the content. This means the students had to understand the content and the instructions before being able to carry out the tasks successfully. The targets were specific to the skills the students had to

acquire through doing hands-on activities. They also did not state any aims to achieve English language skills. Therefore, it was understandable when some of the teachers observed invested limited or no effort on scaffolding the activities around the vehicular language that would allow the students to practise using English. It seems that the aims set at the national levels are obscure and the strategies to implement the teaching of content subjects through English at the institutional levels were unclear and vague because the linguistic aims were not stated at all (*Polytechnics Prospectus 2007*, 2007).

A document published by the Department of Polytechnic Education outlined its duties towards producing human capital amongst whose competences is English language, and stated this was actually initiated on strongly rooted foundations to achieve the government's national aspirations (*Agenda Pembangunan Modal Insan*, 2007). Consequently, its strategy to achieve that is by training the lecturers to assist them in their English language proficiency (ibid). This is echoed by its website which states (Lee, 2011),

> …the formation of English Enhancement Programme (EEP) in 2008 was done as a rebranding exercise to replace PPSMTI (2006 – 2007). This was done in accordance with the Higher Education National Strategic Plan (PSPTN) and Human Capital Development as stated below.
> a) Higher Education National Strategic Plan *(HENSP – 2nd thrust):*
> i) 'Improving the quality of teaching and learning'
> Periodic improvement of curriculum, interactive learning methods and broaden the usage of English language.
> b) Human Capital Development (*Pembangunan Modal Insan):*
> i) 'Mastering English language and other main languages in the world along with the ability to explore more knowledge.'
>
> Accessed from : http://jppkk.gov.my/v2/?p=program&s=eep
>
> (12 November 2011)

On the other hand, the observation sessions carried out at the institutions in 2010 found that the curriculum and many of the modules were not translated into English yet, despite the intention to improve the curriculum by integrating English and the content at the central level since 2008. Since the linguistic aims were not clearly stated in the curriculum at the institutional level, the teachers did not give enough focus on improving the students' linguistic abilities in the vehicular language pertaining to the specific content knowledge areas. Consequently, this will inhibit the process of nurturing the students who have English language competence in the knowledge disciplines.

From the lessons observed, it was found that, the teachers carried out the teaching strategies that were mostly aimed at delivering the content and the IT skills. Fewer activities had also incorporated a scaffold that was targeted towards initiating richer interactions and communication that could stimulate the students' cognitive skills. According to Coyle, Hood and Marsh (2010, pp. 29),

> ..for content learning to be effective learning, students must be cognitively engaged. CLIL teachers will have to consider how to actively involve learners to enable them to think through and articulate their own learning. This in turn implies that learners need to be made aware of their own learning through developing metacognitive skills such as 'learning to learn'. Interactive classrooms are typified by group work, student questioning and problem solving.

This suggests that teachers need to invest some of the teaching time to allow the students to talk about what they are learning in order for the students to learn the content at all. Especially when the discussion and interactions about the content of the lesson are carried out in the target language, the students will subconsciously learn to use appropriate words, sentence structure and pronunciation in order for their messages to get across. In this manner, the students will master

both, the content and the target language. The next subsection will discuss the language of instruction further.

6.3.3 The Language of Instruction

In Europe, CLIL is popular as an educational programme in European Commission because it gears towards promoting multilingualism. According to Wiesemes (2009, p. 41), "CLIL is currently seen as a means for achieving 'mother tongue +2' multiligualism". In Malaysia, some citizens especially the Malays are still struggling with bilingualism even though the use of English has become more pervasive and critical (Ujang, 2009). Since English has achieved its status as the global language and is predicted to be so for many years to come (Crystal, 2003), it impacts on the higher education where the demand for English to be integrated in the higher education system in Malaysia becomes indispensable. It is reported by World Bank that in improving the quality of Malaysian universities, they "..should be prepared to respond to the growing preference for English language instruction, which would allow both students and faculty to become competitive at the international level" (*Malaysia and the Knowledge Economy*, 2007, p. xviii). According to Coyle, Hood and Marsh (2010, p. 24), "CLIL can act as a professional development catalyst within faculties of a higher education institution" not only because it impinges on the integration of content and English, but also because it taps on "the cognitive demands of tertiary programmes".

There are two types of instruction through the vehicular language: extensive and partial models (Coyle et al., 2010). Extensive instruction, which leads to high mastery of content and

language proficiency, requires 50 percent or more of the curriculum be taught through the vehicular language whereas partial instruction means more limited instruction through another language (ibid). Using this as the benchmark, the Malaysian higher education policy seems to aim towards the extensive instruction model as it stated that all Technical subjects including Science and Mathematics were to be taught through another language. For the polytechnic and community college education, a report by their department in the Ministry of Higher Education on the readiness of the lecturers to implement the policy stated that,

> "English language as the medium of instruction for Science, Mathematics and Technical subjects in polytechnics and community colleges is pertinent in the face of rapid globalization of economies and increasing competition between countries for foreign direct investment and its consequence on the workforce (Division, 2008).

This statement reflects the aspirations of the Department at the ministry level to aim towards the teaching and learning of Technical subjects including Science and to be carried out through English at polytechnics and community colleges in order for their students to be globally competitive. Unfortunately, at the institutional level, the aims in the curriculum stated for the instruction at the polytechnics and community colleges were not strategically laid out. The omission of linguistic aims in the curriculum, did not help to encourage the teachers to use English to deliver the content. In addition to that, some of the teachers who had the motivation to carry out the policy were still groping for the best strategies for integrating content and English to teach their subjects.

As language is the main mode of instruction, it becomes an instrument for multimodality and contributes to the differences in the teachers' teaching strategies. This subsection will

examine how the language of instruction is used as the strategy to teach the students by the teachers in the observation sessions. As noted in the Literature Review Chapter, code-mixing and code-switching are common in a CLIL context (Coyle et al., 2010; M. Probyn, 2001). During the observation sessions, all the teachers were found to mix the languages at a certain point or throughout the lessons. Except for Teacher D, all the other teachers used Bahasa Malaysia more than English. The teachers used a lot of code-mixing and code-switching in their spoken language to signify that they were attempting to carry out the policy within the constraints of the students, and the resources available to them.

The use of code-mixing and code-switching could be observed from the short extract below captured from Teacher A's classroom observation session:

> Teacher: medium penghantaran…. dan protokol rangkaian…ok…how the data is sent. Kita dah belajar sikitkan… meh kita review semula. Medium penghantaran is divide into 2 types. What is it?
>
> Class: Guided and unguided.
>
> Teacher: Guided and unguided. Guided is terpandu. Unguided is tidak dipandu. Guided means that there is something physical type …ok, fizikal yg boleh kita nampak..apa yg digunakan untuk menghantar data. For example cable. Saya dah cakapkan…Guided ni satu sahaja. Cable..and cable is …are divide into three types, utp….. three types… utp …lagi… tengok nota, tengok nota. Twisted pair- utp and stp- twisted pair which is utp and stp. And then, coaxial cable…
>
> Class: fiber optic

In this extract, a code-mixed sentence is, "…kita review semula" (*we review back*). Bahasa Malaysia and English were also code-switched in these examples, " medium penghantaran (*delivery medium*)…. dan protokol rangkaian (*and network protocol*)…ok…how the data is sent"

and “Guided means that there is something physical type …ok, fizikal yg boleh kita nampak..apa yg digunakan untuk menghantar data (*the physics which we could see..and were used for transporting data)* ” .

The teacher also translated the terms sometimes to ensure the students understood her lesson, for instance, “Guided is terpandu. Unguided is tidak dipandu.” The main language for instruction was Bahasa Malaysia, such as, “Kita dah belajar sikitkan (*we have learned a little bit, right*),” and “tengok nota, tengok nota *(look at notes, look at notes*)”. On the other hand, English was used for giving explanation using simple English such as, “Guided means that there is something physical type” and “Twisted pair- utp and stp- twisted pair which is utp and stp”.

For this class which consisted of nineteen second semester (about 19 years old) students of mixed racial group (who were also fluent Bahasa Malaysia speakers), the teacher did use some of the computer equipment to support her verbal English language such as referring to the cable by showing the object to the students as shown in the following picture. Her hand gestures, where she picked up the cable in front of her, raised it up and showed to the students, were acted simultaneously as she told the students what it was called in English, and when she explained about the uses and the types of cables. She said, “For example cable. Saya dah cakapkan *(I said before, right*)…Guided ni satu sahaja (*Guided has only one function*). Cable..and cable is…are divide into three types, utp….. three types… utp …lagi *(others*)…”.

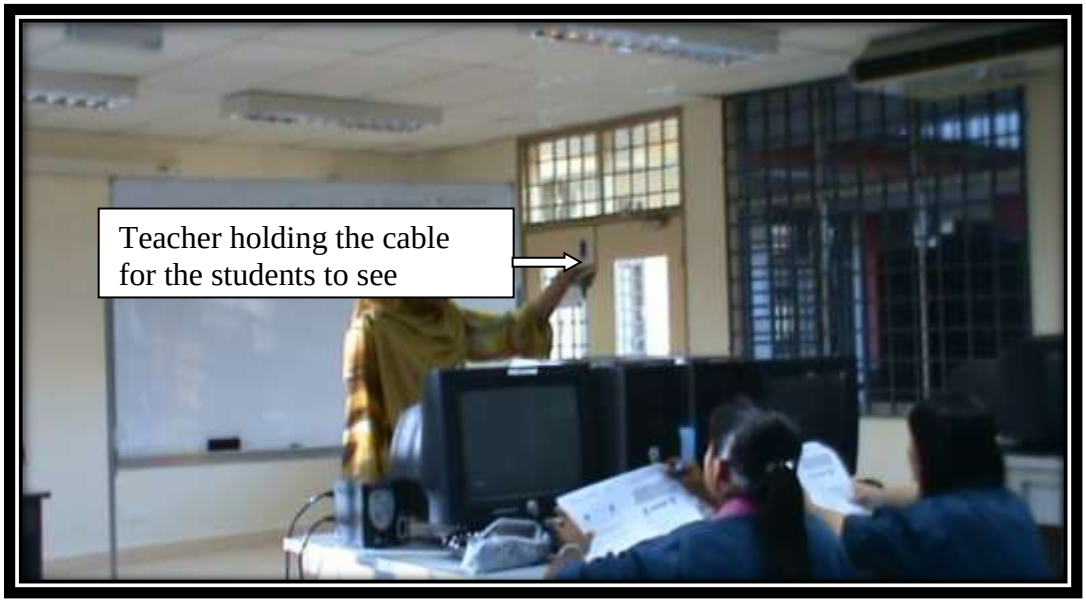


Figure 6.1. Teacher holds an object.

The choice of English language used for the computer on screen text, printed materials, writings as well as diagrams on the whiteboard contribute to the students learning the target language albeit subconsciously. As such, the use of Bahasa Malaysia in the existing subject modules can be counterproductive to CLIL learning environment. Many examples of the use of English in the teaching aids could be drawn from the observation sessions. For instance, the interactive features in the courseware used to teach, 'Internet Service Provider', were provided to stimulate the students' recall of the lessons taught in the same class earlier. The purpose of the questions was to test the students' understanding and memory of the content of the lesson. At the same time the questions were laid out on the screen, the teacher translated or explained them to the students in length. Another teacher literally read and translated the text in the website to the students. This helped them to relate the English language words with the words in Bahasa Malaysia.

The students' ability to answer the questions correctly when asked about the input indicated that they understood the lessons, even though the original language of instruction was in English. Through various means such as translation and simplification, the content became comprehensible to the students. The majority of the classes carried out some sort of assessment of the students' understanding of the lessons through the question and answer sessions. The problem with that was it limited the opportunities for the students to test their content and language output orally.

During the courseware question and answer session, the students in the class did not have the chance to use the computer applications themselves to answer the questions posted by the computer courseware. Instead, the teacher was the one who asked the questions verbally to the students as a whole group, while controlling the mouse. When the students answered the questions, the teacher clicked or dragged the answer options from her computer station and the movement could be observed on the white screen. As the courseware was designed to check the answers, they could immediately identify if the answers were correct or incorrect. When they got any answers wrong, the teacher would be prompted by the students to choose different answers. The process continued until all the exercises were completed in the same manner.

In terms of the students' responses to the teachers, there were differences and similarities in relation to the language of instruction used. For classes that were taught mostly through Bahasa Malaysia, the students' responses were also in Bahasa Malaysia; unless the students regurgitated the teachers' English wording, especially the terms which were already in English. An example of this could be drawn from the extract following earlier conversation in this

subsection.

Teacher: and fiber optic.ok?….ok. What is the difference between utp and stp? Utp, Is stands for what? Mala..utp - unshielded twisted pair…stp? Shielded twisted pair…ok,
unshielded twisted pair… Shielded twisted pair
ok, apa dia punya ciri-ciri? (*what are the characteristics*?) Unshielded, shielded? Mesti ada beza… shielded,

class: shielded mahal *(expensive*)…straight…

Teacher: unshielded use straight, no.. Mala…

Mala: unshielded, dia tanpa pembalut timah *(it is without tin)*

In this example, 'the characteristics of the Unshielded Twisted Pair and Shielded Twisted Pair Fiber Optic' were asked in Bahasa Malaysia followed by the terms 'unshielded' and 'shielded'. The two terms were in English, but the characteristics were stated in Bahasa Malaysia.

At other times, the students responded using short Bahasa Malaysia answers, even though the teacher talked in length, as in the example below:

Teacher: [face other students] OK siapa yang tak... tak dapat tangkap lagi factorise ni? *(OK, who doesn't know, doesn't understand factorise?)* Ogy OK, boleh? *(Ogy, OK, could you?)* Siapa yang... to be honest sebab sebelum I masuk lagi juah lagi juah lagi you tertinggal keretapi lagi ah lagi susahlah *(Who, to be honest because before I go further, the further you will be left behind, the more difficult it would be).* Nanti keluar soalan, keluar soalan macam tu you tak suka nak buat, lebih baik, lebih baik discuss sekarang sebelum you marah, you kena cancel semua ICU ah... lebih baik cerita sekarang *(The question will come out like that, you don't like to do it, better, better discuss now before you get angry, you have to cancel everything, ICU, it is better to tell now).* Siapa yang betul betul tak nampak how to factorise, put up your hand, tolong lah ah... cepat, open ni, lepas ni you tak dapat tanya dah (*Who couldn't understand factorize at all, raise your hand, please be quick, this is open, after this you cannot ask anymore).* OK first hand. OK boleh, all sure boleh OK kalau I sebut factorise ni you boleh imagine tak apa yang you kena buat? *(OK can , are you all sure when I talk about factorise, you can imagine what you have to do?)*

Students: Boleh *(Can)*

Teacher: Boleh apa? Kena buat apa? Process apa? Operation apa? *(What can you do? What do you can to do? What process? What operation?)*

Students: Bahagi *(Divide)*

On the other hand, for the classes which were held through English, many of the students' responses were also in English. Therefore, it can be safely stated, that even though the students had low academic background including English when they entered the program, it did not restrict them from communicating with the teacher in English if the medium of instruction was in English. In fact, some of the students had initiated an interaction with the teacher as shown in the example below:

Teacher: Ok, 'Hello, this is my website', the title is 'Welcome to my new site'. *(pointing to the title).* First you have to change the title. For the coding, you can see the title *(works on the computer*). Ok, you can see the title, change title to 'Welcome to my new site' *(pointing to the title).* Ok? right. You need time to practise or we move to marquee (*she pronounced as 'mɑɪku:').*

Students: Marquee.

Teacher: marquee, ya. Ok..

Student: Marquee or marku? *(This question refers to the pronunciation of the word).*

Teacher: Ok, marku or Marquee. *(The teacher sounded unsure, so she decided to accept both pronunciations as acceptable).*

In the first part of this exchange between the students and the teacher, the students were merely repeating in pronouncing the new word after the teacher. In the next half of the exchange, one student was brave enough to initiate a conversation with the teacher by asking her which pronunciation is correct. In this interaction, however, the teacher had failed to give the correct pronunciation. Alternatively, if the teacher was proactive enough, she could check for the correct

pronunciation later and correct the mistake with the students before it became fossilized error. If this situation occurred, the repeated encounter with the new term will help both the students and the teacher to memorize the term and its functions better in their long term memory.

From the observation, a few strategies could be applied in other CLIL situations whereas some others could be subjugated. First is the use of translation to explain a sentence which had earlier been presented in English. The dialogue in English was then translated into Bahasa Malaysia to enhance students' understanding. In this context, the teachers were at an advantage because they shared the same mother tongue with the students. Hence they were able to explain the English version in Bahasa Malaysia without much difficulty. In the example, English language was used when the teacher gave information related to the new knowledge or when introducing new terminology. Second, there was also extensive use of code-mixing and code-switching throughout the teacher talk in most of the classes that did not use a lot of English. Similar to the use of translation, it was found that the use of English was more prominent for terminology, and at the beginning of the classes, which coincided with introducing topics. Third, many of the sentences in English were using simple English structures and vocabulary. This strategy was used, not only by the teachers who used a mixture of both English and Bahasa Malaysia, but also by Teacher D who used mostly English. Other than the English terms, no other difficult words were used. Fourth, the students' answers or responses were either in one word or very short phrases.

6.4 The Pedagogy

In the previous sections, it was found that the lecturers' choice of pedagogy was influenced by the lecturers' perceptions of the policy, the curriculum and the education authorities, the communities' cultures and attitudes towards IT and English language. Other external factors inside the classrooms as well as those close to the teaching itself also gave substantial impacts on the design of the lessons. During the observation sessions, it could be observed that the lecturers designed their lessons based on the topics to be taught. Other factors that influenced how the lessons were taught were the objectives of the lessons, the facilities available, the students' abilities, backgrounds, attitudes and motivation, and the teacher factors also determined what went into the lessons. Obviously due to these factors, all the teaching sessions were different in their own ways, and the teachers' teaching styles or teachers' pedagogy became substantially influenced by these factors. In fact, Jewitt (2006) preferred to refer to teaching styles as design due to this reason. She stresses that,

> The notion of design makes the pedagogic purpose of the teacher a central question. As does the question of whom the teacher imagines her or students- their 'audience' to be. Both of these aspects inform the design of pedagogy along with the teacher's selection of resources from the technologies available to her or him in the classroom. These choices are themselves shaped by choices made by others: the department, the school and at times the local educational authority or government education department.
>
> (Jewitt, 2006, p. 139)

Previous studies show a shift in perspectives when the discussion revolves around the modes used in teaching and learning. The focus on language as the central form of communication in the classroom while the other modes are considered as supportive has shifted to other modes playing as important if not more dominant roles as compared to language (Jewitt,

2006). She stated that, "In the environment of new technology, people deconstruct visual symbols and click to progress and often rely on 'non-linguistic' processes of communication and decision making" (Jewitt, 2006, p. 8).

As this study concentrated on the teaching of IT subjects, the use of multiple modes to deliver the IT lessons through English will be highlighted. In teaching IT to the students as the data from this research have shown, the use of multimodal input in English and English language terms were unavoidable, and could be observed throughout the lessons, especially when the reference was made directly to the computer, the applications or the websites. Through the lens of multimodality as described by Jewitt (2006), two groups of pedagogic social relations have been identified: the 'authoritative' and 'non-interactive' and the 'dialogic' and 'interactive' pedagogies. In her research where Jewitt (2006) described two Science teachers, one was described as using one of the traditional pedagogic models while the other was using the methods described as dialogic interactive pedagogic models.

6.4.1 The Traditional Pedagogic Models

The traditional pedagogic models feature the elements that are consistent with teacher-centred teaching. The teacher was described as 'authoritative' and 'non-interactive', formally dressed to match with his formal talk and "…maintained his role as expert…and the students as non-experts" (Jewitt, 2006, p. 141). In this sense, the setting was tailored according to this specification where the teacher was position in front of the students, who were seated in perfectly arranged rows facing the teacher. The teacher dominated the communication, and the mode

became ‘monologue’. The students could talk or ask questions within the limits defined by the teacher, only when they were addressed (Jewitt, 2006).

In tandem with these characteristics, five teachers (Teacher A, Teacher B, Teacher E, Teacher F and Teacher G) observed in this study also designed their lessons, or some of them in the ways that could be classified as following the traditional pedagogic models. These teachers clearly had drawn the line, and had differentiated between ‘theory’ and ‘practical’ classes. As a rule of thumb, the theory classes are shorter than the practical classes. The theory classes last for only one or two hours each time. In the theory classes, the teachers are expected to deliver the content by providing as much information as possible while in the practical classes, the students are expected to apply their knowledge to solve the problems, or carry out some projects or tasks. In the theory classes observed, the teachers acted as the main providers of knowledge, and dominated the communication almost throughout the lessons. The students were quiet most of the time as they just listened to the teachers talking. As such, very minimal interaction took place during most of the theory classes. As a result, classes became teacher-centred.

During the practical classes which took two hours or more, two scenarios were observed. Some of the classes remained quiet, and some others were more interactive. Some of the practical classes were quiet because it was designed in such a way that the students did not need to interact much in order to accomplish the tasks. For example, this scenario was found in the practical class of Teacher E. Besides that, Teacher E also talked less during the practical classes compared to the theory classes. During the practical classes, she only attended to the students as a whole or individually when the needs arose. During practical classes, the teachers just gave the

students the instructions on task sheets, LCD computer screen or the whiteboard for the individual students to follow. The purpose of such practical exercises was to ensure that the students were able to follow the procedures given by the teachers, and understand the IT content delivered during the theory classes by producing the desired outcomes in the practical classes. In spite of that, the classes by Teachers C and D were observed to be more interactive than the others because the teachers provided room for two-way communication between the teacher and the students as well as between the students so that peer tutoring could also take place.

Following the traditional pedagogic model, the teachers in the theory classes stood in front of the students most of the time as they talked, demonstrated, gave explanations, wrote notes or drew images on the whiteboards, and gave instructions in mainly one-way communication. An example could be derived from Teacher A when she was in the class where she taught 'Basic Computer Networking'. Using the authoritative and non-interactive modes, she gave some notes to each student as reference and used the whiteboard to illustrate her explanation and highlight important terms. Teacher A, who adopted the traditional pedagogy where the teacher occupied the front space almost throughout the lesson, assumed the role of an expert and dominated the communication, while the students were the non-experts.

In the traditional pedagogic model, the students sat in neat rows quietly facing the teachers; expected to absorb as much information as possible. For this study, similar seating arrangement was observed. The students were seated in two rows in a computer lab with a computer in front of each student. However, the lesson did not require the use of any computer applications. Only once in a while was reference made to the computer equipment. The one-way

communication between the teacher and the students limited the room for the students to use verbal communication or to be engaged in a more interactive environment.

To check whether the students had understood the information delivered, the teachers asked questions and in many occasions, the names of the students were called out to answer the questions, or the students gave short or one-word answers synchronously. Compared to 'process questions' that are divergent and require the students to think creatively, the questions that the teachers asked were usually content questions, which are closed, convergent, and associated with lower-order cognitive process (Cruickshank et al., 2006). In addition to that, in many cases, the teachers asked rhetorical questions, which discouraged the students from answering the questions. The following extract is an example, where many rhetorical questions had taken place in an episode:

> Teacher :
> So, physical ni..once data di hantar..physical ni akan menghantarkan data kamu ditukarkan dalam bentuk paket..dalam paket ada banyak frame…dalam frame terdiri daripada ni, nampak, ok. Itu physical layer..once come to the second layer, data ni..paket tadi akan diletakkan no. rujukan. Ada no rujukan. Supaya apa? no rujukan ni macam dia punya ic la. Setiap paket akan ada no yg berbeza, supaya tidak berlaku apa? error sewaktu penghantaran data, ok dan sewaktu dalam layer data ni, dia jugak akan mengesan sekiranya terdapat error dalam paket yg dihantar. Kalau tak ada error, dia akan proceed ke next player, which is network. Kalau ada error, dia akan pulang balik kepada physical, physical kena jadikan dia paket semula. Lepas buat jadi paket data kamu tadi, data akan letak no rujukan, no ic setiap paket, and then, baru dia hantar ke network, rangkaian. Ok, apa rangkaian buat? dia nak tentukan. Data tu nak di hantar ke mana, dia nak tentukan laluan. Ikut Masjid tanah ke, Alor Gajah ke, so tu network yg tentukan. Data tu nak ikut mana? Contohnya you hantar email kepada kawan you. Kawan you tu ada dekat mana? Kat mana? Alor gajah? itu network punya kerja. Lepas tu dia tentukan laluan penghantaran. Ok dia dah tentukan laluan penghantaran untuk paket tu, dia pass pada transport. Namapun transport apa transport buat?

Translation :

> *So, this physical, once the data is transported, the physical will transport your data in the form of packets. There are many packets. In the packets, there are many frames. The frame consists of this, see, ok. It is the physical layer. Once it comes to the second layer, it is given a reference number. There is a reference number. Why? The reference is like its identification number. Every packet will have a different number, so that what doesn't happen? Error during the delivery, ok, and in the layered data, it could also trace any error in the packet sent. If there is no error, it will proceed to the next layer, which is network. If there is error, it will return to physical, the physical will make it into packet again. After it has made it into packets, they will be given numbers, the identification number for each packet, and then only it will be sent to network. Ok, what does the network do? It will decide where the data will be sent. It will decide the route. Via Masjid Tanah, or Alor Gajah. So, the network will decide. The data will take which route? For example, if you send an email to your friend. Where is your friend? Where? Alor Gajah? That's the network's job. Ok, it has decided the route to take, it will pass the data to transport. Since its name is transport, what does it do?*

In this extract, the teacher asked eight rhetorical questions. The teacher did not wait for the students to give answers to the questions. Instead, the teacher supplemented the answers herself, and made them as part of her explanation about how the data were sent.

When Teacher A was observed for the second time, she had also adopted the traditional pedagogic design for the entire lesson of her class. This time the lesson was on 'Networking Equipment'. Teacher B also used similar pedagogic design for the other teaching and learning sessions. Most of the time, Teacher B positioned herself in front of the classroom while facing the students. The design of her lessons for both of her lessons on Internet Service provider (ISP) and Internet Protocol (IP) were similar to those characteristics as featured for the authoritative and non-interactive model, even though her lessons used more attractive courseware for teaching

the topics. The language used in the courseware is fully English.

The other teachers, Teachers E, F and G adopted these modes only mainly for introductions and demonstrations on how the activities should be carried out later. Upon scrutiny, it was found that these teachers designed their lesson in traditional ways when they had only one or two hours of class with the students. It is the norm of the institutions where shorter hour lessons for Technical classes are devoted to 'theory' classes, where as longer hour lessons are devoted for 'practical' classes. As an example, in a class by Teacher F where he had only one hour to teach the topic 'Input and Output' for the subject, 'Assembling the Computer', he decided to be the sole knowledge provider. In this case, the class became very teacher centred. Here, he acted as the 'expert', and the students acted as the receivers of the information.

The traditional style of teaching did not restrict the teachers from using more than one mode. The teachers had made use of a mixture of two different languages to deliver the content. They also used the languages as a tool to assess the students' understanding by posing convergent questions. In addition to that, the questions tended to be rhetorical. Unfortunately, that would restrict the students from answering the questions. According to Cruickshank, Jenkins, and Metcalf (2006, p. 352),

> To be effective, questions should require students to *process* or think about what they are learning and to *compose* and answer. This means teachers should avoid asking rhetorical questions that have only one answer. Closed-response questions, which can be answered with a simple yes-no or true-false response, allow students to guess at the answer without processing the content.

Other than the use of two different languages, the previous pictures also reflect that the teachers had used the whiteboard, LCD projector, artifacts, notes, hand gestures, gaze, head and body movements as well as body position to ensure that they draw the students' attention to their teaching. The wide array of multimodality used to deliver the content would undoubtedly make the lesson more interesting. Therefore, the traditional pedagogic models, which have the characteristics of direct instruction, can be effective to deliver academic content or skills. However, the strategies have to be appropriate. According to Cruickshank, Jenkins, and Metcalf (2006, p. 272)

> Direct instruction teachers provide strong academic direction, have high expectations that students can and will learn, make students feel psychologically safe, urge them to cooperate, hold them accountable for their work, and closely monitor and control the students' behaviour. Good leaders of direct instruction are enthusiastic, warm and accepting, humourous, supportive, encouraging, businesslike, adaptable or flexible, and knowledgeable.

Nevertheless, the design of the lesson should not be based on the teachers' styles of teaching, as no single instruction is suited for all contexts. Rather, teachers should be acquainted with many instructional strategies so that they could tailor the teaching strategies according to the different contexts. This is consistent with the quality of great teachers as suggested by Goldberg (2003). He insisted that, " No single teaching method or approach works best for every teacher with every student" ((Goldberg, 2003, p. 223). In order to be skillful with any teaching alternative, it is paramount that teachers do not only seek the PCK but also acquire the skills through a lot of practice (Cruickshank et al., 2006). In relation to that, the following subsection will explicate another approach to teaching content through the vehicular language, which is more student-centred.

6.4.2 The Dialogic Interactive Pedagogic Models

In contrast to the traditional pedagogic models, the dialogic interactive pedagogic models have a closer connection with the constructivist approach. Cruickshank, Jenkins, and Metcalf (2006: 271) delineated that,

> Constructivists want to maximize the likelihood that learners understand and be able to use information. To do so, students must engage in active social or group learning (learning by doing or sharing); learning should be situated or occur in as realistic settings as possible; learners must bridge or relate new learning to what they already know or think they know; learners must interact with others and reflect on what they encounter; and teachers must provide scaffolding or help that enables students to learn successfully.

The social constructivist theory is the foundation of CLIL as by learning in this manner, the students will become "cognitively engaged" and develop "metacognitive skills" (Coyle et al., 2010, p. 29). As such, "CLIL teachers will have to consider how to actively involve the learners to enable them to think through and articulate their own learning" (ibid).

According to Jewitt (2006, p. 143), in the dialogic interactive pedagogic models, "the teacher rarely stayed at the front of the class, she or he was often working with individual students, or small groups" . The students are allowed to "talk among themselves and ask questions at any point during the lesson" (Jewitt, 2006, p. 141). It reflects student-centred teaching where students also play their roles as 'knowing and communicatively competent' (Jewitt, 2006, p. 142). The lesson design includes the classroom setting that is more inviting with posters and soft finishing like sofas and curtains as compared to the traditional model, which is more formal.

In this study, the designs of the lessons by two teachers were inclined towards the dialogic interactive pedagogic models. Teachers C and D had empowered their students by giving them the freedom to choose certain elements as the teachers walked through the practical activities with their students. Teacher C let the students make up their own names, figures and dates as she went through the Microsoft Excel spreadsheets with them. Teacher D allowed the students to build the website using their own creativity while she facilitated their work. At the same time, the teachers also allowed the students to discuss their work with their friends, and seek peer tutoring. The teachers did not use much of the lesson time to give speeches and instruction, but they took time to go through the exercises and the teachers monitored their students' progress by addressing the students individually or in small groups. By doing this, the students had more opportunity to interact with the computer, the teachers, and their peers.

Teacher E, F and G designed their lessons based on the amount of time they needed to teach. It was observed that Teacher F changed his lesson design from being more dialogic and interactive with the students to the traditional authoritative and non-interactive when he had only one hour to teach. As with the other teachers, when he had ample time, he would design the lessons in such a way that the students had the opportunity to do the practical activities. The change in the design of the lessons was observed when Teacher F taught 'Selection Structure' and 'Repetition Structure' for 'Visual Basic Programming' subject. Therefore, as the duration for these lessons was longer, the teacher talk did not take the entire lessons. Although at the beginning of the lessons, approximately 15 minutes to 30 minutes was allocated for the briefing by the teacher, there was still enough time for the students to carry out the tasks, either individually or in small groups, which would give them more autonomy in learning. Teacher E

and F were observed to take the same strategy in designing their lessons. Besides being authoritative only during introductions, the teachers took the role of the experts again occasionally and at the end of the sessions in order to provide answers for the tasks or conclude the lessons.

To implement the policy which called for using English when teaching Technical subjects such as IT subjects at polytechnics and community colleges in Malaysia, many elements are intertwined and complement each other in order to achieve the lesson objectives and the aims of the curriculum. However, for the content and language to be integrated successfully, some strategies are more effective than others. In tandem with the language of instruction the teachers used to scaffold their lessons, the teachers should also allocate more time for the students to interact in the vehicular language as suggested by the CLIL Protocol in Appendix M.

By examining the two types of pedagogic designs, it is obvious that the lessons designed in both ways were achieved through multiple modes working synchronously to achieve the effects as desired by the teachers and the lesson objectives. Sometimes, the other modes take precedence over spoken communication. This is common in a lesson that deals with IT especially when the students need to go through practical lessons. This situation intensifies the needs for the lecturers to utilize other modes of communication in order to enhance the teaching of IT through English. Rather than leaving the students to concentrate solely on the content as they work on the projects, the teachers can adopt a CLIL approach. As practical lessons normally take longer hours, the teachers could design activities that allow the students to internalize English language input and produce it while focusing on the content of the lessons. The

opportunity to utilize English to work on the content enables the students to master both the content and the vehicular language. In short, the teachers can manipulate the multiple modes in the forms of languages, teaching aids, and gestures, as well as the different pedagogic models in order to enhance learning and ensure that the students will not only master the content but also English. The following subsection discusses the teaching personality that contributes to effective teaching.

6.5 The Teaching Personality

Teachers cannot help but bring along their personal characteristics into the teaching contexts. Some of the personal characteristics help them to become better teachers. Studies have found great teachers possess the teaching personality that contributes to successful teaching (Cruickshank et al., 2006; Goldberg, 2003; Woolfolk, 1993) . According Woolfolk (1993) there are three characteristics of effective teachers: knowledge, clarity, and warmth. Goldberg (2003) added the other characteristics that great teachers should posses such as the willingness to put in the necessary time, the love for the age group that they teach, an effective classroom management style, positive relationship with other adults, consistent excellence, expert use of instructional methods, in-depth content knowledge, capacity for growth, and steadiness of purpose and teaching personality. Cruickshank et al. (2006) listed, three broad scopes of effective teachers' personal attributes: motivating personality, orientated toward success, and professional but flexible demeanor. On the outset, the labels given to the characteristics that contribute to effective teaching may be different. However, they revolve around similar

perceptions on certain qualities of effective teaching namely: being knowledgeable, having a motivating personality, and clear strategies to achieve success.

Being knowledgeable does not only mean the teachers need to have in-depth SMK, but they also need to have PCK and knowledge about the students (Cruickshank et al., 2006). The concept of PCK rationalizes that possessing the SMK is not sufficient for teachers to teach their students (Shulman, 2008). The knowledge on how to teach the content is just as important (ibid).

Considering the teachers in the observation sessions were all graduates in related disciplines of IT, it can be safely assumed that they possess satisfactory SMK. Informally, the students can also challenge the teacher's knowledge in the subject matter when they ask questions about the content. However, given the passive type of students in the observation sessions where they rarely asked questions, or were given the opportunity to ask questions, the teachers might not feel the urge to upgrade or refresh their SMK. The test of how much a teacher really knows about their subject matter can only be proven by an academic test such as the final year exam at the university. Nevertheless, as universities have different standards and assessments, a teacher's knowledge of the subject matter could not be easily compared to others.

Similarly, the evaluation of a teacher's PCK (PCK) is also subjective in nature. Some teachers may be very knowledgeable about the subject matter, but they might not be able to make the students learn the content due to their lack of the pedagogical skill (Cruickshank et al., 2006). Teachers can cultivate their pedagogical skill through practising their PCK of the various instructional approaches over time (ibid). Hanushek and Rivkin (2006) proved in their study that

quality teachers were important for students' learning and achievement. In the study, they measured teachers' quality in the aspects of the teachers' education and experience in teaching, salary as well as teacher test and certification (ibid). Teachers' education is important because it determines the accuracy and depth of the knowledge and content the teachers deliver and how well they can deliver it to the students. Through teachers' education, teachers learn both the subject matter and the pedagogy. By grasping the PCK, the teacher will be able to know the best way to teach the topics and plan for specific strategies to achieve the best results. In the observation sessions, by referring to the CLIL Observation protocol as in Appendix M, the best learning outcomes appeared to be when the students were actively engaged in the tasks, and were visibly able to process the input and output of the subject matter (IT) and English.

The classes on developing the websites and Microsoft Office Project which were more student-centred than the others fit these criteria. For the class on website development, the teacher had used multimodality and English in scaffolding the lesson. Not only the teacher had manipulated her use of English language to produce an interactive class, the nature of the lesson allowed her to maximize the use of multimodality to enhance the students' understanding, which in turn, resulted in better student involvement in the tasks. The teacher's ability to provide both the content, and English language input and to elicit English language output from the students, should be encouraged and promoted among the IT lecturers who have to deliver CLIL In order to ensure that the students could master not only the IT content but also English language when they graduate. World Bank in *Malaysia Economic Monitor: High-Performing Education* (2013) reported that many companies value graduates who have the ability to communicate in English.

In retrospect, the Microsoft Office Project class, which used Microsoft Excel spreadsheet, was also better in encouraging the students to participate in the classroom interaction as compared to the class on a similar topic, Excel Operation. The latter class was more solitary and focused on assessing individual performance. The students produced the outcome of the lesson only at the end of the lesson when the students submitted their work. In the former class, the students were empowered to teach and facilitate their friends, giving them room to peer tutor, and exchange ideas. This strategy had alleviated the dominance of the teacher and created a more student-centred environment. However, for both classes, the minimal English language input was insufficient for the students to familiarize themselves with English language. The difference in the approaches used could have resulted from the former teacher's longer experience in teaching the subject (more than five years) as compared to the latter teacher's less-than-a-year-teaching experience. The experienced teachers used their discretions based on their PCK, and experiences to guide them in developing effective strategies to teach the topics. However, "teachers do not necessarily become more effective over time" (Day, 2007, p. 193). He believed that, this phenomenon might not apply to some teachers who have more than 24 years of teaching experience, as they may perform less effectively in the later years due to vulnerability to various issues (ibid).

Besides the SMK and PCK, it is also crucial for the teachers to know their students in order to tailor the lessons according to the students' needs (Cruickshank et al., 2006). According to Christopher Day (2007, p. 2), "What marks teachers out as good, or better than good, is not only their content knowledge and pedagogical skills. It is their commitment to their teaching, their students and their learning and achievement". His study of teacher effectiveness and pupil

attainment in England showed that effective teachers were able to perform effectively regardless of the students' personal attributes (ibid). However, he found that the variation between effective and less effective teachers accounts for, "…between 15 per cent to 30 per cent of the variance in pupil progress" (Day, 2007, p. 177).

In relation to this study, the motivation of the students may be attributed by teachers' teaching styles. The students observed were basically homogenous in certain aspects such as sharing a common first language (Bahasa Malaysia), having close age range between 17 to 20 years, and doing IT Course at certificate level, which reflected their academic qualification. The field notes taken during the conversation with the lecturers and their remarks in the survey revealed that some of the teachers perceived the majority of the students as having low English language competency and cognitive skills, which in turn resulted in the teachers' reluctance to use English to teach IT subjects. Some of the teachers mentioned in the open-ended section of the survey that, "Teachers do not have problems with English, but the students do not understand. Therefore, the teachers have to translate the content to Bahasa Malaysia". A more detailed discussion on this is also available in the subsection 'The Profile of the Participants' in this chapter. In relation to teachers' perceptions of the students, teachers' expectations of the students' ability also affects the way they react to the students. In short, Cruickshank et al. (2006) believed that it is vital that the teachers keep a positive mind and do not underestimate the students' ability so that the students' learning will be more success.

Another characteristic that a great teacher has is a motivating personality. Cruickshank et al. (2006, p. 337) included "enthusiasm for their students and their subject matter, warmth, and

humour, and credibility and trustworthiness" as part of a motivating personality. It explicates that by projecting these qualities at appropriate times, the teachers exude an approachable personality who is passionate about their tasks in educating the students (ibid). This will lend itself to a conducive teaching and learning atmosphere, which is crucial for the students' acquisition of knowledge and skills. By being enthusiastic, teachers show that they believe in what they teach and the enthusiasm will be shared with the students, which in turn will make their learning more meaningful.

Besides being knowledgeable and having a motivating personality, it is also imperative for effective teachers to be positive, and optimistic in order to steer the students' progress in learning towards success (Cruickshank et al., 2006). Christopher Day found that effective teachers had a more positive and optimistic outlook of life, their careers, work environment and their students as compared to less effective teachers (Day, 2007). In spite of the unfortunate events that had occurred in their lives, effective teachers had dealt with these in a more positive way, which resulted in them becoming more resilient (ibid).

From the survey of this study, the participants selected showed that they possessed certain levels of positive attitude towards the policy for teaching IT through English and were motivated to teach it. Having a positive attitude and the motivation will influence how the teachers react towards a certain issue or policy (Cruickshank et al., 2006). Cruickshank et al. suggested for the teachers to ensure that they boosted the students' sense of success by carefully planning activities that led to the likelihood of success and reducing the activities that caused their students to fail or feel frustrated (ibid). For activities such as in the observation sessions that

attempted to instill CLIL, the tasks need to be given appropriate scaffolding but still challenging enough to trigger their cognitive processes as CLIL is drawn substantially from the underlying principle of Vygostky's theory, for example the use of a Zone of Proximal Development (Do Coyle et al., 2010).

Evidently, having the right teaching personality is crucial in developing effective teaching. As discussed earlier, being knowledgeable in the SMK, the PCK and about the students' needs; having a motivating personality including showing warmth and enthusiasm; as well as having clear strategies to direct the students towards success are the characteristics that quality teachers possess. Therefore, teachers who have the desire to become great teachers should strategize well and nurture these characteristics in them from the start.

As mentioned earlier, great teachers plan their lessons well in order to ensure that they meet the objectives at the end of the lessons. Part of the planning should include the use of multimodality as a scaffolding technique to increase students' comprehension of the content. In the following subtopics, the data from the observation sessions were analysed based on two concepts in multimodal interactional analysis that are closely related to the actions the social actors take: modal density and modal configuration (Norris, 2009).

6.6 Modal Density and Modal Configuration

The analysis of modal density examines how much attention is given to a certain action. Norris (2009, p. 83) argued that, "the higher the modal density that a social actor utilizes in order to

construct the higher level action, the more attention the social actor pays to the action". Modal density is achieved through modal intensity or modal complexity (ibid). In order to gauge the density of the modes, this study observes the dynamics and quality of the multiple modes such as the English language terms, the mixture of English and Bahasa Malaysia, types of questions, the use of artifacts, the reference to the websites, etc. In the study, the categorization of the types of modes that impact on teaching and learning is determined by its aims to make the students learn both the content and English. Due to that, the density of the modes utilized in teaching the IT subject, in relation to the design of the pedagogy and the CLIL discourse that promote and contribute to the enhancement of learning will be the focus of the analysis.

The CLIL pedagogy as defined by Coyle et. al. (2010) is consistent with the key elements of teaching and learning in the Critical Agenda Project (CAP) as stated in the second phase of the National Higher Education Strategic Plan (*Pelan Tindakan Pengajian Tinggi Negara Fasa 2 (2011 - 2015): Mencetus Transformasi Pengajian Tinggi*, 2011). Among them are the adoption of Students Centred Learning (SCL) approach in the programmes, which in turn demands for lecturers who are capable of utilizing the approach and the infrastructures that support the approach, and the focus on the curriculum that is based on OBE. For the SCL approach, the lecturers should use Problem-Based Learning, Problem-Oriented-Based Learning or case study as an alternative to the traditional direct instruction method (ibid). The Outcome-Based Learning requires the students to achieve the outcome at the end of the lesson.

By referring to the teachings carried out during the observation sessions, teachers appeared to be very focused in their teaching regardless of which style of teaching they prescribe to. If they did shift their attention, it was due to instances such as students coming to the class late, thus disturbing the teaching process; or the teachers changed their focus from teaching the students to working on the teaching aids such as the modules, their writing on the whiteboard or the websites they were using to teach their students. The use of multimodality in teaching closely relates to the nature of the lessons and the pedagogy the teacher had adopted. Teachers whose nature of the lesson directed them towards the traditional pedagogic models, tended to have more passive students as compared to classes that were carried out in a more dialogic interactive manner. The teaching time mostly comprised teacher talk where one-way communication dominates. In order to master English together with the content, the students need to produce the language as they communicate their concerns about the content as indicated by Lapkin and Swain (1995) when discussing the problems that they need to solve. Due to that, the CLIL approach, which is student-centred is more desirable in achieving the aims.

The lessons, which moved away from the traditional pedagogic models, were closer to the aims as they consisted of more dynamics, and more multiple modes directed towards achieving the aims. The teachers, who subscribed to the dialogic interactive pedagogic models, were found to have higher levels of interaction with the students, to let the students discuss amongst themselves, and move or change their positions more often in order to facilitate the students in their work. An extract from the lesson of Teacher D below reflects these elements:

Table 6.1.

The Use of Multiple Modes that Affect the Modal Density.

Verbal	Transcript	BM	Eng	Both	Other modes
CON, GIF, CQ	Teacher: Page background OK right [look at the computer screen and click] so today I am going to teach you [look at the projector screen] a topic call navigation [face students] OK remember last class I have [put up an A4 paper to show the class] give you this attachment..., so you should finish how many pages?		√		GAZ, CIF, GAZ (CIF), GAZ (students), ART
	Student: seven		√		
	Student: six		√		
CON	Teacher: Six include today		√		
	Students: Seven		√		
CQ	Teacher: OK you have in your folder you have index dot htm then?		√		
	Student: Bayaran dot htm	√			
CON	Teacher: Bayaran dot htm	√			
	Student: Contact us dot htm		√		
CON	Teacher: Contact us dot htm		√		
	Students: Bayaran mail dot htm	√			

CON = Confirming
CQ = Close Question
GIF = Giving Information
GAZ = Gaze
CIF = Computer Interface
ART = Artifact

In this short extract, the teacher used English to communicate the content with the students. The students replied in English and Bahasa Malaysia depending on the labels they used for the hyperlinks. Even though they were closed- questions, the exchanges between the teacher and the students enriched the conversation and in the future, the teacher could post the types of questions that required more critical thinking. The use of the LCD (Liquid Crystal Display) projector to project the computer interfaces was really vital in ensuring that the students understood what she said. As the instruction was in a language other than the mother tongue of the students, the teacher had other modes to support her instruction. In addition to her gaze that read the students' comprehension of her teacher talk, she lifted a piece of her notes to strengthen her points as she tried to elicit responses referring to these items from the students. Her techniques were successful as the students managed to recite the correct elements. Her attempt at using simple English with the support from other modes to deliver the content made it easy for the students to understand what she required of them in the short interaction.

For modal configuration, the modes are ranked-ordered in terms of their importance in order to deliver meaning to the higher level action (Norris, 2009). This means that there may be more than one mode available to the teachers to perform a task or to make the students understand them. The theory about modal configuration helps to analyse which modes are more effective in achieving the aims of the teachers. The extract below shows how a teacher who used direct instruction in her teaching gave her explanation in a mixture of Bahasa Malaysia and English.

Table 6.2.

Modal Configuration Determined by the Importance of the Modes.

Verbal	Transcript	BM	Eng	Both	Other modes
GEX,GIF, CQ	Teacher A: medium penghantaran…. dan protocol rangkaian…ok…how the data is sent. Kita dah belajar sikitkan… meh kita review semula. Medium penghantaran is divide into 2 types. What is it?			√	2 GAZ, HM, ART, TM, VIW
	Class:Guided and unguided.		√		
GIF, GEX,	Teacher A: Guided and unguided. Guided is terpandu. Unguided is tidak dipandu. Guided means that there is something physical type …ok, physical yg boleh kita nampak..apa yg digunakan untuk menghantar data. For example cable (raising a cable to show to the students). Saya dah cakapkan…Guided ni satu sahaja. Cable..and cable is …are divide into three types, utp….. three types… utp …lagi… tengok nota, tengok nota. Twisted pair- utp and stp. twisted pair which is utp and stp. And then, coaxial cable…			√	VIW, G, ART (cable), G, ART (notes), VIW
	Class: fiber optic		√		

GEX = Giving explanation
CQ = Close Question
GIF = Giving Information
GAZ = Gaze
HM = Head Movement
TM = Teacher Mobility
G = Gestures
VIW = Visual Writing
ART = Artifact

Based on the extract above, the modes could be configured by determining which modes were absolutely necessary, unnecessary and irrelevant for the higher-level action in this study that was to teach IT through English. In this instance, spoken language in Bahasa Malaysia and English were equally necessary because translation was limited to three sentences, and others were delivered either in Bahasa Malaysia or in English. The other mode used to enhance the students' understanding was the handout given to the students. The less necessary mode used was the show of a cable to the students as she was saying the word 'cable' as she mentioned later that she had told the students about 'cable' before and that it was the only form of guided delivery. The use of artifacts could be more necessary in other circumstances where the teacher mentioned the terms for the first time. Here, the use of Bahasa Malaysia was to translate her English instruction. Interestingly, it did not hinder the students from responding to the teacher in English. This shows that sometimes the teachers may underestimate the students' ability to understand them when the instruction is delivered through English. Therefore, it could be safely concluded that the teacher could have omitted the Bahasa Malaysia explanation, thus shortening the time for delivery, and opted to use simple English instead.

6.7 Conclusion

In this chapter, a deeper analysis of the data was performed based on the video clips gathered from the observation sessions, the field notes from semi-structured interviews, and the subjective data from the survey. There were seven lecturers involved but the study mainly focuses on the strategies they used to deliver IT subjects through English. To achieve this, all the elements involved were analyed from different perspectives including the teachers' background, attitudes,

motivation and their perceptions towards learning English to upgrade their English language proficiency level, and having to teach their subjects through English. Other factors that contribute to how teachers teach such as the topics, the aims, the language of instruction, the pedagogic models and teaching personality, also took centre stage. Finally, the discussion ends with an analysis of how the lecturers used multimodality to enhance teaching.

The Literature Review in Chapter Two and The Lenses in Chapter Four showed that the teaching and learning at tertiary and higher education levels should be carried out through English to cater for the students' needs to be exposed to internationalization and globalization. As such, CLIL is considered the hi-tech approach to education in order to prepare the youth for the job markets that have become convergent due to the impacts of globalisation. Graddol (2006, p. 120) stated that:

> One of the main differences between the new global English and the old EFL educational models is that ELT has now become a 'mission-critical' undertaking… This is one of the reasons why CLIL – or any similar approach going under a different term, is a 'hi-tech' approach to the curriculum.

Besides being driven by the constructivist approach, CLIL promotes student-centred learning in order to ensure that the students could master both the content and English. This is consistent with the teaching and learning approach as stated by the higher education policy of Malaysia (*Pelan Tindakan Pengajian Tinggi Negara Fasa 2 (2011 - 2015): Mencetus Transformasi Pengajian Tinggi*, 2011).

CHAPTER SEVEN: DISCUSSION AND CONCLUSION

7.1. Introduction

The study reveals that the teaching of a content subject such as IT through a second language like English is rather complex and requires the teachers to prepare the lessons carefully in order to ensure the dual aims of the lessons are achieved successfully at the end of the periods. In addition to that, much has also been extracted to show that the teaching of a content subject through a second language requires the teacher to have the right attitude, motivation, the SMK, as well as the PCK to deliver the lesson effectively.

7.2. Research Question 1: What are the lecturers' perceptions, attitudes and motivation towards teaching IT subjects through English?

The change of policy from teaching the content subjects through Bahasa Malaysia to teaching through English is studied in relation to the lecturers' attitudes and motivation in order to investigate how it may have impacted on teaching. In education, the policy change is a tedious process because much consideration should be made before any change is made effective.

In this study, teachers' attitudes to policy change are one of the determinants of a successful implementation of the policy. The study that focuses on IT lecturers has managed to gather several beneficial findings. The study started with identifying the attitudes of the lecturers

towards policy change and finding out whether they were motivated to teach their subjects through English. In order to engage the attitudes and motivation levels of the lecturers, a survey was carried out and the return rate of 79% of the whole population shows that the lecturers were concerned about the implementation of the policy. The field notes gathered from the conversations with the observation participants also revealed that they had positive attitudes towards the policy. Overall, the majority of the lecturers did have positive attitudes and were motivated despite the change of the policy.

It was also found that the majority of the lecturers believed that Technical subjects should be taught through English. Nevertheless, in the classroom observation sessions, it was found that English was not the only language used by the lecturers for the delivery of the content. All of them had used some or much Bahasa Malaysia at certain points during the delivery of the content. This should not be viewed negatively as Coyle et al. (2010, p. 95) suggested that in CLIL classrooms, language and content should be balanced in a 'familiarity and novelty continuum'. Since the teaching of content subjects through English is at the early stage of the implementation in Malaysian scenario, bilingualism in the classroom is highly encouraged as translanguage triggers active use of English and Bahasa Malaysia. As mentioned by Lewis et al. (2012) in the Literature Review chapter, the use of translanguage is beneficial to achieve effective work within the students' 'zones of proximal development' (Vygotsky, L., 1978).

From the study, it was clear that the lecturers were not aware of the dual aims of content and English integrated teaching and learning such as CLIL. Since all of them were content lecturers, most of them naturally perceived that the focus of the teaching should be more on

content than on English. They also believed that it is important for the IT subjects to be taught using specific English language corpus, which was different from the English language used in general English lessons. As such, the lecturers should also be trained to teach using specific English language corpus and register.

The lecturers were also willing to improve themselves and this could be deduced from their desires. The majority of the lecturers claimed that they wished to have better communicative skills, and were determined to develop their abilities to teach IT through English. They believed that the teaching of IT through English did not affect the students' motivation negatively. It was also found that the lecturers' experience and pre-service training in teaching IT through English has an effect on the lecturers' dismissive reaction towards the policy, situational anxiety, extrinsic motivation and transformative motivation. The findings proved that the IT lecturers in polytechnics and community colleges had positive attitudes and perceptions towards the teaching of the IT subjects through English. The fact that they were motivated to teach IT through English implied that the lecturers were prepared to take some actions in order to ensure that the students could master both IT and English at the end of the lessons.

The qualitative and quantitative findings in this study reveal that the lecturers were well aware of the impacts of globalization and the needs for them to upgrade their English language competency levels not only for their career advancement but also to enable them to deliver their lessons through English. The next subsection discusses the lecturers' motivation to learn and challenges faced in relation to the findings of this study.

7.3. Research Question 2: What are the strategies the lecturers use in upgrading their English language proficiency?

Besides finding out about the lecturers' attitudes and motivation levels, the study also investigated the lecturers' initiatives at upgrading their English language proficiency levels through self-accessed learning strategies and the strategies the lecturers use to deliver their lessons through English. As mentioned earlier, the study has found that most of the lecturers in this study were resilient enough to carry out the policy, and had been able to stay motivated. The source of the lecturers' motivation in this study is largely attributed to the lecturers' beliefs of the hegemony of English as an international language and the language of economic status as well as its competitive edge in relation to the issues of globalisation.

The lecturers' resilience in facing the policy change was displayed through their motivation to learn and face the challenges brought along by the baggage of the policy through self-accessed learning strategies and experimenting with the students in using English for teaching. The study shows that the lecturers made efforts to upgrade their English language through various English language activities. Some of the lecturers claimed that they used English language learning kit or went to English language courses. The majority of the lecturers, however, preferred to upgrade their English through incidental learning strategies such as consciously choosing to listen to the radio in English or watch English language programmes. Unfortunately, the later strategies would only be suitable for the lecturers whose aim is to master English for general purposes and might not be very helpful in assisting the lecturers with specific IT registers to teach IT through English.

In adapting to the new policy changes, the lecturers faced many challenges. Bad experiences with the students made some of the lecturers resorted in abandoning their efforts to use English and regarding the strategies to use English as hopeless. This is evident through the amount of Bahasa Malaysia which was used more compared to English even though some lecturers claimed that they could speak in English well. The study shows that the lecturers had not learned how to deliver IT through English effectively. They had little confidence that the students could follow the lesson if it was taught through English. Here, it shows that the lecturers were unable to pin point to the right moves to take during the lesson delivery. The lecturers' incompetency in handling the situation could be the result of the lack of training and experience in teaching IT through English.

In order to upgrade their English, the majority of the lecturers reflected on their English language use. However, many of them did not seek feedback on their performance in teaching IT through English. It shows that the culture of using feedback to improve performance was not practised at polytechnics and community colleges. The majority of the lecturers believed that the environment was not conducive for them to use English, thus inhibiting the strategies the lecturers could use to upgrade their English language competency. One of the characteristics of a positive environment is when the learners receive positive feedback which motivates them to learn a second language (D. Nunan, 1999).

To discuss the strategies the lecturers used to deliver IT subjects through English further, the next subsection gathered the findings from both the quantitative and qualitative data to outline how the lecturers had delivered the lessons.

7.4. Research Question 3: What are the strategies the lecturers use in teaching IT subjects through English?

In the Malaysian higher education system, one of the indicators of quality education is if the graduates are marketable and employed shortly after graduation. The industries' concerns for the lack of English in Malaysian graduates demand the lecturers at higher institutions including polytechnics and community colleges to teach the content subjects through English. However, the lecturers were hardly exposed to the teaching approaches that involved the teaching of specific content subjects through a second language. The findings from the observation sessions carried out in this study showed that the educational administrators would likely have thought that as long as the language of instruction is in English, the content and English language have been integrated successfully. Due to that, the content lecturers were given in-service training on how to improve their English language communication skills rather than the training on CLIL approach and the teaching methods.

The findings from the survey indicated that only about half of the population of IT lecturers attended in-service training on how to teach IT through English. The result was not actually bad considering the majority of the lecturers were young and quite new in the service. Nevertheless, it was not easy to trace the impacts of the training on the actual teaching without

carefully studying the training module. Upon closer examination, the observation sessions in this study did not reveal that the lecturers delivered the lessons based on any specific training and approaches such as CLIL, Sheltered Instruction or Immersion. Rather, it showed that the lecturers had not had much training pertaining directly to the teaching of content subjects through English.

It was found that the strategies that some of the lecturers used did not reflect that they were directed towards achieving the dual aims of CLIL. In the survey, the fact that 95.2% of the respondents believed that the focus of teaching should be more on content than on language by itself showed that English would not be given equal amount of weightage in the lessons. In fact, the lecturers were not aware that some of the strategies that they used were not aligned with CLIL and thus made it more difficult for the objectives of the lessons to be achieved successfully.

Since there is little research carried out on the teaching of content through English in Malaysia, the lecturers were not aware of the effective strategies that could be used to enhance the teaching and learning process such as evident in Immersion, CLIL and Sheltered Instruction lessons. Thus, it is interesting to find out in this study that despite not having the knowledge and training on how to deliver the lessons effectively, the lecturers still had faith in the policy change. It proved that the lecturers were resilient enough to teach according to their own judgement of what constitutes the teaching of IT subjects through English and how best they could deliver the lessons.

The findings from both the survey and the observations provided an abundance of evidence that could explain the strategies the lecturers used in teaching IT through English. The findings are first categorized according to the domains and the use of languages. Later, the findings are discussed in relation to the skills and lastly, the findings are discussed in relation to the students' activities.

First, the findings from both the quantitative and qualitative data revealed that the mixture of Bahasa Malaysia and simple English was in favour. It was found that no lecturers used only English throughout the lessons. From the survey, it was found that very few of the lecturers used only English for advice. Many claimed that they used only English for giving instruction, during the introduction and conclusion. However, in comparison, more lecturers used a mixture of English and Bahasa Malaysia including while giving the explanation. Most of the lecturers used translation when giving instruction, advice, explanation, introduction and conclusion.

Similar scenarios were evident during the observation sessions. The majority of them had used translation and a mixture of English and Bahasa Malaysia abundantly while teaching. The observation sessions revealed that in some cases, more Bahasa Malaysia was used by the lecturers as compared to English, which in turn had reduced the amount of English input given to the students. However, the findings revealed that it was not a predetermined action as the process was natural and the switch from English to Bahasa Malaysia was subconsciously carried out to accomplish certain purposes in teaching.

The use of mother tongue more than the English language may not be helpful in achieving the complete aim of learning the content through the target language because of the limited amount of input in the target language. When the lecturers did not use the English language, the students were deprived of examples of the content-specific terminology in the target language. In order to overcome this, Bahasa Malaysia should only be used selectively or for specific or strategic purposes such as translating difficult terms or scaffolding the lessons, and should not dominate the whole lesson delivery.

The findings of the study revealed that many of the lecturers were misled by the ideas that in order for the content subjects to be successfully taught through English, the students should already have some English. This is in contrast to the principles underlying CLIL which allows for the methodology to be used even with the students with limited target language. Being at community colleges and polytechnics where the students had very limited English, the lecturers found it difficult to teach the content subjects through English, thus resorting to Bahasa Malaysia most of the time so that the content was delivered according to the schedule of the lesson plan. On the other hand, by doing so, the lecturers had abandoned the other main objective of the lesson that was to ensure that the students were able to learn the content through English. If the lecturers persistently used Bahasa Malaysia instead of English during the lessons, the dual aims of the lesson would be unattainable.

Secondly, the findings of this study revealed the lecturers believed that their students were weak in speaking, writing, reading and listening. The same views were gathered from the observation participants. Therefore, the use of simple English was desirable. In the survey,

translation was preferred only for the activities that involved speaking, reading and writing. They believed that the listening activities did not require translation. In contrast, during the observation sessions, translation was rampant especially when the students were required to listen to the lecturers. Similar findings were found for the item related to the teaching materials. It was found that the lecturers planned for the materials that allowed reading, writing and speaking activities to be carried out. The materials that allowed listening activities were not regarded as important in the survey but most of the activities in the actual classrooms required the students to listen carefully to the lecturers.

To balance the use of languages while incorporating speaking, reading, listening and writing in teaching is not an easy task for the lecturers as they had not had much experience in training and teaching through English. Besides, most of the lecturers admitted that Bahasa Malaysia was their first language. Interestingly, the lecturers' attempt at teaching their subjects through English was not without posititve outcomes. The study found that the lecturers' perseverance in teaching IT through English was proved effective in improving their own English language proficiency levels. The majority of the lecturers claimed that they had improved their own English language proficiency since they had been teaching IT through English. The aspect of English affected the most was their spoken English followed by writing, reading and listening.

Some of the lecturers did have some fluency in English language but had not been able to make the right decision and use their fluency in English successfully in teaching due to the lack of knowledge and skills in using the right teaching strategies, approaches and methodology. The

training on how to integrate content with the target language is scarce and not popular because it is rather new in Malaysia, and the previous attempt to teach content through English at primary and secondary education have failed. Besides, there are not many experts, who can master both the content and the target language, to train and provide the examples for how content should be delivered through English. The lack of role models for the lecturers to refer to especially at institutional levels could hinder the success of CLIL implementation in Malaysia.

Third, the lecturers in the survey and those involved in the observation sessions believed that they were given the freedom to adapt their teaching strategies to enhance students' learning. Unfortunately, it was found in the observation sessions that some of the lecturers were still largely influenced by the traditional teacher-centred approaches. Apparently, this scenario is not unique to polytechnics and community colleges in Malaysia because the Economic Planning Unit and World Bank (2007) reported the same findings among the lecturers at local public universities in Malaysia. In this study, the elements of teacher-centred teaching prevailed through the lecturers' positioning themselves mainly in front of the classroom, dominating the verbal discourse and controlling the students and the activities.

Only a few lecturers had attempted student-centred approaches that gave room for more meaningful interactions and provided opportunities for the students to be creative and be empowered by their own learning. These strategies were more consistent with CLIL strategies as they encourage the students to use the language for learning the content and learning the content to use English as proposed by Coyle's 4C's (2006) and Coyle et al. (2010).

In teaching IT, the lecturers normally made use of computer gadgets, appliances or applications as their teaching aids. In the case of the teaching of IT through English, the use of multi modes is even more desirable and encouraged in order to provide support and scaffold teaching. The next subsection discusses multimodality in the teaching of IT through English.

7.4.1 Multimodality in Teaching IT through English

The findings revealed that many of the lecturers used teaching aids to enhance students' learning. The use of teaching aids is particularly more crucial in CLIL environment because the delivery of the lesson is through the students' second language (Deller & Price, 2007; Rosen & Linda, 1997). The teaching aids and multimodality such as extra graphic, demonstration, gestures, notes and real objects support the second language, and subsequently enhance the students' comprehension of the content.

The study shows that some of the lecturers associated teaching aids mostly with notes and modules provided as supplementary to teaching. As such, many of the lecturers perceived that teaching aids were more useful especially when the activities involved reading and writing as compared to listening and speaking. On the other hand, in reality, the classroom observations revealed that reading and writing activities were not as frequent as the activities which required the students to listen to the lecturers. This was evident especially when the lessons were teacher-centred. While speaking, the lecturers had to use other modes such as gaze, facial expressions, gestures, drawings, etc. to accompany the instruction or explanation. This strategy was adopted in order to enhance the students' understanding of the lesson content.

When the lecturers practised student-centred teaching, the classrooms became more vibrant and more movements as well as interactions were observed. The teaching observation sessions revealed that in such classes, teaching aids especially Microsoft application tools such as Microsoft Excel and Microsoft Front Page were also used in abundance. Even during the listening and speaking activities such as when the students had to listen to the lecturer, who gave instructions on how to perform the procedures for creating a website, or during peer evaluation exercises, the teaching aids were very helpful because they provided the students with hands-on activities. In addition to that, in the student-centred classes, the lecturers and the students were more mobile and the use of multimodality to enhance learning was multi-dimensional as it involved more people, multiple contexts, and diverse interaction with smaller groups or units. In this regard, the activities allowed the students to experiment with not only the content of the lessons but also the target language. This strategy enabled the lecturers to balance the focus of the lessons and provide equal emphasis on the content and all the language skills.

In comparison, when the lecturers gave only extensive verbal instruction, and explanation without being accompanied by other modes, the students became less involved in the interaction and the communication became dominantly one-way. This scenario was evident especially in teacher-centred lessons. When the lecturers did not provide the opportunities for the students to be involved in the lessons, the students became passive and did not play active roles in learning. In this context, the lecturers controlled the lessons and maneuvered the interaction through careful use of multimodality which was uni-dimentional. For the teaching of IT through English, the use of multimodality is deemed crucial to accompany verbal communication especially when it is heavily loaded with terminology. In the observation sessions, it was found that the lecturers

who practiced teacher-centredness accompanied their 'lectures' with graphics including from the internet and courseware to support the verbal communication.

In short, multimodality in CLIL should go hand in hand in order to achieve the dual aims of the lessons. In addition to that, the effective teaching of IT through English could not be disregarded as it is indeed the result of the effective use of strategies. The following subheading discusses the elements that contribute to the effective strategies to teach IT through English.

7.4.2 Effective Strategies to Teach IT through English

The measurement of how effective the teaching is should be benchmarked against how much it has been able meet the target set by the policy, the curriculum and lesson plan. A problem may arise when the aims of the lesson plan are not aligned with the policy. It is thus important for the lecturers to clearly understand the overall outcome expected of the teaching and learning in order to produce the quality of the graduates as aspired by the nation.

At higher education in Malaysia, it is clearly deliberated in the New Economic Model that in the order for Malaysia to achieve its targets in the Transformation Plan, Malaysia needs to ensure that all the enablers and Strategic Reform Initiatives (SRIs) are implemented. One of SRIs is to develop, '…quality workforce and reducing dependency on foreign labour' (2009, p. 124). It outlines the intention of the the nation to increase local talent over time through enhancing English language proficiency.

For effective CLIL teaching strategies, the aims of the teacher are the anchor of the lesson and its design. Based on the Planning and Observation Checklist by Peeter Mehisto et al. (2008) which was originally adapted from Tara Fortune's Immersion Teaching Strategies Observation Checklist (Fortune, 2000), the CLIL teacher should aim to achieve certain goals that are geared towards enhancing the students' comprehension of the content subjects and increasing the students' skills in English.

Upon closer examination and comparison with the actual lesson delivery, the lessons that were student-centred could blend better with the aims of CLIL lesson strategies as listed in Appendix M as compared to the teacher-centred lessons. In reference to the observation sessions, the dominant role of the lecturers in the teacher-centred classrooms diminished the chances for the students to play active roles in learning. Too much 'teacher talk' and 'teacher-speak' in the teacher-centred classrooms made the environment less conducive for the lecturers to achieve the aims of a CLIL lesson.

Both approaches utilize multimodality to enhance and scaffold learning. However, in the student-centred classrooms, the students were provided with rich contexts and they were given the opportunities to practise all the language skills while learning the content. In student-centred classrooms, all the interaction participants, including the lecturers, used multimodality sequentially or concurrently to achieve specific CLIL learning objectives. The rich and meaningful interactions also allowed immediate feedback by the lecturers or peers, and this form of assessment was a positive element of evaluation that encourages active learning.

Finally, the effective strategies to teach IT through English were evident in the student-centred lessons and therefore, should be emulated by teachers. The lecturers were the key players that determined successful CLIL lessons as their attitudes, motivation and perception influence the direction of the CLIL implementation. The lecturers who had mastered the right PCK moves to teach IT through English had more chances of implementing CLIL successfully compared to the lecturers who only had SMK. In this study, it showed that the lecturers had a major role to play when the education system decides to adopt the CLIL approach. Despite the depth and breath of the study, some limitations may limit the application of the findings to wider contexts.

7.5. Limitations of the Study

In the beginning, the study had purposely limited the scope of the population to IT lecturers at polytechnics and community colleges in Malaysia in order to achieve several aims. First, the same IT subjects taught by the lecturers would ensure that the approaches, the teaching strategies, techniques and the gadgets used were not too vastly different from one another. If the subjects were various, the approaches, the teaching strategies, techniques and the gadgets would be designed according to the unique aims of the lessons. The different variables may also make it difficult for patterns to emerge from the findings.

Second, the homogenous background of the participants, indicated in the survey demography and responses to the survey questions, would allow the categorization of the lecturers made based on their perceptions, motivation and attitudes towards the teaching of IT

through English. The categories of the lecturers became the base for the selection of the observation participants. Only the lecturers who had positive attitudes towards the teaching of IT through English were chosen to participate in the observation sessions in order to ensure that some elements of CLIL strategies were evident during the lessons. Consequently, this would allow some patterns to emerge and lessons can be learned from the strategies that were found to be effective in teaching IT through English. Finally, suggestion could be made to improve the strategies by comparing these strategies with the established CLIL teaching strategies worldwide.

Third, the IT lecturers were chosen because English is used as a computer language. Since the lecturers were not familiar with the teaching of IT through English, it was hoped that the ready materials in English made it easier for the lecturers to teach IT through English. Previous studies showed that some teachers had negative attitudes when they had to teach Science, Mathematics and Technical subjects through English (M. Mohamed, Nordin, A., & Hashim, R. , undated; Nordin, 2005; Pandian, undated; Sinnadurai, 2003). It was hoped that since the people who work in IT regularly encountered English, they would be more familiar with the teaching of IT through English as compared to the lecturers in other fields.

Lastly, the study has brought about several implications and some recommendations could be made for future research. The following subsection describes the implications of this study and provides some suggestions for future research.

7.6. Implications of the Study

The findings of the study would have an implication in the area of CLIL approach and applied linguistics in Malaysia as such studies are rarely carried out at polytechnics and community colleges. As part of the human capital, the lecturers are valuable assets of the institutions that could ensure the successful implementation of new strategies if given sufficient amount of guidance and assistance. The study revealed that the lecturers should be given proper training in CLIL in order to ensure that the lecturers have up-to-date PCK to help with the lesson plan, the design and the delivery of the content subjects.

The lecturers can practise team teaching as a way to overcome language barriers as mentioned by Buckley (2000). The lecturers can work professionally together to set goals for a course, design a syllabus, prepare lesson plans, teach the students and evaluate the results. With CLIL, team teaching involves the teachers from different disciplines to work together cooperatively to benefit the students in both content areas and the target language (ibid). However, there are several advantages and disadvantages to consider before deciding to implement team teaching. The lecturers at polytechnics and community colleges should be equipped with not only the SMK and PCK but also the knowledge to adopt CLIL instruction.

The implementation of CLIL instruction should continue to exist at polytechnics and community colleges in Malaysia in order to equip the students with both the content and English. By using CLIL, bilingualism as a medium of instruction is viewed positively because the first language can scaffold second language learning while simultaneously keeping the focus on the

content. Currently, polytechnics are the main training providers for workers who become part of the human capital that contribute to the knowledge-based economy in Malaysia. In the future, the graduates from polytechnics and community colleges in Malaysia should be competitive enough to market themselves in global avenues for higher income and gain wider experience through cross-border mobility.

Besides investigating the lecturers' attitudes and motivation, this study also examines the lecturers' perceptions towards their students' English language ability. The lack of English language proficiency among Malaysian students is also evident at polytechnics and community colleges as has been found through the lecturers' perceptions in this study. If left unattended, this could lead to the phenomenon where the younger generation and graduates who enter the workforce are incompetent English language users as found by Hafriza in 2006.

In Malaysia, before independence, due to the British's influence, many Malaysians were bilingual if not multilingual. After the independence, English has gradually become a distant player and its importance in nationism has been wrongly downgraded to give way to Bahasa Malaysia in an effort to maintain nationalism so that the different races and ethnic groups are unified through a common national language, Bahasa Malaysia.

In the face of globalization and the demands of the borderless technology, Malaysia should be prepared to keep abreast with the world by using strategic initiatives to ensure that younger generation are equipped with the necessary skills and knowledge to survive in the world. This study has proven that it is not left unheeded by the polytechnics and community

colleges. Evidently, they have been taking some initiatives in order to ensure that the lecturers are aware that the content subjects should be integrated with English language albeit bilingually in order to help the students to be more competitive in the job market.

When faced with hurdles such as a change in the policy, it may be difficult for some lecturers to keep up their motivation levels especially when the change of the policy requires the lecturers to learn and adopt new practices as well as change their beliefs and perspectives. Some of the lecturers may be resilient enough to embrace the new expectations, but some others may not be as excited to carry out new changes. In confronting the adversity, the lecturers may resolve the issues quite differently from one another.

In the 21st century, the Malaysian leaders have begun to feel the impacts of the policy change and become alarmed enough to cause them to change the education policy by enforcing the teaching of Science and Mathematics through English in 2003. The attempt was, however, short lived at primary and secondary education. At higher education, careful thoughts and planning have taken place to ensure that no drastic change in the higher education policy as it could affect the stakeholders negatively. This study has also found that the change of the policy in the education system including at higher education level should not be drastic as it has great implications on the nation. The impacts of a policy change do not only penetrate deep and vast, but also for a long period.

In 2007, the launch of the National Higher Education Strategic Plan highlights the strategy to intensify internationalization to ensure that the young generation is equipped with the

necessary knowledge and skills to give an added value for employability. It is hoped that this strategy would enable them to compete with the other job hunters at the global market.

To illustrate the scenario that emerges as a result of the driving factors that initiate the policy for teaching Technical subjects at polytechnics and community colleges, a diagram is presented in Figure 7.1.

The driving factors include the National Mission, the theoretical underpinnings of second language acquisition and learning, the advantages of CLIL approach and public pressure that view English through its roles in nationism. The restraining factors include the political and public pressure to uphold Bahasa Malaysia for its roles in nationalism. These factors determine the status of whether the teaching of Technical subjects through English policy could be formulated or not. The conflict between these factors does not provide a clear cut solution for the higher learning institutions that have to produce graduates who are proficient in both English and Bahasa Malaysia. As polytechnics and community colleges in Malaysia aspire to be at par with the universities including in the areas of teaching and learning, the use of some English during the instruction is indispensable. By applying a systematic and firmly grounded approach such as CLIL in TVET, the polytechnic and community college lecturers would be able to benchmark other successful practices as guidance and assistance.

In this diagram, the lecturers, as the policy implementers, take the centre stage and the variables associated with CLIL instruction should become the focus for future studies in order to

improve its implementation at higher learning institutions in Malaysian context. In order to ensure the successful implementation of CLIL, the lecturers should have the motivation and positive attitudes towards using English for instruction, possess some English language competence and obtain proper professional development training in the right PCK and SMK for CLIL. Motivated lecturers with positive attitudes would try to overcome any short comings by developing the strategies to upgrade their own English language proficiency levels and attend more professional development training for continuous improvements.

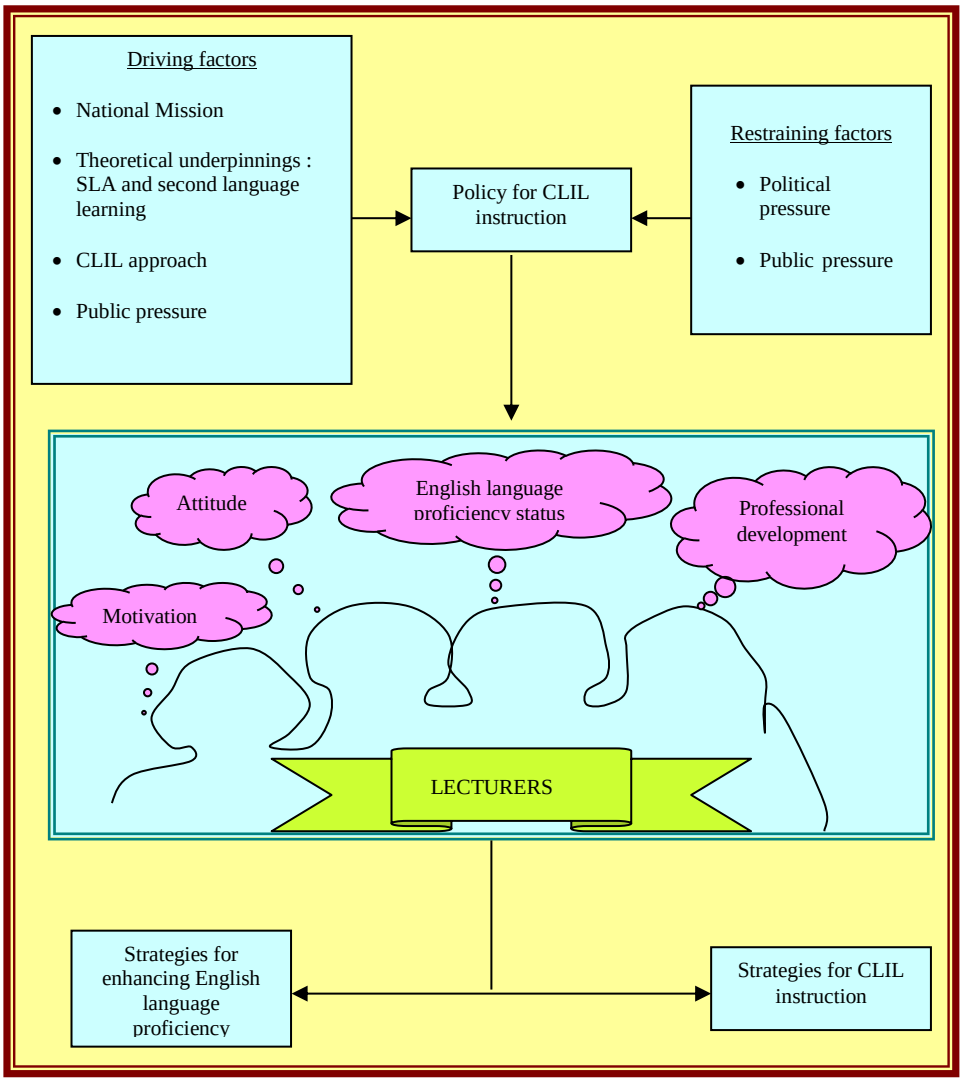


Figure 7.1. A model of CLIL instruction for the lecturers at polytechnics and community colleges in Malaysia.

7.7. Recommendations for Future Research

This research warrants many future studies in a few areas. First, the education policy in Malaysia is a wide area to study and specific research focusing on the policy of the higher education sector will enable the administrators and policy makers to make better informed decisions which will affect not only the education community, but also the economy and the nation at large. The second area worth researching into is CLIL because it is relatively new in Malaysia, particularly in polytechnic and community college contexts, where TVET is the mainstream. This study has linked CLIL practice with the use of multimodals in order to enhance teaching and learning. Further research in this area is encouraged in order to investigate the impacts of multimodality in teaching students in TVET.

Third, more research on teachers particularly in the areas such as training and career development is also vital especially when teachers face constant change in all aspects of their professional and personal lives. In relation to that, a study should be carried out in order to research how these changes would affect students' learning, and impinge on the ability for the training providers to produce quality graduates.

Lastly, graduates and industries are also possible research areas. It is vital for MoHE and the public to find out whether the graduates produced by the higher learning institutions are competitive enough at the global market and meet the demands of the industries both locally and abroad.

7.8. Conclusion

The teaching of content subjects through the target language is brought about by the needs of the learners to master both the content and the target language. At higher education institutions in Malaysia including at polytechnics and community colleges, it is suggested that the content subjects are taught through the English language. It is hoped that this strategy would enable the insitutions to produce graduates who are knowledgeable, skillful and competent English language users.

The implementation of the teaching of content subjects through English was apparently rather complicated especially when the lecturers had gone through limited amount or different training that has impacted teaching in different ways. The factors which include the teacher, student, PCK, SMK, the contexts, etc. would also influence the way the lecturers teach. The findings of the study suggest that systematic CLIL training could be beneficial to improve the lecturers' strategies to teach IT through English. Good practice examples of teachers striving to produce a conducive environment for experimenting with the language should be encouraged so that the learners are consistenly motivated to upgrade their English while learning the content subjects.

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APPENDICES

A Permission Letter from the Ministry of Higher Education



PUSAT PENYELIDIKAN DAN PEMBANGUNAN POLITEKNIK DAN KOLEJ KOMUNITI
JABATAN PENGAJIAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENGAJIAN TINGGI MALAYSIA
Aras 6, Blok E14, Kompleks E, Presint 1
Pusat Pentadbiran Kerajaan Persekutuan
62505 Putrajaya.

Telefon : 603-8883 6573
Faks : 603-8883 6545
Laman Web : http://jppkk.mohe.gov.my

Ruj Kami : KPT/JPPKK/PPPPKK/700-1/8 (**5**)
Tarikh : 4 September 2008

Wan Nor Aisyah Wan Omar
No. 26, Jalan 4/12G
Taman Sri Embun
Fasa Empat Tambahan
43650 Bandar Baru Bangi
Selangor Darul Ehsan

Tuan,

KEBENARAN MENJALANKAN KAJIAN *"THE INTEGRATION OF CONTENT AND LANGUAGE IN THE TEACHING AND LERANING OF INFORMATION TECHNOLOGY SUBJECTS AT POLYTECHNICS AND COMMUNITY COLLEGES IN MALAYSIA "*

Saya dengan hormatnya merujuk perkara di atas.

2. Sukacita dimaklumkan bahawa pihak kami tiada halangan untuk memberi kebenaran kepada tuan untuk menjalankan penyelidikan bertajuk *"The Integration Of Content And Language In The Teaching And Leraning Of Information Technology Subjects At Polytechnics And Community Colleges In Malaysia "*seperti yang dijelaskan dalam cadangan penyelidikan yang disertakan.

3. Untuk peringatan, tuan hendaklah mengemukakan senaskah laporan akhir kajian tersebut ke Pusat Penyelidikan dan Pembangunan Politeknik dan Kolej Komuniti (PPPPKK). Dimaklumkan juga bahawa tuan, adalah diminta mendapatkan kebenaran terlebih dahulu daripada PPPPKK sekiranya sebahagian atau sepenuhnya dapatan penyelidikan tersebut hendak dibentangkan di mana-mana persidangan atau seminar, atau untuk pengumuman di media massa.

Sekian untuk makluman dan tindakan seterusnya, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(DR. ABDUL RAHIM BIN AHMAD)
Pengarah
Pusat Penyelidikan dan Pembangunan Politeknik & kolej Komuniti
Jabatan Pengajian Politeknik dan Kolej Komuniti
Kementerian Pengajian Tinggi Malaysia

1

s.k. Pengarah Politeknik

Pengarah
Politeknik Sultan Idris Shah (PSIS) Selangor

Pengarah
Politeknik Ungku Omar (PUO) Perak

Pengarah
Politeknik Sultan Abdul Halim Muadzam Shah (Polimas), Kedah

Pengarah
Politeknik Sultan Mizan Zainal Abidin (PSMZA), Terengganu

Pengarah
Politeknik Seberang Perai (PSP) Penang

Pengarah
Politeknik Syed Sirajuddin (PTSS) Perlis

Pengarah
Politeknik Kuching (PKS) Sarawak

Pengarah
Politeknik Mukah Sarawak

Pengarah
Politeknik Balik Pulau, Penang

Pengarah
Politeknik Muadzam Shah, Pahang

Pengarah
Politeknik Kota, Kuala Terengganu

s.k. Pengarah Kolej Komuniti

Pengarah
Kolej Komuniti Bandar Penawar Johor

Pengarah
Kolej Komuniti Pasir Gudang Johor Bahru

Pengarah
Kolej Komuniti Bentong Pahang

Pengarah
Kolej Komuniti Hulu Langat, Selangor

Pengarah
Kolej Komuniti Kuala Langat, Selangor

Pengarah
Kolej Komuniti Gerik, Perak

Pengarah
Kolej Komuniti Sungai Siput, Perak

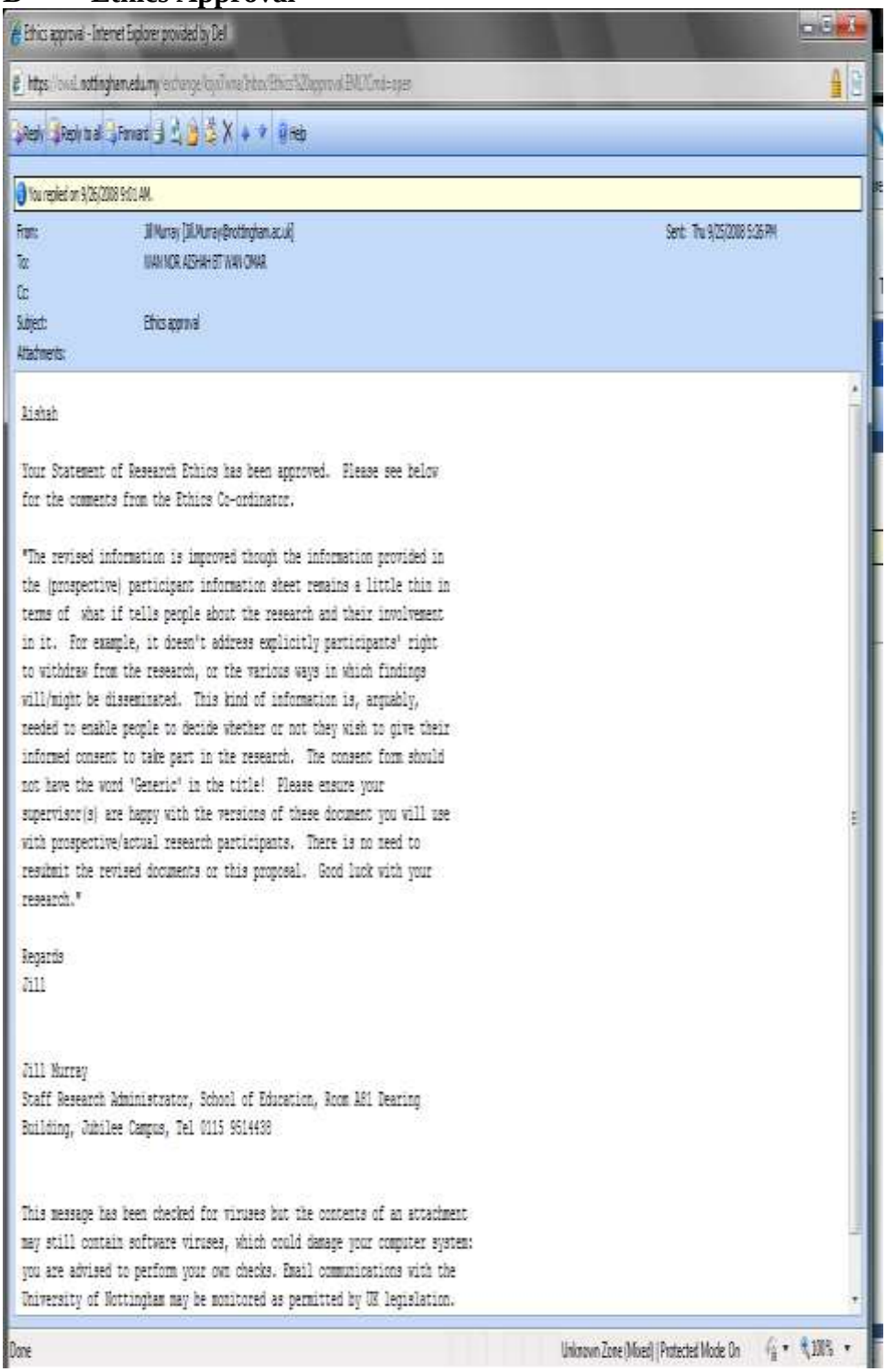
Pengarah
Kolej Komuniti Pasir Salak, Perak

Pengarah
Kolej Komuniti Paya Besar, Pahang

Pengarah
Kolej Komuniti Mentakab, Pahang

Pengarah
Kolej Komuniti Alor Gajah, Melaka

B Ethics Approval



Ethics approval - Internet Explorer provided by Del

https://owa.nottingham.edu.my/exchange/kgxl2wna/Inbox/Ethics%20approval.EML?cmd=open

Reply | Reply to all | Forward | Help

You replied on 9/26/2008 9:01 AM.

From: Jill Murray [Jill.Murray@nottingham.ac.uk] Sent: Thu 9/25/2008 9:26 PM

To: WAN NOR AISHAH BT WAN OMAR

Cc:

Subject: Ethics approval

Attachments:

Aishah

Your Statement of Research Ethics has been approved. Please see below for the comments from the Ethics Co-ordinator.

"The revised information is improved though the information provided in the (prospective) participant information sheet remains a little thin in terms of what if tells people about the research and their involvement in it. For example, it doesn't address explicitly participants' right to withdraw from the research, or the various ways in which findings will/might be disseminated. This kind of information is, arguably, needed to enable people to decide whether or not they wish to give their informed consent to take part in the research. The consent form should not have the word 'Generic' in the title! Please ensure your supervisor(s) are happy with the versions of these document you will use with prospective/actual research participants. There is no need to resubmit the revised documents or this proposal. Good luck with your research."

Regards
Jill

Jill Murray
Staff Research Administrator, School of Education, Room A81 Dearing Building, Jubilee Campus, Tel 0115 9514439

This message has been checked for viruses but the contents of an attachment may still contain software viruses, which could damage your computer system: you are advised to perform your own checks. Email communications with the University of Nottingham may be monitored as permitted by UK legislation.

Done | Unknown Zone (Mixed) | Protected Mode: On | 100%

C Participant Information Sheet and Consent Form

PARTICIPANT INFORMATION SHEET

Research Title : The Teaching and Learning of Information Technology (IT) through English by Lecturers at Polytechnics and Community Colleges
in Malaysia

Dear Colleague,

My name is Wan Nor Aishah Wan Omar and I am a civil servant involved in a postgraduate study at the University of Nottingham in Malaysia. The purposes of my study are to investigate the perceptions and attitudes as well as the learning and teaching strategies of the IT lecturers at the polytechnics and community colleges in Malaysia.

I am interested in researching what you really think and experience when you have to implement the policy of teaching Technical subjects through English. It is hoped that your contribution may enable me to shed some light on the issues regarding the implementation of this policy at polytechnics and community colleges in Malaysia. The study is divided into two parts:
*The survey – a set of questionnaire distributed to all IT lecturers at polytechnics and community colleges.
*The video observation of four IT lecturers (One male and one female representing each group)
The responses to the research are anonymous. I hope you are willing to participate in my study and contribute to the findings related to the teaching and learning of IT through English at polytechnics and community colleges in Malaysia.

Sincerely Yours,
aishah **.**

If you are interested to find out about the findings, do not hesitate to contact me at
ksyx7wna@nottingham.edu.my

Supervisors: Philip.Hood@nottingham.ac.uk , sdzle@exmail.nottingham.edu.my

School of Education Research Ethics Coordinator: andrew.hobson@nottingham.ac.uk

PARTICIPANT CONSENT FORM

Researcher's name : Wan Nor Aishah Wan Omar

Supervisors' names : Associate Professor Dr Philip Hood and Associate Professor Linda Ellison

*I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

*I understand the purpose of the research project and my involvement in it.

*I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

*I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.

*I understand that I will be audiotaped / videotaped during the observation and interview.

*I understand that the data, including the hard and electronic copies, will be stored safely at the researcher's own home and can only be accessed by the researcher and the supervisors.

*I understand that I may contact the researcher or supervisors if I require further information about the research, and that I may contact the Research Ethics Coordinator of the School of Eduction, University of Nottingham, if I wish to make a complaint relating to my involvement in the research.

Signed : …… **Date :** ……

Name of research participant :

Name of Institution :

D Sample Letter to the Director and Head of Programs for Survey

Tel : 013-39393935
19th February, 2009

Director
Ungku Omar Polytechnic, Perak (PUO),
Jalan Raja Musa Mahadi,
31400 Ipoh,
Perak.
Tel : 05-5457622
Fax: 05-5471162
(att: Head of Information Technology [IT] Department)

Dear Sir,

Questionnaire for Survey on Polytechnic IT Lecturers

I would like to carry out a survey on your polytechnic IT lecturers through the questionnaire enclosed.

2. I have obtained the permission to carry out the research from the Research and Development Centre, Department of Polytechnic and Community College Education, Ministry of Higher Education dated 4th September 2008 (Ref; KPT/JPPKK/PPPPKK/700-1/8(15)), and the consent from the research ethics panel of the School of Education, University of Nottingham, United Kingdom.

3. The research is on the teaching and learning of IT through English by the lecturers at polytechnics and community colleges in Malaysia and the questionnaire is part of the tools used for the study.

4. Your cooperation is highly appreciated and I thank you in advance.

Yours sincerely,

(Wan Nor Aishah Wan Omar)

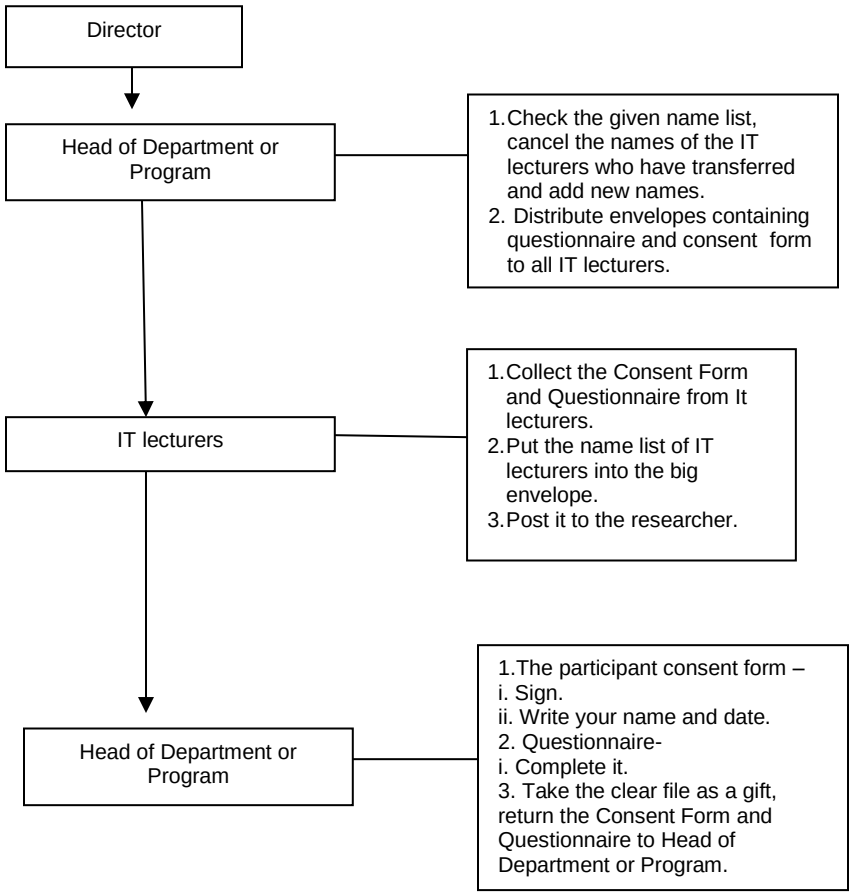
E Questionnaire

The Teaching and Learning of Information Technology (IT) through English by Lecturers at Polytechnics and Community Colleges in Malaysia

Dear Colleague,

This questionnaire should not take more than 20 minutes to complete. The responses to the questionnaire are anonymous.

Below is the flow chart to show how you can contribute to this study:



Thank you in advance for your time and help.

Sincerely Yours,

AISHAH.

Section A: Demography

Tick (✓) the answer that is relevant to you or fill in the blanks.

A1) Gender : Male ☐ Female ☐

A2) How long have you been teaching IT through English?

_____

A3) Subject(s) taught this semester : _____

A4) Age (years) : Below 25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ Above 46 ☐

A5) Daily languages used (rank according to frequency of use, 'a' being the most frequently used) :

a._____ b. _____ c._____

A6) Ethnicity :
Malay ☐ Chinese ☐ Indian ☐ Other ☐

A7) Did you learn IT through English formally?

i. Yes ☐ No ☐ ii. If yes, state number of days/months/years: _____

A8) Did you receive any pre-service training on teaching IT through English?

i. Yes ☐ No ☐ ii. If yes, state number of days/months/years: _____

A9) Have you received any in-service training on teaching IT through English?

i. Yes ☐ No ☐ ii. If yes, state number of days/months/years: _____

Fill in the boxes.

A10) Academic qualifications :

Name of Institution	Country	Year	Name of certificate	Specialization

SECTION B :
PERCEPTIONS AND ATTITUDES TOWARDS THE TEACHING AND LEARNING OF IT THROUGH ENGLISH

Circle the number for the scale that is closest to your feelings.

1- Strongly disagree (SD) **2- Disagree (D)** **3- Agree (A)** **4- Strongly agree (SA)**

		SD	D	A	SA
B1)	I believe Technical subjects should be taught through English to support a brighter future for the students.	1	2	3	4
B2)	Having to teach IT through English affects my motivation negatively.	1	2	3	4
B3)	I receive adequate training for my professional development with regards to the teaching of IT through English.	1	2	3	4
B4)	I receive external motivation, encouragement and support to teach IT through English from :				
	i. My superiors	1	2	3	4
	ii. My colleagues	1	2	3	4
	iii. The ministry	1	2	3	4
B5)	I need to be proficient in English in order to advance in my professional development and career.	1	2	3	4
B6)	Teaching through English is time consuming.	1	2	3	4
B7)	Teaching should focus more on the content than on English.	1	2	3	4
B8)	I often wish I could communicate better in English.	1	2	3	4
B9)	The English language corpus we need to teach IT is often different from that used in the English language class.	1	2	3	4
B10)	The policy that requires the teaching and learning of Mathematics, Science and Technical subjects through English at polytechnics and community colleges should remain as it is.	1	2	3	4
B11)	The policy should be abolished.	1	2	3	4
B12)	The policy should be revised and improved.	1	2	3	4
B13)	Currently, the implementation of this policy is satisfactory.	1	2	3	4
B14)	Currently, the implementation of this policy is ineffective.	1	2	3	4
B15)	The implementation is problematic due to the teacher factor.	1	2	3	4
B16)	The implementation is problematic due to the student factor.	1	2	3	4

B17) The implementation is problematic due to the nature of the subjects taught.	1	2	3	4
B18) The implementation is problematic due to ……(please state)	1	2	3	4

SECTION B (continuation):

Circle the number for the scale that is closest to your feelings.

1- Strongly disagree (SD) **2- Disagree (D)** **3- Agree (A)** **4- Strongly agree (SA)**

	SD	**D**	**A**	**SA**
B19) By learning content subjects through English, the national language is jeopardised.	1	2	3	4
B20) Learning this way also makes us become westernized.	1	2	3	4
B21) Learning this way makes our level of patriotism diminishes.	1	2	3	4
B22) By learning content subjects through English, the unity between various ethnic groups is at stake.	1	2	3	4
B23) By learning content subjects through English, the students will master an international language.	1	2	3	4
B24) By learning content subjects through English, the knowledge gap between rural and urban students will become wider.	1	2	3	4
B25) When Malaysian citizens are equipped with English, we will be more prepared to compete in the global market.	1	2	3	4
B26) When Malaysian citizens are equipped with English, the economy of our country will become more prosperous.	1	2	3	4
B27) When Malaysian citizens are equipped with English, the Malaysian unique identity will diminish.	1	2	3	4
B28) My goal is to develop my abilities to enable me to teach IT through English.	1	2	3	4

SECTION C : LEARNING STRATEGIES (LECTURERS AS LEARNERS)

Circle the number for the scale that best reflects your usual activities.

1- Never (N) **2- Rarely (R)** **3- Often (O)** **4- Always (A)**

		N	R	O	A
C1)	I do these outside the classroom or workplace:				
	i. I speak or converse in English.	1	2	3	4
	ii. I read English books/ articles/ magazines.	1	2	3	4
	iii. I write reports, notes, messages, etc. in English.	1	2	3	4
	iv. I listen to English music and news.	1	2	3	4
	v. I watch English programmes on TV.	1	2	3	4
C2)	I enhance my English language through:				
	i. in-service training.	1	2	3	4
	ii. engaging in online study packages.	1	2	3	4
	iii. using offline self-access learning materials such as workbooks, cds and videos.	1	2	3	4
	vi. Incidental learning such as watching the TV, listening to the radio and talking to people in English.	1	2	3	4
	v.(Other, state): _____	1	2	3	4

SECTION C (continuation):

Circle the number for the scale that best reflects your usual activities.

1- Never (N) **2- Rarely (R)** **3- Often (O)** **4- Always (A)**

		N	R	O	A
C3)	The environment allows me to practise English well.	1	2	3	4
C4)	I take responsibility for my own learning.	1	2	3	4
C5)	I seek to get feedbacks on my performance in English.	1	2	3	4
C6)	I reflect on the English language that I have used.	1	2	3	4

SECTION D : TEACHING STRATEGIES (LECTURERS AS TEACHERS)

Circle the answer that is relevant to you.

1- Never (N) **2- Rarely (R)** **3- Often (O)** **4- Always (A)**

		N	R	O	A
D1)	IN MY TEACHING OR TUTORIALS, I use **ONLY** English in these situations:				
	i. Giving instructions	1	2	3	4
	ii. Giving advice	1	2	3	4
	iii. Giving explanations	1	2	3	4
	iv. Introduction/conclusion	1	2	3	4
	v. Others (specify):_____	1	2	3	4

D2)	I need to **mix** English and Malay in these situations:				
	i. Giving instructions	1	2	3	4
	ii. Giving advice	1	2	3	4
	iii. Giving explanations	1	2	3	4
	iv. Introduction/conclusion	1	2	3	4
	v. Others (specify):_____	1	2	3	4
D3)	I need to **translate** English to Malay in these situations:				
	i. Giving instructions	1	2	3	4
	ii. Giving advice	1	2	3	4
	iii. Giving explanations	1	2	3	4
	iv. Introduction/conclusion	1	2	3	4
	v. Others (specify):_____	1	2	3	4
D4)	I use simple English when I teach IT.	1	2	3	4
D5)	I have to teach English so that my students understand the session.	1	2	3	4
D6)	I use English Technical terms.	1	2	3	4
D7)	I am given the freedom to adapt my teaching strategies to suit my students' needs.	1	2	3	4

SECTION D (continuation):
Tick (✓) the answer that is relevant to you.
(You may tick more than one box.)

		Reading	Writing	Listening	Speaking	Not applicable
D8)	In order to teach IT through English, I need to upgrade my English language competence in this area(s);					
D9)	I need to **mix** English and Malay when the activities involve…					
D10)	I need to **translate** English to Malay when the activities involve…					
D11)	I need to **simplify** my English because my students are weak in…					
D12)	The instructional materials such as textbooks/ workbooks/ software/ tasksheets enable these activities to be carried out in English;					
D13)	Since the first time I started teaching IT through English, I have improved my English in these areas…					

SECTION E : TEACHING AND LEARNING ENVIRONMENT (PRACTICAL SESSIONS)

Circle the answer that is relevant to you.

1- Never (N) **2- Rarely (R)** **3- Often (O)** **4- Always (A)**

		N	R	O	A
E1)	During practical sessions, my students may need…				
	i) to practise listening in English.	1	2	3	4
	ii) to speak in English.	1	2	3	4
	iii) to read in English.	1	2	3	4
	iv) to write in English.	1	2	3	4
E2)	During practical sessions, my students find it difficult				
	i) to understand English verbal communications.	1	2	3	4
	ii) to speak and discuss in English.	1	2	3	4
	iii) to read in English.	1	2	3	4
	iv) to write in English.	1	2	3	4
E3)	The tasks require the students to…				
	i) complete project work.	1	2	3	4
	ii) solve problems.	1	2	3	4
	iii) research for information.	1	2	3	4
	iv) work individually.	1	2	3	4
	v) work in pairs or small groups.	1	2	3	4
	vi) share information.	1	2	3	4
	vii) integrate content and English.	1	2	3	4
	viii) (Other, state)_____	1	2	3	4
E4)	Learning IT through English affects my students' motivation positively.	1	2	3	4

Final remarks: Please feel free to write your comments/ views/ suggestions, etc..

F Sample of Thank You Letter for Involvement in Survey

Tel : 013-39393935
28th May, 2009

Director
Sungai Siput Community College,
Peti Surat 390,
31100 Sg. Siput (Utara),
Perak.
Tel : 05-5971 440
Faks: 05-5982 157
(att: En Mohd Hatta Bin Ibrahim, Head of Information Technology [IT] Program)

Dear Sir,

Appreciation to Community College IT Lecturers for Involvement in Survey

I would like to extend my deepest appreciation to all the community college IT lecturers who have participated in the recent survey on the teaching and learning of Information Technology subjects through English at polytechnics and community colleges in Malaysia.

2. I would also like to thank the Head of IT Program for administering the survey on my behalf. Your contribution to this survey speaks volumes about your commitment and dedication to work.

3. Finally, your college's cooperation is highly appreciated and hopefully, it will enlighten the issues surrounding the policy of teaching and learning Technical subjects through English in Malaysia.

Thank you very much.

Yours sincerely,

(Wan Nor Aishah Wan Omar)

G Sample Letter to the Director for Observation

Wan Nor Aishah Wan Omar
The School of Education,
The University of Nottingham Malaysia Campus,
Jalan Broga,
43500 Semenyih,
Selangor Darul Ehsan.

_____

Director
Politeknik Sultan Idris Shah,
Sabak Bernam,
45100 Sungai Air Tawar,
Selangor Darul Ehsan. 20th January 2010

Dear Sir,

PERMISSION TO OBSERVE INFORMATION TECHNOLOGY (IT) LECTURERS' TEACHING AND LEARNING SESSIONS

I am a staff of the Ministry of Higher Education who is currently doing a postgraduate study at the University of Nottingham, Malaysia Campus in the field of education.

2. For my study, I am researching the teaching and learning practice of IT lecturers at polytechnics and community colleges who are teaching IT through English. To ensure smooth collection of data for the research, I would like to obtain the permission to observe and video tape the IT lecturers' teaching and learning sessions. The names of the lecturers selected for the observation are as below:

1._____
2._____

I have obtained the consent from the British Educational Research Association and the Research Development Centre, the Ministry Higher of Education. Enclosed is the permission letter to carry out the research at your premises from the ministry.

A separate letter will be sent to each lecturer involved in the research to explain the purpose of the study and the procedures for data collection which will take place from 22nd February to 12th March 2010.

5. The findings of the research will contribute to the enhancement in the pedagogy of content subjects that are integrated with English. Therefore, voluntary involvement of both the institution and the lecturers are very much appreciated. For any inquiries, please contact me at **013-3933935** or email me at **ksyx7wna@nottingham.edu.my** or **wannoraishah@gmail.com.**

Thank you.

Yours Sincerely,

(WAN NOR AISHAH BINTI WAN OMAR)

H Sample Letter to the Participant for Observation

Wan Nor Aishah Wan Omar
The School of Education,
The University of Nottingham Malaysia Campus,
Jalan Broga,
43500 Semenyih,
Selangor Darul Ehsan.

(Name of participant)
_____
Politeknik Sultan Idris Shah,
Sabak Bernam,
45100 Sungai Air Tawar,
Selangor Darul Ehsan. 20th January 2010

Dear Sir,

OBSERVATION OF INFORMATION TECHNOLOGY (IT) LECTURERS' TEACHING AND LEARNING SESSIONS

In 2009, you responded to my questionnaire on the teaching and learning of IT subjects through English at polytechnics and community colleges, and your contribution is highly appreciated. The findings of the survey revealed that observations of IT lecturers' teaching and learning sessions can inform us more about the teaching and learning of IT subjects through English in Malaysia.

2. Based on the survey, you have been selected to participate in this project. For this project, I would like to have (a) video tape(s) of your typical theory classes where active teaching and learning take place. You can choose to video tape the lessons yourself or let me into your classroom and video tape your teaching and learning sessions. The video tapes must have good audio and visual quality.

2. The video tapes should be submitted to me by 12th March 2010. I will contact and meet you personally to discuss this project further. You will receive a token of appreciation for your effort once satisfactory data is collected.

4. Your contribution to the research and IT pedagogy is highly significant, but your identity will remain anonymous if you wish. For any inquiries or any wish for withdrawal, please contact me at **013-3933935** or email me at **ksyx7wna@nottingham.edu.my** or **wannoraishah@gmail.com.**

Thank you.

Yours Sincerely,

(WAN NOR AISHAH BINTI WAN OMAR)

I Sample of Observation Transcript

Teacher D

Subject: Website Development

Topic: Navigation

Topic 2(1) – At the computer lab

[Teacher walks in]
Student: Good morning
Teacher: Ah... OK class
Student: Yes
Teacher: [face students] Assalamualaikum warahmatullahi wabarakatuh
Students: Wassalamualaikum warahmatullahi wabarakatuh
Teacher: [face students] Alright Ok ah in our last class [walk back to her place], we have finished practical one, so today you should understand ah... [click on the PC] you should understand how to starting your Microsoft front page [pointing on the screen] and then how to use template, wizard, add text and then graph view and also change properties [face students]. OK actually we use it change properties to change what?
Student: Ah... page...
Teacher: Page...
Student: Background
Teacher: Page background OK right [look at the computer screen and click] so today I am going to teach you [look at the projector screen] a topic call navigation [face students] OK remember last class I have [put up an A4 paper to show the class] give you this attachment..., so you should finish how many pages?
Student: seven
Student: six
Teacher: Six include today
Students: Seven
Teacher: OK you have in your folder you have index dot htm then...
Student: Bayaran dot htm
Teacher: Bayaran dot htm
Student: Contact us dot htm
Teacher: Contact us dot htm
Students: Bayaran mail dot htm
Teacher: Bayaran mail dot htm, bayaraan bungkusan dot htm and
Students: Bayaran Pos Laju dot htm.
Teacher: Bayaran Pos Laju dot htm. OK you have write all these, [click on the computer] you have write all those pages so you save it in what folder?
Students: Bayaran pos latihan hyperlink
Teacher: Bayaran pos latihan hyperlink so I accept if you save ah... other names OK? [click on the PC] Alright so this is your folder, [point on the projector screen] so you should have these six

or seven pages. Right... [go back to her place] OK now open your Microsoft front page [click on the PC]
Student: Yes
Teacher: OK. For those who already open your Microsoft front page please close all bars.
Students: All bars
Teacher: Close all bars and then go to file open site, bar open side open your folder, save in ah... latihan hyperlink, open latihan hyperlink if you save in website pos or pos Malaysia open that folder.
[Teacher click on her own PC]
Teacher: OK click open website... website pos. OK first page is index dot htm. Index dot htm. Alright. In this topic four, OK you will learn [look at students] how to create hyperlink, [point at the projector screen] that is hyperlink, and then image hyperlink, you have electronic mail [face students] when you click the email ah... address and then automatically pop up Microsoft, Microsoft Outlook
Students: Outlook
Teacher: to send mail. [point at the projector screen] OK this is image map where you have add and then [face students] for example ah... Malaysia maps OK and then we have Kedah, Perlis, Kuala Lumpur, Terengganu, Kelantan, and then when you click let say Kelantan, you open new Kelantan dot htm something like that.. we can ah... draw the map to link to another page. Alright, [point to the projector screen] and then navigation [face students] it is ah... some of facilities provided by Microsoft front page to make you easy to develop hyperlink. OK so we [face students] plan to finish all these ah Microsoft front page if not we continue on Monday.
Student: After
Teacher: After semester break OK? Right [click on PC] back to Microsoft front page, open your email index dot htm [walk close to students]. Right now you want to do hyperlink, [look at student's PC] to laman utama kadar bayaran pos and hunbung kami. Alright, [walk to the projector screen] so if you click laman utama.
Student: Ya...
Teacher: [point at the project screen] The page you go to this page, same page index dot htm so how to insert your hyperlink, [click on the PC] highlight laman utama.
Student: Highlight
Teacher: Highlight laman utama and then OK [face students] you have two option here, [click on the PC] either you want to right click and then choose hyperlink OK or highlight.
Student: Highlight
Teacher: Highlight then go to insert, go to hyperlink same ah... alright. Now so you can choose your file so if you click laman utama so you go to index.
Student: Index
Student: Then?
Teacher: OK and then make sure you save ya... [look at the projector screen and turn to students] every time you make any changes make sure you save. [click on the PC] Alright, same like kadar bayaran pos, OK highlight this text, Rizal, Afiz OK? Highlight this text OK you can right click, right click and then go to hyperlink OK when people click kadar bayaran pos the... this page will go to?
Students: Bayaran Pos
Teacher: Bayaran pos OK bayaran bayaran right...
Student: Bayaran

Student: Yes
Teacher: Bayaran right? OK choose bayaran and then click...
Student: OK
Teacher: OK
Student: Then save
Student: Save
Teacher: Save control S or just click save. And then hubungi
Studnet: Kami.
Teacher: Kami highlight
Student: Contact us
Teacher: Contact
Student: Contact us
Teacher: Then hyperlink contact us. OK now have you do this hyperlink then click F12, first click all the link is it function or not. Kadar bayaran right?
Students: Oh...
Teacher: [clicking on the PC] Hubungi kami?
Students: Function
Teacher: Function but OK let's say you click laman utama still the same page right it goes to index dot htm, at kadar bayaran pos OK this page but in this page [point at the screen] not do the hyperlink yet so what you have to do?
Student: Do the same.
Teacher: Do the same thing. Or if you want to make faster [click at the PC] so just copy all these copy and then open the page let's say kadar bayaran and then highlight this page.
[students are chit chatting]
Student: Repeat again.
Student: Can you repeat again.
Teacher: OK now OK [face students] you want to put this link to another page.
Student: Ya...
Teacher: OK so open that page ah... bayaran dot htm.
Student: Bayaran
Teacher: [look on the projector screen] OK this page laman utama [point at the projector screen] kadar bayaran hubungi kami [face students] don't have any hyperlink right?
Student: Ya...
Teacher: OK you have two ways [look and click on the PC] OK either you want to do the same thing repeat laman utama, right click hyperlink and then go to index, OK and then click kadar bayaran highlight right click go to kadar bayaran dot htm or what you can do OK just delete this and then go to index copy these, copy all these, copy paste.
Student: Oh....
Teacher: Alright, [face students] so the same thing you have to do for each pages, so you have seven page so do the same thing, copy and then paste. [look and click on the PC] Then you can try your bayaran dot htm so can you click laman utama
Student: Oh...
Teacher: It will go to Pos Malaysia Bhd first page OK.
[students are chatting]
Student: ... location

Teacher: [walk close to students] OK each page mean you have seven so seven you have this thing this hyperlink. [look on student's PC] Any problem ya?
Student: No.
Teacher: OK ya...
[Teacher walk around the computer lab]
[students are chit chatting – discussing the work]
[Student: Puan] [a student call for teacher to guide him]
[Teacher: Hhmmm.... [walk to look on a student's PC] .....]
Teacher: Have you finished class?
Students: Yes.
Teacher: OK can we continue?
Students: Sure
Teacher: [walk to her own PC] OK now open the bayaran dot htm
Student: Bayaran dot htm.
Teacher: Bayaran dot htm alright [face students] in bayaran dot htm you want to make hyperlink for [point at the projector screen] kadar bayaran mail, kadar bayaran bungkusan and also kadar bayaran pos laju. When people click kadar bayaran mail it will go to
Student: Bayaran
Teacher: Bayaran underscore
Student: Mail.
Teacher: Mail. Remember you have paid number four bayaran underscore, so means that when people click kadar bayaran mail [point at the screen] then hyperlink to bayaran underscore mail. [walk to her PC] Same thing same way. OK highlight this text and then right click hyperlink choose bayaran mail.
[students are chit chatting]
Teacher: [clicking on her PC] And then highlight kadar bayaran bungkusan, hyperlink bayaran bungkusan
Student: OK
Teacher: Then... OK try to preview your website [look on students and then click on her PC] F12 and then right click.
[click on her PC] [walk around the class]
Teacher: OK... Any broken link?
Student: What?
Teacher: Broken link means any page cannot be displayed?
[Teacher walks around the class]
[teacher: Huh... try... OK ... kadar bayaran pos... OK OK]
[students are chit chatting]
Teacher: OK if you want to make hyperlink for location [walk to screen] OK you just OK here [point at the screen] we have laman utama, kadar bayaran post hubungi kami kan.
Student: Yes ya...
Teacher: So you have to add location lokasi
Student: Oh.
Teacher: [click on her PC] Next ah... add one more hyperlink, every page lah. [walk away from her PC]
Student: Can repeat, repeat...
Teacher: [walk to projector screen and point at the screen] Now you have these three hyperlink

Student: Yes
Teacher: Laman utama, kadar bayaran pos and then hubungi kami, we have another page is location dot htm. Those who make hyperlink for the page so what you have to do is just add one text [click on her PC] lokasi lokasi then click hyperlink, lokasi hyperlink location right, so you just done one index [point at the projector screen] so what you have to do you just copy all these link this hyperlink to every page, [face students] you have seven so you have to copy and paste for seven pages. [clicking on her PC]
Student: OK
Teacher: OK
[students are chatting and discussing their work]
[Teacher walk away from the PC]
Student: Lokasi
[teacher turn and walk to other side of the computer lab – and check students' work on the screen] [walk back to her place]
[teacher walk to the left hand side of the class] [walk away from her PC and look on her note]
Teacher: [face students with her note on her hand] OK I have create you a simple note for navigation for this topic, so you can refer this as reference ya.... So here I have created hyperlink for ten emails, electronic mails, image map and navigation.
[someone walks in to the computer lab with camera and take picture]
[teacher walk to left side of the class] [discuss work with one student]
Teacher: [look on her note] OK have you finished class?
Students: Yes
Teacher: OK can we move to image?
[the person who took picture walked out of the class]
Teacher: OK [walk around] now save your work open index dot htm.
Student: Dah.
Teacher: OK in your Microsoft front page [walk to her PC and click]. OK index ya... what you want to do now you want to add image and then create image you want have to make [point at the projector screen] hyperlink to another page OK first insert picture, [click on the PC] go to insert, go to insert picture, click art, OK add ah... search for telephone [spell out telephone].
Students: Telephone
Teacher: Telephone [spell out the spelling of telephone] [look and click on the PC] OK get one picture, choose one, let's say this right ah... then click insert OK file save. OK once you click save this ah... [point at the screen and look at students] window here so ah... this is for you assign where you want to save this image, so what folder you have to save this image?
Student: Ah... Pos Malaysia
Student: Pos Malaysia
Teacher: Pos Malaysia inside email so [click on her PC] click change folder here change folder, right click and then choose folder image. OK image OK and then this image will save inside your ah... latihan hyperlink that image. OK? Alright, OK [point at the screen] now when people click this image then they can go to contact us, alright? Same like you do hyperlink for that first highlight this image, click this image, click this image OK and then right click hyperlink, go to contact us, click contact us OK.
Student: ah... repeat
Teacher: OK... try to view in web browser, if you click image and then you open new hubungi kami

Student: Oh...
Teacher: OK... [walk to one student's table]
[students are chatting]
Teacher: OK I repeat ya... [back to her PC] OK ah... first you have to insert image, insert image you know? Don't know?
Students: Yes
Teacher: You have you have insert your image or not?
Students: Yes...yes
Teacher: Yes, all yes ah... and then once you have image in your [point to the projector screen] index dot htm, [look at students] click this OK click
Student: Outlook
Student: Contact us.
Teacher: Click alright and then right click, choose hyperlink choose hyperlink and then OK you want people to click image go to contact us, [point to the screen] go to hubungi kami right [click on the PC] so choose contact us OK... save and then we review in F12 try to do the image.
[Teacher guide students on steps].
[teacher: save save save... change folder... image..]
[student: Puan here puan...]
[teacher: change folder OK click double OK.F12 F12. OK click image OK hubungi kami... contact...] [walk back to her place and click on PC]
Teacher: OK [walk around the class] now we want to do electronic mails, can you remember how to insert hyperlink for that?
Students: Yes
Teacher: Image?
Students: Yes
Teacher: OK ah...
Student: So far so good
Teacher: So far so good ah...
Student: Ya...
Teacher: [back to her place and click on the PC] OK now ah... you want to make ah... electronic mails, OK go to Microsoft front page OK and then open contact us dot htm, OK open contact us dot htm OK open highlight webmaster at Pos Malaysia dot com dot my, highlight.
[students chatting]
[student: Buat dulu]
Teacher: OK for those who are not finished please write this email webmaster at pos Malaysia dot com dot my. Write this email... [walk to check student's PC] Write this email webmaster at pos Malaysia dot com dot my.
[Check on students' PC]
[teacher: OK]
[student: Then]
[student: Sudah OK]
Teacher: OK... hubungi kami, contact us.
[student: ... contact us]
[students chatting]
Teacher: OK open contact us, dah... contact us... contact us.
[teacher check on a student's PC]

[teacher: OK... depan] [walk back to her place]
Teacher: OK alright you want to make ah... electronic mail, [click on the PC] highlight this webmaster at pos Malaysia dot com dot my, right click go to hyperlink OK, normally this will appear, right? OK choose here, email address [point at the screen], click so if you open this window, OK alright that display webmaster at pos Malaysia dot com dot my, display, if you want to change also you can do, [look at her PC] let's say you want to just webmaster, right... you want to display webmaster OK and then... OK what is the hyperlink? Automatically for ... email electronic mail [point at the screen], you have to type mail to webmaster at pos Malaysia dot com dot my by default once you have highlight that, [point at the screen] you have this.
Students: Oh...
Teacher: OK [look at her PC] click OK, save alright review review F12.
Student: Pos Malaysia
Teacher: If you click here and then Microsoft Outlook with... OK I repeat ya... OK now I want you to do ah... another name, OK just put your name, email to email to OK your name alright? OK, write this email to your name [point at the screen] OK email to your name, class, your name alright you want when people click this and then they can send you email to your email address, OK let's say your email your email address is halimah at gmail dot com, [point at the screen] my email OK display is my name, OK... alright as usual, you highlight this text and then right click OK no hyperlink right? [point to the screen and look at students]. So another option is go to?
Students: Insert
Teacher: Insert. [click on the PC] Go to insert with hyperlink... alright OK ensure you choose this email address [point at the screen] OK alright. Now you can see here no email, right... no email, [point at the screen] so what you have to do you write mail to double dot and then your email address [click on the PC], like this, mail to and then double dot titik bersisik OK your email,. My email is halimah at gmail dot com OK and then click OK.
[Students are chatting]
Teacher: [click on the PC] Ok now you can test your email OK and you click your name, [point at the screen] this Microsoft Outlook will open and then automatically generate your email address. [click on the PC] OK... ah... OK.
[students are chatting]
[student: save to?]
[student: ...]
Teacher: OK, that means your computer don't have Microsoft Outlook. Don't have...
[students are chatting]
[teacher: don't have, kat mana?] [Look on students' PC]
[students laughs]
[teacher work away]
[students are chatting]
[teacher: OK... yes...] [teacher walk back to her place]
Teacher: OK alright class, [click on her PC] OK please do add your code here, this is your code Microsoft Outlook have help you to create your... OK let's say you... please... look at your laman utama, highlight that...
Student: Huh...
Teacher: Please look... OK class look here, [point at the screen] this text hyperlink OK you can see A... and then where you want to link and then this is display then close A OK no mail to,

right... it just A... equal to page to hyperlink then close A close A... OK different repeat text hyperlink and then mail electronic highlight this text [point at the screen] you can see here A ... then mail to... mail to your email address... so remember mail to.
Student: Mail to.
Teacher: Mail to
Student: Before the email?
Teacher: Mail to
Student: ...
Teacher: Of course... of course
[student: Oh my god]
[students: laughs]
[Teacher checks on students' work]
[students are chatting]
Teacher: OK ah... so you can understand how to insert hyperlink.
[teacher: highlight hyperlink... highlight webmaster... webmaster at... ah...]
[other students are chatting]
[teacher: webmaster at ah... at.. dot com] [teacher walk back to her place]
Teacher: OK I repeat ya... how to insert ah...
[students are chatting]
Teacher: Electronic mail. ... First write your name, email to your name, have you write?
[student: ... buat]
Teacher: Hafiz... Hafiz
Hafiz: Ya...
Teacher: OK... highlight your name, highlight your name, right click and then go to hyperlink, OK go to hyperlink OK like this right [point at the screen] your name and then in this area OK what you have to do is to write mail to... [spelt out mail] mail to then double dot. OK your email, what is your email? Hafiz at yahoo.com
Student: No...
Teacher: You have email Hafiz? What your email address?
Students laughs...
Teacher: Hafiz is cute
Students laughs...
Teacher: OK... my email Halima OK... copy email address, Hafiz... ah... Halima... then OK.
Student: But exam... is a question
Teacher: For Amali yes you have to do this... [point at the screen] For final Amali..
Student: This ah...
Teacher: Not same like this, different lah... but the step is what I teach you today. Alright, now we are going to put image map.
[students are chatting]
Teacher: Ah... Khalid, Asraf ah... ask you friend how to do mail electronic.
Student: ...
Other student laughs
Teacher: OK OK... go to image map OK OK now open location, OK Start, location, go to open location. [click on the PC]
[students are chatting]
Teacher: Have you insert picture?

Students: Yes
Student: No...
Student: Gambaran
[students are chatting]
[Teacher looks on her own PC and clicking]
Teacher: OK, everybody have insert image in your location.
Students: Yes
Teacher: Now I want to show you how to make image map. OK OK. [click on the PC] This is your image and then what you have to do, go to view toolbar.
Student: Toolbar then?
Teacher: Then make sure this [point to the screen] drawing is right, so click this.
Student: Of course
Student: Drawing
Teacher: [look on her PC] Sorry sorry view toolbar picture, picture.
Student: Picture
Student: Allah...
Teacher: Never mind... Just open picture OK this toolbar will appear. OK yah... How to draw in this map? OK here you have this rectangle, circle and then ... hotspot right... OK you choose what you... OK let's say you choose this one [point at the screen]
Student: Tak nampak.
Teacher: [click on her PC] OK... [look at the screen] OK click picture toolbars OK class, picture toolbar and then this is your hotspot OK choose one, OK let's say you want to choose this OK click and then go to your image OK let's say you want when people click ah... this icon, then it will jump to [point to the screen] index dot htm, then when people click this picture, they will jump to bayaran underscore mail dot htm. This is for your example, for the right web is when you click [point to the screen] Putra World Trade Centre, then you go Putra World Trade Centre dot htm lah but we don't create putra dot htm right... OK what we create is pos Malaysia. OK alright... now [click on her PC] choose this hotspot choose this one... Rizal, have you open this location dot htm?
Student: I have seen but...
Teacher: And then have you open this toolbar picture?
[students are chatting]
[student: belum]
[student: Puan....]
[student: menyusahkan orang...]
[teacher: Hafiz OK]
[students are chatting]
[Teacher check on a student's work]
Teacher: OK save your picture... Alright... [walk to point at screen] now click here hotspot.
Student: Kenapa tak...
Student:
Teacher: OK click this hotspot
Student: Click image...
Teacher: Ah... select this image first.
Students: Oh...

Teacher: Class... this image and then go to this hotspot... alright [look at the PC], go to your image, OK ah... your image will different with me right?
Student: Yes
Teacher: [point to the screen] So just ah... draw any part of your map, for let's say may be you want this hotspot OK, click click click click...
Students: What click click click click...
Teacher: OK.
Student: OK
Teacher: Then at the end double click OK OK yah... OK [click on her PC] More easy choose rectangle or circle circle hotspot, circle and then you just like this OK ah let's say this one OK choose existing bar or web page OK [point at the screen], when this window appear insert hyperlink OK click existing file or OK OK now you want when people click at that point, it will you go to let's say index dot htm, so choose index dot htm. Let's say when people touch this area, this hotspot and then it will go to bayaran dot htm. OK?
Student: Oh...
Teacher: And then another one click here then go to contact us dot htm. OK? Here have three hotspots OKif you want to add more. OK preview your location by click F12 then click at your hotspot. Then OK go to, then here... maybe your project have ah... create your own project your website [walk around the class] ah for ah... Malaysia tourism OK so you can choose this image function, you can find map and then draw the hotspot. Preview in browser.
[Check on students' work]
[students are chatting]
Teacher: OK ah... any problem?
Student: No
Teacher: OK [back to her place and check her note] OK ya... [walk around the class] can I go to next sub topic; we will learn how to create navigation. OK this navigation is construct navigation structure. Extra page, the extra notes? [click on her PC] OK now open your Microsoft front page... close all these page except index dot htm. OK OK... before this we make hyperlink OK [point at the screen] that's hyperlink ah we create it manually, one by one OK now we want to create hyperlink by using navigation. OK how to do [click on the PC] that means first enter OK and then go to insert, insert, then navigation... insert navigation... insert navigation ya... and then choose bar base, OK you have two here, bar with custom link or bar base on navigation structure. OK first try to select bar with custom, next OK you will ask to choose which button you prefer for your website but for those who already choose link for your website, OK you have choose link right, you can just accept this use page link mean that ah... the Microsoft front page will create new button exactly same with your thing OK. For those who have not ah... choose anything right just choose button, one button for your website. OK once you have choose, now you can choose orientation whether you want your [point at the screen] button here or you want your button in display, vertical, this one horizontal and then or vertical. Now your thing what our website hyperlink orientation?
Students: Horizontal
Teacher: Horizontal OK melintang... OK choose this and then finish.
Student: Finish, finish.
Teacher: Finish and then mail your link OK main link.... utama OK alright, now you can add link, please add link.
Student: OK

Teacher: OK first index OK you can modify this link, modify you can change you know OK alright ah add another link contact us, OK? Add link ah... bayaran OK if you want to contact us down down so kadar bayaran dot htm. Stlll can change your button here by click style. Once you finished, you have three button here, click OK.
Student: Oh...
Student: Hhhuh...
Student: Format
Student: Oh ooh...
Student: you are in trouble... (singing)
Teacher: OK this is your button. This advantage of using this custom link is you can see here your button will show index dot htm, bayaran dot htm, contact us dot htm. [point at the screen] This is not a good web page but then you will name your button laman utama, kadar bayaran OK, now this is custom link. Another one OK now... highlight this and then delete. Delete.
Student: Why?
Teacher: We don't use that hyperlink another way insert navigation, insert navigation.
Student: insert
Teacher: Please...
[students are chatting]
Teacher: Bar space navigation structure
Student: Bar
Teacher: Next OK, as usual choose one then next K choose your orientation, horizontal then finish.
Student: Finish
Teacher: OK now child level OK [point at the screen] by default ah... show you the child level, then click OK. You can see here button ah...
Student: ... for display...
Teacher: OK go to... OK back to website OK [point at the screen] at buttom have folder in the website import navigation, click navigation, click navigation, OK your page will blank, right?

Topic 2(2) – (continuation) computer lab

Teacher: [click on the PC] OK, first what you have to do is click new page.
[students are chatting]
Teacher: OK OK OK... [check on the computer]
Student: Relax, relax, relax...
[students are chatting]
[teacher clicking on her PC]
Teacher: Wait wait wait...
[students are chatting]
Teacher: OK ya... go to navigation. [clicking on her PC] You have already create or not.
Student: Yes but is a ah... same...
Student: Blank
[teacher check on students' PC]
[student: Puan....]
[student: dapat ini]
[teacher check on another student's PC]

[student: Puan..]
[teacher: Mana?] check another PC]
[students are chatting]
Teacher: [walk and point to the screen] Alright, OK ah make sure this Pos Malaysia OK and then if some of you have another link here and then ah... another chart here, remove this chart by click this, [go to her PC] click and then delete OK
[student: chart kat mana]
Teacher: Make sure you have Pos Malaysia route. [walk to check student's work]
Student: Why I don't have
Student: Why I don't have
Student: I tak dapat ni
Student: Don't have the chart, I don't have the chart...
[Teacher is checking on students' PC]
[teacher: ... already, go to website then go to navigation.]
[student: Ah... padam]
[student: padam padam.]
[student: .... navigation, navigation... macam ni, this ah... yes... OK next, yes, choose OK yes... kenapa juga OK...]
[teacher: next please... click]
[student: ... bayaran ah... contact us]
[teacher: ... next]
[student: OK, yes, you highlight this all and then delete and you have to insert, go navigation, OK bar base bar base... base... and then click yes... OK OK... and do your website, website, website.... ah... so... yah... no no, no no... yes...]
[student: singing]
[students are chatting]
[teacher:... kadar bayaran, contact us... now...]
[students are chatting – loud voices]
[teacher:... ini kan... insert and then first page... biasanya tapi sebab nak... kalau... ini kan hyperlink... lepas tu contact us... ini kan... kan... so let's say awak kena... tengok repeat dia... so tak payah buat satu satu... insert... Pos Malaysia... OK ready... label... OK... ya...]
Teacher: Kejap... [walk to her own PC and click]
[students are chatting]
Teacher: OK Class, sshhh... OK ah... [point at screen] if you just have this ah... chart, what you call this
Student: Chart
Teacher: This...
Student: Chart
Teacher: This ah... this graph
Student: Yes.
Teacher: OK OK ah... you have to create your own chart, your hyperlink page, OK how to create ah... [click on her PC] select this Pos Malaysia and then here you have add existing page, delete alright, OK choose Pos Malaysia you have bayaran right? Kadar bayaran choose OK... OK and then you also have contact us right? OK select Pos Malaysia and then go to add existing page again contact us OK OK... please follow me.
Student: I will follow you (singing)

Teacher: OK delete this Pos Malaysia and add existing page... go to location OK. You can arrange this hyperlink, let's say you want bayaran, at the left, OK just... then you want location you can arrange it [point at the screen] yes. OK under bayaran dot htm, OK class, under bayaran dot htm, you have another link right?
Students: Yes
Teacher: You have kadar bayaran mail, kadar bayaran bungkusan and kadar bayaran Pos Laju. OK same way, click bayaran dot htm, go add existing page first bayaran OK next and then ah... bungkusan, bayaran bungkusan, and then ah...
Student: Pos Laju
Teacher: Bayaran Pos Laju OK. Now you can name your button. OK let say this one bayaran dot htm, change it to kadar bayaran Pos.
Student: How to rename it?
Teacher: Just click and test.
Student: Wah...
Teacher: And then...
[students are chatting]
[student: tak boleh buat]
[student: tak namapk]
[student: bayaran]
[student: Puan, puan... tak dapat lah puan]
[student: puan, take five]
[student: website]
[teacher: this link, click ... first hubungi kami and then kadar bayaran, bayaran... lagi... ah lokasi... this one ah... now]
[student: sinia ah...]
[student: bungkusan]
[Student: OK bungkusan bayaran ah...]
[student: tak nampak oh...]
[teacher: ... just... yah... kadar bayaran pos... ini sebahagian hubungi kami Pos Malaysia]
[student: Puan... from our system]
[teacher: [go to one student's PC] click...
[student: But ah.. the chart how]
[students are chatting]
[teacher: ... (talking but cannot hear)]
[student: ah yes]
[a studentwalk to front of the class and look at screen – then walk back to his place - bayaran, bungkusan, lokasi... bayaran, bungkusan, lokasi...]
[teacher walk to another PC]
[students are chatting]
Teacher: OK OK class ah...
[student: Madam, time is up]
[student: Puan]
[teacher: ... OK macam mana...]
Teacher: OK everyone class... ah...
[ssshhh...]

Teacher: [walk back to the whiteboard/screen, clean the whiteboard] Please go back your place. OK... OK, you have to finish your last work, OK save your work in your pen drive, don't save in your local hard disk, you friend will copy and then do that you already create.
Student: How to save?
Student: Ah... how to save?
Teacher: Ah... navigation.
Student: Ah...
Teacher: Ah... you don't have save. Already automatically save... OK ah...
Student: Now...
Student: Now...
Teacher: You have to insert and then navigation... OK
Student: Puan...
Student: Puan, cannot go like that... why why why?
Teacher: OK save your work, [walk to her place] OK we will continue this after our semester break. This Amali will be on your... Monday.

J Sample of Analysis for Observation Session

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	[teacher walks in]				TM
	Student: Good morning		√		
	Teacher: Ah... OK class		√		
	Student: Yes		√		
	Teacher: [face students] Assalamualaikum warahmatullahi wabarakatuh				GAZ
	Students: Wassalamualaikum warahmatullahi wabarakatuh				
GEX, SUM, CQ	Teacher: [face students] Alright Ok ah in our last class [walk back to her place], we have finished practical one, so today you should understand ah... [click on the PC] you should understand how to starting your Microsoft front page [pointing on the screen] and then how to use template, wizard, add text and then graph view and also change properties [face students]. OK actually we use it change properties to change what?		√		GAZ, TM,CIF,P,HM, GAZ
	Student: Ah... page...		√		
CON	Teacher: Page...		√		
	Student: Background		√		
CON, GIF, CQ	Teacher: Page background OK right [look at the computer screen and click] so today I am going to teach you [look at the projector screen] a topic call navigation [face students] OK remember last class I have [put up an A4 paper to show the class] give you this attachment..., so you should finish how many pages?		√		GAZ, CIF, GAZ (CIF), GAZ (students), ART
	Student: seven		√		
	Student: six		√		
CON	Teacher: Six include today		√		
	Students: Seven		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
CQ	Teacher: OK you have in your folder you have index dot htm then...		√		
	Student: Bayaran dot htm	√			
CON	Teacher: Bayaran dot htm	√			
	Student: Contact us dot htm		√		
CON	Teacher: Contact us dot htm		√		
	Students: Bayaran mail dot htm	√			
CON	Teacher: Bayaran mail dot htm, bayaran bungkusan dot htm and			√	
	Students: Bayaran Pos Laju dot htm.	√			
CON, CQ	Teacher: Bayaran Pos Laju dot htm. OK you have write all these, [click on the computer] you have write all those pages so you save it in what folder?			√	CIF
	Students: Bayaran pos latihan hyperlink			√	
CON, RQ, GIT	Teacher: Bayaran pos latihan hyperlink so I accept if you save ah... other names OK? [click on the PC] Alright so this is your folder, [point on the projector screen] so you should have these six or seven pages. Right... [go back to her place] OK now open your Microsoft front page [click on the PC]			√	CIF,P, TM, CIF
	Student: Yes		√		
GIT	Teacher: OK. For those who already open your Microsoft front page please close all bars.		√		CIF
	Students: All bars		√		
GIT	Teacher: Close all bars and then go to file open site, bar open side open your folder, save in ah... latihan hyperlink, open latihan hyperlink if you save in website pos or pos Malaysia open that folder.		√		CIF
	[Teacher click on her own PC]				CIF
GIT, GEX	Teacher: OK click open website... website pos. OK first page is index dot htm. Index dot htm. Alright. In this		√		CIF, GAZ, HM,

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	topic four, OK you will learn [look at students] how to create hyperlink, [point at the projector screen] that is hyperlink, and then image hyperlink, you have electronic mail [face students] when you click the email ah... address and then automatically pop up Microsoft, Microsoft Outlook				
	Students: Outlook		√		
GEX,	Teacher: to send mail. [point at the projector screen] OK this is image map where you have add and then [face students] for example ah... Malaysia maps OK and then we have Kedah, Perlis, Kuala Lumpur, Terengganu, Kelantan, and then when you click let say Kelantan, you open new Kelantan dot htm something like that.. we can ah... draw the map to link to another page. Alright, [point to the projector screen] and then navigation [face students] it is ah... some of facilities provided by Microsoft front page to make you easy to develop hyperlink. OK so we [face students] plan to finish all these ah Microsoft front page if not we continue on Monday.		√		P, GAZ, HM, CIF, P, HM, GAZ
	Student: After		√		
RQ, GIT, GEX, GIT	Teacher: After semester break OK? Right [click on PC] back to Microsoft front page, open your email index dot htm [walk close to students]. Right now you want to do hyperlink, [look at student's PC] to laman utama kadar bayaran pos and hubungi kami. Alright, [walk to the projector screen] so if you click laman utama.		√		CIF, TM, GAZ, TM, CIF
	Student: Ya...	√			
RQ	Teacher: [point at the project screen] The page you go to this page, same page index dot htm so how to insert your hyperlink, [click on the PC] highlight laman utama.			√	P, CIF,

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	Student: Highlight		√		
CON, GIF, GEX	Teacher: Highlight laman utama and then OK [face students] you have two option here, [click on the PC] either you want to right click and then choose hyperlink OK or highlight.			√	CIF, GAZ, HM, CIF
	Student: Highlight		√		
CON, GEX	Teacher: Highlight then go to insert, go to hyperlink same ah... alright. Now so you can choose your file so if you click laman utama so you go to index.			√	CIF
	Student: Index		√		
	Student: Then?		√		
GAD, RQ, GIT, CQ	Teacher: OK and then make sure you save ya... [look at the projector screen and turn to students] every time you make any changes make sure you save. [click on the PC] Alright, same like kadar bayaran pos, OK highlight this text, Rizal, Afiz OK? Highlight this text OK you can right click, right click and then go to hyperlink OK when people click kadar bayaran pos the... this page will go to?			√	HM, GAZ, CIF,
	Students: Bayaran Pos	√			
CON,	Teacher: Bayaran pos OK bayaran bayaran right...	√			CIF
	Student: Bayaran	√			
	Student: Yes		√		
RQ, GEX	Teacher: Bayaran right? OK choose bayaran and then click...			√	CIF
	Student: OK		√		
CON	Teacher: OK		√		
	Student: Then save		√		
	Student: Save		√		
GIF	Teacher: Save control S or just click save. And then hubungi			√	CIF
	Studnet: Kami.	√			

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
CON	Teacher: Kami highlight			√	CIF
	Student: Contact us	√			
CON	Teacher: Contact	√			CIF
	Student: Contact us	√			
CON, RQ, GIT, RQ	Teacher: Then hyperlink contact us. OK now have you do this hyperlink then click F12, first click all the link is it function or not. Kadar bayaran right?			√	CIF
	Students: Oh...				
CQ	Teacher: [clicking on the PC] Hubungi kami?			√	CIF
	Students: Function		√		
CON, GEX	Teacher: Function but OK let's say you click laman utama still the same page right it goes to index dot htm, at kadar bayaran pos OK this page but in this page [point at the screen] not do the hyperlink yet so what you have to do?			√	CIF, P
	Student: Do the same.		√		
GIT,	Teacher: Do the same thing. Or if you want to make faster [click at the PC] so just copy all these copy and then open the page let's say kadar bayaran and then highlight this page.			√	CIF,
	[students are discussing tasks]				
	Student: Repeat again.		√		
	Student: Can you repeat again.		√		
GEX	Teacher: OK now OK [face students] you want to put this link to another page.		√		GAZ, CIF
	Student: Ya...	√			
GIT	Teacher: OK so open that page ah... bayaran dot htm.			√	CIF
	Student: Bayaran	√			
GIT, RQ	Teacher: [look on the projector screen] OK this page laman utama [point at the projector screen] kadar bayaran hubungi kami [face students] don't have any hyperlink			√	HM, GAZ, P, GAZ, CIF

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	right?				
	Student: Ya...	√			
GEX, GIT,	Teacher: OK you have two ways [look and click on the PC] OK either you want to do the same thing repeat laman utama, right click hyperlink and then go to index, OK and then click kadar bayaran highlight right click go to kadar bayaran dot htm or what you can do OK just delete this and then go to index copy these, copy all these, copy paste.			√	HM, GAZ, CIF,
	Student: Oh....				
GEX, GIT	Teacher: Alright, [face students] so the same thing you have to do for each pages, so you have seven page so do the same thing, copy and then paste. [look and click on the PC] Then you can try your bayaran dot htm so can you click laman utama			√	HM, GAZ, CIF, HM, GAZ, CIF
	Student: Oh...				
GIF	Teacher: It will go to Pos Malaysia Bhd first page OK.			√	CIF
	[students are discussing tasks]				
	Student: ... location		√		
GEX, RQ	Teacher: [walk close to students] OK each page mean you have seven so seven you have this thing this hyperlink. [look on student's PC] Any problem ya?		√		TM, CIF, HM, GAZ
	Student: No.		√		
CON	Teacher: OK ya...		√		
	[Teacher walk around the computer lab]				TM
	[students are chit chatting – discussing the work]				Peer
	Student: Puan [a student call for teacher to guide him]	√			
	[Teacher: Hhmmm.... [walk to look on a student's PC] .....]				TM
CQ	Teacher: Have you finished class?		√		
	Students: Yes.		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	Teacher: OK can we continue?		√		
	Students: Sure		√		
GIT	Teacher: [walk to her own PC] OK now open the bayaran dot htm			√	TM, CIF
	Student: Bayaran dot htm.	√			
GIT, GEX	Teacher: Bayaran dot htm alright [face students] in bayaran dot htm you want to make hyperlink for [point at the projector screen] kadar bayaran mail, kadar bayaran bungkusan and also kadar bayaran pos laju. When people click kadar bayaran mail it will go to			√	CIF, HM, GAZ, P, CIF
	Student: Bayaran	√			
CON	Teacher: Bayaran underscore			√	CIF
	Student: Mail.		√		
CON, GIF, GEX, GIT	Teacher: Mail. Remember you have paid number four bayaran underscore, so means that when people click kadar bayaran mail [point at the screen] then hyperlink to bayaran underscore mail. [walk to her PC] Same thing same way. OK highlight this text and then right click hyperlink choose bayaran mail.			√	P, CIF, TM, CIF
	[students are discussing tasks]				Peer
GIT	Teacher: [clicking on her PC] And then highlight kadar bayaran bungkusan, hyperlink bayaran bungkusan			√	TM, CIF
	Student: OK		√		
GIT	Teacher: Then... OK try to preview your website [look on students and then click on her PC] F12 and then right click.		√		HM, GAZ, TM, CIF
	[click on her PC] [walk around the class]				CIF
CQ	Teacher: OK... Any broken link?		√		
	Student: What?		√		
GEX	Teacher: Broken link means any page cannot be displayed.		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	[Teacher walks around the class]				TM
GIT	teacher: Huh... try... OK ... kadar bayaran pos... OK OK			√	
	[students are discussing the tasks]				Peer
GEX	Teacher: OK if you want to make hyperlink for location [walk to screen] OK you just OK here [point at the screen] we have laman utama, kadar bayaran post hubungi kami kan.			√	TM, HM, GAZ, P, CIF
	Student: Yes ya...		√		
GIT	Teacher: So you have to add location lokasi			√	
	Student: Oh.				
GIT	Teacher: [click on her PC] Next ah... add one more hyperlink, every page lah. [walk away from her PC]		√		CIF, TM
	Student: Can repeat, repeat...		√		
GEX	Teacher: [walk to projector screen and point at the screen] Now you have these three hyperlink				TM, GAZ, P, CIF
	Student: Yes		√		
GEX, GIT, GEX,	Teacher: Laman utama, kadar bayaran pos and then hubungi kami, we have another page is location dot htm. Those who make hyperlink for the page so what you have to do is just add one text [click on her PC] lokasi lokasi then click hyperlink, lokasi hyperlink location right, so you just done one index [point at the projector screen] so what you have to do you just copy all these link this hyperlink to every page, [face students] you have seven so you have to copy and paste for seven pages. [clicking on her PC]			√	CIF, P, HM, GAZ, CIF
	Student: OK		√		
	Teacher: OK		√		
	[students are chatting and discussing their work]				Peer
	[Teacher walk away from the PC]				TM
	Student: Lokasi	√			

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	[teacher turn and walk to the other side of the computer lab – and check students' work on the screen] [walk back to her place]				TM, GAZ,TM
	[teacher walk to the left hand side of the class] [walk away from her PC and look on her note]				TM, GAZ
GEX	Teacher: [face students with her note on her hand] OK I have create you a simple note for navigation for this topic, so you can refer this as reference ya.... So here I have created hyperlink for ten emails, electronic mails, image map and navigation.		√		HM, GAZ, ART
	[someone walks in to the computer lab with camera and take picture]				
	[teacher walk to left side of the class] [discuss work with one student]				TM
	Teacher: [look on her note] OK have you finished class?		√		GAZ,
	Students: Yes		√		
RQ	Teacher: OK can we move to image?		√		
	[the person who took picture walked out of the class]				
GIT	Teacher: OK [walk around] now save your work open index dot htm.		√		TM, CIF
	Student: Dah.	√			
GIT	Teacher: OK in your Microsoft front page [walk to her PC and click]. OK index ya... what you want to do now you want to add image and then create image you want have to make [point at the projector screen] hyperlink to another page OK first insert picture, [click on the PC] go to insert, go to insert picture, click art, OK add ah... search for telephone [spell out telephone].		√		CIF, P
	Students: Telephone		√		
CON, GIT,	Teacher: Telephone [spell out the spelling of telephone] [look and click on the PC] OK get one picture, choose		√		HM, GAZ, CIF, P, HM,

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
GEX, CQ	one, let's say this right ah... then click insert OK file save. OK once you click save this ah... [point at the screen and look at students] window here so ah... this is for you assign where you want to save this image, so what folder you have to save this image?				GAZ
	Student: Ah... Pos Malaysia	√			
	Student: Pos Malaysia	√			
CON, GIT, RQ, GEX, RQ, GEX, GIT	Teacher: Pos Malaysia inside email so [click on her PC] click change folder here change folder, right click and then choose folder image. OK image OK and then this image will save inside your ah... latihan hyperlink that image. OK? Alright, OK [point at the screen] now when people click this image then they can go to contact us, alright? Same like you do hyperlink for that first highlight this image, click this image, click this image OK and then right click hyperlink, go to contact us, click contact us OK.			√	CIF, P, CIF
	Student: ah... repeat		√		
GIT	Teacher: OK... try to view in web browser, if you click image and then you open new hubungi kami			√	CIF
	Student: Oh...				
CON	Teacher: OK... [walk to one student's table]		√		TM
	[students are discussing tasks]				
CON, RQ, CQ	Teacher: OK I repeat ya... [back to her PC] OK ah... first you have to insert image, insert image you know? Don't know?		√		TM, CIF
	Students: Yes		√		
CQ	Teacher: You have you have insert your image or not?		√		
	Students: Yes...yes		√		
CON, GIT	Teacher: Yes, all yes ah... and then once you have image in your [point to the projector screen] index dot htm,		√		P, CIF, HM, GAZ

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	[look at students] click this OK click				
	Student: Outlook		√		
	Student: Contact us.		√		
GIT, GEX, GIT	Teacher: Click alright and then right click, choose hyperlink choose hyperlink and then OK you want people to click image go to contact us, [point to the screen] go to hubungi kami right [click on the PC] so choose contact us OK... save and then we review in F12 try to do the image.		√		CIF, P, CIF
	[Teacher guides students on steps].				
GIT	Teacher: save save save... change folder... image..		√		
	Student: Puan here puan...			√	
GIT	Teacher: change folder OK click double OK.F12 F12. OK click image OK hubungi kami... contact... [walk back to her place and click on PC]			√	TM, CIF
CQ	Teacher: OK [walk around the class] now we want to do electronic mails, can you remember how to insert hyperlink for that?		√		TM
	Students: Yes		√		
CQ	Teacher: Image?		√		
	Students: Yes		√		
CON	Teacher: OK ah...		√		
	Student: So far so good		√		
CON	Teacher: So far so good ah...		√		
	Student: Ya...	√			
CON, GIT,	Teacher: [back to her place and click on the PC] OK now ah... you want to make ah... electronic mails, OK go to Microsoft front page OK and then open contact us dot htm, OK open contact us dot htm OK open highlight webmaster at Pos Malaysia dot com dot my, highlight.			√	TM, CIF
	[students are discussing]				Peer
	Student: Buat dulu	√			

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
GIT,	Teacher: OK for those who are not finished please write this email webmaster at pos Malaysia dot com dot my. Write this email... [walk to check student's PC] Write this email webmaster at pos Malaysia dot com dot my.			√	TM
	[Check on students' PC]				
CON	Teacher: OK		√		
	Student: Then		√		
	Student: Sudah OK	√			
CON	Teacher: OK... hubungi kami, contact us.			√	
	Student: ... contact us		√		
	[students are discussing tasks]				Peer
CON	Teacher: OK open contact us, dah... contact us... contact us.			√	CIF
	[teacher check on a student's PC]				
	Teacher: OK... depan [walk back to her place]	√			TM
CON, GIT, GEX, RQ, GIT, GEX, RQ, GIF,	Teacher: OK alright you want to make ah... electronic mail, [click on the PC] highlight this webmaster at pos Malaysia dot com dot my, right click go to hyperlink OK, normally this will appear, right? OK choose here, email address [point at the screen], click so if you open this window, OK alright that display webmaster at pos Malaysia dot com dot my, display, if you want to change also you can do, [look at her PC] let's say you want to just webmaster, right... you want to display webmaster OK and then... OK what is the hyperlink? Automatically for ... email electronic mail [point at the screen], you have to type mail to webmaster at pos Malaysia dot com dot my by default once you have highlight that, [point at the screen] you have this.			√	CIF, P, HM, GAZ, HM, P, CIF, P
	Students: Oh...				
CON,	Teacher: OK [look at her PC] click OK, save alright		√		GAZ, CIF

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
GIT	review review F12.				
	Student: Pos Malaysia				
GEX, GIT, RQ, GIT, RQ, CQ	Teacher: If you click here and then Microsoft Outlook with... OK I repeat ya... OK now I want you to do ah... another name, OK just put your name, email to email to OK your name alright? OK, write this email to your name [point at the screen] OK email to your name, class, your name alright you want when people click this and then they can send you email to your email address, OK let's say your email your email address is halimah at gmail dot com, [point at the screen] my email OK display is my name, OK... alright as usual, you highlight this text and then right click OK no hyperlink right? [point to the screen and look at students]. So another option is go to?		√		CIF, P, CIF, HM, GAZ, P, P, HM, GAZ
	Students: Insert		√		
CON, GIT, GEX, GIT, GIF, GIT	Teacher: Insert. [click on the PC] Go to insert with hyperlink... alright OK ensure you choose this email address [point at the screen] OK alright. Now you can see here no email, right... no email, [point at the screen] so what you have to do you write mail to double dot and then your email address [click on the PC], like this, mail to and then double dot titik bersisik OK your email,. My email is halimah@gmail dot com OK and then click OK.			√	CIF,
	[Students are discussing tasks]				
GEX, GIT, GEX	Teacher: [click on the PC] Ok now you can test your email OK and you click your name, [point at the screen] this Microsoft Outlook will open and then automatically generate your email address. [click on the PC] OK... ah... OK.		√		CIF, P, CIF
	[Students are discussing tasks]				Peer
	Student: save to?		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	Student: ...				
GEX,	Teacher: OK, that means your computer don't have Microsoft Outlook. Don't have...		√		
	[students are talking among them]				Peer
CQ	Teacher: don't have, kat mana? [Look on students' PC]			√	GAZ
	[students laughs]				
	[teacher walks away]				TM
	[students are chatting]				Peer
CON	Teacher: OK... yes... [teacher walk back to her place]		√		TM
GIF, GIT,	Teacher: OK alright class, [click on her PC] OK please do add your code here, this is your code Microsoft Outlook have help you to create your... OK let's say you... please... look at your laman utama, highlight that...			√	CIF
	Student: Huh...				
GEX, GAD	Teacher: Please look... OK class look here, [point at the screen] this text hyperlink OK you can see A... and then where you want to link and then this is display then close A OK no mail to, right... it just A... equal to page to hyperlink then close A close A... OK different repeat text hyperlink and then mail electronic highlight this text [point at the screen] you can see here A ... then mail to... mail to your email address... so remember mail to.		√		CIF, HM, GAZ, P, CIF, HM, GAZ, P
	Student: Mail to.		√		
CON	Teacher: Mail to		√		
	Student: Before the email?		√		
CON	Teacher: Mail to		√		
	Student: ...				
CON	Teacher: Of course... of course		√		
	Student: Oh my god		√		
	[students: laughs]				
	[Teacher checks on students' work]				TM

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	[students are chatting]				Peer
CON	Teacher: OK ah... so you can understand how to insert hyperlink.		√		CIF
CON	Teacher: highlight hyperlink... highlight webmaster... webmaster at... ah...		√		
	[other students are chatting]				Peer
CON	Teacher: webmaster at ah... at.. dot com [teacher walk back to her place]		√		TM
GIF	Teacher: OK I repeat ya... how to insert ah...		√		
	[students are talking among them]				Peer
SUM, CQ	Teacher: Electronic mail. ... First write your name, email to your name, have you write?		√		
	Student: ... buat	√			
CQ	Teacher: Hafiz... Hafiz				
	Hafiz: Ya...	√			
GIT, GEX, GIT, RQ, GEX	Teacher: OK... highlight your name, highlight your name, right click and then go to hyperlink, OK go to hyperlink OK like this right [point at the screen] your name and then in this area OK what you have to do is to write mail to... [spelt out mail] mail to then double dot. OK your email, what is your email? Hafiz at yahoo.com		√		CIF, HM, GAZ, P, CIF
	Student: No...		√		
CQ	Teacher: You have email Hafiz? What your email address?		√		
	Students laughs...		√		
Opinion	Teacher: Hafiz is cute		√		
	[Students laughs...]				
GEX	Teacher: OK... my email Halima OK... copy email address, Hafiz... ah... Halima... then OK.		√		
	Student: But exam... is a question		√		
GEX	Teacher: For Amali yes you have to do this... [point at the		√		HM, GAZ,P,

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	screen] For final Amali..				CIF
	Student: This ah...		√		
GEX,	Teacher: Not same like this, different lah... but the step is what I teach you today. Alright, now we are going to put image map.		√		
	[students are discussing tasks]				Peer
GIT	Teacher: Ah... Khalid, Asraf ah... ask you friend how to do mail electronic.		√		CIF
	Student: ...				
	[Other student laughs]				
GIT,	Teacher: OK OK... go to image map OK OK now open location, OK Start, location, go to open location. [click on the PC]		√		CIF
	[students are talking among them]				Peer
CQ	Teacher: Have you insert picture?		√		
	Students: Yes		√		
	Student: No...		√		
	Student: Gambaran	√			
	[students are discussing tasks]				Peer
	[Teacher looks on her own PC and clicking]				HM, GAZ, CIF
CQ	Teacher: OK, everybody have insert image in your location?		√		
	Students: Yes		√		
GIF, RQ	Teacher: Now I want to show you how to make image map. OK OK. [click on the PC] This is your image and then what you have to do, go to view toolbar.		√		CIF
	Student: Toolbar then?		√		
GAD, GIT	Teacher: Then make sure this [point to the screen] drawing is right, so click this.		√		HM, GAZ, P, CIF
	Student: Of course		√		
	Student: Drawing		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
GEX	Teacher: [look on her PC] Sorry sorry view toolbar picture, picture.		√		HM, GAZ
	Student: Picture		√		
	Student: Allah...				
GEX, RQ, GEX, GIT, GEX	Teacher: Never mind... Just open picture OK this toolbar will appear. OK yah... How to draw in this map? OK here you have this rectangle, circle and then ... hotspot right... OK you choose what you... OK let's say you choose this one [point at the screen]		√		CIF, P
	Student: Tak nampak.	√			
GIT, GEX, GIT, GEX, CQ	Teacher: [click on her PC] OK... [look at the screen] OK click picture toolbars OK class, picture toolbar and then this is your hotspot OK choose one, OK let's say you want to choose this OK click and then go to your image OK let's say you want when people click ah... this icon, then it will jump to [point to the screen] index dot htm, then when people click this picture, they will jump to bayaran underscore mail dot htm. This is for your example, for the right web is when you click [point to the screen] Putra World Trade Centre, then you go Putra World Trade Centre dot htm lah but we don't create putra dot htm right... OK what we create is pos Malaysia. OK alright... now [click on her PC] choose this hotspot choose this one... Rizal, have you open this location dot htm?		√		CIF, HM, GAZ,P, CIF,HM, GAZ, P, CIF
	Student: I have seen but...		√		
CQ	Teacher: And then have you open this toolbar picture?		√		CIF
	[students are discussing tasks]				Peer
	Student: belum		√		
	Student: Puan....	√			
	Student: menyusahkan orang...	√			

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	Teacher: Hafiz OK				
	[students are talking among them]				Peer
	[Teacher check on a student's work]				TM
GIT	Teacher: OK save your picture... Alright... [walk to point at screen] now click here hotspot.		√		TM, HM, GAZ, P
	Student: Kenapa tak...	√			
	Student:				
GIT	Teacher: OK click this hotspot		√		
	Student: Click image...		√		
	Teacher: Ah... select this image first.		√		
	Students: Oh...				
GIT	Teacher: Class... this image and then go to this hotspot... alright [look at the PC], go to your image, OK ah... your image will different with me right?		√		CIF, HM, GAZ
	Student: Yes		√		
GEX, GIT,	Teacher: [point to the screen] So just ah... draw any part of your map, for let's say may be you want this hotspot OK, click click click click...		√		HM, GAZ, P
	Students: What click click click click...		√		
	Teacher: OK.				
	Student: OK				
GIT, GAD, GEX, RQ	Teacher: Then at the end double click OK OK yah... OK [click on her PC] More easy choose rectangle or circle circle hotspot, circle and then you just like this OK ah let's say this one OK choose existing bar or web page OK [point at the screen], when this window appear insert hyperlink OK click existing file or OK OK now you want when people click at that point, it will you go to let's say index dot htm, so choose index dot htm. Let's say when people touch this area, this hotspot and then it will go to bayaran dot htm. OK?			√	CIF, P, CIF

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	Student: Oh...				
GIT, RQ, GEX, GIT,GEX, GIT	Teacher: And then another one click here then go to contact us dot htm. OK? Here have three hotspots OK if you want to add more. OK preview your location by click F12 then click at your hotspot. Then OK go to, then here... maybe your project have ah... create your own project your website [walk around the class] ah for ah... Malaysia tourism OK so you can choose this image function, you can find map and then draw the hotspot. Preview in browser.		√		CIF, TM,
	[Check on students' work]				
	[students are discussing tasks]				Peer
CQ	Teacher: OK ah... any problem?		√		
	Student: No		√		
CON, RQ, GIF, GEX, RQ, GEX, GIT,GEX, CQ	Teacher: OK [back to her place and check her note] OK ya... [walk around the class] can I go to next sub topic; we will learn how to create navigation. OK this navigation is construct navigation structure. Extra page, the extra notes? [click on her PC] OK now open your Microsoft front page... close all these page except index dot htm. OK OK... before this we make hyperlink OK [point at the screen] that's hyperlink ah we create it manually, one by one OK now we want to create hyperlink by using navigation. OK how to do [click on the PC] that means first enter OK and then go to insert, insert, then navigation... insert navigation... insert navigation ya... and then choose bar base, OK you have two here, bar with custom link or bar base on navigation structure. OK first try to select bar with custom, next OK you will ask to choose which button you prefer for your website but for those who already choose link for your website, OK you		√		TM, ART, CIF, HM, GAZ, P, CIF, HM, GAZ, P

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	have choose link right, you can just accept this use page link mean that ah... the Microsoft front page will create new button exactly same with your thing OK. For those who have not ah... choose anything right just choose button, one button for your website. OK once you have choose, now you can choose orientation whether you want your [point at the screen] button here or you want your button in display, vertical, this one horizontal and then or vertical. Now you think what our website hyperlink orientation?				
	Students: Horizontal		√		
CON	Teacher: Horizontal OK melintang... OK choose this and then finish.			√	CIF
	Student: Finish, finish.		√		
CON, GIT,	Teacher: Finish and then mail your link OK main link.... utama OK alright, now you can add link, please add link.			√	CIF
	Student: OK				
CON, GEX, RQ, GEX,	Teacher: OK first index OK you can modify this link, modify you can change you know OK alright ah add another link contact us, OK? Add link ah... bayaran OK if you want to contact us down down so kadar bayaran dot htm. Still can change your button here by click style. Once you finished, you have three button here, click OK.			√	CIF
	Student: Oh...				
	Student: Hhhuh...				
	Student: Format				
	Student: Oh ooh...				
	Student: you are in trouble... (singing)		√		
GIF, GEX, GIT	Teacher: OK this is your button. This advantage of using this custom link is you can see here your button will show index dot htm, bayaran dot htm, contact us dot htm. [point			√	CIF, HM, GAZ, P,CIF

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	at the screen] This is not a good web page but then you will name your button laman utama, kadar bayaran OK, now this is custom link. Another one OK now... highlight this and then delete. Delete.				
	Student: Why?		√		
GEX	Teacher: We don't use that hyperlink another way insert navigation, insert navigation.		√		
	Student: insert		√		
	Teacher: Please...		√		
	[students are talking among them]				Peer
GIT	Teacher: Bar space navigation structure		√		
	Student: Bar		√		
GIT	Teacher: Next OK, as usual choose one then next K choose your orientation, horizontal then finish.		√		
	Student: Finish		√		
GEX, GIT	Teacher: OK now child level OK [point at the screen] by default ah... show you the child level, then click OK. You can see here button ah...		√		CIF, HM, GAZ, P
	Student: ... for display...		√		
GIT, RQ,	Teacher: OK go to... OK back to website OK [point at the screen] at bottom have folder in the website import navigation, click navigation, click navigation, OK your page will blank, right?		√		HM, GAZ, P, CIF
GIT	Teacher: [click on the PC] OK, first what you have to do is click new page.		√		CIF
	[students are chatting]				Peer
CON	Teacher: OK OK OK... [check on the computer]				CIF
	Student: Relax, relax, relax...		√		
	[students are chatting]				Peer
	[Teacher is clicking on her PC]				CIF
GAD	Teacher: Wait wait wait...		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	[students are chatting]				Peer
GIT, GEX	Teacher: OK ya... go to navigation. [clicking on her PC] You have already create or not.		√		CIF
	Student: Yes but is a ah... same...		√		
	Student: Blank		√		
	[teacher checks on students' PC]				TM
	student: Puan....				
	student: dapat ini	√			
	teacher checks on another student's PC				
	student: Puan..				
CQ, GIT	teacher: Mana? check another PC				
	students are chatting				Peer
GAD, GIT, GAD	Teacher: [walk and point to the screen] Alright, OK ah make sure this Pos Malaysia OK and then if some of you have another link here and then ah... another chart here, remove this chart by click this, [go to her PC] click and then delete OK		√		TM, HM, GAZ, P, CIF
	student: chart kat mana	√			
GAD	Teacher: Make sure you have Pos Malaysia route. [walk to check student's work]		√		TM
	Student: Why I don't have		√		
	Student: Why I don't have		√		
	Student: I tak dapat ni	√			
	Student: Don't have the chart, I don't have the chart...		√		
	[Teacher is checking on students' PC]				TM
GIT	Teacher: ... already, go to website then go to navigation.		√		
	student: Ah... padam	√			
	student: padam padam.	√			
	student: .... navigation, navigation... macam ni, this ah... yes... OK next, yes, choose OK yes... kenapa juga OK...			√	Peer

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
GIT	teacher: next please... click		√		CIF
	student: ... bayaran ah... contact us			√	Peer
GIT	teacher: ... next		√		
	student: OK, yes, you highlight this all and then delete and you have to insert, go navigation, OK bar base bar base... base... and then click yes... OK OK... and do your website, website, website.... ah... so... yah... no no, no no... yes...		√		Peer
	student: singing				
	[students are discussing]				Peer
CON	Teacher:... kadar bayaran, contact us... now...			√	CIF
	[students are discussing – loud voices]				Peer
GIT, GEX	teacher:... ini kan... insert and then first page... biasanya tapi sebab nak... kalau... ini kan hyperlink... lepas tu contact us... ini kan... kan... so let's say awak kena... tengok repeat dia... so tak payah buat satu satu... insert... Pos Malaysia... OK ready... label... OK... ya...			√	CIF
GAD	Teacher: Kejap... [walk to her own PC and click]	√			CIF
	[students are discussing]				Peer
CON, RQ	Teacher: OK Class, sshhh... OK ah... [point at screen] if you just have this ah... chart, what you call this			√	HM, GAZ, P, CIF
	Student: Chart		√		CIF
CQ	Teacher: This...		√		
	Student: Chart		√		
	Teacher: This ah... this graph		√		CIF
	Student: Yes.		√		
CON, SUM, GIT, GEX, RQ, GIT,	Teacher: OK OK ah... you have to create your own chart, your hyperlink page, OK how to create ah... [click on her PC] select this Pos Malaysia and then here you have add existing page, delete alright, OK choose Pos Malaysia you have bayaran right? Kadar bayaran choose OK... OK			√	CIF,

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
	and then you also have contact us right? OK select Pos Malaysia and then go to add existing page again contact us OK OK... please follow me.				
	Student: I will follow you (singing)		√		
GIT, GEX, CQ	Teacher: OK delete this Pos Malaysia and add existing page... go to location OK. You can arrange this hyperlink, let's say you want bayaran, at the left, OK just... then you want location you can arrange it [point at the screen] yes. OK under bayaran dot htm, OK class, under bayaran dot htm, you have another link right?			√	CIF, HM, GAZ, P
	Students: Yes		√		
SUM, GIT	Teacher: You have kadar bayaran mail, kadar bayaran bungkusan and kadar bayaran Pos Laju. OK same way, click bayaran dot htm, go add existing page first bayaran OK next and then ah... bungkusan, bayaran bungkusan, and then ah...			√	CIF
	Student: Pos Laju	√			
CON, GIT,	Teacher: Bayaran Pos Laju OK. Now you can name your button. OK let say this one bayaran dot htm, change it to kadar bayaran Pos.			√	CIF
	Student: How to rename it?		√		
GIT	Teacher: Just click and test.		√		
	Student: Wah...				
	Teacher: And then...		√		
	[students are talking]				
	student: tak boleh buat	√			
	student: tak nampak	√			
	student: bayaran	√			
	student: Puan, puan... tak dapat lah puan	√			
	student: puan, take five			√	
	student: website		√		

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
GIT,	teacher: this link, click ... first hubungi kami and then kadar bayaran, bayaran... lagi... ah lokasi... this one ah... now			√	The bahasa is used for labels. For example, 'hubungi kami' is 'contact us', and 'kadar bayaran' is 'price' and 'lokasi' is 'location'.
	student: sinia ah...	√			
	student: bungkusan	√			Label: 'packaging'
	Student: OK bungkusan bayaran ah...	√			
	student: tak nampak oh...	√			
	teacher: ... just... yah... kadar bayaran pos... ini sebahagian hubungi kami Pos Malaysia	√			
	student: Puan... from our system			√	
GIT	[teacher: [go to one student's PC] click...		√		TM,CIF
	student: But ah.. the chart how		√		
	[students are talking]				
	[teacher: ... (talking but cannot hear)]				
	student: ah yes			√	
	[a student walks to front of the class and look at screen – then walk back to his place - bayaran, bungkusan, lokasi... bayaran, bungkusan, lokasi...]				The student referred to the teacher's website for the correct naming of the labels. While walking back to his

Teacher D: Topic 2(1) – Computer lab					
Verbal	**Dialogue**	**Bahasa**	**English**	**Mix**	**Other modes**
					seat, he tried to memorize the labels.
	[teacher walk to another PC]				TM
	[students are discussing]				
CON	Teacher: OK OK class ah...		√		
	student: Madam, time is up		√		
	student: Puan	√			
RQ	teacher: ... OK macam mana...	√			
	Teacher: OK everyone class... ah...		√		
	[ssshhh...]				
GAD	Teacher: [walk back to the whiteboard/screen, clean the whiteboard] Please go back your place. OK... OK, you have to finish your last work, OK save your work in your pen drive, don't save in your local hard disk, you friend will copy and then do that you already create.		√		TM, CIF
	Student: How to save?		√		
	Student: Ah... how to save?		√		
CON	Teacher: Ah... navigation.		√		
	Student: Ah...				
GIF	Teacher: Ah... you don't have save. Already automatically save... OK ah...		√		
	Student: Now...		√		
	Student: Now...		√		
GIT	Teacher: You have to insert and then navigation... OK		√		
	Student: Puan...				
	Student: Puan, cannot go like that... why why why?		√		
GAD, GIT	Teacher: OK save your work, [walk to her place] OK we will continue this after our semester break. This Amali will be on your... Monday.			√	TM

K Sample of Thank You Letter for Involvement in Observation

Wan Nor Aishah Wan Omar
The School of Education,
The University of Nottingham Malaysia Campus,
Jalan Broga,
43500 Semenyih,
Selangor Darul Ehsan.

_____

(Name of participant)

_____
Hulu Langat Community College,
Ministry of Higher Education,
Jalan Prima Saujana 2/G,
43000 Kajang,
Selangor Darul Ehsan. 10th April 2010

Dear Madam,

LETTER OF APPRECIATION FOR INVOLVEMENT IN RESEARCH

I would like to extend my sincere thanks to you for your involvement in the research on the integration of content and English at polytechnics and community colleges in Malaysia carried out since 2009 at two levels: the survey and the observation.

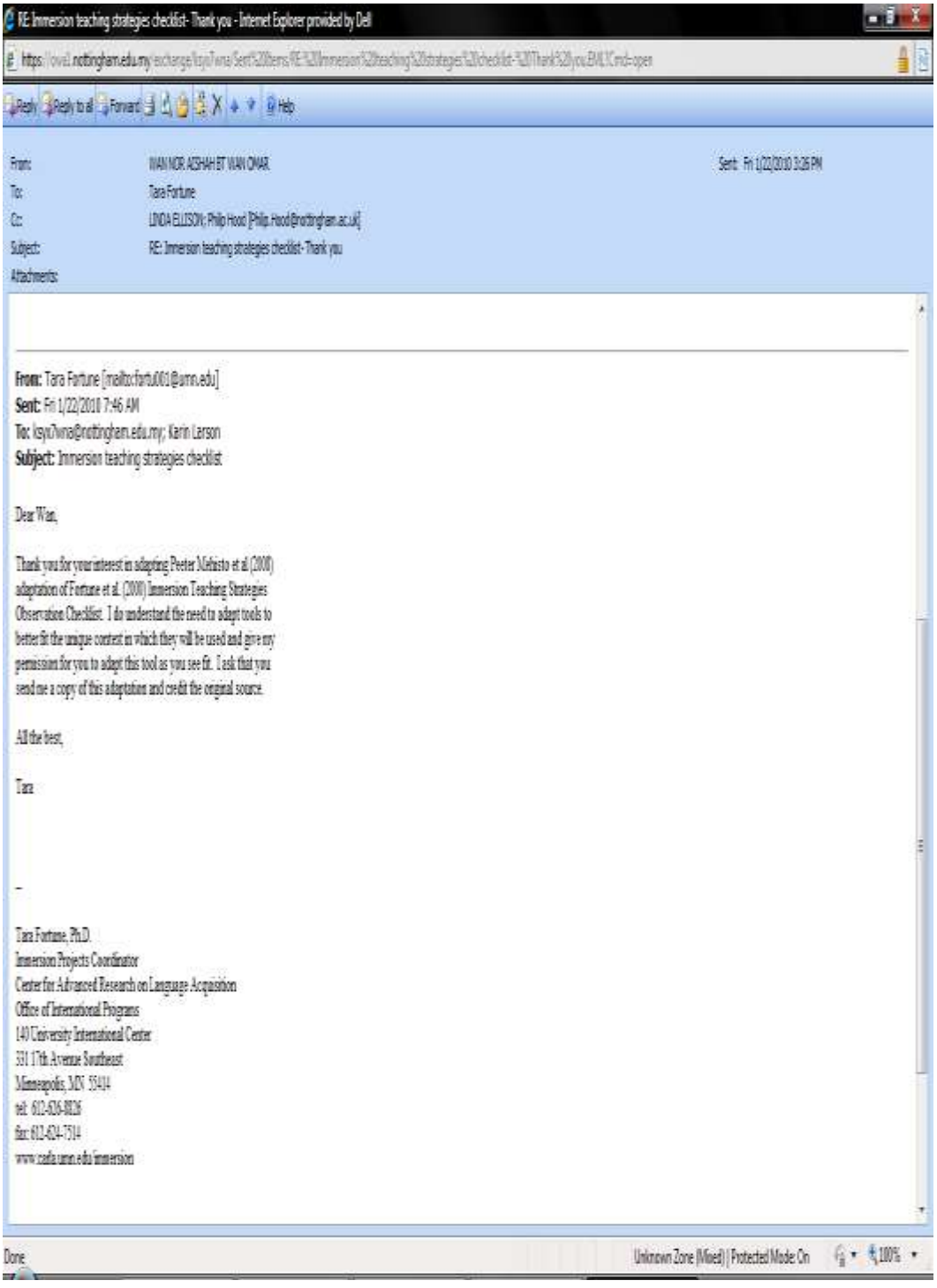
2. You have demonstrated positive attitudes and high motivation by your willingness to participate and be flexible in this research and this speaks volumes about your dedication to work and the profession. The field will certainly benefit from your keen interest in research, and this, hopefully, will contribute to the improvement of the policy implementation as well as the pedagogy for teaching Technical subjects through English.

I wish you all the best in your future undertakings and once again, thank you for your efforts.

Yours Faithfully,

(WAN NOR AISHAH BINTI WAN OMAR)

L Permission to adapt Peeter Mehisto et al (2008) from Tara Fortune



RE: Immersion teaching strategies checklist- Thank you - Internet Explorer provided by Dell

https://owa1.nottingham.edu.my/exchange/kcpy1wna/Sent%20Items/RE:%20Immersion%20teaching%20strategies%20checklist-%20Thank%20you.EML?Cmd=open

Reply | Reply to all | Forward | Help

From: WAN NOR AISHAH BT WAN OMAR
To: Tara Fortune
Cc: LINDA ELLISON; Philip Hood [Philip.Hood@nottingham.ac.uk]
Subject: RE: Immersion teaching strategies checklist- Thank you
Attachments:
Sent: Fri 1/22/2010 3:26 PM

From: Tara Fortune [mailto:fortu001@umn.edu]
Sent: Fri 1/22/2010 7:46 AM
To: kcpy1wna@nottingham.edu.my; Karin Larson
Subject: Immersion teaching strategies checklist

Dear Wan,

Thank you for your interest in adapting Peeter Mehisto et al (2008) adaptation of Fortune et al. (2008) Immersion Teaching Strategies Observation Checklist. I do understand the need to adapt tools to better fit the unique context in which they will be used and give my permission for you to adapt this tool as you see fit. I ask that you send me a copy of this adaptation and credit the original source.

All the best,

Tara

--

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M Modified CLIL Observation Protocol

An adaptation of Peeter Mehisto et al (2008) Planning and Observation Checklist which was originally adapted from Tara Fortune's Immersion Teaching Strategies Observation Checklist (Fortune, 2000).

Planning and Observation Checklist

Lecturer Code No. :_____ Subject:_____
Class Name :_____ Lesson Topic:_____
Semester :_____ Duration:_____
Certification :_____ Date:_____
No. of students :_____

The following seven category labels and their descriptors identify key pedagogical goals in CLIL settings. The subsequent indicators illustrate possible observable features of goals achievement. All features would not be observable in any one class.

+ observe/ - not observed / 0 NA

THE CLIL TEACHER AIMS TO:	**INDICATORS**	**+ / - / 0**	**COMMENTS:**
1. Overall Integration of content and language			
1.1 Specifies the planned content outcomes and the content-obligatory language outcomes for each lesson.	-Clearly define content objectives- written & oral -Clearly define language objectives- written & oral		
1.2 Uses authentic texts, artifacts and materials to teach content and language and make lesson clear and meaningful.	-Hands-on manipulatives and realia: connects abstract concepts with concrete experiences and students' own life. -Pictures, Photos and visuals: provide visual support to harder concepts: helps relate to prior knowledge and oral presentations. Include models, charts, overheads, maps, timelines as you are presenting concepts. -Multimedia: film clips, computer animations: related to concept solidify key concepts into the deep memory.		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	-Demonstrations: model step by step completion of tasks, or model language to use with presentations. This scaffolds and enhances learning. -Other related materials: _____		
1.3 Focuses corrective responses on pre-determined content and language outcomes based on the lesson, and the development level of the learners.	-Language that is too difficult is avoided and future topics are not addressed at length. -Students successfully follow instructions and complete assignments. -Give a comprehensive review of key vocabulary. -Give a comprehensive review of key content concepts. -Provide feedback to students regularly on their output (e.g., language, content, work). -Conduct assessments of student comprehension and learning throughout lesson on all lesson objectives (e.g., spot checking, group response).		
1.4 Has a well balanced lesson.	-Warm-up, teaching & learning, analysis and reflection are present. -Use of graphic organizers: Schematic visuals that assist students to grasp the "wholeness and parts" of a concept. Use to supplement written or spoken words. -Use of outlines to display the whole picture to help		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	students take notes in an organized manner. -Use of meaningful activities that integrate lesson concepts with language practice opportunities for the four skills.		
2. Create a rich learning environment			
2.1 Creates a friendly and safe learning environment.	-Teacher uses routine activities. The classroom seems stress free. -Students support one another and participate actively. -They experiment freely with language. -Rules created with students are posted and observed. -Students respect the rules.		
2.2 Surrounds learners with rich subject content and extensive oral and written language input.	-Content is challenging, linked to a relevant context and previous learning, and is successfully applied by students during a task requiring higher order thinking. -Language is displayed. -A reading corner, learning centres and /or electronic media are available.		
2.3 Creates numerous opportunities for students to speak and write.	-Students speak more than the teacher. -Peer cooperative work encourages equal participation. -Students express own understanding in writing.		
2.4 Organized classroom so it promotes learning.	-Teacher displays students' work, language is displayed, supplies are in logical places and seating configurations promote cooperation.		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	-Support content objectives clearly. -Support language objectives clearly.		
3. Make input comprehensible			
3.1 Uses body language, visuals, realia and manipulatives to communicate meaning.	-eg. Facial features and hand gestures, pictures, actual objects. -Use of Concept Definition Map. -use of Visual Vocabulary (eg. Photograph).		
3.2 Elicits and draws upon prior knowledge, experiences and current attitudes vis-à-vis new topics.	-Students are encouraged to link new learning to previously taught topics. -There is a strong correlation between vocabulary knowledge and student achievement. -Attitudes towards new topic are determined and discussed. -Select fewer key terms to focus on. -Explicitly teach "school language" – eg. Identify, compare, summarize, define, etc. - Uses a variety of pre-reading and pre-writing activities to make content and language more accessible.		
3.3 Contextualize key vocabulary: Review the content and select key terms that are critical to understanding the lesson's most important concepts.	- The teacher introduces and defines terms simply and concretely. -Demonstrates how terms are used in context. -Breaks complex information and processes into component parts. -The theme is organized into		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	sub-units or sub-themes. -Teacher scaffolds both content and language input by chunking information, breaking instructions or assignments into manageable pieces.		
3.4 Makes frequent use of comprehension checks that require learners to demonstrate their understanding.	-Use of Word Sorts-students categorize words or phrases (previously introduced) and sorts them according to meaning, structure, themes. This reinforces word relationship, spelling, and word structure. -Use of Vocabulary Self-Selection (students choose words from text to understand content concepts). -Use of personal dictionaries (each student creates vocabulary and spelling resource). Words can be arranged alphabetically, by concept, or structure. -Students can articulate what they have learnt and can apply it through an assignment or activity.		
3.5 Selects and adapts instructional material for learners' developmental level.	-Adapt content to all levels of student proficiency (Sometimes it is necessary to rewrite dense text in order for English Language Learners to comprehend a content- for instance by making it shorter, or using simpler sentences and words). -Texts may be shortened, sub-headings inserted and		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	language support sheets created. -Students cope with the assignments and participate actively.		
4. Use 'teacher-talk' effectively			
4.1 Uses normal level of volume, articulates and enunciates clearly.	-Does not raise volume above normal levels to achieve comprehension. -Students can follow most instructions and use teacher recasts. - Teacher speech habits are reflected in the quality of student output.		
4.2 Slows down and simplifies language when developmentally appropriate.	-Messages are repeated in different ways without excessive volume. -Students are interested in what is going on. -Use speech that is appropriate to students' proficiency level. -Avoid jargon and idiomatic speech as much as possible. -Explain content or give instruction in a step-by- step manner and/or with demonstrations. -Write oral directions on board, ask students to re-explain. -Use verbal and procedural scaffolding routinely. -Vary question types including those that promote higher-order thinking skills throughout the lesson (e.g., literal, analytical, and interpretive questions). -Waiting time is allocated. -Allow students to confer with each other, teacher, or		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	paraprofessional in their native language about subject matter to provide needed support for true understanding of content. Pace the lesson appropriately to the students' ability level.		
4.3 Avoids 'teacher-speak'.	-Students, at times, take the lead in conversation. -Non-classroom situations are role played. -Engage students approximately 90-100% of the time (most students taking part/ on task).		
4.4 Models accurate use of language.	-Syntax and grammar are accurate. -Parasitic words or expressions such as *You know!* are avoided. -Intonation is natural. -The teacher's accent does not impede comprehension.		
5. Promote extended student output			
5.1 Plans for and employs questioning techniques that encourage extended discourse and foster higher order thinking.	-Students participate in discussions. -Elements of critical and creative thinking are present. -Follow-up questions take thinking a step further.		
5.2 Structures and facilitates high-interest, student-centred activities	-Apply content and language knowledge by discussing and doing to make abstract concepts concrete. -Integrate language skills through various activities-reading, speaking, listening and writing. - Eg. Presentations, peer cooperative work, peer and group teaching.		
5.3 Provide all	-The teacher uses grouping		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
students with the opportunity to participate and speak.	techniques such as dyads, think pair-share, small groups, etc. and output-orientated activities such as presentations (homogenous or heterogeneous grouping). -Provide frequent opportunity for interactions and discussion between teacher/student and among students, and encourage elaborated responses. -Give ample opportunity for students to clarify key concepts in L1 as needed with aide, peer, or L1 text.		
5.4 Promotes learning from and with peers.	-eg. Peer editing, peer tutoring, student study groups. -Cooperative learning activities.		
5.5 Communicates and consistently reinforces clear expectations about learning goals/outcomes related to content, language and learning skills.	-The teacher verbalizes his/her expectations and is consistent in reinforcing students who meet expectations and applies related rules with consistency.		
6. Attend to diverse learner needs			
6.1 Takes into account different learning strategies and helps students develop learning skills.	-All students are motivated. -teacher uses co-operative learning strategies and mixed ability grouping. -Visual, tactile, auditory and kinesthetic approaches are visible. -Teacher invites students to share different problem solving approaches and learning strategies.		
6.2 Surveys and takes	-Students pick topics, decide		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
into account student interests, opinions and wishes.	on order of activities and bring into the lesson elements that they clearly cherish.		
6.3 Makes use of a wide variety of activities through learning centres where students can work at a level that is appropriate for them.	- Students are given a choice in activities. Easier tasks are at the top of activity lists. -There is a variety of activities suiting visual, aural, kinesthetic, and reading and writing learning styles.		
7. Attend to continuous growth and improvement in accuracy.			
7.1 Creates an opportunity for evaluation of content and language learning (including learning process) during each lesson.	- Either self-evaluation by the student, peer evaluation or teacher-directed evaluation takes place during the lesson.		
7.2 Uses a variety of effective feedback techniques.	-For encouraging growth in understanding and using content, the teacher details what is correct, indicates points requiring further reflection, provides clues, creates relational links and asks probing questions. -In supporting language growth, the teacher uses among others the following techniques, elicitation, clarification requests, repetition, recasting explicit correction, as well as body language and other non-verbal clues.		
7.3 Attends to errors in both oral and written language.	Teacher models the right answer. Teacher encourages self-and peer-repair.		
7.4 Differentiates between feedback on form versus meaning.	-Students receive verbal reinforcement or marks for content, eg. the teacher says:		

THE CLIL TEACHER AIMS TO:	INDICATORS	+ / - / 0	COMMENTS:
	I like that idea. How might you say it more precisely? How might you expand on that idea? What would an opponent say?		

N ANOVA Tables

ANOVA Table 1

			Sum of Squares	df	Mean Square	F	Sig.
Factor1 * LearningIT	Between Groups	(Combined)	2.238	1	2.238	10.947	.001
	Within Groups		42.725	209	.204		
	Total		44.963	210			
Factor2 * LearningIT	Between Groups	(Combined)	1.020	1	1.020	4.483	.035
	Within Groups		47.574	209	.228		
	Total		48.595	210			
Factor3 * LearningIT	Between Groups	(Combined)	.001	1	.001	.007	.935
	Within Groups		39.038	209	.187		
	Total		39.039	210			
Factor4 * LearningIT	Between Groups	(Combined)	.555	1	.555	2.667	.104
	Within Groups		43.481	209	.208		
	Total		44.036	210			
Factor5 * LearningIT	Between Groups	(Combined)	1.555	1	1.555	6.942	.009
	Within Groups		46.832	209	.224		
	Total		48.387	210			
Factor6 * LearningIT	Between Groups	(Combined)	2.847	1	2.847	13.111	.000
	Within Groups		45.392	209	.217		
	Total		48.240	210			
SectionC * LearningIT	Between Groups	(Combined)	.738	1	.738	5.168	.024
	Within Groups		29.696	208	.143		
	Total		30.434	209			
SectionD * LearningIT	Between Groups	(Combined)	.038	1	.038	.201	.654
	Within Groups		39.636	208	.191		
	Total		39.674	209			
SectD8_13 * LearningIT	Between Groups	(Combined)	.009	1	.009	.169	.681
	Within Groups		10.479	207	.051		
	Total		10.487	208			
SectionE * LearningIT	Between Groups	(Combined)	.050	1	.050	.258	.612
	Within Groups		40.231	208	.193		

			Sum of Squares	df	Mean Square	F	Sig.
SectionTB * LearningIT	Total		40.281	209			
	Between Groups	(Combined)	1.023	1	1.023	9.089	.003
	Within Groups		23.521	209	.113		
	Total		24.544	210			

ANOVA Table 2

			Sum of Squares	df	Mean Square	F	Sig.
Factor1 * Pre-service	Between Groups	(Combined)	.051	1	.051	.237	.627
	Within Groups		44.502	207	.215		
	Total		44.553	208			
Factor2 * Pre-service	Between Groups	(Combined)	.161	1	.161	.695	.405
	Within Groups		48.036	207	.232		
	Total		48.197	208			
Factor3 * Pre-service	Between Groups	(Combined)	.001	1	.001	.008	.930
	Within Groups		38.733	207	.187		
	Total		38.734	208			
Factor4 * Pre-service	Between Groups	(Combined)	.007	1	.007	.033	.855
	Within Groups		43.882	207	.212		
	Total		43.889	208			
Factor5 * Pre-service	Between Groups	(Combined)	3.533	1	3.533	16.317	.000
	Within Groups		44.822	207	.217		
	Total		48.355	208			
Factor6 * Pre-service	Between Groups	(Combined)	.022	1	.022	.094	.760
	Within Groups		47.645	207	.230		
	Total		47.667	208			

ANOVA Table 2

			Sum of Squares	df	Mean Square	F	Sig.
SectionC * Pre-service	Between Groups	(Combined)	1.084	1	1.084	7.807	.006
	Within Groups		28.592	206	.139		
	Total		29.676	207			
SectionD * Pre-service	Between Groups	(Combined)	.006	1	.006	.035	.852
	Within Groups		38.057	206	.185		
	Total		38.064	207			
SectD8_13 * Pre-service	Between Groups	(Combined)	.029	1	.029	.566	.453
	Within Groups		10.350	205	.050		
	Total		10.379	206			
SectionE * Pre-service	Between Groups	(Combined)	.004	1	.004	.019	.890
	Within Groups		39.217	206	.190		
	Total		39.221	207			
SectionTB * Pre-service	Between Groups	(Combined)	.049	1	.049	.418	.519
	Within Groups		24.345	207	.118		
	Total		24.394	208			

ANOVA Table 3

			Sum of Squares	df	Mean Square	F	Sig.
Factor1 * In-service	Between Groups	(Combined)	.023	1	.023	.107	.743
	Within Groups		44.723	207	.216		
	Total		44.747	208			
Factor2 * In-service	Between Groups	(Combined)	.519	1	.519	2.254	.135
	Within Groups		47.678	207	.230		

ANOVA Table 3

			Sum of Squares	df	Mean Square	F	Sig.
	Total		48.197	208			
Factor3 * In-service	Between Groups	(Combined)	.471	1	.471	2.532	.113
	Within Groups		38.510	207	.186		
	Total		38.981	208			
Factor4 * In-service	Between Groups	(Combined)	.112	1	.112	.527	.469
	Within Groups		43.868	207	.212		
	Total		43.980	208			
Factor5 * In-service	Between Groups	(Combined)	2.620	1	2.620	12.073	.001
	Within Groups		44.927	207	.217		
	Total		47.547	208			
Factor6 * In-service	Between Groups	(Combined)	.027	1	.027	.116	.733
	Within Groups		47.791	207	.231		
	Total		47.818	208			
SectionC * In-service	Between Groups	(Combined)	.451	1	.451	3.207	.075
	Within Groups		28.996	206	.141		
	Total		29.448	207			
SectionD * In-service	Between Groups	(Combined)	.022	1	.022	.120	.729
	Within Groups		37.861	206	.184		
	Total		37.883	207			
SectD8_13 * In-service	Between Groups	(Combined)	.000	1	.000	.002	.964
	Within Groups		10.376	205	.051		
	Total		10.377	206			
SectionE * In-service	Between Groups	(Combined)	.051	1	.051	.261	.610

ANOVA Table 3

		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	39.940	206	.194		
	Total	39.991	207			
SectionTB * In-service	Between (Combined) Groups	.009	1	.009	.080	.777
	Within Groups	24.429	207	.118		
	Total	24.439	208			

O Selection of groups of participants for the observation sessions:

Group A: High Motivation, High Practice

Factor3=4.0

PSCC	1	2
PSCC	1	5
MGCC	1	103
SECC	1	76
SECC	1	80
BPCC	1	90
BPCC	1	93
BPCC	1	96
PGCC	1	84
PGCC	1	85
PGCC	1	86
PGCC	1	87
PGCC	1	89
MTCC	1	59
MTCC	1	61
MTCC	1	63
SSCC	1	10
SSCC	1	14
MECC	1	49
MECC	1	52
GECC	1	24
GECC	1	26
GECC	1	31
GECC	1	34
PMS	2	200
PMS	2	205
PMS	2	211
PMS	2	213
PSMZA	2	160
PSMZA	2	173
PSP	2	75
PSP	2	81
PTSS	2	103
PTSS	2	109
PTSS	2	110
PTSS	2	114

Factor5>=3.0

PSCC	1	2
PSCC	1	5
MGCC	1	100
MGCC	1	102
SECC	1	73
SECC	1	79
SECC	1	80
BPCC	1	90
BPCC	1	91
BPCC	1	92
BPCC	1	95
PGCC	1	82
PGCC	1	84
PGCC	1	89
MTCC	1	59
MTCC	1	63
MTCC	1	64
MTCC	1	67
MTCC	1	70
MTCC	1	72
SSCC	1	22
MECC	1	49
GECC	1	25
GECC	1	30
GECC	1	35
PMS	2	199
PMS	2	200
PMS	2	204
PMS	2	205
PSMZA	2	141
PSMZA	2	149
PSMZA	2	173
PSP	2	60
PSP	2	63
PSP	2	64
PSP	2	66

Factor6>=3.15

MGCC	1	100
MGCC	1	102
MGCC	1	103
SECC	1	73
SECC	1	74
SECC	1	79
BPCC	1	90
BPCC	1	92
BPCC	1	93
BPCC	1	97
PGCC	1	82
PGCC	1	87
PGCC	1	89
MTCC	1	59
MTCC	1	63
MTCC	1	64
MTCC	1	68
MTCC	1	70
MTCC	1	72
SSCC	1	10
SSCC	1	11
SSCC	1	12
SSCC	1	21
MECC	1	49
MECC	1	57
MECC	1	58
GECC	1	31
GECC	1	32
PSP	2	61
PSP	2	75
PSP	2	82
PSP	2	83
PSP	2	86
PSP	2	90
PSP	2	93
PTSS	2	.

PTSS	2	124
PTSS	2	126
PTSS	2	127
PTSS	2	129
PUO	2	2
PUO	2	24
PUO	2	25
PUO	2	33
PUO	2	37
POLIMAS	2	43
POLIMAS	2	49
POLIMAS	2	52
POLIMAS	2	55

PSP	2	68
PSP	2	77
PSP	2	82
PSP	2	84
PSP	2	86
PTSS	2	.
PTSS	2	101
PTSS	2	103
PTSS	2	110
PTSS	2	112
PTSS	2	115
PTSS	2	118
PTSS	2	120
PTSS	2	124
PTSS	2	126
PUO	2	4
PUO	2	5
PUO	2	6
PUO	2	8
PUO	2	9
PUO	2	10
PUO	2	12
PUO	2	15
PUO	2	18
PUO	2	19
PUO	2	20
PUO	2	21
PUO	2	28
PUO	2	35
PUO	2	37
PKKT	2	192
PKKT	2	193
POLIMAS	2	39
POLIMAS	2	47
POLIMAS	2	49
POLIMAS	2	52
POLIMAS	2	54
POLIMAS	2	55

PTSS	2	102
PTSS	2	103
PTSS	2	110
PTSS	2	112
PTSS	2	114
PTSS	2	117
PTSS	2	118
PTSS	2	120
PTSS	2	124
PTSS	2	128
PUO	2	3
PUO	2	6
PUO	2	9
PUO	2	10
PUO	2	12
PUO	2	21
PUO	2	24
PUO	2	25
PUO	2	36
PUO	2	37
PKKT	2	182
PKKT	2	192
PKKT	2	193
POLIMAS	2	46
POLIMAS	2	52
POLIMAS	2	55

SectionD>=3.18

PSCC	1	2
PSCC	1	4
MGCC	1	102
SECC	1	74
SECC	1	76
BPCC	1	96
BPCC	1	97
PGCC	1	89
MTCC	1	59
MTCC	1	61
MTCC	1	69
MTCC	1	70
SSCC	1	10
SSCC	1	22
GECC	1	36
PMS	2	200
PMS	2	204
PMS	2	211
PSMZA	2	138
PSMZA	2	160
PSMZA	2	173
PSP	2	64
PSP	2	69
PSP	2	70
PSP	2	83
PSP	2	89
PSP	2	92
PTSS	2	.
PTSS	2	103
PTSS	2	106
PTSS	2	109
PTSS	2	110
PTSS	2	112
PTSS	2	115
PTSS	2	125
PTSS	2	128
PTSS	2	129
PUO	2	6
PUO	2	7

5,6
3,5
5
3,5,6
3,6
6
3

Combined factors and section D

MGCC	1	100
MGCC	1	102
BPCC	1	97
PGCC	1	89
MTCC	1	59
MTCC	1	61
SSCC	1	10
PSP	2	64
PTSS	2	.
PTSS	2	103
PTSS	2	110
PTSS	2	112
PUO	2	6
PUO	2	21
PUO	2	25
POLIMAS	2	49

High quartile factor 3,5,6 combined

High quartile sectionD

PUO	2	10
PUO	2	12
PUO	2	14
PUO	2	19
PUO	2	21
PUO	2	24
PUO	2	25
PUO	2	35
PKKT	2	194
POLIMAS	2	39
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	42
POLIMAS	2	43
POLIMAS	2	47
POLIMAS	2	48
POLIMAS	2	49

Group B: High Motivation, Low Practice

Factor3=4.0

PSCC	1	2
PSCC	1	5
MGCC	1	103
SECC	1	76
SECC	1	80
BPCC	1	90
BPCC	1	93
BPCC	1	96
PGCC	1	84
PGCC	1	85
PGCC	1	86
PGCC	1	87
PGCC	1	89
MTCC	1	59
MTCC	1	61
MTCC	1	63
SSCC	1	10
SSCC	1	14
MECC	1	49

Factor5>=3.0

PSCC	1	2
PSCC	1	5
MGCC	1	100
MGCC	1	102
SECC	1	73
SECC	1	79
SECC	1	80
BPCC	1	90
BPCC	1	91
BPCC	1	92
BPCC	1	95
PGCC	1	82
PGCC	1	84
PGCC	1	89
MTCC	1	59
MTCC	1	63
MTCC	1	64
MTCC	1	67
MTCC	1	70

Factor6>=3.15

MGCC	1	100
MGCC	1	102
MGCC	1	103
SECC	1	73
SECC	1	74
SECC	1	79
BPCC	1	90
BPCC	1	92
BPCC	1	93
BPCC	1	97
PGCC	1	82
PGCC	1	87
PGCC	1	89
MTCC	1	59
MTCC	1	63
MTCC	1	64
MTCC	1	68
MTCC	1	70
MTCC	1	72

MECC	1	52
GECC	1	24
GECC	1	26
GECC	1	31
GECC	1	34
PMS	2	200
PMS	2	205
PMS	2	211
PMS	2	213
PSMZA	2	160
PSMZA	2	173
PSP	2	75
PSP	2	81
PTSS	2	103
PTSS	2	109
PTSS	2	110
PTSS	2	114
PTSS	2	124
PTSS	2	126
PTSS	2	127
PTSS	2	129
PUO	2	2
PUO	2	24
PUO	2	25
PUO	2	33
PUO	2	37
POLIMAS	2	43
POLIMAS	2	49
POLIMAS	2	52
POLIMAS	2	55

MTCC	1	72
SSCC	1	22
MECC	1	49
GECC	1	25
GECC	1	30
GECC	1	35
PMS	2	199
PMS	2	200
PMS	2	204
PMS	2	205
PSMZA	2	141
PSMZA	2	149
PSMZA	2	173
PSP	2	60
PSP	2	63
PSP	2	64
PSP	2	66
PSP	2	68
PSP	2	77
PSP	2	82
PSP	2	84
PSP	2	86
PTSS	2	.
PTSS	2	101
PTSS	2	103
PTSS	2	110
PTSS	2	112
PTSS	2	115
PTSS	2	118
PTSS	2	120
PTSS	2	124
PTSS	2	126
PUO	2	4
PUO	2	5
PUO	2	6
PUO	2	8
PUO	2	9
PUO	2	10
PUO	2	12
PUO	2	15
PUO	2	18

SSCC	1	10
SSCC	1	11
SSCC	1	12
SSCC	1	21
MECC	1	49
MECC	1	57
MECC	1	58
GECC	1	31
GECC	1	32
PSP	2	61
PSP	2	75
PSP	2	82
PSP	2	83
PSP	2	86
PSP	2	90
PSP	2	93
PTSS	2	.
PTSS	2	102
PTSS	2	103
PTSS	2	110
PTSS	2	112
PTSS	2	114
PTSS	2	117
PTSS	2	118
PTSS	2	120
PTSS	2	124
PTSS	2	128
PUO	2	3
PUO	2	6
PUO	2	9
PUO	2	10
PUO	2	12
PUO	2	21
PUO	2	24
PUO	2	25
PUO	2	36
PUO	2	37
PKKT	2	182
PKKT	2	192
PKKT	2	193
POLIMAS	2	46

PUO	2	19
PUO	2	20
PUO	2	21
PUO	2	28
PUO	2	35
PUO	2	37
PKKT	2	192
PKKT	2	193
POLIMAS	2	39
POLIMAS	2	47
POLIMAS	2	49
POLIMAS	2	52
POLIMAS	2	54
POLIMAS	2	55

POLIMAS	2	52
POLIMAS	2	55

SectionD<=2.5

MGCC	1	98
BPCC	1	94
MTCC	1	71
SSCC	1	12
SSCC	1	14
SSCC	1	18
SSCC	1	21
SSCC	1	23
MECC	1	48
MECC	1	57
MECC	1	58
GECC	1	24
GECC	1	28
GECC	1	29
GECC	1	33
GECC	1	38
PMS	2	199
PMS	2	212
PMS	2	214
PSMZA	2	136

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Combined factors and section D

PSP	2	68
PSP	2	82
PKKT	2	192

High quartile factor 3,5,6 combined

Low quartile sectionD

PSMZA	2	153
PSMZA	2	157
PSMZA	2	169
PSP	2	61
PSP	2	68
PTSS	2	111
PUO	2	8
PUO	2	13
PUO	2	18
PUO	2	28
PUO	2	30
PKKT	2	182
PKKT	2	188
PKKT	2	190
PKKT	2	191
PKKT	2	192

Group C: Low Motivation, High Practice

Factor3<=3.0

PSCC	1	8
MGCC	1	.
MGCC	1	100
MGCC	1	101
MGCC	1	102
MGCC	1	104
SECC	1	73
BPCC	1	95
MTCC	1	67
MTCC	1	71
SSCC	1	18
SSCC	1	22
GECC	1	25
GECC	1	27
GECC	1	35
PMS	2	199
PMS	2	209
PSMZA	2	136
PSMZA	2	137

Factor5<=2.5

MGCC	1	98
MGCC	1	.
MGCC	1	101
MGCC	1	103
MGCC	1	104
SECC	1	74
SECC	1	76
BPCC	1	93
BPCC	1	94
BPCC	1	96
PGCC	1	86
MTCC	1	71
SSCC	1	10
SSCC	1	11
SSCC	1	12
SSCC	1	13
SSCC	1	14
SSCC	1	18
SSCC	1	20

Factor6<=2.5

PSCC	1	5
MGCC	1	98
SECC	1	76
BPCC	1	94
BPCC	1	95
BPCC	1	96
MTCC	1	67
SSCC	1	13
SSCC	1	18
MECC	1	48
MECC	1	52
GECC	1	24
GECC	1	26
GECC	1	27
GECC	1	28
GECC	1	29
GECC	1	33
GECC	1	36
PMS	2	199

PSMZA	2	138
PSMZA	2	139
PSMZA	2	141
PSMZA	2	149
PSMZA	2	150
PSMZA	2	153
PSMZA	2	155
PSP	2	67
PSP	2	71
PSP	2	72
PSP	2	74
PSP	2	76
PSP	2	78
PSP	2	84
PTSS	2	101
PTSS	2	106
PTSS	2	108
PTSS	2	116
PTSS	2	120
PTSS	2	128
PUO	2	10
PUO	2	11
PUO	2	12
PUO	2	20
PUO	2	23
PUO	2	26
PKKT	2	182
PKKT	2	185
PKKT	2	186
PKKT	2	187
PKKT	2	188
PKKT	2	191
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	42
POLIMAS	2	44
POLIMAS	2	47
POLIMAS	2	50
POLIMAS	2	53

SSCC	1	21
SSCC	1	23
MECC	1	48
MECC	1	56
MECC	1	57
MECC	1	58
GECC	1	24
GECC	1	26
GECC	1	27
GECC	1	28
GECC	1	29
GECC	1	31
GECC	1	32
GECC	1	36
PMS	2	201
PMS	2	203
PMS	2	207
PMS	2	209
PMS	2	212
PMS	2	214
PSMZA	2	136
PSMZA	2	137
PSMZA	2	138
PSMZA	2	139
PSMZA	2	155
PSMZA	2	157
PSMZA	2	169
PSP	2	67
PSP	2	69
PSP	2	70
PSP	2	71
PSP	2	73
PSP	2	74
PSP	2	76
PSP	2	79
PSP	2	83
PSP	2	89
PSP	2	93
PTSS	2	102
PTSS	2	106
PTSS	2	111

PMS	2	200
PMS	2	203
PMS	2	212
PMS	2	213
PSMZA	2	136
PSMZA	2	138
PSMZA	2	139
PSMZA	2	153
PSMZA	2	155
PSMZA	2	157
PSMZA	2	173
PSP	2	60
PSP	2	66
PSP	2	67
PSP	2	72
PSP	2	74
PSP	2	77
PSP	2	78
PTSS	2	106
PTSS	2	108
PTSS	2	109
PTSS	2	111
PTSS	2	127
PTSS	2	129
PUO	2	1
PUO	2	8
PUO	2	18
PUO	2	26
PUO	2	30
PUO	2	35
PKKT	2	188
PKKT	2	190
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	43
POLIMAS	2	44
POLIMAS	2	45
POLIMAS	2	53
POLIMAS	2	56

PTSS	2	114
PTSS	2	128
PUO	2	1
PUO	2	2
PUO	2	3
PUO	2	7
PUO	2	14
PUO	2	22
PUO	2	24
PUO	2	25
PUO	2	26
PUO	2	31
PUO	2	33
PKKT	2	182
PKKT	2	190
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	43
POLIMAS	2	44
POLIMAS	2	53
POLIMAS	2	57

SectionD>=3.18

PSCC	1	2
PSCC	1	4
MGCC	1	102
SECC	1	74
SECC	1	76
BPCC	1	96
BPCC	1	97
PGCC	1	89
MTCC	1	59
MTCC	1	61
MTCC	1	69
MTCC	1	70
SSCC	1	10
SSCC	1	22
GECC	1	36
PMS	2	200

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Combined factors and section D

PSCC	1	2
GECC	1	36
PSMZA	2	138
PSP	2	69
PSP	2	89
PTSS	2	106
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	42
POLIMAS	2	43

Low quartile factor 3,5,6 combined

High quartile section D

PMS	2	204
PMS	2	211
PSMZA	2	138
PSMZA	2	160
PSMZA	2	173
PSP	2	64
PSP	2	69
PSP	2	70
PSP	2	83
PSP	2	89
PSP	2	92
PTSS	2	.
PTSS	2	103
PTSS	2	106
PTSS	2	109
PTSS	2	110
PTSS	2	112
PTSS	2	115
PTSS	2	125
PTSS	2	128
PTSS	2	129
PUO	2	6
PUO	2	7
PUO	2	10
PUO	2	12
PUO	2	14
PUO	2	19
PUO	2	21
PUO	2	24
PUO	2	25
PUO	2	35
PKKT	2	194
POLIMAS	2	39
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	42
POLIMAS	2	43
POLIMAS	2	47
POLIMAS	2	48
POLIMAS	2	49

Group D: Low Motivation, Low Practice

Factor3<=3.0

PSCC	1	8
MGCC	1	.
MGCC	1	100
MGCC	1	101
MGCC	1	102
MGCC	1	104
SECC	1	73
BPCC	1	95
MTCC	1	67
MTCC	1	71
SSCC	1	18
SSCC	1	22
GECC	1	25
GECC	1	27
GECC	1	35
PMS	2	199
PMS	2	209
PSMZA	2	136
PSMZA	2	137
PSMZA	2	138
PSMZA	2	139
PSMZA	2	141
PSMZA	2	149
PSMZA	2	150
PSMZA	2	153
PSMZA	2	155
PSP	2	67
PSP	2	71
PSP	2	72
PSP	2	74
PSP	2	76
PSP	2	78
PSP	2	84
PTSS	2	101
PTSS	2	106
PTSS	2	108
PTSS	2	116
PTSS	2	120
PTSS	2	128

Factor5<=2.5

MGCC	1	98
MGCC	1	.
MGCC	1	101
MGCC	1	103
MGCC	1	104
SECC	1	74
SECC	1	76
BPCC	1	93
BPCC	1	94
BPCC	1	96
PGCC	1	86
MTCC	1	71
SSCC	1	10
SSCC	1	11
SSCC	1	12
SSCC	1	13
SSCC	1	14
SSCC	1	18
SSCC	1	20
SSCC	1	21
SSCC	1	23
MECC	1	48
MECC	1	56
MECC	1	57
MECC	1	58
GECC	1	24
GECC	1	26
GECC	1	27
GECC	1	28
GECC	1	29
GECC	1	31
GECC	1	32
GECC	1	36
PMS	2	201
PMS	2	203
PMS	2	207
PMS	2	209
PMS	2	212
PMS	2	214

Factor6<=2.5

PSCC	1	5
MGCC	1	98
SECC	1	76
BPCC	1	94
BPCC	1	95
BPCC	1	96
MTCC	1	67
SSCC	1	13
SSCC	1	18
MECC	1	48
MECC	1	52
GECC	1	24
GECC	1	26
GECC	1	27
GECC	1	28
GECC	1	29
GECC	1	33
GECC	1	36
PMS	2	199
PMS	2	200
PMS	2	203
PMS	2	212
PMS	2	213
PSMZA	2	136
PSMZA	2	138
PSMZA	2	139
PSMZA	2	153
PSMZA	2	155
PSMZA	2	157
PSMZA	2	173
PSP	2	60
PSP	2	66
PSP	2	67
PSP	2	72
PSP	2	74
PSP	2	77
PSP	2	78
PTSS	2	106
PTSS	2	108

PUO	2	10
PUO	2	11
PUO	2	12
PUO	2	20
PUO	2	23
PUO	2	26
PKKT	2	182
PKKT	2	185
PKKT	2	186
PKKT	2	187
PKKT	2	188
PKKT	2	191
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	42
POLIMAS	2	44
POLIMAS	2	47
POLIMAS	2	50
POLIMAS	2	53

PSMZA	2	136
PSMZA	2	137
PSMZA	2	138
PSMZA	2	139
PSMZA	2	155
PSMZA	2	157
PSMZA	2	169
PSP	2	67
PSP	2	69
PSP	2	70
PSP	2	71
PSP	2	73
PSP	2	74
PSP	2	76
PSP	2	79
PSP	2	83
PSP	2	89
PSP	2	93
PTSS	2	102
PTSS	2	106
PTSS	2	111
PTSS	2	114
PTSS	2	128
PUO	2	1
PUO	2	2
PUO	2	3
PUO	2	7
PUO	2	14
PUO	2	22
PUO	2	24
PUO	2	25
PUO	2	26
PUO	2	31
PUO	2	33
PKKT	2	182
PKKT	2	190
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	43
POLIMAS	2	44
POLIMAS	2	53

PTSS	2	109
PTSS	2	111
PTSS	2	127
PTSS	2	129
PUO	2	1
PUO	2	8
PUO	2	18
PUO	2	26
PUO	2	30
PUO	2	35
PKKT	2	188
PKKT	2	190
POLIMAS	2	40
POLIMAS	2	41
POLIMAS	2	43
POLIMAS	2	44
POLIMAS	2	45
POLIMAS	2	53
POLIMAS	2	56

POLIMAS	2	57

SectionD<=2.5

MGCC	1	98
BPCC	1	94
MTCC	1	71
SSCC	1	12
SSCC	1	14
SSCC	1	18
SSCC	1	21
SSCC	1	23
MECC	1	48
MECC	1	57
MECC	1	58
GECC	1	24
GECC	1	28
GECC	1	29
GECC	1	33
GECC	1	38
PMS	2	199
PMS	2	212
PMS	2	214
PSMZA	2	136
PSMZA	2	153
PSMZA	2	157
PSMZA	2	169
PSP	2	61
PSP	2	68
PTSS	2	111
PUO	2	8
PUO	2	13
PUO	2	18
PUO	2	28
PUO	2	30
PKKT	2	182
PKKT	2	188
PKKT	2	190
PKKT	2	191
PKKT	2	192

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Combined factors and section D

MGCC	1	98
BPCC	1	94
MTCC	1	67
SSCC	1	18
MECC	1	48
GECC	1	28
GECC	1	29
GECC	1	33
PMS	2	209
PMS	2	212
PMS	2	214
PSMZA	2	136
PSMZA	2	153
PSMZA	2	157
PSP	2	74
PTSS	2	111
PKKT	2	182
PKKT	2	188
PKKT	2	190
PKKT	2	191

Low quartile factor 3,5,6 combined
Low quartile sectionD