THE IMPACT OF MEDIUM OF INSTRUCTION ON THE LEARNING OF COMPUTER APPLICATIONS TECHNOLOGY IN TERTIARY EDUCATION

by

Lorraine Els

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Dissertation in compliance with the requirements for the Master's Degree in Technology: Language Practice in the Department of Media, Language and Communication, Durban University of Technology.

I declare that this dissertation is my own work and has not been submitted for any other degree or examination at any other institution.

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Abstract

This study investigated the impact of medium of instruction (MOI) on the learning of computer technology, and took place in two second-language contexts where this was being taught. The first context was that of Computer Applications Technology (CAT) lectures given to isiZulu-speaking students, mainly female, in KwaZulu-Natal. The second context was that of teaching Instructional Technology (IT) to Arabic speaking students in the Middle East. The goal of this research was to understand how students overcame any language barriers which they might face in the teaching and learning of computer technology through the medium of English. It was hoped that the insights gained might be used to support English second language (ESL) learners in acquiring the language skills necessary for effective learning of computer technology.

The research approach used was action research for both the groups, using the data collected to construct two case studies, as local customs resulted in differences in both course delivery and measures to assist ESL learners to gain fluency in the MOI. Data were collected in two case studies, comprising notes of personal reflections, field notes, researcher-developed questionnaires and comparisons of translated assessments to second language learners. The finding from two groups could then be compared and contrasted with each other to see which language barriers experienced in learning computer technology were common to both ESL groups and which were context-specific, as well as which context-specific factors might be involved. The study of different cultural groups in the setting of a different continent provided the opportunity to triangulate the data, and thus achieve more reliability and validity than would be achieved with one cultural group in a common context.

This study discusses the findings of the above-mentioned investigation in two main areas: how the MOI affected the academic results obtained by students and how it impacted on their learning capacity. The findings confirm the fact that, the earlier children attend an English medium school, the easier it is for

them to achieve better results, and therefore there is less need for translation or interpretation at tertiary level. Further research is required to determine what Higher Education institutions could do to develop second language learning competences so as to facilitate the learning of technical subjects such as computer technology.

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This project has been carried out with the support and help of many people.

I jumped into the deep end and thought I would drown, but so many people caught my hand and pulled me out. Firstly I would like to thank my supervisor, Professor Dee Pratt, for her patience, professionalism, encouragement and hours of her time she spent assisting me and e-mailing me while I was on the other side of the world. She was instrumental in guiding me and prodding me to continue, especially when I continually met the dreaded writer's block. Her constant supervision and guidance guided me into the field of research and has encouraged me to become a life-long researcher. Without her I would not have survived or completed my thesis.

Two great inspirations were that of my two dearest colleagues and friends, Lynda Swindon and Anita Hiralaal, who inspired me with their support, supplying examples and readings they nurtured, encouraged and at times threatened me into realising the importance of completing this thesis.

I would like to thank all my colleagues for the occasional inquiry into how my studies were going, and the Durban University of Technology for the time and the funding.

I would like to thank my daughter Roxanne and my son Jason for their love and support during this period of my life.

Lastly I want to acknowledge my father. Without his continual support and encouragement I would have easily given up, he was my pillar of strength, throughout my life. "Dad, I'm sorry you are not around any longer to celebrate with me." I miss you and may you rest in peace.

Lorraine Els

Preface

DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

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SIGNED: LORRAINE ELS

DATE: 12 August 2015

The referencing system used in this dissertation conforms to the Durban University of Technology (DUT) Harvard style as set out in the *DUT Referencing Guide 2013*. EndNote 7 was used to generate the Reference list, using the DUT Harvard EndNote style 2013. According to the *DUT Referencing Guide 2013*, "Personal communications are noted in the in-text reference but are not included in the reference list" (2013: 13).

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Glossary

Qualitative – The interview seeks qualitative knowledge expressed in normal language; it does not aim at qualification.
Descriptive – The interview attempts to obtain open nuanced descriptions of different aspects of the subjects' life worlds.

CALL	Computer Assisted Language Learning
CAT	Computer Applications Technology
CLA	Critical Language Awareness
DOE	Department of Education
DoBE	Department of Basic Education
EFL	English Foreign Language
ESL	English Second Language
ESP	English for Special Purposes
IEP	Individual Educational Program
IT	Instructional Technology
MOI	Medium of Instruction
KSA	Kingdom of Saudi Arabia
KZN	KwaZulu-Natal
PBL	Project Based Learning
PIRLS	Progress in Reading Literacy Study

The convention for use of acronyms in the text will be: the term will be written in full on its first use in each chapter followed by the acronym in brackets. Thereafter, only the acronym will be used (Hofstee 2006).

Chapter 1: Introduction

1.1 Introduction

Chapter 1 first sets the research in context by showing how the researcher's experiences as an academic administering Computer Applications Technology (CAT) and Instructional Technology (IT) programmes to English second language (ESL) learners in two very different tertiary contexts led to her adopting a formal research approach, which, however, had practical application for curriculum change. Next, a brief overview is given of the KwaZulu-Natal (KZN) context, with mainly isiZulu-speaking students, and the Kuwait context, with Arabic-speaking students. The general aim of the research and specific research questions informing the study are then given, followed by the main themes of the research. An overview is then provided of the emancipatory orientation used in this study, the critical paradigm, as well as a brief definition of critical linguistics and critical action research. After suggesting the potential value of this study, the chapter concludes with an overview of the rest of the chapters in the dissertation.

1.2 Context of the study

The researcher observed students from different cultures, languages and learning environments for 32 years in the capacity of teacher, lecturer and administrator at English medium tertiary institutions. These observations tracked the academic progress of isiZulu- and Arabic-speaking students in colleges in KZN and the Emirates respectively as they studied CAT (better known internationally as Information Technology) through the medium of English.

In the process, valuable insights were gained into the commonalities and differences in the experiences of English Second Language (ESL) learners in different contexts as they coped with the challenges encountered in understanding technological terms and assessment rubrics in a second

language. In this study the researcher focused on second language groups studying computer technology courses in two different contents, KZN, with mother tongue (MT) isiZulu-speaking students, and in Kuwait, with MT Arabic-speaking students.

1.2.1 The KwaZulu-Natal context

African communities in KZN have accepted English as the “power” language which they are required to know and master in order to communicate with the broader national and international communities (Schmied 1991; Mwaura 2007; Naidoo 2012). Young South Africans also acknowledge that the indigenous African languages that are enshrined in and protected by the Constitution of South Africa (Republic of South Africa, 1996) are useful only in communicating with people locally. IsiZulu is predominantly spoken in KZN (see Figure 1.1 for map), but is not as widely spoken in the other provinces of South Africa as it is in KZN.

During the last census conducted in South Africa it was noted that 23% of South Africans were of Zulu origin (Statistics South Africa 2003). Yet IsiZulu is not spoken in the other countries of Africa, let alone in the other continents around the world. It is because of this that Zulu parents do not encourage their children to receive an education through the medium of their mother tongue. Elders and leaders readily accept English over the mother tongue as the language of choice for the education of their people, as they perceive English to be a vital means of communication for trade and communication with the outside world (Naidoo, 2012).

The White Paper 3 (Republic of South Africa 1997) states that the multilingual nature of South Africa presents many challenges in the Higher Education sector. The policy document emphasises that the need to investigate the language situation in Higher Educational Institutions is imperative. In a conversation with myself on 19 May 2009, Professor Siyakwazi, Head of the School of Education at the Durban University of Technology (DUT), commented on the lack of skills shown by students who

register for Education courses. According to Professor Siyawazi, when Education students first enter the university they lack certain critical, language and technological skills that are essential for progress across all disciplines.

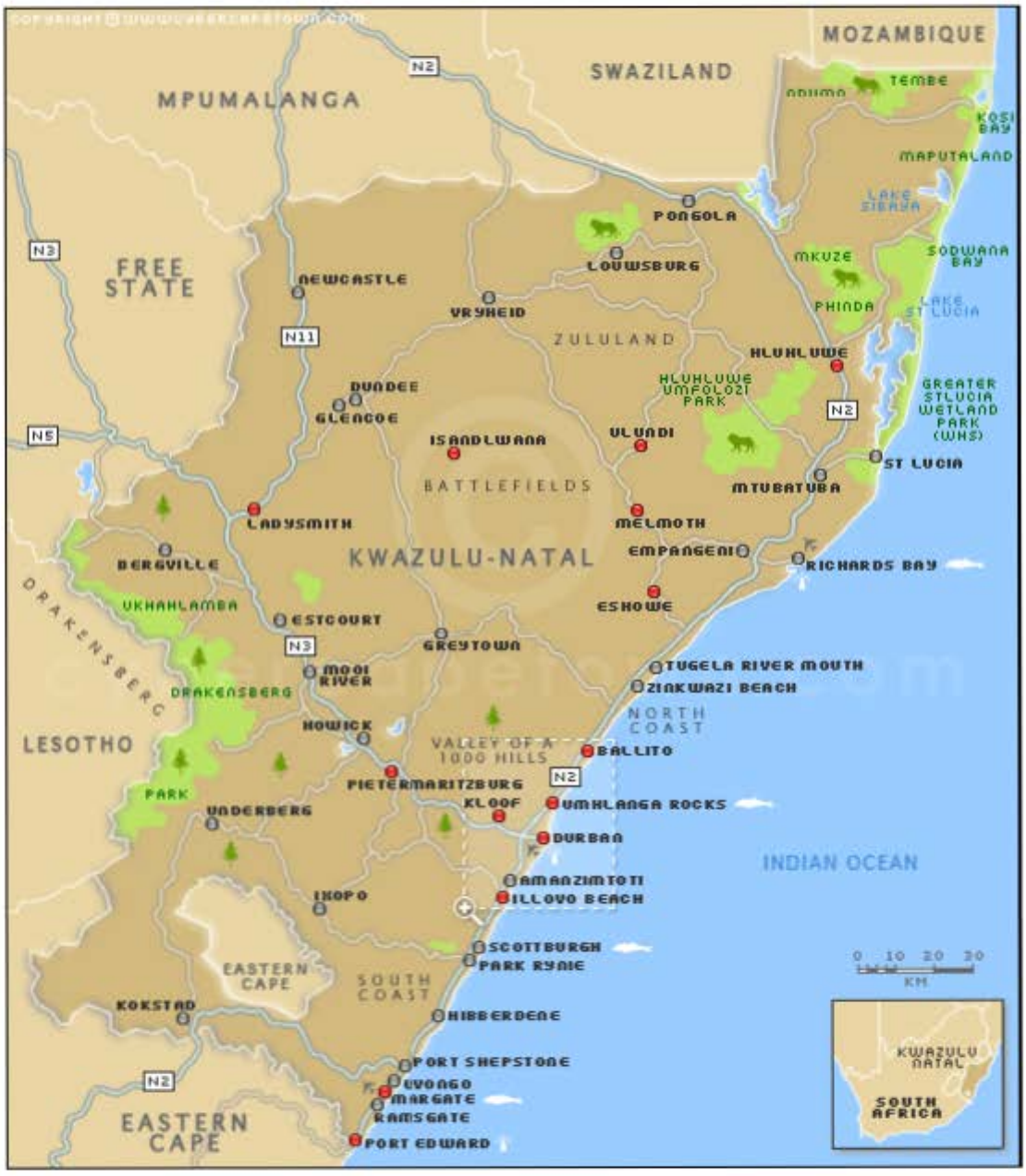

Figure 1.1 Map of KwaZulu-Natal (CyberCapeTown.com 2013)

In the researcher's experience of lecturing in CAT to Education students at DUT, the skills identified appear to be similar year after year. These comprise the students' ability to understand concepts and communicate with one another in the medium of instruction (MOI), to solve problems, to work independently as well as with lecturers, and to manage themselves and their activities at a Higher Education institution (all of which can be identified as critical cross-field outcomes, Pretorius 1998: 29).

The parents of learners from rural schools have become increasingly aware that an English MOI would be more beneficial for their children to be able to compete in the global arena (Gardiner 2008). The overwhelming victory of the African National Congress (ANC) in the inaugural democratic elections in 1994 in South Africa motivated and encouraged parents to get a better education for their children than that to which they were exposed during the apartheid era under white dominance. The education that the parents and grandparents of ESL learners received under the apartheid regime taught them to be subservient and passive (Njobe 1990). English as the MOI was perceived by Black parents to give their children more access to education and better opportunities in life than if they used their mother tongue as the MOI (Naidoo 2012).

1.2.2 The ESL context in Kuwait

A move to lecturing in Kuwait in the Emirates (see Figure 1.2 for map) revealed that, not only student populations indigenous to KZN, but also international populations of Arabic and Asian students are acknowledging the fact that English is dominant worldwide. Ability to communicate in English now seems to be highly popular in both the national and international arenas (Naidoo 2012: 23). In China, this is referred to as the "English craze" (Jiang 2011). As a comparison and possible contrast to the study in KZN, the researcher therefore investigated how second language learners in another country managed to process, understand and function. The second context involved was Kuwait, where the first language is Arabic. A comparison was

made on the similarities and differences of teaching and learning that took place, and the barriers to learning experienced.

Figure 1.2 Map of Kuwait (Embassy of the State of Kuwait: Australia/New Zealand 2009)

In the Kuwaiti context each mother tongue Arabic-speaking learner is able to learn CAT (or IT, as it is termed there) taught through the MOI of English, provided that he or she is given the appropriate help, as each learner has their own style and strategy of learning which determines their Individual Educational Programme (IEP). Action research for the teaching of computer technology through English medium was aimed at discovering learning-teaching strategies which matched the learners' style and approaches used in the IT classroom. The Arabic speaking learners have a buddy system where the higher grade students assist and teach the lower grade student. This seems to be an excellent way to assist second language learners.

1.2.3 Language requirements in the context of tuition in computer technology

For students to make progress in computer technology courses at college level, it is crucial for them to understand the connotations of the technical language. The fact that the MOI at DUT and Kuwait is English, and the students are isiZulu- or Arabic- speaking may well constitute a barrier to understanding. According to Lee (2000), not only is there a shortage of knowledge about developing software to promote learning, but also many instructors themselves do not understand how to use the new technologies. Therefore a lack of technical and theoretical knowledge, as well as application of that knowledge, constitutes a further possible barrier to progress in computer technology courses.

These are the competence gaps identified, and these “missing skills” appear to be aligned with those caused by language barriers and lack of experience in the basic technology, especially where students attended rural schools. For students to excel in computer technology courses, they must be equipped with technological skills and be in the position to use the correct terminology to explain, verify and demonstrate new learning concepts and materials. All third year students in the KZN context needed to possess these skills, especially before they left to do work-integrated learning. Here they would be expected to teach computer technology courses in the English medium to mainly isiZulu-speaking learners, thus potentially further replicating the confusions and errors they themselves had experienced.

The Kuwaiti students do not always attend English-medium schools at a very early age. It is generally only later that parents decide their children need to have the skills in both English and IT in order to equip themselves for Higher Educational Institutions abroad. Foreign students need to obtain a high Grade Point Average (GPA), in order to be accepted into Higher Educational Institutions abroad. The GPA is determined by the grade achieved for all of the subjects they take. IT is one of the subjects which included in the GPA. The majority of the students in Kuwait leave for English speaking countries

such as America or Europe to continue with their studies through the medium of English. Thus students need to obtain competence in both English and IT prior to leaving Kuwait.

1.2.4 Computer-assisted language learning

Perhaps no single area of applied linguistics has seen such explosive growth over the past 15 years as computer-assisted instruction. Books and journal articles on the subject abound – indeed, new journals have appeared dedicated exclusively to it (Chapelle 2001: 1). Rapid developments in computer hardware and software are obviously a driving force, but so, too, are the increasing numbers of computer-literate people entering the field, whether as graduate students or language teachers. Amidst all the excitement and innovation, however, a degree of healthy scepticism has survived in some quarters. Just how much of the work has produced genuine advances in language sciences? How much has really been a case of computer-buffs in search of justification for their love of the technology, or worse, computer manufacturers in search of new markets for their products? Forward-looking members of the profession have suggested that the nature of communication occurs with computers and with other people through the use of computers (Chapelle 2001: 1). However, as will be discussed in Chapter 2, computer-assisted learning has its disadvantages, too.

1.3 General aim of the research

The aim of this study, then, is to investigate the impact of the medium of instruction in the learning and teaching of computer technology, and to make recommendations as to what measures could be set in place to improve both student progress and teaching competences (in the case of the student teachers in KZN). It was hoped that this research would contribute to the learning and teaching of a technology vital to the country's development, whether in KZN or Kuwait. As the researcher sought to empower students by engaging with them in a cycle of reflection-in-action, a critical-emancipatory action research approach was used (Grundy 1987; Carr and Kemmis 2004; Zuber-Skerritt 1996, 2011).

The specific research questions used to guide this investigation were as follows:

1. With regard to instruction:
    a. To what extent do the students understand what is being taught to them in computer technology courses through the medium of English?
    b. To what extent do they understand the technology used in this subject field?
2. With regard to assessment:
    a. What language problems, if any, do students face while undertaking computer technology assessment tasks?
    b. To what extent do the students possess the language capacity to carry out these assessment tasks?

The answers to the above questions were used to assess the impact the MOI had on both the learning and assessment of computer technology. The findings of this study were then used to develop recommendations for revising the curricula and assessments in both contexts in order for the students studying computer technology to be better prepared with the competencies required for either learning or teaching in this subject.

1.4 Main themes of the research

The main themes of the research are as follows:

- The dominance of English as a second language worldwide;
- The power relations set in place by the necessity to use ESL as a medium of instruction and their effects on student populations;
- The effects of different cultural and instructional contexts on learning in a second language;
- The impact of MOI on the instruction and assessment of a technical subject (CAT/IT); and
- Empowerment of student populations through critical action research.

1.5 The emancipatory orientation used in this study

My experience of lecturing students who come from multicultural and multilingual backgrounds, is that many of are so afraid of the language they are taught in that they are afraid to ask questions, and creative “out of the box” thinking is something heard of, but not ventured. For this reason an emancipatory approach was considered appropriate.

The emancipatory orientation used in this study was carried out within the critical paradigm (Habermas 1972: 308), which works towards empowerment by identifying and contesting social practices which lead to the disempowerment of various groups. The critical linguistic approach outlined below develops a theoretical approach in which language is shown to be a key mechanism in disempowerment. In keeping with the critical orientation, critical action research was used as an appropriate research methodology for both the analysis of the factors leading to disempowerment and finding solutions to the ultimate empowerment of the student groups involved.

1.5.1 Critical linguistics

Critical linguistics (or critical language study) falls within the critical paradigm identified by Habermas (1972: 308). Fairclough (1989, 1992) developed this concept into a field of study, building on the work of Bourdieu (1991), Foucault (1986), Giroux (1980, 2001) and Gramsci (1999). Critical linguistics shows how social relations of power underpin discourse, which both reflects and sets in place these relations (Fairclough 1989).

Critical language awareness (CLA) is an area associated with critical linguistics (Fairclough 1992). It refers to developing in learners an awareness of the implications of communicating in language varieties (e.g. dialects or registers) which might indicate factors such as their race, ethnicity, religion, social status, gender and so on. This, in turn, might empower or disempower learners, who need to be aware of the implications of using different language varieties and how to challenge successfully any resulting disempowerment.

Language ideology is another area in critical language study, and refers to the hegemonic influence of some languages in terms of being seen as more powerful, prestigious or desirable than others (Schieffelen and Woolard 1998: 3). The power and popularity of English as a much sought after second language worldwide is a case in point (see Kachru 2005: 15-16). The fact that English is often preferred as the MOI, not only by academic institutions, but also by learners who are not mother tongue (MT) speakers of English (Naidoo 2012), is the underlying reason for this research, which looks at the consequences for learners of this choice.

1.5.2 Critical action research

Critical action research also falls within the critical paradigm identified by Habermas (1972: 308), and can be viewed as "a validation and extension of action research or participatory action research processes that combines critical theory with the action research paradigm" (Davis 2008: 139). Based on the literature on teaching, learning through the second language medium, lecturing and action research, this action research study examines how the lecturer over a period of two years affected the teaching and assessment of CAT. In keeping with traditional action research methodology, the study uses the "think-act-reflect" cycle (Kemmis and McTaggart 2005: 564). These action research cycles inform practice, guide the development of literacy initiatives, and have the potential to result in change. Action research on the learning of CAT through the MOI of English second language aims at developing a certain instructional strategy to solve practical instructional problems in the CAT classroom and ultimately lead to learner empowerment.

1.6 The potential value of the research

The potential value of the research is thought to lie in its study of learner groups very different in terms of nationality, culture and language, from the common perspective of an academic attempting to facilitate the learning of computer skills. While context is obviously a key issue in the identification of the causes of various learning problems, available research tends to view the

learners' issues as typically Asian, Eastern or African. The marked differences in the two learner groups and contexts studied made it possible to detach from the national mindset, and identify some of the commonalities in the difficulties ESL learners have in grasping a very technical subject.

1.7 Definitions of key terms

Definitions are given of key terms or concepts, as follows, although some of these will be fleshed out in more detail in the relevant chapters.

1.7.1 Second language

This is any language learned in addition to or different from your native language. A second language acquired in formal education is usually consciously acquired, and can be a lengthy process (Dorasamy 2012). In countries such as South Africa, where there are many indigenous languages spoken by citizens, English may be the third or fourth language acquired, which suggests that the term "other tongue" (Kachru 1992) for English may be more appropriate than "second language".

1.7.2 Foreign language

A foreign language is a language not spoken by the people of that country or place, or in the native country of the person referred to (Dorasamy 2012: 12). In the UNESCO report it is defined more narrowly as: "Language that is not spoken in the immediate environment of the learner" (Ball 2010: 61).

1.7.3 Lingua franca

A lingua franca is defined as follows: "Any language used for communication between groups who have no other language in common: e.g. Swahili in much of East and Central Africa where it is not native" (Matthews 2003: 209).

1.7.4 Mother tongue

Skutnabb-Kangas and McCarty (2008: 7) define "mother tongue" as: "Language(s) one learns first, identifies with, and/or is identified by others as

a native speaker of; sometimes also the language that one is most competent in or uses most. UNESCO (2003: 14) and Ball (2010: 8-9) suggest that definitions of "mother tongue" include, amongst other elements:

- the language (s) that one has learnt first;
- the language(s) one identifies with or is identified as a native speaker of by others;
- the language(s) one knows best and the language(s) one uses most.
- one's primary or first language.

UNESCO (2003) and Ball (2010) add that the use of the term does not necessarily discriminate between all of the language varieties used by a native speaker, and that children's initial experience of their mother tongue does not necessarily correspond with the more formal version used at school.

For the purposes of this study, the term "mother tongue" (MT) is used to refer to the language one knows best and uses most, which is most often the language spoken by one's parents, and is learned first.

1.7.5 Hegemony

The term "hegemony" is defined as follows: the "power to rule, not necessarily by physical force of coercion, but through ideology" (Gramsci 1971: 506-507). While Bourdieu (1991) and Foucault (1986) saw hegemony as being an implicit influence, this is not necessarily the case, as in South Africa Apartheid policies publicly promulgated the belief that certain population groups were "superior" and others "inferior".

1.7.6 Ideology

The term "ideology" is defined as a set of beliefs which strongly influence the way of thinking of certain groups. In this way, it sets in place what is viewed as "natural" or "normal", in the process advantaging certain groups at the expense of other (Grundy 1987: 109). While hegemony refers to the dominance exercised by different nations, groups or practices (including language practices) ideology can be viewed as the chief means by which

dominance is both set in place and maintained. Ideology can be seen to operate in two different ways in language practice: either as the ideological content or connotations of the message which communicate and maintain relations of power (Fairclough 1989: vi), or in the sense of "language ideology", where some languages are perceived as being more powerful, prestigious or desirable than others (Schieffelen and Woolard 1998: 3). It is in the second sense that it is used in this study.

1.8 Conclusion

The rest of the chapters will deal with the following:

Chapter 2: The literature review looks at the dominance of English as a global second language, and shows the reasons for using English as MOI as not only the results of colonial hegemony but also as a result of the popularity of English as global lingua franca, with the possible danger of English being viewed as promoting a form of cultural globalisation or even "linguistic genocide" for minority non-English speaking groups. English as medium of tertiary instruction for ESL college tuition is explored, with reference to use of English as MOI for isiZulu teacher students in KZN and for university students in Kuwait. The chapter concludes after looking at use of technology in learning through the required MOI and some of the advantages and disadvantages of computer mediated learning for ESL students.

Chapter 3: This chapter deals with the critical research orientation and its derivation from Habermas's paradigms, the research field of critical language study, and the research area of language ideology. Language ideology is explained to show how the use of any specific language for everyday use, lingua franca or instructional medium may occur owing to hegemonic influences driven by ideologies which attribute positive or negative qualities to that particular language. The critical action research methodology is then described, showing how it combines traditional action research with the principles of Habermas's critical paradigm. Finally, an overview is given of the specific data-collection and analysis methods used in KZN and Kuwait.

Chapter 4: This chapter gives the results of the classroom action research carried out in terms of interpreting the data obtained by means of interviews, questionnaires, observations and surveys. This is done for both the KZN and Kuwaiti student groups, and the results show both the commonalities and differences in the two groups.

Chapter 5: This chapter deals with the general conclusions drawn from the results emerging from the classroom action research described in Chapter 4. The results are presented in terms of how they answer the specific research questions, on order to assess the impact the medium of instruction (MOI) had on both the learning and assessment of computer technology courses. Language barriers to learning computer technology are identified, as well as barriers not caused (or not caused directly) by language. Aspects of the actual computer technology curricula which might act as a barrier to learning and assessment are discussed.

Chapter 6: Recommendations are made for the teaching of CAT/IT to second (or foreign) language students, suggesting how the barriers to learning identified in Chapter 5 might be overcome. Changes to CAT/IT curricula are also suggested in terms of contextualising learning in its social context with consideration for sociocultural features of the local target audience, their needs, and eventual application of the computer skills learned during the course. After some “teacher advice”, and a reflection on the writer’s experiences as teacher and researcher, the chapter concludes by touching on the main themes of the research and how they were addressed in this account.

Chapter 2: Literature review

2.1 Introduction

This chapter first looks at the dominance of English as a global second language, and shows motivation for using English as medium of instruction (MOI) as not only the result of colonial hegemony, as in KwaZulu-Natal (KZN), but also as a result of the popularity of English as global lingua franca, with the possible resulting danger of English being viewed as promoting a form of cultural globalisation or even "linguistic genocide" for minority non-English speaking groups. Next, English as medium of tertiary instruction for English second language (ESL) college tuition is explored, with reference to use of English as MOI for isiZulu teacher students in KZN and for university students in Kuwait. The chapter concludes after looking at use of technology in learning through the required MOI and advantages and disadvantages of computer mediated learning for ESL students.

2.2 The dominance of English as a global second language

English is generally acknowledged to be the global language of politics, communication, trade and commerce (Crystal 2003; House 2003; Imam 2005; Jiang 2011; Kamwangamalu 2003). It is the common international language which is used the most frequently to communicate by people who are not MT speakers of that language (Shafaei 2012: 108). In the global arena, English is the lingua franca accepted by all the major nations, and especially by the dominating economies of the world, namely, China, India, Taiwan and Japan. This is in spite of the fact that these countries have a large, diverse, multilingual and often multicultural "non-mother-tongue-English-speaking" populace.

As a result, other countries where English was not as popular previously are now changing their views on the use of English as a global lingua franca. In some countries, such as South Africa, western ideology is assisting in the transformation to an English-dominated nation. In South Africa there is also

the real problem of how people in a multicultural population with eleven official and seven "unofficial" languages (see SA languages.com 2011) can communicate with each other, making choice of English as lingua franca a virtual necessity. However, while English might be the most commonly spoken language in official and commercial public life, it is only the fifth home language most spoken by the South African populace (SouthAfrica.info 2014).

2.2.1 English as imposed by colonialism

The dominance of English as global lingua franca can be seen to have come into being in two distinct ways, each of which is relevant to this study. In both cases, the dominance is hegemonic. Naidoo's (2012) depiction of "Phases of hegemonic influence in language use in South Africa" (see Table 2.1) is useful in illustrating both the progression in hegemonic influence and the differences in the ways ideology operates in both use and choice of English as lingua franca.

Table 2.1 Phases of hegemonic influence in language use in South Africa (Naidoo 2012: 21)

PHASES	Phase 1 **EXPEDITION** (territorial)	Phrase 2 **ADMINISTRATION** (national)	Phrase 3 **TRANSACTION** (global)
HEGEMONIC INFLUENCE	Portuguese/ Dutch/British --	Afrikaner ----------> --------->	--->[Post-liberation] ANC
PREDOMINANT LANGUAGE	Dutch	English->Afrikaans	--->English [Multilingualism?]
IDEOLOGICAL INFLUENCE	[Coercion - military, by force of arms]	Imposition of Eurocentric values (e.g. Apartheid, British colonialism.)	Social imperatives (true ideology, as it is implicit.)
TIME FRAME	1500s – 1800s	1800s – 1900s	1950s – 2000s

Table 2.1 shows how the "colonial" model of language hegemony imposed initially by force in consecutive waves of Portuguese, Dutch and British expeditions developed in various phases until it was no longer "official" but had

become part of modern social imperatives driven by a mainly implicit ideology. The predominant language of the expeditionary phase was replaced in the administrative phase by English after the outcome of the Boer Wars, with a switch back to Afrikaans (a creole-type variety of Nederlands Dutch, see Markey 1982) after South Africa became an Afrikaner-dominated republic in 1961.

The hegemony operating at that point could be seen to be coercive, but the force of apartheid laws operated mainly by *threat* of imprisonment and torture, rather than *actual* physical coercion (see Fairclough 1989: 233), although of course, the latter did happen. Even in the 1960s, English retained much of its prestige in business and academic circles, in terms of its global predominance. As Naidoo points out, post 1950s, in the transaction phase, social, rather than administrative imperatives drove popular adoption of English where international communication in business and politics demanded a lingua franca, and emerging American domination (see Gramsci 1971: 558-562) meant that this was English.

Choice of English as lingua franca in South Africa (even in a Black dominated Parliament) is then driven not only by practical considerations, but also by its global power as the lingua franca of commerce, politics and academia, and not by political imposition (as in the case of Afrikaans and "colonial" English). It is then motivated by true ideology, or a subtle pervasive influence, as depicted in Table 2.1, driven by social imperatives such as popularity, or the wish to "get ahead" in the world (Naidoo 2012: 21). It is *chosen by*, and not *imposed on*, peoples whose mother tongue is not English. There are still hegemonic influences which drive this choice (e.g. economic pressure, cultural stereotypes), but these have gone "underground", so to speak. As Winkler points out, "modern capitalist society is characterized by hegemonic consent as much or even more than by coercion" (1984: 197). The term "consent" appears to make this compliance acceptable, but the imposition of a dominant Western culture by use of a common English lingua franca might also be viewed as a move to "eliminate, degrade, and devalue anything different" from western-European culture (Gounari 2006: 48).

The ANC Liberation Government's language policy rules that children at primary school level should be taught in their mother tongue (Kamwangamalu, 2000; Van Tonder 1999). The need for education in the mother tongue during the formative years has been stressed in terms of empowering ESL learners by facilitating access to the basic knowledge and concepts required as a foundation for later schooling (Van Tonder, 1999; Alexander 2000). However, Naidoo's (2012) study has shown that the choice of English as MOI for their children in schools by mainly isiZulu-speaking parents in KwaZulu-Natal (see p. 2) is by "hegemonic consent", driven by the expectation of economic benefits and marketability for global employment (see Naidoo 2012: 57-58). This is in line with the changing patterns of behaviour of African youth, from traditional rural custom to a westernised, cosmopolitan way of dressing, speaking and living, accelerated by increasing access to social media (Mutabazi 2002).

2.2.2 The "English craze"

The area of commonality between the KwaZulu-Natal and Kuwaiti students lies in the popularity of English as global lingua franca, the "English craze" evident in near, middle and far Eastern countries. It is this same popularity, and no longer colonial imposition, which today drives isiZulu-speaking students to opt for instruction in the medium of English. As suggested above, while the KwaZulu-Natal ESL situation was initially brought about by colonialism, now the majority African parents want their children to study in English because of the economic benefits and globalisation (i.e. the opportunity to obtain work anywhere in the world). Kuwait did not arrive at the use of English as MOI in schools and universities via the "phases" of colonialism described above. The situation in the Emirates was not so much one of colonisation but of economic benefits and globalisation (i.e. true ideology).

Global business transactions have advanced the use of English internationally, and have ensured that English is accepted as the dominant lingua franca in the world today. It has also become the dominant language of international education:

> The impact of English means in many international educational contexts there is a rapidly growing tendency for English to be adopted as the medium of instruction, *even when a majority of the population speaks a local language* (Vu and Burns 2014: 2, my emphasis).

The use of English by countries where English is not spoken as the mother tongue and where it was not imposed by colonialism can be explained by factors such as trade, tourism, sport, media networks, entertainment and the need for international communication generally (Shin 2008).

According to Johnson (2009: 133-134), the two major reasons for non-English-speaking countries to adopt English as global lingua franca are as follows: the facilitation of international inter- and extra-company business communication and the association of English with all things modern. Johnson (2009: 305) also mentions the global mobility it affords workers in all facets of life, as well as, in particular, the advantages English gives academics to publish - and be read -widely on an international scale. Vu and Burns (2014: 2) attribute the current "surge" in use of English internationally to "globalization, economic development, internationalization, technological development and the expansion of education".

The common medium of communication of the "global community" is seen to be English. Thus people whose mother tongue is not English perceive that using English as a medium of communication allows them to be accepted members of this global community (Graham-Brown 1991). Many near, middle and far Eastern countries see the ability to speak English as "progressive" and "modern". If one is fluent in English then one is deemed to be "educated" and, consequently, empowered (Zastrow 2009: 351). International populations of Arabic and Asian students are acknowledging the fact that English is dominant worldwide, and the ability to communicate in English now seems to be highly popular in both national and international arenas (Naidoo 2012: 23). Jiang (2011) refers to this predilection for English as the "English craze", and Johnson (2009), as the "English phenomenon".

2.2.3 English viewed as promoting cultural globalisation

Although in many cases the “English craze” cannot be said to be the direct result of colonial imperialism (South Africa and India being notable exceptions), there are implications for the cultural identity and indigenous languages of peoples adopting English as global lingua franca, and, in particular, as the language of “international education”. As Imam points out:

> English is considered as a *global language* and thus both the west and the east have become equally busy promoting this language. However, it is the time for the non-English-speaking developing countries to think seriously about who is being most benefited in this language promotion (2005: 471).

The growing popularity of so-called “international schools”, using English as instructional medium, might well be viewed as a replay of the colonial period, “leading to the creation and maintenance of a privileged strata in society whose values, interests and aspirations as well as ideologies are pro-western” (Gamage 2002: 2). As Winkler and Gounari (see above) have suggested, cultural domination can be seen as a form of oppressive hegemony in which the cultures and languages of indigenous peoples worldwide are denigrated and devalued, because western customs are seen as “naturally” being “superior” (an ideology reinforced by the social media). English might therefore be viewed as an insidious means of promulgating global cultural imperialism, and this has led in some cases to a marked reaction against the adoption of English (Imam 2005: 472).

It has led to accusations of attempts to colonise minority groups, using terms such as “cultural invasion” (Freire 2000: 152) and “ethnic and cultural war” (Macedo 2000; Macedo, Dendrinos and Gounari 2003). Freire describes “cultural invasion” as follows:

> Cultural invasion, which serves the ends of conquest and the preservation of oppression, always involves a parochial view of reality, a static perception of the world, and the imposition of one world view upon another. It implies the "superiority" of the invader and the "inferiority" of those who are invaded, as well as the

> imposition of values by the former, who possess the latter and are afraid of losing them (2000: 160).

Yet, as Gunawardena points out, not everyone sees globalization as "hegemonically Western", or "an extension of American imperialism" (see Chomsky 2003). Some see the process as being more "dispersed", and hold that "it is unhelpful to frame the discussion in terms of Western dominance over "the rest" (2015: 78).

Johnson, referring to use of English in China (but her comments have general relevance), comments on the paradoxes evident in the global domination of English:

> Thus, in this year of inquiry about globalization, I have asked: With the goal of cosmopolitanism in mind, should we see the advance of the English language worldwide as a positive or a negative development? In seeking to answer this admittedly absolutist question, I have identified three paradoxes of thought regarding the status of English as a so-called *lingua franca*. Each of these conflicts is interlinked with the others, and all allude to the staggering complexity of the "English phenomenon" (2009: 132).

The "paradoxes" Johnson refers to explore whether the predominance of English as global lingua franca represents:

> A. An instrument for economic success or a creator of new inequalities? (Johnson 2009: 132);
>
> B. A force of cultural imperialism and homogenization? Or a tool for cross-cultural communication and awareness? (Johnson 2009: 136);
>
> C. A passing phase, similar to lingua francas of the past? Or qualitatively different and thus more dangerous? (Johnson 2009: 141).

In answer to the first paradox, Johnson points out the major advantages (mentioned above) of using English as global lingua franca, but she also warns of the dangers of ignoring the issue of skilled non-English speakers who are marginalised as a result. Answering the second, she balances the ills of English creating a powerful "international elite", which might dictate unequal conditions to the rest of the world, against the fact that English can be used as

a tool for communicating across cultural barriers. In answer to the third, she points out that, while the increasing adoption of English worldwide might ring alarm bells, it also might well be a "passing phase", and that other "regional" lingua francas (e.g. Arabic, Chinese, Spanish, or Swahili) might be far more useful for reaching larger numbers of less affluent people, thus diluting, at least numerically, the predominance of English.

2.3 English as medium of instruction for ESL college tuition

Language matters have been in the centre stage for many educational policy discourses. Humans, as linguistic beings, "live, think and understand in language" (De Vos *et al.* 2005: 424), therefore language cannot be disassociated from meaning. With respect to classroom practice, it has been pointed out that language is integral to learning as it plays "a major role in the development of an appropriate culture of learning" (Naicker and Balfour 2009: 342) and thus "Language is indeed crucial to academic performance" (Mchazime 2001: 99).

Technical subjects, such as Computer Applications Technology (CAT), contain a unique and demanding technical vocabulary through a combination of concepts into higher-order constructs, becoming more complex where they have the added meaning serving a special scientific purpose (De Vos *et al.* 2005: 29). Therefore ability to understand and use an academic language is vital for student success in the classroom. With the process of conceptualisation being language specific (De Vos *et al.* 2005: 29), and the fact that cultural differences may assign different words to different things or assign different meaning to similar phrases (Gerson 2003), familiar words can be used in completely different ways (Bradley and Bradley 2004).

2.3.1 Use of English as medium of instruction for isiZulu learners in KZN

In the1970s and 1980s there was opposition by black learners in South Africa to learning Afrikaans (Frederikse 2001: 29), which was at the time the dominant language in South Africa owing to minority Afrikaner domination of politics. This gave rise to many boycotts and uprisings, most notably, the 1976

Soweto uprising where many students were shot and killed by South African police because they marched in protest (Bonner and Segal 1998). In 1994 the democratically elected African National Congress (ANC) came to power. One would have expected the ANC led government to promote a dominant African language (e.g. isiZulu) as the main official language of South Africa, as blacks are in the majority in South Africa.

However, mindful of the suppression of indigenous language by the Nationalist Government, they enshrined the use of eleven official languages in South Africa, including English and Afrikaans, the languages of the imperialists and oppressor (Republic of South Africa, 1996a). There is also a practical consideration in that isiZulu is not spoken as MT by South Africa's indigenous peoples outside of Kwazulu-Natal, and is not spoken as MT anywhere else in the world, which means that it could not be used as lingua franca outside of the province or the country (it is, however, a lingua franca for speakers of other Bantu languages such as Tsonga (Kruger 2013: xxii). Finally, it might also be interpreted as a move towards Zulu imperialism (see Kruger 2013: 233) and arouse resentment amongst other indigenous ethnic groups.

Ntuli (2004) commented that it was time for the South African public to learn other people's languages in order to communicate properly, adding that people must take pride in their languages. The reality is that, in spite of eleven official languages being recognised, English is generally understood across the country, and, being the language of business, politics and the media, is the country's lingua franca and de facto official language. But it ranks only joint fifth out of eleven as a home language (South Africa.infoGateway to the Nation 2009), and not all citizens are fluent in English. According to Deumert (2004), while English is in theory a "second language" in South Africa, it is virtually a foreign language in many of the African townships.

PIRLS tests have indicated that South African Grade 4 learners' scores were the lowest of those taking part in the study (Govender 2011: 2). The poor performance of learners could be linked to their sudden immersion into an English medium environment. However, increasing numbers of isiZulu-

speaking parents learners are choosing to enrol their children at English medium educational institutions, it is thought, because of global and local ideological pressures. This hegemony of English has put enormous pressures both on parents to choose English as the MOI for their children, and on schools to provide instruction in English (De Klerk 2000; Kamwangamalu 2003; Memela 2011; Setati 2008; Naidoo 2012).

However, the language of teaching and learning used from Grade 4 and upwards, and for our training activities at Indumiso Teachers' Training College, is problematic both for our student educators and their eventual classroom practice. This is because it is difficult for both teachers and learners to interpret the concepts in terms of their own MT and cultural context, particularly when working in a second language (Oliver 2009). Yet English as an instructional medium does bridge the communication gap caused by differences in culture and language (Peat 2012).

There are practical and logistical reasons for using English as the MOI at public schools and colleges in KwaZulu-Natal. Firstly, there is a lack of skills for teaching through the MT to learners at all schools in South Africa. Secondly, there is lack of learning resources and materials in isiZulu and other indigenous African languages (Govender 2011: 59). A contributing factor to the apparent poor performance of indigenous MT learners where English is, in theory, the MOI, is the mistaken belief that teaching and learning *is* taking place through English.

There is now evidence which supports the connection between loss of home language and the educational difficulties experienced by many of the learners who use a difficult polyglot second language such as English for learning (Parry 2006; Van Tonder 1997, Dorasamy 2012). These and other problems in the current South African educational system are result of the past legacy of the apartheid system of segregated education. The extent of these challenges is seen in recent descriptions of primary schooling in South Africa as being "in crisis" (Fleisch 2008; Govender 2011), referring to the large numbers of

learners who have failed in both international and local systemic assessments of literacy (Makoe and McKinney 2009).

2.3.2 Use of English as medium of instruction in Kuwait

A study by Alam, Hussain and Khan (1988) on the attitudes of students, teachers and parents towards English as a foreign language in Saudi Arabian public schools found evidence of a positive attitude towards English. Moreover, learning English was not viewed as threatening the cultural values of Arabic or Islam, and the importance of English as international lingua franca was acknowledged.

In a later study, research was conducted on Kuwait University undergraduates enrolled in English courses run by an English Language Centre (Malallah 2000). The study investigated students' attitudes, as well as their motivation, to learning English as a foreign language in a predominantly Arabic and Moslem setting. The research focus was on: "the inter-relationships between attitude, motivation, anxiety and achievement in the English language" (Malallah 2000: 19). The results were as follows:

a. Kuwait University undergraduates, in general, have positive attitudes towards learning English, towards the English language and towards native speakers of English, and students had good reasons to study English;
b. Kuwaiti society valued the English language and regarded it highly; and
c. Students' achievement was related positively to their motivation and attitudes toward the English language, and negatively to their anxiety about using it (Malallah 2009:19).

Student responses were in fact, not only positive, but strongly in favour of learning English:

> Students agreed strongly on statements that support the learning of English, such as 'learning English is useful for me', 'I would like to learn English as much as possible', 'learning English is an important part of my education', 'I love learning English and I enjoy learning English'. Students disagreed strongly on statements that are against the learning of English (Malallah 2000: 27).

Mallalah (200: 36) found that Science students had the most positive attitudes towards English and MT speakers of English in general, mainly because English has "immediate importance" in the learning of technical or science subjects (it was also the MOI of the College of Science).

In a later study, EFL teachers from a University Language Centre were surveyed on their perceptions of the use of MT in teaching/learning a foreign language (Al-Asmari 2014). According to Al-Asmari, "use of MT is an effective tool in comprehending technical information" (2014: 2072). In the discussion on code-switching, he makes reference to Heller's justification for the use of MT in the ESL (or FO) classroom as follows: "if you are an ESL teacher and/or you teach minority children through the medium of a dominant language, at the cost of their mother tongue, you are participating in linguistic genocide" (Heller 1992: 118, in Al-Asmari 2014: 2067).

This raises the issue of the cultural influence of learning a new language, supporting Johnson's (2009: 136) question as to whether English as global lingua franca represents: "A force of cultural imperialism and homogenization? Or a tool for cross-cultural communication and awareness?" (In B. above). Malallah reminds us that in the context of Middle East politics, "English is powerful and prestigious but is also seen by some as the diffuser of foreign cultures, values and interests" (2000: 24).

The term "linguistic genocide" is defined as a means of "reducing the number of possible nations (and thereby nation states)" by "killing a language without killing the speakers" (Skutnabb-Kangas and McCarty 2008: 311-312). It must be remembered that this point is made in the context of minority or indigenous peoples who are being discriminated against, which is hardly the context of lecturing CAT in KZN or KSA. In spite of past discrimination against isiZulu-speakers, they now comprise a powerful majority group in South Africa and are the dominant political force. Also isiZulu is not an international language, unlike Arabic and English, which are both "prestigious international languages" (Malallah 2000: 24). It cannot then compete as international lingua franca, so

that isiZulu speakers have even more incentive than Arabic speakers to become fluent in English.

There is still the issue of discrimination in terms of poverty and access to learning. This has relevance for academic performance in both KZN and KSA, where the “elites” may be influenced by western cultural customs and values, but are not in fact western-European in their demographics, and may be the “upper crust” of the entire - or majority - indigenous inhabitants of the country. This relates to Johnson’s question (A. above) as to whether English as lingua franca (or MOI) is “an instrument for economic success or a creator of new inequalities” (2009: 132).

According to Al-Asmari:

> In the Saudi context, the elite private sector of education usually relies on the English medium system, while in the public sector the medium of instruction is Arabic. The reasons for this dichotomy may be due to socio-linguistic and ethnic norms in the Saudi tribal society. Moreover, English medium schools teach English in the context of second language learning (e.g. where English is spoken in and outside the classrooms), while the public education English is widely used as a compulsory subject in KSA. Accordingly, when the students enroll in the universities with this background, it is expected that they rely heavily on MT due to their lack of high English proficiency (2014: 2067).

This suggests that large numbers of students enrolling in Kuwaiti universities might not be sufficiently proficient in English for it to be used as MOI, particularly not in a highly technical subject such as CAT. However, a subject specialist such as myself, teaching a technical subject though the medium of ESL or English as a foreign language (EFO), might not be fluent in the students’ MT so as to assist them to understand basic concepts and procedures.

In spite of what the above studies have shown about the mainly positive attitudes towards English in the KSA, Javid, Farooq and Gulzar (2012) come to this rather daunting conclusion:

Table 2.2 Key factors for effective learning of an additional language (in Johnstone 2009: 37-40)

FACTORS	**RATIONALE**
An early start	This allows a longer time overall for learning, and allows children to learn naturally as young children, and more formally later, when older.
(Inter) National policy and support	Research suggests that the early languages learning initiatives across whole regions and countries will not work if left mainly to schools and individual teachers: some form of national (or international) support is needed.
Outcomes and models	The outcomes of language learning are dependent on the specific model of language curriculum adopted. It is important to be clear about which model of language learning is being implemented, what teaching and learning processes of seem to go well with it, and what sorts of outcomes are achievable as a result.
Continuity	There should be an agreed-on strategy for continuity from one year to the next, and from Primary into Secondary schooling. This means experiences gained in one year are developed further in subsequent years.
Motivation	Motivation in young learners appears to be mainly to be intrinsic, and is based on enjoyment, interest and curiosity, as well as self-awareness. These are more powerful motivators than instrumental or extrinsic reasons. As well as enjoying games and practical activities, young learners need to become aware of their developing language skills and take pride in them.
Local languages	The first languages and dialects children possess can be used as part of a language awareness approach, where the mother tongue (or regional dialect) is not seen to be in competition with the additional language learned, but part of being sensitised to a variety of different languages.
Language and cognitive development	Language learning should develop hand in hand with cognitive development, so that language use is more than learning a set of stock phrases or routines. The development of “metalinguistic knowledge” (knowledge about how language works) is also important.
Early reading, writing and grammar	It is important to introduce reading and writing at an early stage, rather than concentrating on listening and speaking only. Grammatical concepts can then also be introduced early, in terms of its being related to written text, not as abstract features.
Technology mediated learning	The “high potential value in technology-mediated learning and use” is emphasised, in spite of little evidence of this being apparent at present.

> Research has offered deep insights into the fact that English language teaching in the Arab world has not produced the desired results… Much research has shown that Arab students of English are unable to achieve desired proficiency in the target language even after formally studying English for many years (2012: 56-57).

They therefore recommend that steps are taken to improve the quality of English language teaching at Saudi schools and universities. For language learning to be a success, Johnstone (2009) recommends large-scale policy planning. He also identifies the importance of the "age factor" in deciding at which stage additional language learning should starts as important, as well as training and support for teachers. Johnstone also identifies the "immersion" model of language learning as being significantly more successful than merely learning language to a classroom-based schedule. The factors which Johnstone (2009) identifies as being key factors for effective learning of an additional language are listed and explained briefly in Table 2.2.

2.4 Technology used in learning through the required MOI

In a report from JISC (2004) it is stated that the skill of the practitioner remains the key to the effectiveness of learning - an unchangeable factor in a context of rapid change. However, practitioners now need to understand how to draw advantage from an increasingly diverse range of tools and media and select the most suited to their purpose; the appropriate integration or blending of technology-mediated activities with face-to-face learning and teaching is an important dimension of 21st century practice. When designing learning materials, practitioners must also be aware of the impact of technology on the way learners learn and make explicit for them the most effective learning strategies.

For example, computer technology is already being used to assist language learning and break down language barriers. PanSALB has established an electronic translation programme in conjunction with Afrilingo, a company that has translated English computer programmes into isiZulu, isiXhosa, seTswana, Sesotho and Afrikaans. Olivier (2004) developed a programme

which has been introduced at the Motheo and Mangaung district municipalities in the Free State, and stated that Afrilingo was working on translations into the five other South African languages. According to Olivier, "By typing a word, you will get its translation in your preferred language, and when you click the volume icon box you will hear how it is pronounced … Our aim is to break down language barriers"; he added that copies of the programme had been distributed to South Africa's embassies in the United States.

In order to make progress in engaging students in the learning process, Mintor states that there must be acknowledgement of the fact that barriers are not only brought about by students, but are also created by teachers. Teachers should be able to recognise the learning problems that students create for themselves or behavioural characteristics that hinder learning. He says this is clearly a major problem helping students grasp uses rather than meanings of words in a second language (Mintor 2005: 246-247).

2.4.1 Key factors relating to success in language learning

Shafaei (2012), who favours project-based language learning using a constructivist approach, identifies three dimensions to learning: motivation, confidence and ability.

> These three dimensions are directly related and impact upon each other. If one of them increases or decreases, the other two will follow in a direct relationship. All three learning dimensions can be met only when students have cumulative experiences both in and out of the classroom (Shafaei 2012: 110)

Lange suggests that two of the key factors which relate to success in language learning are:

- self-confidence and
- a good self-image (i.e. belief in our own capability).

According to Lange (2008), almost half of the professors he interviewed said that they experienced a communication problem with their graduate students and 55% of the graduate students interviewed reported having a communication problem.

The problems were expounded mostly as language barriers (cultural) and the student not following instructions or understanding them properly. One professor noted that “in some cultures students do not admit they do not understand” (Lange 2008). However, Lange’s experiences with previous pilot studies suggest that an above average standard of language work is produced, even by historically disadvantaged second language students.

The issue to be clarified in this study is whether the language skills of student teachers at Indumiso Campus and university students in Kuwait are adequate for them to progress at the necessary level, and what to do about it, if not. The results of this research will be used to revise the CAT curriculum and develop learning resources. It is hoped that this study will not only help to equip the CAT students to overcome any language barriers they might encounter and to handle the requirements for teaching, learning and assessment, but might also have wider implications for the teaching of computer technology in tertiary education in both contexts.

2.4.2 Use of computer mediated ESL language learning

Currently the significance of information and computer technology for teaching or learning is widely acknowledged, and has many benefits for ESL learners, although language “purists” may object to the rapidly escalating list of casual and abbreviated terms (Wu and Ben-Canaan 2006). According to Warschauer and Meskill (2000), computer-assisted discussion, which takes place by means of text allows more planning time than face-to-face talk, and thus allows students who are not fluent in English time to revise their texts. Computer based discussion which takes place outside of the classroom also increases students' opportunities to communicate in another forum, affording both general language practice and practice in writing.

Shafaei (2012) comments on technology being a “helpful tool” which can be used to encourage learners’ involvement in their own learning:

> By using technology, learners can create products to achieve the benefits of constructivist learning theories (Healy and Klinghammer, 2002). Moreover, technology can help learners to be responsible for their own learning by providing an independent learning environment.

Some advantages of computer assisted language learning (CALL) systems which Shafaie identifies are:

> - systems which help learners to improve their language;
> - the chance to practice extra learning material at their convenient time in a stress-free environment;
> - opportunities for more interaction;
> - help[ing] learners use the language effectively, and in actual environments (2012: 109, 110 slightly adapted).

Shafaie adds: “real life language experience helps students not only to increase their functional communicative experience but also to motivate them to use English in their daily lives” (2012: 110).

Pratt (2005) reports that, in a mixed mode Communication Skills course, students appeared to become computer - and print - literate very quickly when they were actively involved in using computers and the Internet for learning purposes rather than in a discrete computer skills approach. In a mixed-mode Communication Skills course, historically disadvantaged (i.e. African second language) students had no more trouble with the technology than anyone else: there was actually much less resistance to computer literacy than to print literacy in English. However, most of these students came from urban or semi-urban schools, and the class ratio was no more than 50% ESL speakers, whereas at Indumiso School of Education the majority of student teachers are isiZulu-speaking and from rural schools. Gutteridge (2009) identifies schooling as a key factor in both fluency in English and familiarity with computer technology. Pratt (2005) and Gutteridge (2009) both used constructivist, project-based approaches to computer mediated language learning which Shafaie (2012) recommends for ESL learners.

We also must think about what types of language students need to learn in order to communicate effectively via computer. This realization has sparked an approach which emphasizes the importance of new information technologies as a legitimate medium of communication in their own right rather than simply as teaching tools. The main advantage of new technologies is that they can be used to help prepare students for the kinds of international cross-cultural communication which are increasingly required for success in academic, vocational, or personal life.

Schools and other institutions have realized that the rapid increase in the availability and accessibility of computers and other technology in today's world highlights the value of educational technology. There is a great deal of support for technology integration (Marcinkiewicz 1994), and many schools today have started investing considerable amounts of money in technology resources to improve the quality of teaching and learning, and are now looking at ways of successfully incorporating these tools into their curriculum, syllabi, and classrooms. The roles and responsibilities of teachers are becoming more crucial as they are expected to integrate technology in their instruction. However, not all teachers are willing to incorporate computer technology into their instruction (Arkin 2003).

2.4.3 Disadvantages of new technologies

Wu and Ben-Canaan (2006: 3) point out that there is a prevalent belief that use of the Internet has negative implications for the diversity of languages worldwide, as rich or technologically developed countries can monopolise Internet content, and thus exercise "a form of cultural and linguistic imperialism in which western values dominate". They also emphasise the need to look at target audience, context and purpose when using computer-mediated ESL instruction. For example, ESL programmes which work well with small groups of highly motivated adult students in first world countries may not work with large groups of younger students in disadvantaged communities. Some learning activities are more suited to face-to-face delivery due because, to be

successful, they actually require immediacy and a greater degree of student interaction (Avgenerou 2008).

Moreover, numerous research studies in Oblinger and Oblinger (2005) emphasise “Net Gen” students’ need for experiential learning and face-to-face interaction. Bhorat’s (2014) investigation into use of an educational Internet portal for the lecturing of subjects in Photography confirms this need in the KZN context. Some of the barriers hindering the use of technology-assisted learning as identified by Riasati, Allahya and Kok-Eng (2012: 25) are lack of access, time and effective training, and teachers’ and students’ attitudes to this mode of instruction.

Another possible disadvantage is identified by Gunawardena, who adds the following caveat:

> Inherent within what some naively perceive as a value neutral tool—the Internet-based technologies used for online learning—are culturally biased amplifications that have their roots in the Industrial Revolution, which according to Bowers (cited in Carr-Chellman, 2005, p. 9) are: (1) context-free forms of knowledge; (2) conduit view of language; (3) Western view of autonomous individuals; (4) Western ways of experiencing time; (5) Western value of anthropocentrism; and (6) subjectively determined moral values (2014: 79).

To avoid the kind of global ideological western colonisation which might be seen as overpowering or demeaning local ethnic culture, what Gunawardena refers to as “customization by end users” (2014: 80) could be used. This would ensure that local communities and cultures worldwide could build on their cultural values and strengths while enjoying the benefits of the Internet and computer mediated learning.

2.5 Conclusion

The dominance of English as a global second language used as the medium for tuition for non-native speakers of English can be seen to have advantages

and disadvantages. Balanced against the global popularity of English and the academic and employment options it opens up, are the difficulties of learning in a second language, as well as the dangers of cultural diffusion and disempowerment of both ethnic minority groups and the economically disadvantaged. The research reviewed here suggests that large numbers of KZN and Kuwaiti students who are not fluent in English register at universities struggle with tuition in the MOI of English, even more so when they are studying technical subjects. Use of technology in learning through the required MOI is not necessarily a solution, as there are disadvantages of as well as advantages in computer mediated learning for ESL students. There is clearly a need for empowerment of students studying CAT in both the KZN and Kuwaiti contexts, which will be dealt with in the following chapters.

Chapter 3: Research orientation and methodology

3.1 Introduction

After looking at the critical research orientation and its derivation from Habermas's paradigms, the research field of critical language study is described. The research area involved in this study is then explained, showing how the use of any specific language for everyday use, lingua franca or instructional medium may occur owing to hegemonic influences driven by ideologies which attribute positive or negative qualities to that particular language (or dialect). Critical action research methodology is then described, showing how it combines traditional action research with Habermas's critical paradigm. Finally, an overview is given of the specific data-collection and analysis methods used in Kwazulu-Natal (KZN) and Kuwait.

3.2 The critical research orientation

The critical, or emancipatory, research orientation used in this study falls within the critical paradigm identified by Habermas (1972: 308).

3.2.1 Definition of the term "paradigm"

The term paradigm is used to indicate a conceptual framework for researchers who adopt a specific orientation towards knowledge and its interpretation. There is disagreement about whether paradigms are mutually exclusive (i.e. incompatible) or not. According to Guba (1990), they are incompatible, as they deal with "incontrovertible" truths. Grundy (1987), however, argues that educators may teach within one paradigm, out of personal preference or teaching style, and test within another, by virtue of being obliged to follow institutional assessment norms or rules.

Thomas Kuhn (1962) first used the term paradigm with the sense of comprehensive world view to explain the marked shifts in perspective which, he argued, typified development in the natural sciences. According to Kuhn's (1969) seminal work, *The structure of scientific revolutions,* new discoveries in science occurred through intuitive theoretical leaps rather than by routine accumulation of surface sense-data. Kuhn's definition of a paradigm in this sense is: "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community, or ... a world view" (1962: 175). He also used it in the sense of "disciplinary matrix" and "exemplar" in a *Postscript* (1969: 181), which has led to some confusion about the actual meaning of the term. When used as world view, the term is defined as follows:

> A paradigm may be viewed as a basic set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the "world," the individual's place in it, and the range of possible relationships to that world and its parts, as, for example, cosmologies and theologies do (Guba and Lincoln 1994: 107).

Paradigms can also be viewed as metaphors for thinking about everyday ideas (Popkewitz 1984: 7). They provide a conceptual framework for researchers in terms of the research orientation, or "mindset" which they adopt for the purposes of their research. They also provide a conceptual framework for educators as: "the conceptual lenses through which curriculum problems are perceived" (Schubert 1986: 2). Patton (1999: 1206) suggests that paradigms bridge the gap between real world complexity and the teacher's daily routine. However, teachers do not necessarily consciously apply the beliefs and values implicit in various paradigms (Carr and Kemmis 1986: 74). They should be seen as "authenticating" the existence of different paradigms in their practice, rather than consciously applying a particular paradigm to inform their practice (Grundy 1987: 21).

3.2.2 The critical paradigm

As mentioned in Chapter 1, the emancipatory orientation used in this study was carried out within Habermas's critical paradigm (1972: 308). The critical

paradigm focuses on empowerment by identifying and attempting to contest any social practices which lead to the disempowerment of certain groups, for example, minority groups, or economically or educationally disadvantaged groups, and "Seeks to expose that which is oppressive and dominating" (Schubert 1986: 181, see Table 3.1).

Table 3.1 Habermas's paradigms (in Schubert 1986: 181)

TYPE OF SCIENCE OR INQUIRY	Empirical/Analytic	Hermeneutic	Critical
INTEREST SERVED	Technical	Practical	Emancipatory
SOCIAL ORGANIZATION	Work	Interaction	Power
MODE OF RATIONALITY			
	Posits principles of control and certainty. Operates in the interests of law-like predictions that are empirically testable. Assumes knowledge to be value-free. Assumes knowledge to be objectified. Values efficiency or parsimony. Accepts unquestioningly social reality as it is.	Emphasizes understanding and communicative interaction.. Sees human beings as active creators of knowledge. Looks for assumptions and meanings beneath texture of everyday life. Views reality as inter-subjectively constituted and shared within a historical, political, and social context. Focuses sensitively to meaning through language use.	Assumes the necessity of ideological critique and action. Seeks to expose that which is oppressive and dominating. Requires sensitivity to false consciousness. Makes distorted conceptions and unjust values problematic. Examines and explicates value system and concepts of justice upon which inquiry is based.

The principles of the critical paradigm (as show in Table 3.1) are those which inform the critical linguistics approach used in this study. Grundy (1987: 60-61) refers to the critical paradigm in terms of it serving the emancipatory interest in education, which means that participants must have the option of autonomous action (1987: 113). The critical paradigm requires "a transformation of consciousness, that is, a transformation in the way in which one perceives and acts in 'the world'" (Grundy 1987: 99). However, the emancipatory interest is geared at the transformation of society rather than

the liberation of individuals, and is an interest in emancipation as “social reality”, not “individual achievement” (Grundy 1987: 114). In this study, then, the purpose is to find ways of empowering groups of English second language (ESL) or English foreign language (EFL) students learning Computer Applications Technology (CAT) through the medium of English, not to empower individuals per se.

According to Popkewitz (1984), the critical paradigm was not accepted by academics until the 1980s, by which time its adherents had achieved powerful posts in universities. However, it has been suggested that critical theory, while it has recently gained more popularity in academic circles, does not really cater for disempowered groups, and actually supports the education system which keeps inequality in place by focusing on abstract theory rather than practice (Gur-ze’ev 2005: 13-14; Mason 2005: 315). This is why critical action research (Grundy 1987; Zuber-Skerritt 1996) has been used in this study, as it focuses on the practical means of addressing disempowerment.

As is evident in the literature reviewed in Chapter 2, the hegemonic power of English as dominant global lingua franca, and therefore the “natural” choice for international educational medium of instruction (MOI), can lead to disempowerment of certain groups, more specifically, to classes of CAT students in both KZN and Kuwait. The literature review has also indicated that English as both global lingua franca and educational MOI has benefits for users; they would not choose it even under duress if it were not so. However, the representation of this choice as “natural” or “normal”, rather than by “hegemonic consent” (i.e. going along with powerful forces), means that “distorted conceptions and unjust values” have become problematic (Schubert 1986: 181), and require exposing and addressing, which is the aim of this dissertation.

3.2.3 Critical language study

As mentioned in Chapter 1, critical language study, or critical linguistics, falls within the critical paradigm identified by Habermas (1972: 308), and is an

approach in which language is shown as being a key mechanism in disempowerment. Its main proponent is Fairclough (1989, 1992), who has shown how social relations of power underpin discourse, which sets in place and, in turn, reflects, these relations of power (Fairclough 1989).

Key concepts in critical language study are that of hegemony, or the dominance exerted by certain groups, and ideology, or the belief and value systems which are the forces driving this dominance. As mentioned in Chapter 1, ideology can be viewed as the chief mechanism whereby dominance is both set in place and maintained. According to Fairclough (1989: 17), "language is centrally involved in power and struggles for power"; language does so because it has the power to convey the beliefs and values implicit in ideologies. As language contains an ideological loading, it not only sets in place and maintains relations of power, but it also reflects these. However ideologies are not usually overtly expressed as beliefs or values, but as "common sense", or "natural" or "the right way to do something". As mentioned in Chapter 1, ideology operates in two different ways in critical language study. This is either as the ideological content or connotations of the message which communicates and maintains relations of power (Fairclough 1989: vi), or as "language ideology", where some languages are viewed as being more powerful, prestigious or desirable than others (Schieffelen and Woolard 1998: 3). This second aspect will be discussed below.

3.2.4 Language ideology

The specific area of critical language study which is relevant to this dissertation is that of language ideology, which refers to the fact that some languages are perceived as being more powerful, prestigious or desirable than others (Høigilt 2011; Seargeant 2009; Schieffelen and Woolard 1998; Suleiman 2003). According to Seargeant (2009: 26), "language ideology can be defined, in broad terms, as the structured and consequential ways in which we think about language". Seargeant makes the point that the concept of language ideology is not necessarily Marxist (as in the critical sense

described above) but can also be perceived as “socially situated systems of thought that are collectively shared by every member of the community” (2009: 27). The implication is that language ideology can be seen as descriptive of actual states rather than as the results of “false consciousness”. Seargeant (2009 30-31) comments that, because of their ideological content, languages can be also viewed as reflecting the cultural stereotypes projected on to users, which is possibly how American English came to be viewed as promulgating western imperialism, even if there was no intention to use it as such.

Suleiman focuses on language ideology in terms of how it relates to Arab nationalism, rather than as “mass movement or mode of political action” (2003: 8). According to Høigilt (2011: 3):

> Arabic is heavily imbued with ideology because of the link to Islam (Haeri 2003) and Arab nationalism (Suleiman 2003). Despite radical reform suggestions by some Arab nationalist thinkers, a highly conservative attitude to Arabic has prevailed into the present.

Høigilt (2011: 4-5) suggests that the ideological concept that Arabic exists in an “ideal” form has led to a “diglossia” where two distinct forms of Arabic exist, the traditional and modern. Which version to use then becomes an issue of symbolic power:

> A body of secular and religious specialists, supported by the state, has nurtured this vision and created a language ideology with norms and conventions. The sanctioned use of Arabic is thus a source of considerable symbolic power (Bourdieu 1991), while agents in the cultural, religious and political fields who depart from these norms can be dismissed solely on account of their lack of linguistic capital (Høigilt 2011:5)

For the purposes of this study, language ideology is viewed as the way languages themselves (as opposed to elements within a language) reflect ideologies and thus set in place and maintain hegemonic influences. Naidoo (2012) has shown how isiZulu parents in kwaZulu-Natal choose English as preferred MOI for their children in schools, such is the hegemonic power of English with its promise of entrée into academic, business and international circles. The ESL CAT students at Indumiso College in KwaZulu-Natal were

not fluent in English, but they nevertheless preferred to register at an English-medium university. This is because they saw the level of academic tuition as being superior, and both this, as well as the option to become more fluent in English (i.e. through tuition by MT-English-speaking lecturers) signalled for them success in the academic and business worlds.

Yet this choice of MOI has resulted in disempowerment for students in both KZN and KSA contexts, particularly in the learning of a technical subject. The nature of the empowerment or disempowerment involved here relates not so much as to how elements within a particular language are used in reflecting or establishing largely implicit power relationships, but rather to the effects of using a "chosen" second language as the medium of instruction. Demont-Heinrich (2007) points out that the "choosing" of a "more prestigious" language in education is not in fact a choice at all but an imperative imposed by social conditions.

3.3 Critical action research methodology

As mentioned in Chapter 1, critical action research falls within the critical paradigm identified by Habermas (1972: 308). According to Davis (2008: 139) critical action research consists of an action research methodology informed by the principles of critical theory. Kurt Lewin (1946) is credited with the origin of the action research methodology, using a recursive spiral of steps (planning, action and evaluation) to address social problems (Kemmis and McTaggert 1990: 8). Lewin also emphasized involvement of all participants in the problem-solving process (McKernan 1991: 9), which, he found, led to better motivation in achieving the desired result (Adelman 2006: 9-10). The traditional action research cycle most commonly used in education has been described by Kemmis and McTaggart (2005), McNiff and Whitehead (2000) and Zuber-Skerritt and Ryan (1994). It is basically a "think-act-reflect" cycle, investigating the influence of social factors on human behaviour (Kemmis and McTaggart 2005: 564-566). A model of the traditional action research cycle is shown in Figure 3.1. According to Somekh:

> In its classic form, action research involves fluid and overlapping cycles of investigation, action planning, piloting of new practices, and evaluation of outcomes, incorporating at all stages the collection and analysis of data and the generation of knowledge Figure 1). The outcomes of action research are both practical and theoretical: The knowledge it generates has a direct and ongoing impact on changing practice for participants and on a wider audience through its publications (2008: 4).

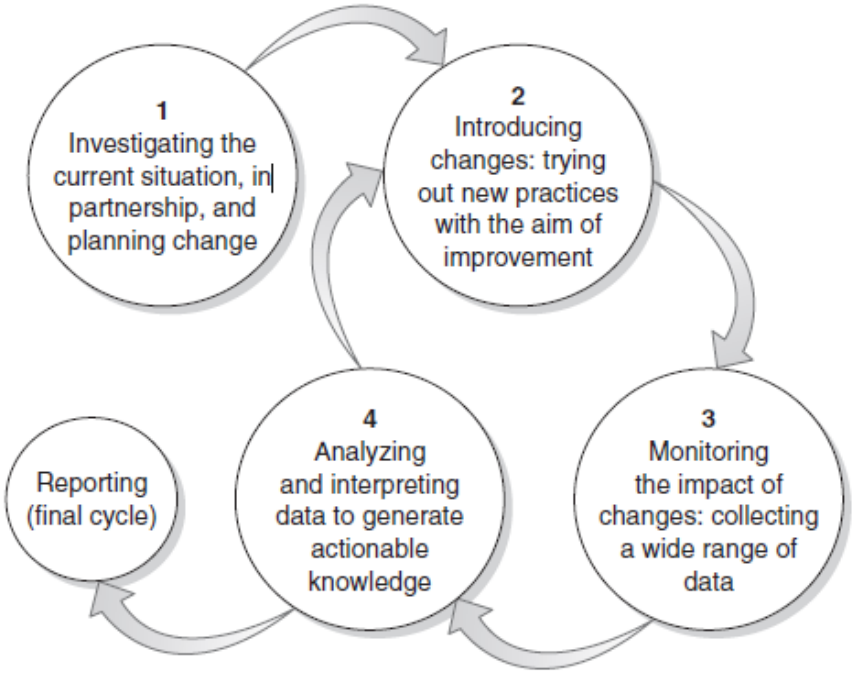

Figure 3.1 Model of action research (in Somekh 2008: 4)

Reflexivity is an important aspect of action research: "the self is understood to be a research instrument bringing the researcher's situational understanding, developed through previous action research, to bear on the analysis of social data (Somekh 2008: 6). According to Somekh, attempts to appear objective (e.g. by use of passive voice) are potentially fraudulent: "Action research is normally written in the first-person singular as a reflexive account that incorporates a critique of the research process with the generation of knowledge" (2008: 6). The "insider view" thus provided enables action research to create a "bridge" between the practitioner's understanding and the creation of theories which might inform practical

action. In the actual reporting of results and analysis in this study (i.e. Chapter 4), first person will be used where appropriate, and not avoided by circumlocutions or unnecessary use of passive voice. In the literature reviews and theoretical chapters (as here) it was considered more appropriate to use a formal style, as the researcher was not communicating personal insights but reporting on other researchers' work and theoretical or procedural matters.

The action research carried out on the results of learning of CAT through the MOI of English second language was geared towards developing an instructional strategy which might solve instructional problems caused by use of the MOI of English in the CAT ESL classroom. This would ultimately lead to learner empowerment, making it a *critical* action research cycle. As Davis (2008: 139) points out, critical action research combines Habermas's critical theory with participatory action research processes (see Zuber-Skerrit 2011 for the emphasis on "participatory"). Grundy (1987), a pioneer of critical action research, applied Habermas's empirical/analytic, hermeneutic and critical paradigms to curriculum development, identifying them in terms of the human interest they served, these being the technical, practical and emancipatory interests. The emancipatory principles she envisaged operating in a critical curriculum are as follows:

> *The constitutive elements of praxis are action and reflection.*
>
> *Praxis takes place in the real, not the hypothetical world.*
>
> *Praxis operates in the world of interaction, the social and cultural world.*
>
> *The world of praxis is the constructed, not the natural world.*
>
> *Praxis assumes a process of meaning-making which recognizes meaning as a social construction* (Grundy 1987: 115-116).

Carr and Kemmis (2004) developed further the emancipatory action research approach identified by Grundy (1987), but renamed it "*critical* action research", thereby making clearer its connection with Habermas's critical theory. Critical action research was perceived as "a means of emancipating

participants by giving them access to knowledge and the power to resist oppressive institutional practices" (Somekh 2008: 5). Basing their work on Grundy's (1987) emancipatory action research and Habermas's (1972) critical paradigm, Carr and Kemmis identified five principles of an emancipatory educational theory informing critical action research:

1. *Educational theory must reject positivist notions of rationality, objectivity and truth;*

2. *Educational theory must accept the need to employ the interpretive categories of teachers;*

3. *It must provide ways of distinguishing ideologically distorted interpretations from those that are not;*

4. *It must be concerned to identify and expose those aspects of the existing social order which frustrate the pursuit of rational goals and must be able to offer theoretical accounts which make teachers aware of how they may be eliminated or overcome*;

5. *The question of its educational status will be determined by the ways in which it relates to practice* (Carr and Kemmis 2008: 129 - 130).

As can be seen from the above, not only do the principles echo the beliefs and values of Habermas's critical paradigm, but they emphasise the need to identify problems, see ways of solving them, and take *practical* action to achieve this.

Critical action research has a strong participatory element, although, as Jordan (2008: 601) points out, there are degrees to which participants are included in the processes of participatory action research. Reflecting the principles developed by Grundy (1987) and Carr and Kemmis (2004), participatory action research rejects positivism, aligns itself with critical theory, and "is committed to a politics of equity and social transformation that many other research traditions would dismiss as ideological" (Jordan 2008: 602-603). It can thus be seen as an appropriate research methodology for the purposes of contesting unequal power relations set in place by language ideology.

3.4 Specific research methods used

While action research methodology tends to be viewed primarily as qualitative, it is in fact eclectic, using a wide variety of methods for data collection (Somekh 2008: 6). It may use quantitative type methods such as questionnaires and statistical analyses, but does so in order to assist interpretation rather than for the purpose of objective measurement.

Although there were commonalities (e.g. interviews, questionnaires and assessment of work) in the data-gathering methods used in KZN and Kuwait, some variations were necessary as each group was learning CAT in a different educational context and for a different purpose. In the KZN context, student teachers were preparing for *teaching* IT. In Kuwait, students were studying IT as a university *subject* only, which might lead to all kinds of applications, including further academic study of IT for business or personal use.

3.4.1 The classroom action research method used

This method was common to both KZN and Kuwaiti groups. The learning of both CAT and Instructional Technology (IT) involve understanding a process in which one is able to explain, demonstrate and inform students of processes and integration of tasks such as formulas, designing and developing tasks through the medium of English. Researchers believe that an effective process of teaching through the medium of English is based on a certain system, involving rules, patterns, formulae or regularity. It is this system that is going to be discovered by researchers in English teaching (Latief 2009).

Research activities investigating the learning of CAT/IT through the medium of English covered the following steps: Observing – (identifying the problem area), Describing – (collecting and organizing data), Analysing – (interpreting of data), Explaining – action Based on data and then Reflecting (deciding on the next step) (Ferrance 2000: 9). This provided a “classroom model” of action research (see Figure 3.2), aimed at identifying the pedagogical

problem to be solved, and developing a theory which could then be applied to solve it in a practical way.

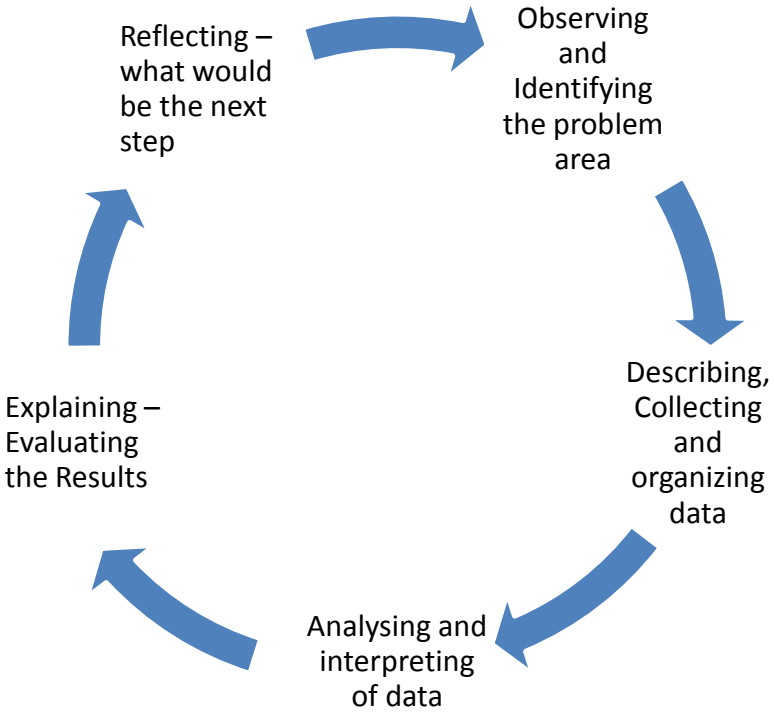

Figure 3.2 The classroom action research cycle used in this study

3.4.2 Data collection methods used in KZN

Data were collected by means of the following methods:

- questionnaires
- focus group discussions
- interviews
- observations,
- assessment
- students' assignments

There were 45 3rd year CAT students at Indumiso College. Random sampling was used, as all of the students were invited to take part in the research process. Interviews were considered important as they not only gave a more interpersonal aspect to the data-gathering but also performed

multiple research functions. According to (Cohen, Manion and Morrison 2006), interviews serve three purposes:

1. To gather information having direct bearing on the research objectives.
2. To test hypotheses or to suggest new ones, or as an explanatory device to help identify variables and relationships
3. The interview may also be used in conjunction with other methods in a research undertaking.

In the analysis of assignments, interviews were structured so as to be qualitative, open-ended and standardized where the wording and sequences of the questions was determined in advance. All interviewees were asked the same basic questions in the same order. The advantage of these procedures, according to Cohen, Manion and Morrison (2006), is that this assists the researcher to compare the responses, and data are completed for each person on the topics addressed in the interview, which reduces the effects of bias. This permits decision making and enables reviewing the instrumentation used in the evaluation. It also facilitates organisation and analysis of the data collected.

The data were analysed in terms of what factors appeared to correlate with the throughput of the 3rdyear students at the end of the year. Six selected 4thyear Computer Applications Technology student teachers were observed and interview in depth in 2010 during their work integrated learning (WIL). This was done so as to establish to what extent their 3rd year had prepared them for teaching CAT. Data were entered into Excel and a prototype table was designed to display the findings (Cox and Cox 2008). After feedback and any additional responses from participants, conclusions were drawn from the data so as to be able to make recommendations.

3.4.3 Data collection methods used in Kuwait

Data were collected mainly using the following instrument, an assignment which was translated by an Arabic staff member. This in itself proved to be

quite a daunting task. Owing to the technical jargon which is used in computing, direct translations do not work, and no translation existed for words such as “format”, or “insert formula” (such as “SUMIF”). Ten of the MT Arabic-speaking Grade 11 students were given the assignment to complete. They appeared to be comfortable at being involved in the research project: I make this point as it is stressful enough to have to learn IT in a foreign language without feeling one is being focused on and watched in a research project. It is important to have a collaborative atmosphere in critical action research, which was the case in both KZN and Kuwait. A questionnaire was also completed by ten of the twelve Grade 11 students, who also appeared to be quite comfortable and willing to take part in the research project. Three of the students were interviewed in depth to obtain a perspective of how they felt about learning through the medium of English, and if they thought it had any effect on the learning of IT (the term used for CAT in Kuwait).

3.5 Conclusion

By tracing the theoretical underpinnings of critical action research as reaching back to the critical paradigm identified by Habermas (1972), this chapter has attempted to show that the orientation, methodology and specific methods are all congruent in addressing the research questions. The “problem” to be solved by the teacher/researcher can be traced back, not to individual teacher or student performance, but to hegemonic influences operating in society. The ideology which dictates which instructional language may be used in different contexts has implications for both teacher and student performance. Using critical action research includes students, as well as the teacher, as participants in their eventual empowerment, and gives a more collaborative atmosphere to the research. It can thus be seen as an appropriate research methodology for the purposes of contesting the unequal power relations set in place by the “hegemonic choice” of English as MOI.

Chapter 4: Results of classroom action research

4.1 Introduction

In this and the following chapter I will speak in my own voice (Somekh 2008: 6), and in my personal capacity as teacher-researcher, being both insider and observer, with the insight of not just the interpersonal interactions with my students but of the theory outlined in the previous chapters. I am an insider-participant, but a "knowing" insider, armed with the knowledge of concepts such as hegemony and language ideology, so that I am aware that this is not just a "language problem", but a problem *caused* by forced choice of language. My data collected was from the test results, verbal information and discussions held with the students. The atmosphere in the classroom is that of an informal setting while the research is going on, yet formal, during teaching time. Owing to the small size of the classes, I have the opportunity to discuss my research project with each student individually, and get their personal point of view as to what it is like being taught through English as the medium of instruction (MOI). The data collected for this classroom action research includes all information related to the criteria of success targeted in the research (Latief 2009), thus my research techniques are that of a multivariate.

I am aiming at developing a strategy that can aid to the success of student's learning computer technology, through the MOI, which is English. When students fail in learning English, whether in Kuwait or Kwazulu-Natal (KZN), the blame is on the teachers who do not provide appropriate help to the students. Thus when the students fail in learning English, it is perceived that this must be because the teachers have failed in helping them. And this is the teachers' problem as well as the students' problem. Identifying classroom problems and trying to solve the problems can be done through the process of Classroom Action research. It is the job of professional teachers to identify their classroom problems and to try to solve the problems.

The teaching and learning of computer technology can be a learning experience which will motivate students to become lifelong learners, the students' ability to: understand concepts and communicate with one another in the MOI (i.e. English), solve problems, work independently as well as with lecturers, and manage themselves and their activities at a Higher Education Institution, all of which can be identified as critical cross-field outcomes (Pretorius 1998: 29). The students need to enjoy learning and the classroom, this should be a happy and enjoyable experience for students and teachers, therefore a joyful and relaxed classroom atmosphere is important for students to become effective learners and feel excited about learning new concepts and skills. The instrument I used to assess progress with both the Computer Applications Technology (CAT) students and the Instructional Technology (IT) group was to give the students an assignment, discuss the outcomes and achievements with the students through informal student interviews and compare it a previous assignments.

4.2 Results for the KZN cohort

This section deals with the results for the KZN cohort. The data presented here was gathered by the following means:

- Interviews about the MOI used in teaching sessions
- Observation of student teacher lessons
- Surveys, questionnaires and interviews on:
    - Students requesting translation of instructions
    - Student Internet use after hours
    - Requests for assignments to be translated
    - Student teachers using IsiZulu as MOI in schools
    - Analysis of assignments
    - Results from the assignments, assessments and examination

This enabled me to use the data thus obtained to build up a composite picture of language use and any barriers experienced.

4.2.1 Interviews with third-year CAT students on MOI used in teaching

The interviews with third-year CAT students in KZN offered insights into how the students experienced being taught in, and themselves teaching though, the MOI of English. The main points arising from interviews are summed up in the sections below. I included photographs of the individual students interviewed, as they gave consent, and were excited at the idea of being "participant researchers" (pseudonyms are used for their names, however). Their photographs present them as vibrant, intelligent young adults whose MT happens to be isiZulu. Through no fault of their own, this can be seen to act as a barrier to both their own tuition in CAT (and other subjects) as well as their actual teaching practice in schools, where teaching is, in *theory,* required to be done through the MOI of English to predominantly isiZulu-speaking children.

I found that the interviewing process allowed for greater depth than quantitative data collection, which I made use of in the questionnaires. However I was aware that interviews could also be prone to subjectivity and bias (Cohen, Manion and Morrison 2006). To avoid this, I attempted at all times to emphasise to student interviewees that there were no "right answers", and that I genuinely wanted to know what they thought, which might differ from student to student.

a. Thembisile

Thembisile (see Figure 4.1) felt that the students she was teaching during her Teaching Practice did not understand her when she was teaching through the medium of English only. She therefore had to revert to teaching through the medium of isiZulu (i.e. use code-switching). Thembisile herself was not comfortable teaching through the medium of instruction herself as she felt she was not fully competent using English to teach. She would personally have preferred the lecturer (i.e. myself) to speak both English and isiZulu during instruction to ensure that concepts and instructions could be made clear to her. Thembisile felt that, owing to the difficulties caused by the specialist terminology and computer "language", she could have achieved better grades

if the work had been translated into isiZulu first. She felt assignments were difficult to complete, and needed assistance in understanding instructions.

Figure 4.1 Thembisile

b. Lindiwe

Lindiwe (see Figure 4.2) did her practical teaching in an isiZulu speaking school. She found that, when she used English only as MOI, the pupils did not always understand her; she therefore had to revert to using isiZulu to emphasize terms and concepts in their own language so they could understand. To explain technical components through the MOI she used pictures to ensure they got a clear understanding. At times she reverted to isiZulu to explain concepts. Owing to the fact that she herself had attended an English Medium school, and was thus fairly fluent in English, she had no problem teaching through the MOI of English. Her own teachers had spoken only in English to her, which is why she had no problem communicating and understanding assessments written in English.

Figure 4.2 Lindiwe

She did find that some of the CAT concepts were difficult to understand, but due to the language in which she completed her schooling, she would not have been able to follow an assessment translated into isiZulu. She felt that it was unfair to teach isiZulu speaking students only using English as MOI, as many of them were not familiar with the concepts and terminology. She felt that the lecturer could assist students to bridge the gap by getting someone to interpret the words for students who could not follow instructions, and to translate the texts for those who needed help understanding assignments and computer terminology.

c. Celiwe

Celiwe (see Figure 4.3) did her practical teaching in an isiZulu school in Vryheid, but the school insisted that the students speak English. She said that she often reverted to explaining concepts and terminology in isiZulu. However, she said that she felt quite comfortable teaching through the MOI of English. She had attended an isiZulu school where most of the teachers taught through the MOI of English, but had also reverted to explaining through their mother tongue (isiZulu).

Figure 4.3 Celiwe

She said that she would like to see the University offer tutorials after hours to the second year students, and also the third years, in classes where they could receive tuition through isiZulu.

d. Zanele

Figure 4.4 Zanele

Zanele (see Figure 4.4) did her teaching practice in an isiZulu school where the pupils spoke both English and isiZulu. She said she spoke in isiZulu to the pupils she taught: all of the teachers at the school spoke isiZulu as well as English in class. She said that she had to revert to explaining concepts in isiZulu. For example, she would have a problem explaining what a "motherboard" and a "CPU" was through the medium of English.

She said that she would have liked the lecturer to slow down when lecturing through the MOI of English, as a lot of the information was lost because she could not keep up and understand. She did, however, understand what was said when English was spoken slowly and clearly. As regards translating written instructions, she said she would not be able to complete a CAT question paper in IsiZulu because of the terminology and computer concepts having been taught to her in English.

e. Senzo

Figure 4.5 Senzo

Senzo (see Figure 4.5) was "officially" supposed to be teaching his school pupils through the MOI of English, although they were IsiZulu-speaking

students, but both he and the students found it difficult when they tried to follow him in English. He said that he often used isiZulu to explain concepts to pupils, and reverted to speaking in his own language (isiZulu), as he felt more comfortable speaking in it. He said that he would prefer to write an exam paper which had been translated into IsiZulu. He would also have liked a translator during lectures to help him and the other students to understand what was being taught.

f. Sipho

Sipho (see Figure 4.6) was confident, and his spoken English was fluent. He liked the challenges set, and said that he could understand the terminology used to describe technical components and concepts. He would however have liked to be able to have a translator (i.e. interpreter) available, as he as he sometimes forgot what words meant, and found it difficult to describe concepts using English. He said that he tried his best to teach (i.e. in his practical teaching at school) through the MOI of English, as he knew the student teachers would have to answer their question papers in English.

Figure 4.6 Sipho

4.2.2 Insights from the interviews

The interviews confirmed for me what is common knowledge in South African schools (see Govender 2011; Dorasamy 2012; Naidoo 2012): most of the teachers in the schools in KZN teach through the medium of IsiZulu, even when the "official" school MOI is English. Most of these teachers themselves went through a school system where they were either taught through the MOI of isiZulu, which meant that they did not become fluent in English, or through the MOI of English, in which case they still did not achieve fluency in English, except for the favoured few who attended Model C schools with MT English teachers.

The majority of isiZulu-speaking pupils were taught by isiZulu-speaking teachers who themselves has suffered the same conditions, and frequently code-switched to using isiZulu as MOI because neither they nor their pupils could cope with instruction in English. Code-switching is not a "neutral" language activity (Chick and McKay 2001: 165), and can be seen as a form of resistance to or rebellion against the "power" language (i.e. English). But the situation of code-switching or use of simplified English (see 4.2.3 below) perpetuates itself, because the Department of Basic Education (DoBE) is in denial about the capabilities of African teachers and the necessity to keep English as the MOI standard for instruction.

4.2.3 Observation lessons with fourth-year CAT students

The term "observation lessons" refers to the lessons which student teachers gave in schools as part of their practical work, some of which had to be observed and assessed by their Education lecturers (i.e. including myself). During the observation lessons with the fourth-year CAT students, the researcher noted a general trend in all the classes which were being observed, where the student teacher is isiZulu-speaking and the learners are all isiZulu-speaking:

- The learners are greeted in the MOI, which is English; however, many reply in their home language, and immediately start communicating in isiZulu.
- The lesson is taught through the medium of English, yet many English words are replaced by isiZulu words to try to get the learners to understand the concepts being explained.
- As soon as the structured, planned lesson is over and the learners appear to feel more relaxed, they ask the student teacher questions in isiZulu and are answered in the same language.
- I noticed that the students tended to revert to a simpler form of English when speaking, so that the learners might understand them (see Long 2006 on speakers modifying their speech for better understanding). However we have two parties speaking a second language thus the quality of the spoken language is poor.

4.2.4 Students requesting translation of instructions

Although the interviewing process ranges from the formal interview in which set questions are asked and the answers are recorded, which I did in this interview. I also made use of a less formal process where I felt it necessary to modify the sequence of questions, as I had to explain them or add to them. However, I made quite sure that I took on a collaborative role so that students could be active participants in the process. This was so as not to embarrass students whom might feel that they would be seen as criticising me if they asked for help from other students (i.e. implying my lectures or notes were not communicated clearly). The results show that approximately two thirds of the students ask their fellows to explain CAT instructions at some point. Students needed help with the English MOI and often asked fellow students for help in translating instructions and concepts (see Figure 4.7).

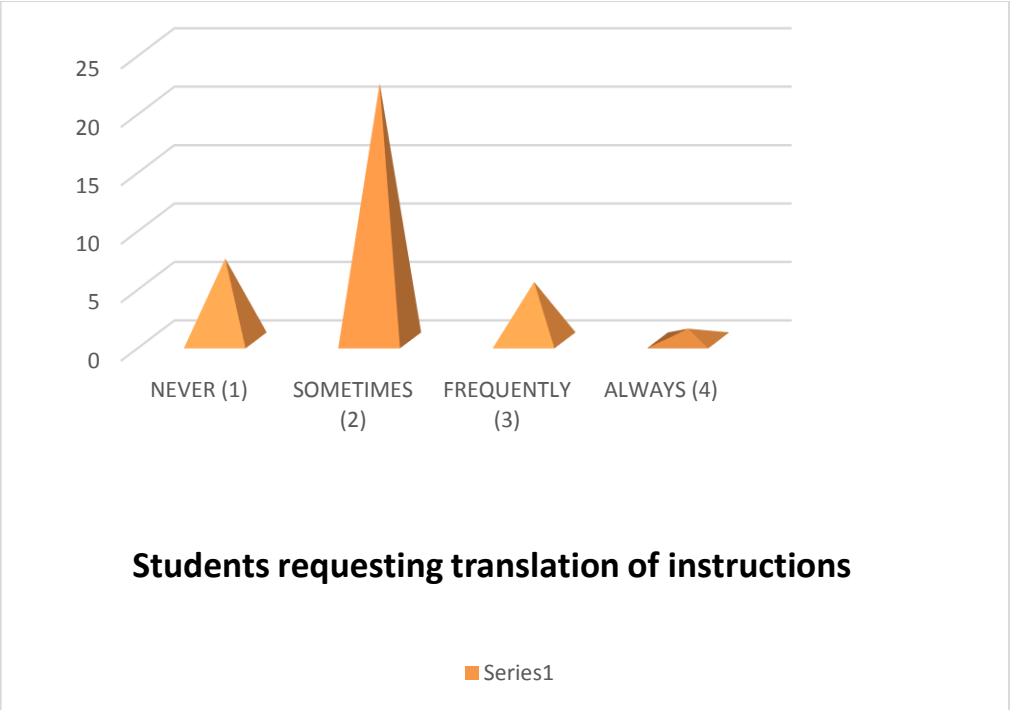

Figure 4.7 Frequency of students requesting translation of instructions

4.2.5 Internet access after hours

As a lecturer of a subject concerned primarily with computers (CAT), it is a matter of concern to me that the majority of my students do not have Internet access at their homes, and can access the Internet only on campus, as reflected in Figure 4.8. When I looked at the comparison between KZN students who had access to computer after lectures versus those who did not, it became quite clear why the students did not practise the skills they had learned in lectures and therefore could not master these skills. The majority of the students did not have access to computers: those who did (i.e. the boarders), have access only at the computer lab at the university, thus restricting the time frame in which they could use the computers to practise skills learned in lectures.

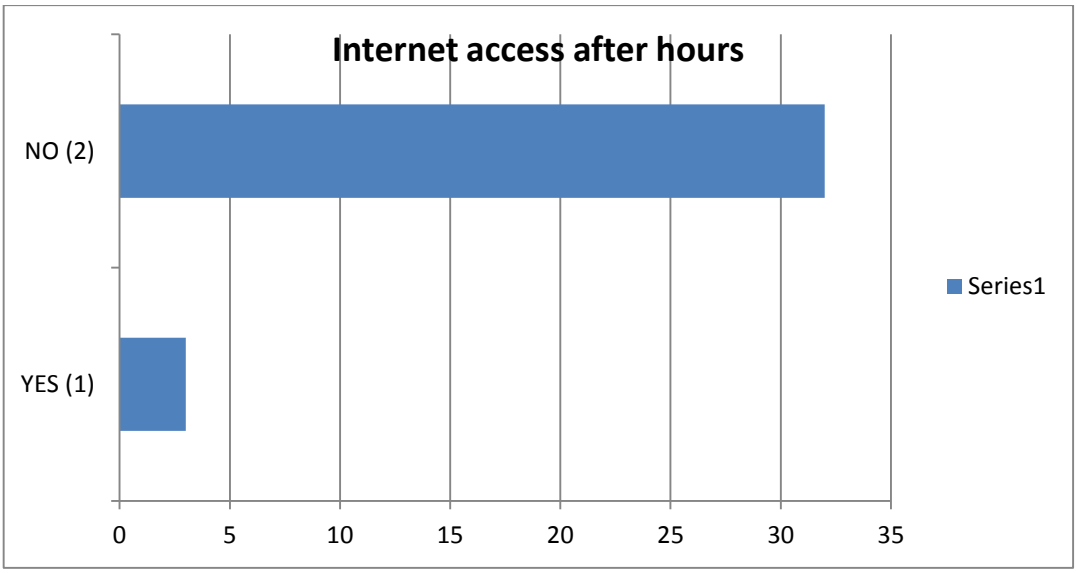

Figure 4.8 Student after hours Internet access

4.2.6 Requests for assignments to be translated

The results shown in Figure 4.9 suggest that CAT students do not always understand exactly what is accepted of them when given an assignment, and that many of them need a translator to assist them at least some of the time.

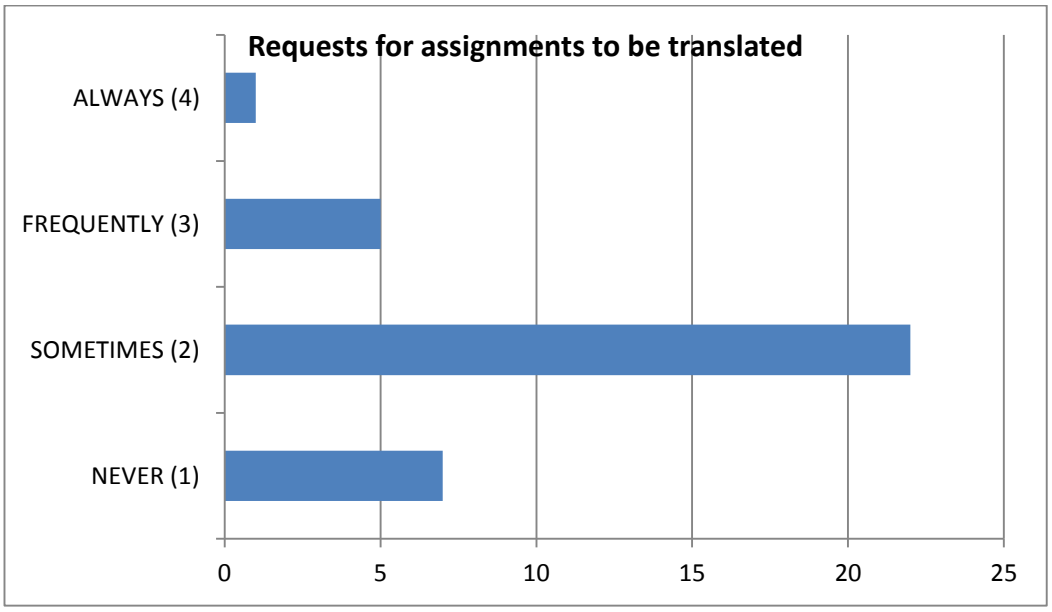

Figure 4.9 Requests for assignments to be translated

This was confirmed by the comments of the students interviewed, many of whom would have liked interpreters to explain spoken English, as well as translations for clarity on written instructions.

4.2.7 Student teachers using IsiZulu as MOI in schools

When students do their practical teaching in schools with isiZulu speaking pupils, many of them revert to teaching through the medium of their home language, as per the data collected and displayed in Figure 10. This is borne out in the interview data, which suggests that not only pupils, but some of the student teachers themselves have difficulty dealing with teaching in a language their pupils do not understand.

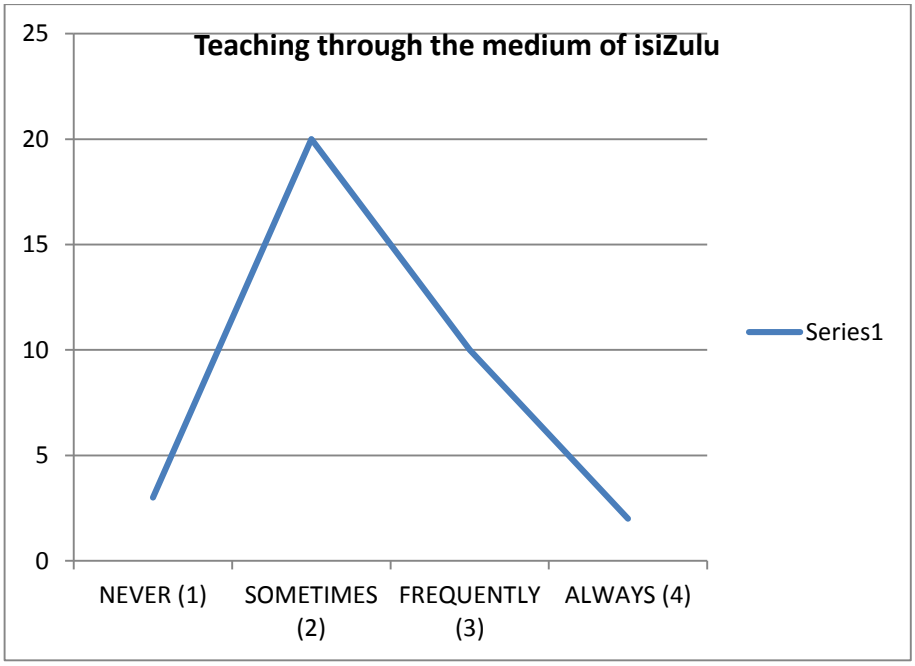

Figure 4.10 Teaching through isiZulu as MOI in schools

4.2.8 Analysis of assignments

I structured my interviews on the assignments to be qualitative, open-ended and standardized, where both the wording and sequences of my questions were determined in advance. All my interviewees were asked the same basic

questions in the same order. The advantages, according to Cohen, Manion and Morrison (2006), are that this standardised procedure assists in comparing the responses. It also allowed me to complete gathering data from each interviewee on all of the topics addressed in the interview, which reduced the possibility of bias. Moreover, random or interviewee-directed order would not have allowed me to assess the effectiveness of this research instrument so easily, permitting me the option of decision making, and enabling reviewing the instrumentation used in the evaluation. Finally, it also facilitated organisation and analysis of the data collected.

The results suggest that the students do not always understand the assignments and need more clarification; this comes through quite clearly when one looks at Figure 4.11.

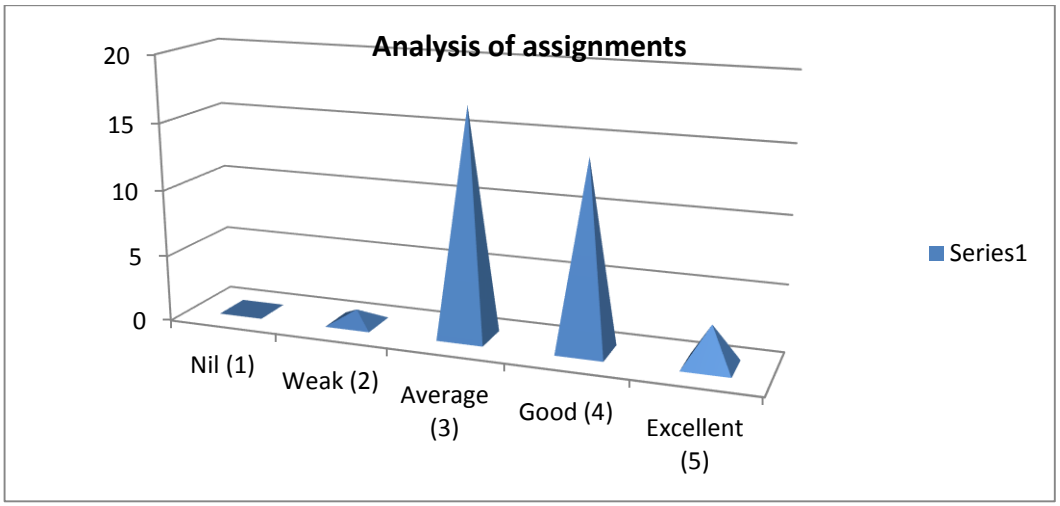

Figure 4.11 Analysis of assignments

4.2.9 Results from the assignments, assessments and examination

This section looks at student progress overall in CAT as academic subject at Indumiso College. The term “DP” refers to “duly performed”, that is, whether the prerequisites in terms on ongoing annual assessment (e.g. tests, assignments and practical work) have been met, so that the student is eligible to sit for the formal end-of-year examination.

assignments and practical work) have been met, so that the student is eligible to sit for the formal end-of-year examination.

The “DP” is then the student’s year mark before the examination mark is added, usually in the ratio of 6:4 (with the examination mark being weighted higher). As shown in Figure 4.12, 26 per cent of the students did not pass but managed to qualify for a supplementary examination. Figure 4.13 shows that 5 per cent of the students failed the CAT course for the entire year. The 5 per cent who failed were the same students who came from rural backgrounds and were taught through the medium of their home language, isiZulu. These students did not have the ability to express themselves, or understand and analyse information, or complete assignments without the help from their fellow students who translated the work for them. To sum up: those who failed were the students whose English language skills were the weakest.

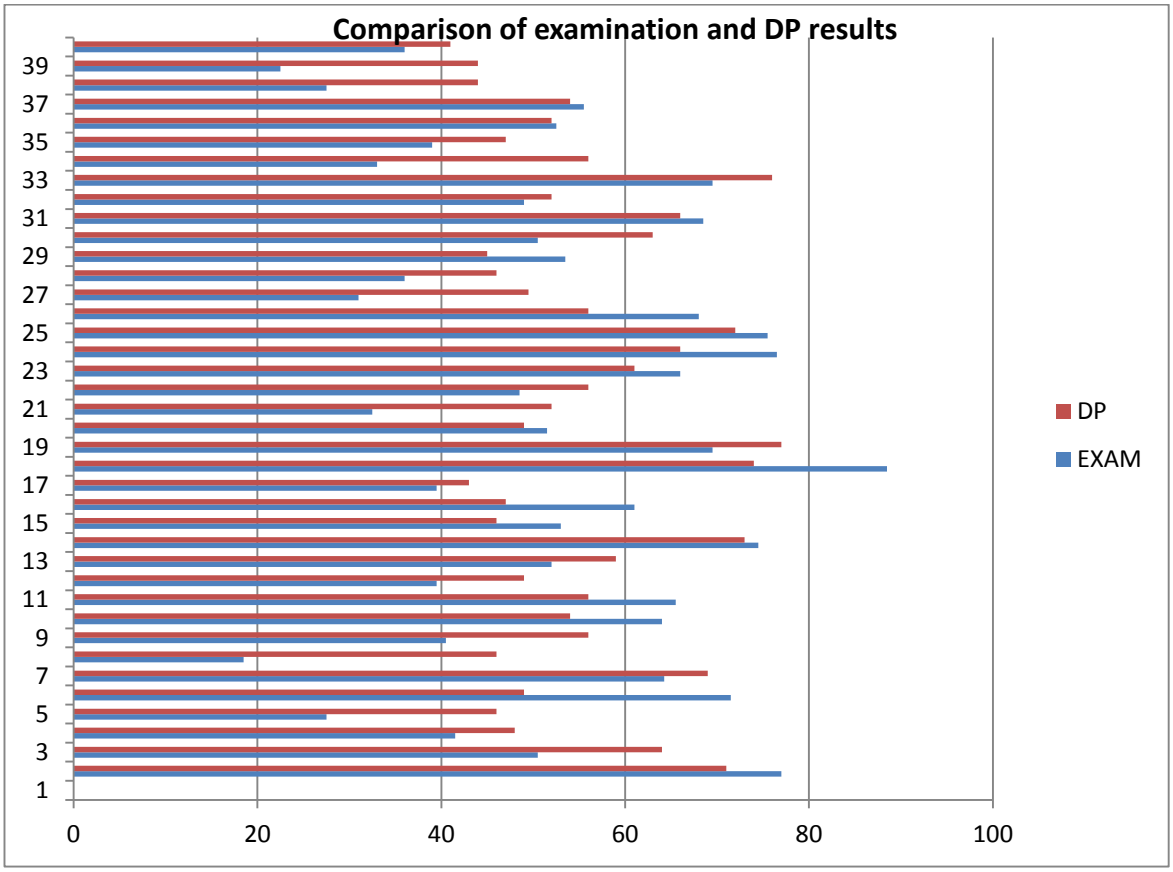

Figure 4.12 Comparison of examination and DP results

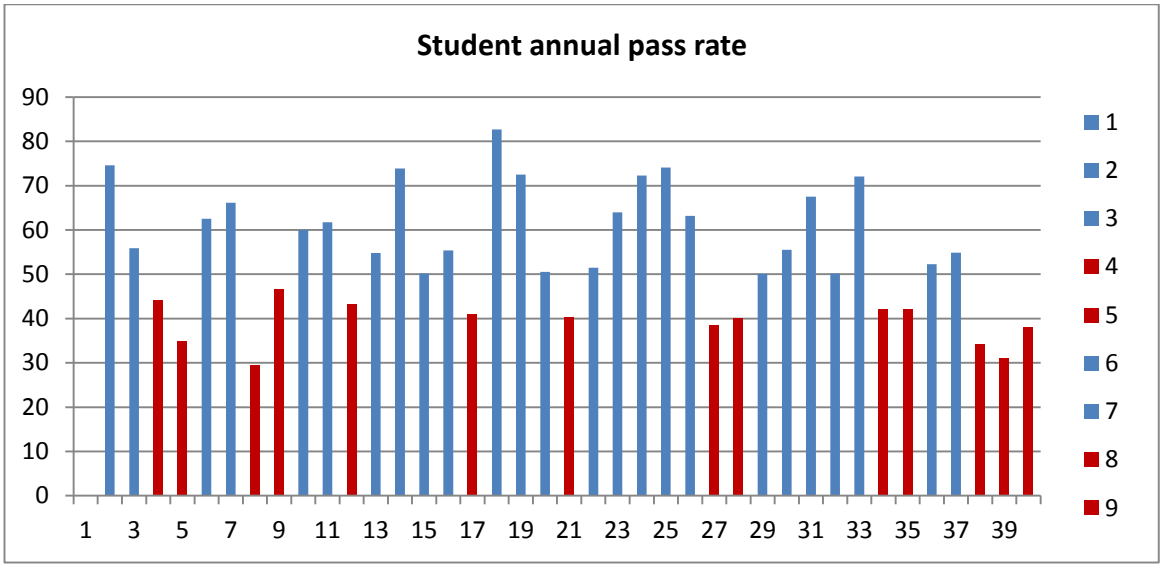

Figure 4.13 Student annual pass rate

4.3 Summing up of the KZN findings

Students who had access to computers at home or after hours could, through hours of practice, pass their examinations. However, because they reverted to rote-learning (endemic in many South African schools), students lacked the ability to analyse and synthesis information. Students who were proficient in English assisted those who lacked the skills to understand the assignments and assessments given; they were always translating work for one another. Students who were not proficient in English and lacked language skills and vocabulary in order to express themselves lacked the confidence to participate in discussions. Unless students attended an English medium school and were obliged to speak English during their school career, they could not teach a class without reverting to their mother tongue. Even so, those students who had attended English medium schools attended mainly by MT White and Indian pupils (i.e. “ex-Model C”), had benefited from instruction by MT White and Indian teachers and immersion in a predominantly English-speaking school pupil population. Students in schools attended entirely by MT isiZulu-speaking pupils, taught by MT isiZulu-speaking teachers who English was not

fluent were not necessarily advantaged by having been taught in the English MOI at school.

4.4 Results for the Kuwaiti cohort

Interviews, questionnaires and/or surveys were used to establish the following details:

- The demographics of the student group
- The language details of students, including home language spoken and introduction to English in schooling
- Students' attitude to Instructional Technology as a subject
- The results of an assignment translated into Arabic
- Whether students intended going on to a higher educational institution after school, and the preferred language of instruction at such an institution
- Comparison of English assignments with the translated assignment

4.4.1 Demographics of student group

Of the students interviewed and assessed, their ages ranged between 16 and 18. The majority of the students were 17 years old, as reflected in Figure 4.14.

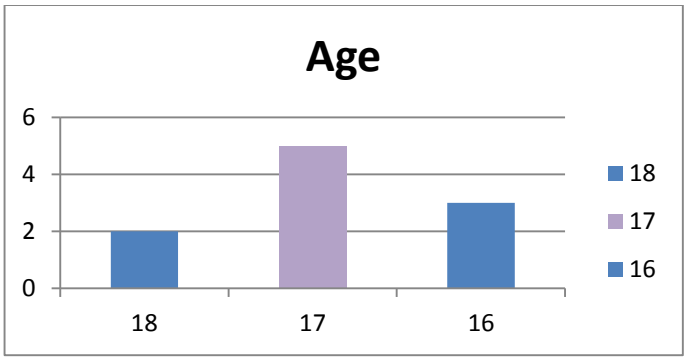

Figure 4.14 Age of students

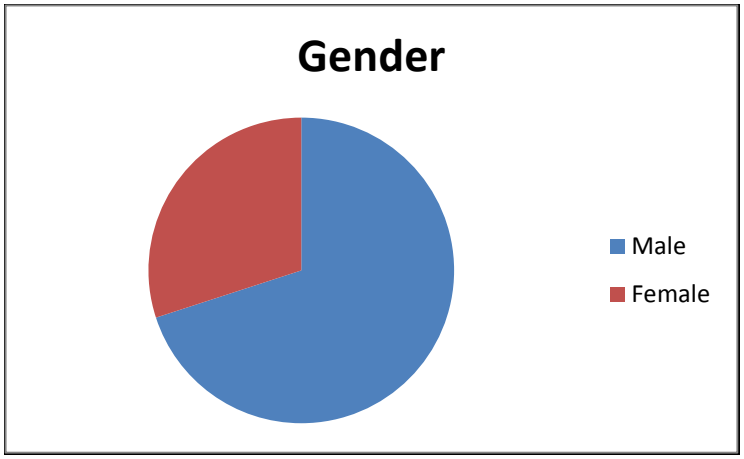

Figure 4.15 Gender of students

There were more male students in the class than female students, as seen in Figure 4.15.

4.4.2 Language details of students

It is interesting to note that, although all students are MT Arabic-speaking, 20 per cent of the students said that they spoke English at home, as shown in Figure 4.16. I interpret this as a fluency in English which was not apparent in my ESL students in KZN, although the Kuwaiti students might have been referring to home tuition in English rather than family conversation, as most of their parents did not speak English (as with the KZN students).

Figure 4.17 shows that 56 per cent of the students joined an English Medium School at the Elementary Level and 44 per cent of the students started attending an English Medium School at High School Level. None of the Students joined the English Medium School during their Middle School years. In view of my experience with KZN students, exposure to English at MOI at early levels gives students a distinct advantage in not only developing fluency in spoken English but also expertise at using English for academic purposes.

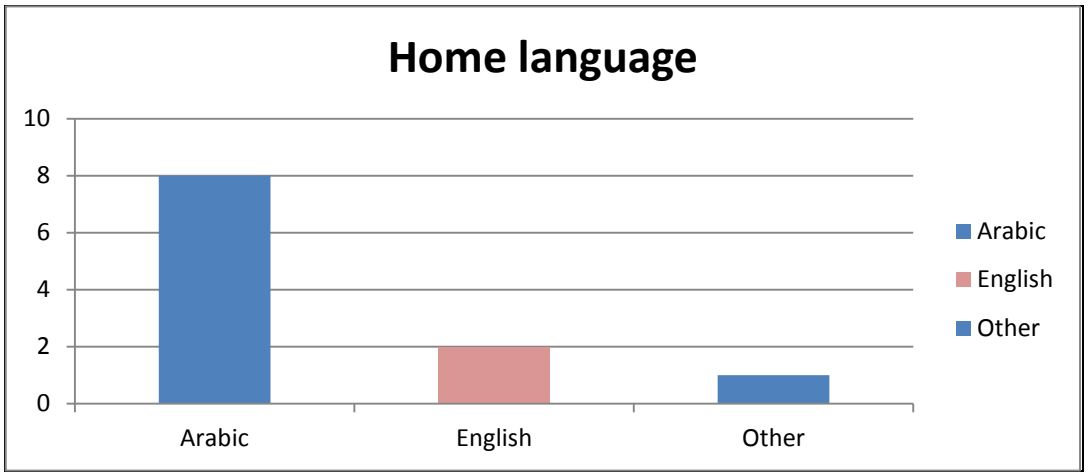

Figure 4.16 Language/s spoken at home

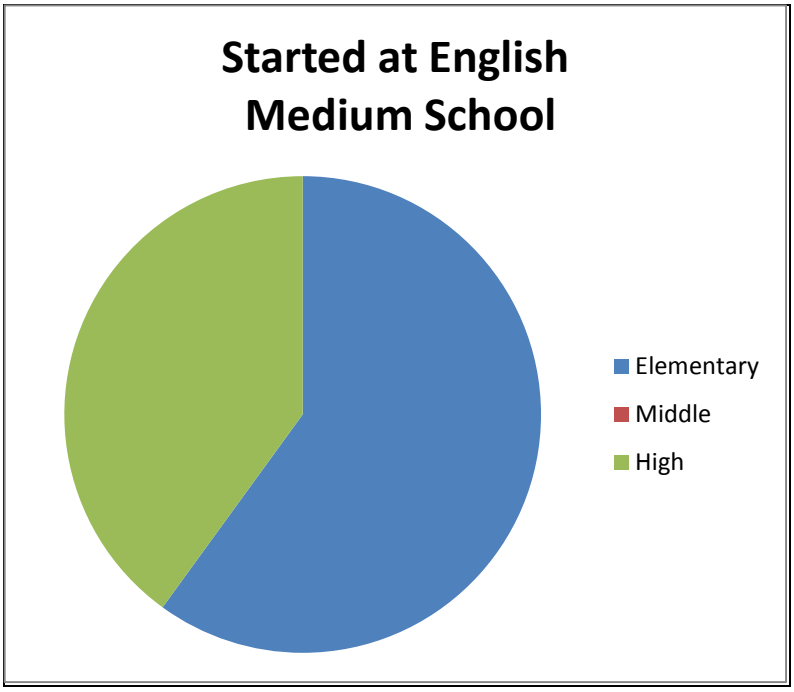

Figure 4.17 Started at an English Medium School

4.4.3 Instructional Technology as a subject

As Figure 4.18 shows, 30 per cent of the Students found IT to be both interesting and challenging, 30 per cent found IT to be challenging only, and another 30 per cent interesting only.

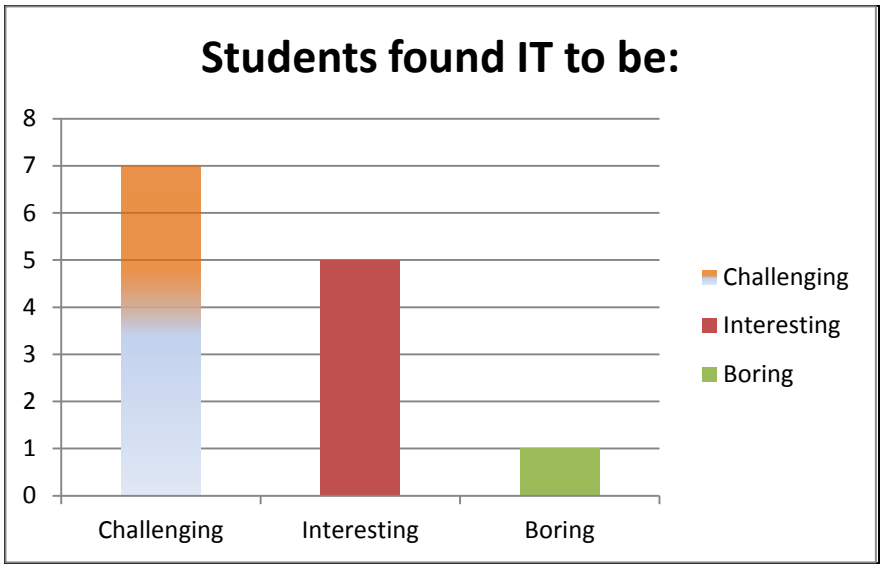

Figure 4.18 Students' perceptions of IT as a subject

10 per cent of the students found IT to be boring. In KZN, students were registered for CAT for professional purposes, namely being able to offer it as a teaching subject. They were therefore highly motivated to make a success of it. In Kuwait, IT was part of an educational offering, and therefore motivation depended more on their interest in the subject and/or intention of continuing with it at university level. As the majority (90 per cent) found it interesting and/or challenging, lack of progress could not be put down to apathy for the subject.

4.4.4 Results of the translated assignment

This was the IT assignment which had been translated into Arabic, ostensibly to enable students to understand it more clearly. I was surprised at the results (see Figure 4.19), as I had thought that this would make the task easier, yet 70 per cent of the students needed translation and assistance with the task. 10 per cent of the students could not do the task and gave up. Only 20 per cent of the students found the task to be manageable and completed the task.

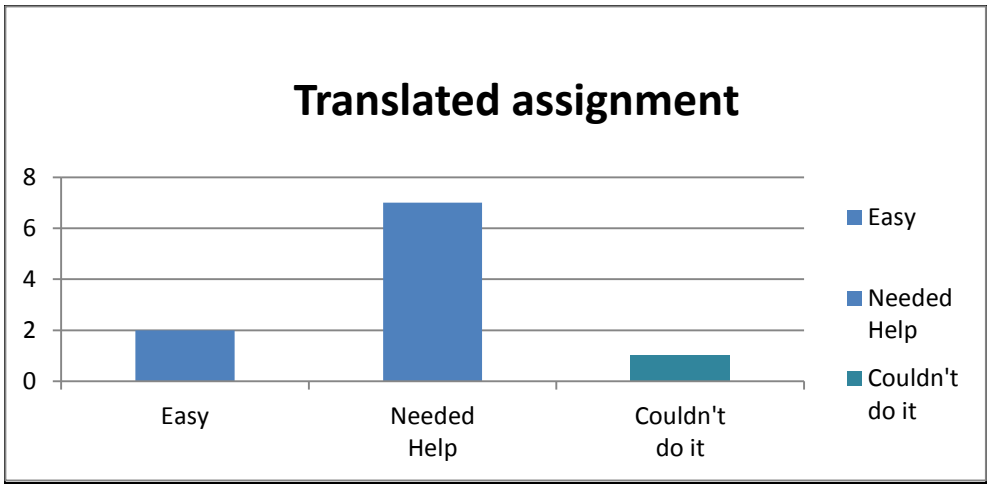

Figure 4.19 Results of the translated assignment

On completion of the assignment (see Figure 4.20), only 10 per cent of the students indicated that they would prefer the tasks to be set out in Arabic, but would like it to be translated in English as well for reference to certain functions in IT. 90 per cent of the students said that they did not want a translated into Arabic. This result is reflected in Figure 4.18, where only 20 per cent of the students said that they found the assignment easy.

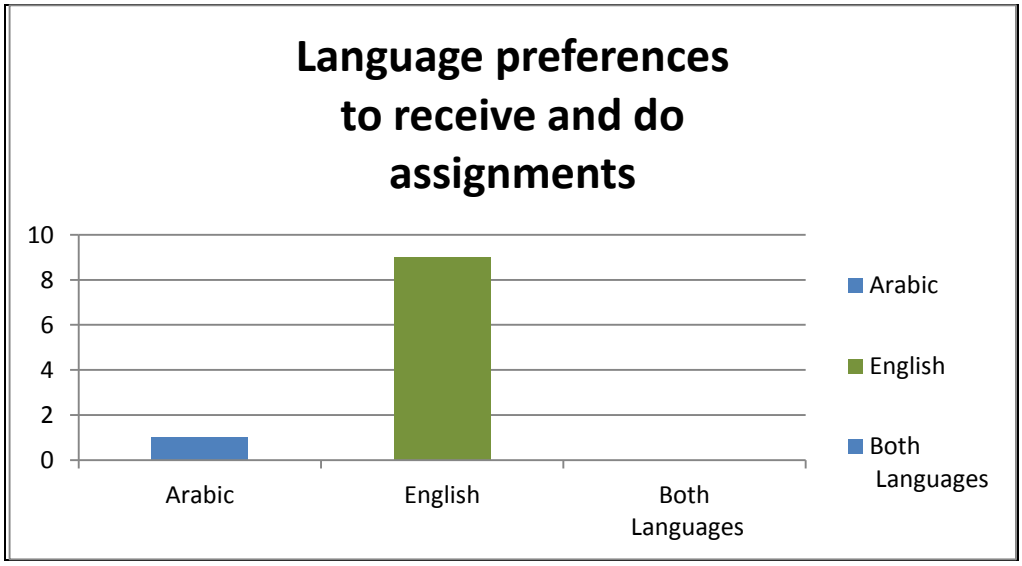

Figure 4.20 Language preferences for assignments

These results were explained to some extent by the students' comments. On receiving the translated (i.e. into Arabic) IT assignment, the reaction of the ten Grade 11 students was that of absolute horror. They were clearly not happy with trying to decipher the Arabic words to try to understand what was required. Here are some of the comments made by students:

> Abdul: "Computers have their own language; one cannot translate this type of information and terminology into Arabic."
>
> Bastaki: "This is not fair, we cannot understand how to do this work! Can I take it home and have it translated?"
>
> Yousef: "This will take us forever to try and understand."

4.4.5 Attending a higher educational institution after school

90 per cent of the students indicated that they would like to attend a Higher Educational Institution after completing High School, as shown in Figure 4.21.

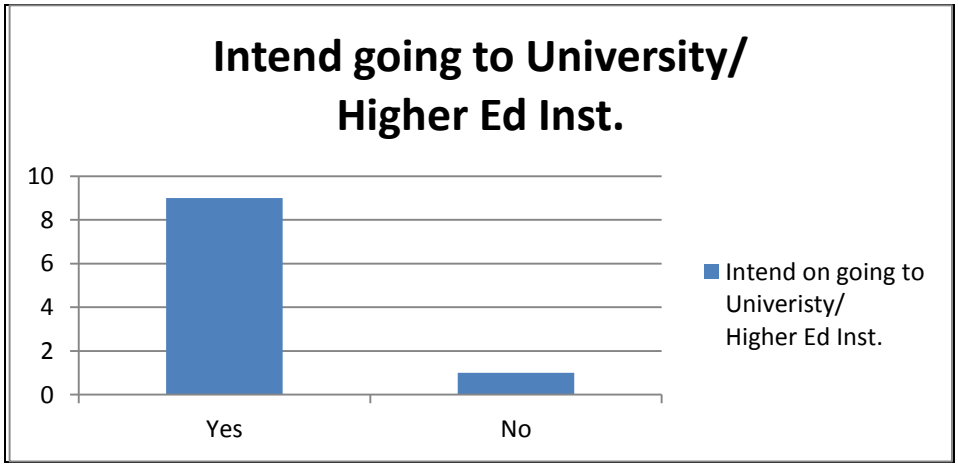

Figure 4.21 Intention to attend a higher educational institution after school

4.4.6 Language preference for higher educational institution

100 per cent of the students indicated that they would be attending an English Medium Higher Educational Institution and not an Arabic Medium Higher Educational Institution, as shown in Figure 4.22.

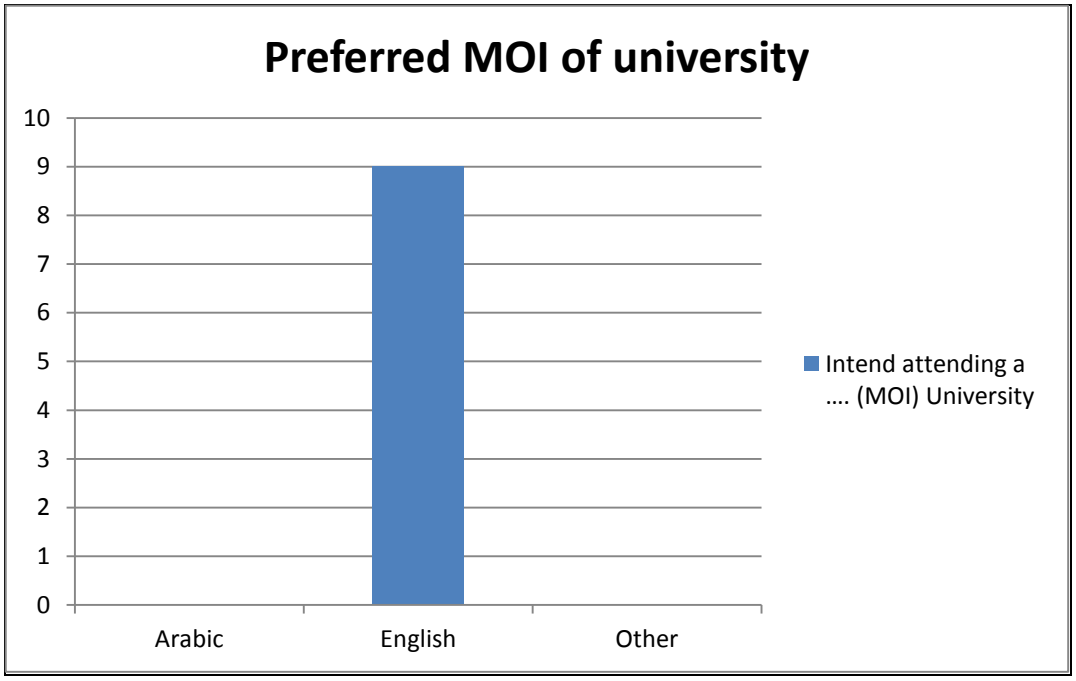

Figure 4.22 Preferred MOI of university

4.4.7 Comparison of English assignments with the translated assignment

The assignments given to the students were all of the same type. In the translated Arabic assignment, some of the students stopped and would not carry on, while the two students whose grades matched those of their previous assignments obtained external help translating these assignments. Figure 4.23 shows that the results for the assignments given in English were far better on the whole than the results for the assignment translated into Arabic. Judging by the comments, the difference in results could be attributed to uneasiness about Arabic being used as a “computer language\”, rather than difficulty with the translation.

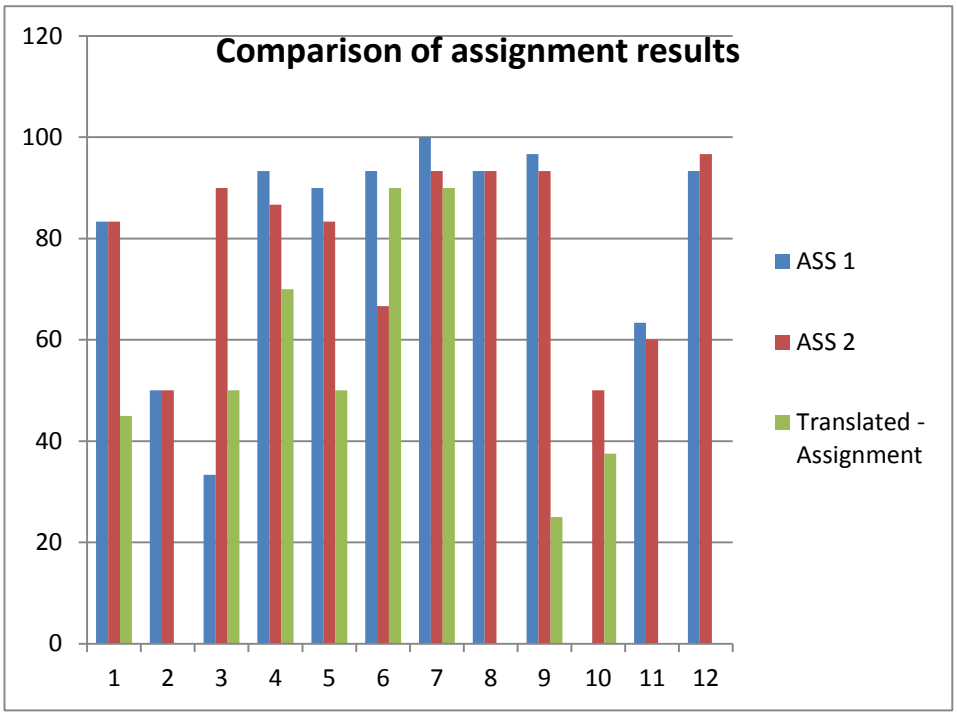

Figure 4.23 Comparison of assignment results

4.5 Summing up of the Kuwaiti results

The majority of the Kuwaiti students were subjected to listening and speaking English at an early age. Parents were generally wealthy and employed tutors to assist students with assignments and additional English lessons. The students rarely needed someone to translate assignments for them, and could hold a conversation without reverting to their home language, Arabic. The majority of the students were males and enjoyed the challenge of understanding technology and analysing and synthesising information. It is evident that students were accustomed to being taught through the MOI of English and would only revert to their home language when engaging in a social conversation with their peers. Students were happy to engage in discussions in English, and said that technology has its "own language", which is universal.

4.6 Composite summing up of results

In conclusion, I perceived the similarities and differences between the two groups as shown in the results to be as follows. I have added some issues noticed in my ongoing teaching practice and observations which were not "measured" formally, qualitatively or quantitatively, but which have relevance for, or offer explanations of, the results. These issues are the underpinnings of everyday teaching practice, or systemic factors in education, which remain largely implicit in everyday teaching practice. They do, however, arise as insights out of classroom action research when the educator reflects on learning problems, their causes, and possible solutions. They are highly relevant to both the similarities and differences in both groups, and I have included them here so as to pre-empt some of the discussion in the next chapter.

4.6.1 Similarities between KZN and Kuwaiti cohorts

These factors were common to both groups:

- Access to computers at home or after hours was a key issue in the learning of CAT/IT;
- Demonstration of both theoretical and practical technical knowledge was required for certification;
- Early exposure to English or English as MOI in schools improved the prospects of academic success;
- Fluency in English was a prerequisite for academic progress;
- The CAT/IT instructor (i.e. I myself) was not fluent in either isiZulu or Arabic, so code-switching to assist understanding of concepts was not an option.
- Neither the CAT nor the IT course was contextualised in terms of the social context in which it was delivered (this was left implicit).

4.6.2 Differences between KZN and Kuwaiti cohorts

These factors applied to the KZN group:

- Those who were not proficient in English translated (or interpreted) for fellow students who were not proficient in English;
- Those who were not proficient in English tended to use rote learning, which hindered progress;
- Those who did not have access to computers after hours to practise CAT skills unless they were boarders (and then computer laboratory access was limited);
- There were more female students than males;
- The majority of students were not exposed to listening and speaking English at an early age;
- Those students who had attended English medium schools attended mainly by MT White and Indian pupils (i.e. “ex-Model C”), had benefited from instruction by MT White and Indian teachers and immersion in a predominantly English-speaking school pupil population;
- Students who were not proficient in English and lacked language skills and vocabulary in order to express themselves lacked the confidence to participate in oral discussions;
- Most students had not attended English-medium schools, and those who had, did not have the benefit of teachers (or fellow-pupils) who were MT-English speakers or fluent in English;
- Most student teachers were taught at school in MOI English by isiZulu-speaking teachers who were not fluent in English; were then at college lectured a technical subject in English; and then had to teach, in the MOI of English, classes of mainly isiZulu-speaking pupils who were not fluent in English;
- Students were not necessarily advantaged by having been taught through the MOI of English at school, as their isiZulu-speaking pupils could not understand them;

- Students were not accustomed to being taught through the MOI of English and would revert to their home language in class when the teacher was isiZulu-speaking;
- Students apparently had no problem with interpretations or translations from English to isiZulu;
- Students were motivated by the need to be able to teach CAT through the MOI of English;
- The Indumiso students' assessment was partly through their being rated for an oral performance in English (i.e. giving a lesson in the MOI of English).
- The course was more narrowly, and thus more clearly, contextualised in the area of teacher education, the outcome being the capacity to teach CAT in schools.

These factors applied to the Kuwaiti group:

- The students had home access to computers to practise IT skills;
- There were more male students than females;
- Students had the advantage of home tuition in English, and were thus more confident when participating in oral discussions;
- Most students had attended English-medium schools at a young age;
- The majority of the Kuwaiti students were exposed to listening and speaking English at an early age;
- Parents were generally wealthy and employed tutors to assist students with assignments and additional English lessons;
- As students had the advantage of home tuition in English, they were thus more confident when participating in oral discussions
- Students were accustomed to being taught through the MOI of English and would revert to their home language only when engaging in a social conversation with their peers;

- Students appeared to have problems with the concept of written computer English being translated into Arabic;
- Students were motivated by diverse needs, which might include personal or business use of computers or further study in computer technology (including, but not necessarily, for a teaching qualification);
- Assessment for the Kuwaiti students did not include their being rated for an oral performance in English (i.e. giving a lesson in the MOI of English);
- The course was less clearly contextualised in terms of social outcome (i.e. in what specific social context or area the skills learned would be applied).

4.7 Conclusion

The results show both the commonalities and differences in the two groups. The main advantage of this comparison for me as teacher/researcher was to demonstrate that context, target audience and purpose are important influences when using English as MOI for ESAL or EFL learners. As an experienced computer technology educator, I would usually have adjusted intuitively to the differences (as I would have for student groups where there was very little change, e.g. a new group doing the same subject next year in the same context). However, the classroom action research forced me to look more specifically at the way/s in which the KZN and Kuwaiti groups were similar and how they differed, not only in language proficiency and academic progress, but also in their response to my interventions. This will be discussed in more detail in the next chapter, along with linguistic or non-linguistic barriers to learning, as well as recommendations as to how these might be overcome.

Chapter 5: Conclusions

5.1 Introduction

Chapter 5 will deal with the general conclusions drawn from the results emerging from the classroom action research, as set out in Chapter 4. Firstly, I shall address the results in terms of how they answer the specific research questions, on order to assess the impact the medium of instruction (MOI) had on both the learning and assessment of computer technology courses. Next, I will look at language barriers to learning computer technology, as well as barriers not caused (or not caused directly) by language. Finally, I will look at any aspects of the actual computer technology curricula which might act as a barrier to learning and assessment.

5.2 How the results answer the specific research questions

The specific research questions were as follows:

1. With regard to instruction:
    a. To what extent do the students understand what is being taught to them in computer technology courses through the medium of English?
    b. To what extent do they understand the technology used in this subject field?
2. With regard to assessment:
    a. What language problems, if any, do students face while undertaking computer technology assessment tasks?
    b. To what extent do the students possess the language capacity to carry out these assessment tasks?

In this chapter I will give my conclusion on the impact the MOI had on both the learning and assessment of computer technology, and in the next chapter make recommendations for revising the curricula and assessments in both contexts in order for the students studying computer technology to be better

prepared with the competencies required for either learning or teaching in this subject.

5.2.1 Impact of the medium of English on instruction

Sections a. and b. of specific research question 1 are dealt with as follows:

a. *The extent to which students understand what is being taught to them through the medium of English*

As mentioned in 4.6.1, fluency in English was a prerequisite for academic progress and early exposure to English or English as MOI in schools improved the prospects of academic success. Overall, my conclusion is that both KZN and Kuwaiti groups lacked the fluency in English necessary for academic success, with the Kuwaiti group having the advantage of more fluency in conversational English. Each group "got around" the problem in different ways, and each group had its own issues, as listed in 4.6.2.

In the KZN group, the students, who mostly had access to computers after hours in Indumiso laboratories could, through hours of practice, pass their examinations. However, because they reverted to rote-learning (endemic in many South African schools), students lacked the ability to analyse and synthesis information. Students who were proficient in English assisted those who lacked the skills to understand the assignments and assessments given; they often translated work for one another. Students who were not proficient in English, and lacked the language skills and vocabulary in order to express themselves, lacked the confidence to participate in discussions. Unless students had attended an English medium school and were obliged to speak English during their school career, they could not teach a class without reverting to their mother tongue.

Even so, those students who had attended English medium schools attended mainly by MT White and Indian pupils (i.e. "ex-Model C"), had benefited from instruction by MT White and Indian teachers and immersion in a predominantly English-speaking school pupil population. Students in schools attended

entirely by MT isiZulu-speaking pupils, taught by MT isiZulu-speaking teachers who English was not fluent were not necessarily advantaged by having been taught in the English MOI at school, as the English used was at a simple level and code-switching (i.e. to isiZulu) was frequently used to explain concepts. At one stage, when universities in South Africa were fully opened to all race groups (around the 1990s), the smaller numbers of isiZulu-speaking students in universities meant that they became conversationally fluent in English through immersion in a majority English-speaking student body (Pratt 2011: 26). By 2002 isiZulu-speaking-students greatly outnumbered MT English-speaking students, with the result that most students spoke isiZulu in social interactions, and even in group discussions held during lectures (see Hodgson 2002: 44-47).

By contrast, the Kuwaiti students were exposed to listening and speaking English at an early age. Parents were generally wealthy and employed tutors to assist students with assignments and additional English lessons, even home lessons. Home tuition in English is a modern tendency, as the students' parents cannot speak English, nor need to, in terms of Arabic being a prestigious national language (yet the parents, as was the case with the KZN parents, recognised the need for their children to be conversant in a dominant global lingua franca). Home English tuition would not necessarily be in a register which required mastery of technical terms or concepts, but it *did* have the effect of facilitating students' participation in classroom discussions.

The students rarely needed someone to translate assignments for them, and could hold a conversation without reverting to their home language, Arabic. The majority of the students were males, and enjoyed the challenge of understanding technology and analysing and synthesising information. It is evident that students were accustomed to being taught through the MOI of English and would revert to their home language only when engaging in a social conversation with their peers. Students were happy to engage in discussions in English, and said that technology has its "own language", which

is universal. The Kuwaiti students were encouraged to use a "buddy system" for support, which appeared to work very well.

It must be remembered that the KZN group also used, very effectively, an informal peer-help system, where students who were more fluent in English translated or interpreted for fellow students who were not proficient in English. Also, the fact that the majority of learners were female (in contrast to the Kuwaiti groups) did not necessarily mean that they were not interested in technical subjects such as Computer Applications Technology (CAT). This point will be followed up in the section on the extent to which students understand the technology used in this subject field

I would like to make one more point about English proficiency in this section. Kuwaiti students have better access to English in their schooling, but English is the "official" lingua franca in South Africa, so Zulu students have the *option* of more exposure to spoken and written English, even if they do not become fluent. While Arab attitudes to English may be ambivalent (understandably, because of reactions to perceived Western imperialism), Zulu students tend to view Afrikaans as the "language of colonial oppression", and English as the desired language of employment, business, trade and international access generally.

Zulus also identify with Afro-American films, music and hip hop culture, so that English (or at least a variety of Afro-American English) is "hip". Unlike the Kuwaiti students, whose MT, Arabic, is one of a number of "prestigious international language(s)" (Malallah 2000: 24, the Zulu students' MT is numerically powerful only, but mainly in KZN. While gathering influence through the political power of the Zuma government, isiZulu is not prestigious or widespread enough to become a national lingua franca. In ZKN, English is the perceived language of academic, economic and international access (Naidoo 2012). Thus, as mentioned in Chapter 1 (p 27), isiZulu speakers have even more incentive than Arabic speakers to become fluent in English, as it

makes them not only internationally, but *nationally* marketable (i.e. for employment).

b. The extent to which students understand the technology used in this subject field

As mentioned in Chapter 4, access to computers at home or after hours was a key issue in the learning of CAT/IT; demonstration of both theoretical and practical technical knowledge was required for certification; and, as instructor, I myself was not fluent in either isiZulu or Arabic, so code-switching to assist understanding of concepts in technology was not an option. There were more male students than females in Kuwait. Male students tend to do better at technical subjects, not necessarily because they *are* better, but because of gender stereotyping, which meant they were more likely to understand the technology. Class discussions showed interest and expertise, and students could practise their skills on home computers.

Their motivation, while fairly instrumental (i.e. to pass the course) was more intrinsic than that of the KZN students. As mentioned in Chapter 4, Kuwaiti students were motivated by diverse needs, which might include personal or business use of computers or further study in computer technology. This did mean that students who found computers boring (10 per cent) might drop out. However, the KZN students were in fact desperate to get employment, so that while motivation was instrumental, and not intrinsic, they were highly motivated to master and obtain certification in computer technology skills.

Also, in my experience, isiZulu-speaking students have the idea (not entirely accurate) that computer work does not require advanced or even basic English - or *any* - language skills, as they are just going to work with machines. It therefore suggests (incorrectly) that they will more easily obtain and be comfortable in jobs which do not require proficiency in English. This is not at all the case, as certification requires academic English proficiency, and IT as a service or teaching profession requires good communication skills in the business or academic lingua franca, which is English, in South Africa.

The fact that the Zulu students were learning CAT so as to be able to teach the subject made good communication skills in the required MOI (English) mandatory. I must also point out that the fact that the majority of the KZN group was female did not diminish their enthusiasm for the subject. Zulu women are enthusiastic about taking technical subjects, as the current labour laws ensure that they will be preferred to male candidates when competing for the same job, other criteria being equal. Many computer technicians at DUT are Zulu women, that is, before they leave to get better jobs for which they will gain preference over male applicants by virtue of their gender.

The main barrier experienced by the KZN group in attempting to understand the technology used in CAT was insufficient access to computers and the Internet. This is not a linguistic barrier, but one caused by their socio-economic level.

5.2.2 Impact of the medium of English on assessment

Sections a. and b. of specific research question 2 are dealt with as follows:

a. Language problems students face while undertaking computer technology assessment tasks

The KZN students' assessment was partly through their being rated for an oral performance in English (i.e. giving a lesson in the MOI of English). They were then hit with a "double whammy" in terms of being assessed through both written and oral mode.

Both student groups (in KZN and Kuwait) appeared to have problems understanding assessment rubrics written in English. There are two issues operating here: firstly, assessing a practical subject using mainly textual assessment rubrics is in itself counter-productive (setting assessment task within a scenario or role play would be far more effective). Next, the text of the assessment rubric was not written in the students MT language, which constituted a barrier to understanding. The Kuwaiti students were more fluent in spoken English than written English, but did not favour translation into Arabic

of computer terminology, because “computers have their own language”, which is *not*, I was given to understand, Arabic.

The isiZulu students would have been quite happy with written translations in isiZulu (which their peers kindly supplied by means of oral interpretation), but I am not fluent in isiZulu, so could not provide the translation. Moreover, there is at present no manual for computer technology in isiZulu, and “lay” isiZulu speakers would not know the computer terms. I also need to mention that the written transcription of formal isiZulu is problematic, as a common orthography is still being developed, and students are only now beginning to write theses in isiZulu, so as to develop an “academic formal register” in written language.

b. The extent to which students possess the language capacity to carry out assessment tasks

I have to admit that neither group actually possessed the necessary language capacity to carry out assessment tasks, although both groups found ways to compensate for this.

The majority of my African students were hungry for information and were extremely keen to do well and succeed. They spent many hours in my IT lab asking questions, practising on computer but also, in desperation, resorting to rote learning, way above the designated hours suggested in the course outlines. Even though they spent all these hours of learning and practice, they could not always communicate adequately to earn the necessary grades to excel in the course. They lacked the vocabulary and grammar needed in research assignments to express themselves. Students often plagiarised to try to compensate for the lack of academic ability.

African students who had attended English medium schools had a significant advantage, as they quickly mastered the skills and could understand and were familiar with the vocabulary used in the curriculum. These students normally had their own computers at home and were technologically advanced. They did not need translation of assignments or lectures. They assisted other

students and often translated work for them and would translate while I was lecturing. The KZN students were respectful and humble and would never challenge me as their lecturer. However, the students expected to be spoon-fed, and they wanted all the work summarized for them in order for them to try to understand what was being taught.

Assessment for the Kuwaiti students did not include their being rated for an oral performance in English (i.e. giving a lesson in the MOI of English); however, their uneasiness at having assessment paper translated into Arabic mean that I could not assess whether they would actually have done better had they understood the questions, so that it was difficult to assess the extent to which they possessed the language capacity to carry out assessment tasks. However, early exposure to English or English as MOI in schools improved their prospects of academic success, and their fluency in spoken English was an advantage, as they could more easily ask for a question to be explained if they had a problem. They were also more animated in class and more inclined to argue with me as lecturer than the KZN students: arguing and debate helped them to clarify difficulties or misconceptions before assessment, and this gave them an advantage. The “buddy system” worked well, and the fact that their parents could afford to hire tutors meant that assessment problems could be addressed in this way.

The KZN students were in fact the worst off in terms of having been taught badly through the medium of poor English, as a result, not being fluent enough themselves to learn as students. The whole situation repeated itself when they, as non-fluent English users, were expected to teach through the MOI of English to equally non fluent (i.e. in English) school pupils and be *assessed for this.* This is a depressing legacy of replicated incompetence which makes it difficult for Zulu students in KZN to learn or teach technical subjects. To add insult to injury, CAT is not a subject which requires advanced language proficiency to learn, in spite of the specialist technical terms, as it has a strong practical and experiential element (i.e. students can learn by doing, *provided* that they have computers).

5.3 Barriers to the learning of computer technology

This section will deal with some of the key language and other barriers identified, and will then comment on the decontextualized nature of typical CAT/IT syllabuses as being a major aspect of the problem.

5.3.1 Language barriers

Language barriers, as can be seen from the above, are mainly lack of tuition in English, and lack of early exposure to English as medium of instruction. Students in both groups (with slight differences) are not sufficiently fluent in spoken and written English to cope with tuition or assessment through the medium of English without help and support (whether peer-group or tutoring). I also needs to point out that isiZulu and Arabic have very different syntactic structures from English, which is, however, not the focus of this study, which is in the field of Language Practice, not Linguistics per se. This general lack of fluency in English puts stress on both groups, who are obliged to resort to ways of coping with the problem, apart from the fortunate few who are more fluent in English.

The tribulations of isiZulu students deserve special mention. Most of them experience schooling through the medium of English delivered haltingly by non-native English teachers, as a result, have difficulty understanding tertiary instruction in the MOI of English, and are then obliged to be further humiliated by having their own lessons in English observed by a MT English speaker. The fact that they are still cheerful and motivated, and put in many extra hours of work speaks volumes for their dedication and resolve.

Language ideology, that is, the beliefs and values associated with language can also be seen to constitute a “language” barrier. I believe this to be the case in the instance of my Kuwaiti students reacting negatively to use of Arabic for computer technology terms. My own initial insensitively to this as an issue could also be seen as a barrier. An example relevant to the KZN context is

that Zulu people are more formal in their written language, and may prefer to use initials in class lists where westerners would “naturally” use first names.

5.3.2 Non-linguistic barriers

The main non-linguistic barriers to the learning of computer technology were as follows.

a. Technical barriers

In terms of technical aspects, this relates mainly to the KZN group:

- Not enough access to computer equipment (mainly a KZN problem)
- Socio-economic status of students (i.e. lack of money, as money could be used to overcome such barriers, such as buy the latest computers, and/or hire tutors, as with the more affluent students in Kuwait.)
- The rate at which computer technology changes rapidly (e.g. from Windows XP to Vista; to Applemac; from Microsoft Word 3.1 to Office 2013). With change comes frustration and hours of research and re-learning.
- The African schools in which the Zulu students do their practical (and later full time) teaching run antiquated computers (if any at all), and thus lack the equipment needed for their pupils to learn.

b. Socio-economic barriers

Money is also a barrier in the sense that schools and colleges in KZN are badly under-resourced with computer equipment and specialist technology teachers. KZN students cannot afford tutors or personal computers, and many live in areas where there is no electricity or domestic water supply. While Kuwait is a much more prosperous region than KZN, not all parents in Kuwait are affluent, and in Vietnam, where I currently work, students are desperate to improve their English language skills to obtain employment, even to the extent of clustering around strangers who are MT speakers of English in public parks (see Figure 5.1).

Figure 5.1 Students clustering around a MT English speaker in a park

c. Motivational barriers

Motivation could also be seen to be an issue, as the Kuwaiti students' motivation was partly by interest (i.e. choice of subject), whereas the KZN group's economic survival (and thus, very existence) was dependent on their obtaining certification and a teaching (or technical) job.

d. Pedagogical barriers

However, in my opinion, the CAT Syllabus is the most significant barrier to success in mastering computer technology (see Appendix D for a typical sample CAT Syllabus). This is because these syllabuses, in the western manner, are abstract and decontextualized, and thus omit to provide for the very real differences in target audience, context and purpose, which are very important pedagogical concerns. These are left to ad hoc adjustment, which depends very much on the judgement of individual educators, many of whom, like myself, are not actually language specialists.

This means that teaching and learning is not properly contextualised in its social context, which robs the course of much of its meaning. The purpose of the course in each case gave it some contextual meaning. As I mentioned

earlier, the KZN course was fairly clearly contextualised in the area of teacher education, while the Kuwaiti course was less clearly contextualised in terms of social outcome. In neither case is this actually mentioned in the curriculum, however. This deserves particular mention, as it relates to ideological issues which are part of the theoretical underpinning of this study.

5.3.5 The de-contextualised nature of instruction in CAT/IT

Decontextualized syllabuses are a feature of western education, which is still largely dominated by the empirical/analytic paradigm (or positivism, see Grundy 1987) which shows knowledge as abstract and decontextualized. This means that learning in formal institutions is often decontextualized (Pratt 2011: 27). Computers were designed for use by humans in social situations for social purposes (Bhorat 2014: 62-63). It seems absurd that the learning of computer technology should not be situated in its social context, and not merely in the very educational context in which it is *de*-contextualised.

But surely computer technology, whether CAT or IT, is just a technical subject, and can be learned abstractly? My critical research stance obliges me to point out that computer technology is imbued with ideological values, as mentioned in the literature review (p 17). Computers and Internet technology, as Gunawardena (2014: 97) suggests, are not "value neutral" tools, but "culturally biased amplifications that have their roots in the Industrial Revolution". These cultural nuances include "context-free forms of knowledge" (2014: 97). Now I am not trying to imply that CAT/IT syllabuses are part of some imperialistic plot by Bill Gates to "take over the world". As a committed "techno-geek", I was not personally aware of the ideological implications of the technology until I embarked on this study. However, I believe in the importance of situating learning in its social context. I will thus use the concept of "customization by end-users" (Gunawardena 2014: 80) to suggest how international computer courses could be locally contextualised in CAT/IT curricula in my recommendations, in Chapter 6.

5.4 Conclusion

To sum up the conclusions: both groups lack the English proficiency necessary for successful learning and assessment in computer technology, but students show energy and ingenuity in getting around this problem, and have support systems (mostly informal) whereby most of them manage to obtain certification, often at great personal cost and effort. Not all of the problems identified were language related, however, and lack of computer resources and funding meant that the KZN group did not get sufficient hands-on experience with actual computers. They were, however highly motivated to get teaching jobs after certification, whereas the Kuwaiti group's motivation was more diverse. The most serious barrier, however, in my opinion, is pedagogical, and relates to the de-contextualised nature of CAT/IT curricula. This is connected with the ideological aspect of critical action research, and will be addressed in the recommendations. Different concerns and issues cropped up in the different groups, resulting from differences in culture and socio-cultural context. However, I must emphasize that comparisons between the KZN and Kuwaiti student groups in their different contexts were in the interests of providing the best possible tuition for these students in their specific instructional situation. Comparisons were not in any way intended to discriminate between nationalities or disparage any one group, its language or culture. If I have inadvertently given offence through not fully understanding cultural nuances, I ask readers to bear with me. As I myself was educated from a very young age in a language (Afrikaans), which, while politically dominant at the time, was virtually a "foreign" language to me (see section 6.6 in Chapter 6), I am well aware of the trauma experienced by those who endure the consequences of "hegemonic choice" of MOI.

Chapter 6: Recommendations

6.1 Introduction

In Chapter 6, I shall first suggest recommendations as to how the language and learning problems identified in this study might be addressed. I shall also make recommendations for revising the curricula and assessments in both the KwaZulu-Natal and Kuwaiti contexts in order for the students studying computer technology to be better prepared with the competencies required for either learning or teaching this subject. After some "teacher advice", and a reflection on my experiences as teacher and researcher, I conclude the chapter (and dissertation) by touching on the main themes of the research and how they were addressed in this account.

6.2 Recommendations for overcoming language and learning barriers

Students could be assisted to overcome the language barriers, and the learning barriers caused by language barriers, by provision of the following:

- Tutors and/or interpreters being made available, perhaps even during lectures, to assist with translating and explaining specialist terms;
- An official buddy system (i.e. not just left to student goodwill);
- Manuals with specialist terms translated into the home language (see Makhubu 2009), but this should be done in consultation with specialist Arabic academics and Arab IT experts in the case of Arabic, so as not to inadvertently offend with inappropriate use;
- Improved teaching of English in schools in both Kuwait and UKN, or at least national policies which work towards this;
- Use of computer assisted language learning (CALL) systems which might:
    - help learners to improve their language;

- offer the chance to practice extra learning material at their convenient time in a stress-free environment;
- offer opportunities for more interaction;
- help learners use the language effectively, and in actual environments (Shafaie 2012: 109-110 slightly adapted).

- CALL programs with language games geared to assist learning of computer technology terms would be very useful in improving their English technical vocabulary (students would much rather play computer games then learn about computer programming);
- Use advice of “early start” proponents (Johnstone 2009);
- Offer English for special purposes (ESP) courses before students register for computer technology courses;
- Sensitivity on the part of instructors to issues of language ideology inherent (but not always explicit) in what constitutes acceptable written and spoken language practice of the learners’ MT;
- Use of scenario-based learning and assessment methods, so that assessment of computer skills does not depend entirely on understanding text-based assessment rubrics in a second or foreign language.

6.3 Recommendations for overcoming non-linguistic barriers

Barriers caused by lack of technical equipment, and the low socio-economic status of learners are not so easily overcome. The KZN Education Department is cash-strapped to the extent of not being able to provide funds for petrol for Subject Specialists to visit schools and organise teacher workshops. According to Education MEC Peggy Nkonyeni, current budget constraints are “beyond her control”: “I have gone cap in hand to national treasury and was told there is no extra budget for education” (Teke 2015: 1). Certain DUT technicians actually refurbish old lab computers which are still in working condition to donate to schools, but I cannot even name them, as DUT Finance insists that all old computers are scrapped and dumped, no matter if they are still usable. The only recommendation I can make here is to join Minister

Peggy Nkonyeni in urging businesses to contribute to a good cause, as it will ultimately benefit both the economy and their businesses if job applicants are properly computer-literate and not just “tablet surfers” taking “selfies”. A way to overcome socio-economic conditions is for learners at schools or colleges in prosperous communities to share computer labs and equipment with their less-well-off peers.

Motivational barriers might be overcome by use of computer games to learn technology, or use of scenario-based learning and assessment methods, which students find far more engrossing and entertaining than top-down lecturing or formal written tests (see p79 above). In my opinion, making changes to the curricula (see below) would also improve motivation, as then local communities would have some cultural input into the learning and assessment methods used.

6.4 Recommendations for CAT/IT curricula

Rather than suggesting ad hoc adjustments to curricula to suit local context, culture and purpose, I propose that what Gunawardena (2014) recommends in terms of customising international online courses to suit local contexts is done to CAT/IT curricula. I suggest this not just for international CAT/IT courses, but also national ones, particularly in multicultural countries such as South Africa where marked differences exist in culture and language in different communities. The courses could still be run in the MOI of English, which is a useful lingua franca in multilingual countries. However, the “customising” option would not only make the computer technology courses more understandable in different local contexts, but also more acceptable, and thus provide better motivation. This would ensure that local communities and cultures worldwide could build on their cultural values and strengths while enjoying the benefits of learning computer technology.

What I suggest is a section in the CAT/IT curriculum which does the following:

- Identifies the use/s to which computer technology is (or could be put) put in the local context.

- Identifies learner needs in being able to carry out these uses.
- Encourages educators to create a practical experiential component suited to both user and community needs.
- Encourages educators to include an appropriate suitable experiential component in which theory can be applied and assessment/s can take place.
- Suggests learner involvement in the last-named two processes.
- Encourages educators to devise ways in which the fluency and accuracy of the MOI can be enhanced in the practical component.

This, of course, lends itself to the type of the project-based learning (PBL) described by Shafaei (2012). An "input section" along the lines of the above would allow educators to put in local adaptations to deal with local culture and issues, as well as learner needs, including language needs. Learning would thus not only be situated in a socio-cultural context, rather than following the "de-contextualised" western model, but it would take place in a context which made sense to the members of that community.

6.5 Recommendations in the form of "teacher advice"

These are some of my personal observations and recommendations, derived from my experiences as lecturer of computer technology in KZN and Kuwait, and more recently, in Vietnam. Please bear with my "teacher voice" and the homely nature of my advice.

Students who are committed to their education make sure they are able to complete their assignments and ask for help in order to do so. When a student receives some translation of tasks and assignments they are able to process the data required. The success of students applying and analysing data is more than just overcoming a language barrier, the student depends on the resources available and is a committed student, in all subjects throughout the curriculum. It is quite clear in the results that the students prefer to be taught through the medium of English and receive their assignments in the same

language. All of my Kuwaiti students indicated that they would attend an English Medium Higher Educational Institution and not an Arabic Higher Educational Institution.

According to AbiSamra (2003):

> L2 users' knowledge of a second language is not the same as that of native speakers even at advanced levels. L2 users' knowledge of their first language (L1) is not the same as that of monolingual native speakers. L2 users think in different ways to monolinguals.

Trying to get students to be like native speakers is therefore ineffectual; their minds and their knowledge of language will inevitably be different. The benefits of learning a second language are becoming a different kind of person, not just adding another language. The main obstacle to setting the successful L2 user as the goal is the belief that the native speaker speaks the true form of English. This implies the comparison of one group with another: the language of non-natives has always to be compared with that of natives; anything that deviates is wrong. Labov (2006) suggested that it is discriminatory to treat one group in terms of another group that they can never belong to, whether women as men, black Americans as white Americans, or working-class as middle-class. People must be allowed to be what they are, when this is an unchangeable effect of birth or of early up-bringing.

An appropriate goal for many students is then using the L2 competently for their own purposes and in their own ways, which may very well not be the same as those of a monolingual native speaker and indeed may not involve native speakers at all. Students can become successful L2 users rather than forever "failing" the native speaker target" (Cook 1999).

Students who have been in a Second Language institution for most of their school career overcome the barriers faced much earlier than students who finish their High School career and then join an English medium Higher Educational Institution. For non-academic writing, reading and speaking of a second language and for a basic conversational language is it important to be

grammatically correct and concentrate on the spelling of words? The importance learners attribute to their spelling and grammar correlates is in proportion to how seriously they want to be taken, and how successful they would like to be. If people are getting paid for their writing, whether by a publisher or even online writing, then they have the potential and responsibility to do it to the best of their ability.

Yet Johnstone comments that the "most advanced and successful methodology" he had ever seen for English language learning "included children aged seven or eight learning grammatical concepts in their foreign language … derived from their first language … and also learning to read and write from an early age" (2009: 39). In this instance, however, grammatical concepts were integrated with the learners' actual reading and writing experiences, and not taught as abstract "subject content", as is so often the case (and would be "learned by rote" in the case of my Zulu students). In my experience, as long as you are always looking to improve and strive to be the best as you can, then improving your writing by mastering syntax and vocabulary will always have a positive benefit. It is the same with anything; the better one can be, the better they will be; the more you put in, the more you will take out (Briggs 2009).

Students aiming to go to a Second Language higher educational institution, be it a tertiary institution or university, will be required to demonstrate competences in the Language choice of study. The students will need to demonstrate the ability to speak, write and understand the MOI. My recommendation is for students who are aiming to do this to attend a school where most of the teachers speak the MOI required by their university of choice. Students learn to communicate, read, write and understand a language at a young age, and my research has suggested that the earlier students join a Second Language institution, the easier they find it to cope with the barriers faced by most second language students. Students benefit by having a translator in the classroom, (the school has teaching assistants (TAs)

who assist the teacher and students: they assist by translating difficult concepts and theories encountered by the students.

I would like to extend my research and investigate the value of using the buddy learning system: classmates help keep low achievers “on track” by providing help and reminders of assignments and due dates; also set up a “study buddy” system to encourage low achievers to collaborate with a neighbourhood friend during study sessions at their homes (see Brophy 2010: 103). This method could assist teaching and learning in the IT class, and could be a valuable learning tool for all learners. This type of method is also used at the Higher Educational Institutions where tutors are appointed, to assist students; however only first year students are tutored. Further research would be necessary to determine the advantage of extending this to the higher level students.

At the instructional level, educators should continue with or do more to:

- assist learners in preparing their curricular program;
- identify, develop and maintain learning resources;
- provide tools and make arrangements for learners to access and utilise the above;
- monitor the learner's use of resources, and advise and direct where necessary;
- learn more about new technologies based around the concept of performance and learning support;
- use digital technology.

6.6 General reflection and concluding thoughts

While I was doing research on this thesis it brought back many memories of me as a nine-year-old English-speaking child from Kwazulu-Natal moving to an Afrikaans-speaking small town in the Orange Free State. In those days apartheid was the discriminatory legal system between whites and blacks;

however it was very much also the case between the Afrikaans- and English-speaking people. We were treated with disrespect and called “uitlanders”, literally “outlanders”, but with a degree of contempt (as with the Scots “Sassanach”). I recall walking into the classroom and not understanding one word anyone spoke. This memory was associated with many days of tears and frustration.

The school created an English medium class for all of my siblings and me; we therefore had one teacher, teaching five different levels. We had to attend some classes in Afrikaans, which I struggled through. In those days corporal punishment was used to discipline children and I was humiliated in front of a class full of Afrikaans children, because I failed a test, merely because I couldn’t understand what the questions even meant. I proceeded to master the language, and on reflecting on this period, I cannot actually remember as a young person exactly how this happened, as we did not receive additional language lessons and were thrown in at the deep end. But it was a classic example of immersion, and I speedily acquired Afrikaans, as there was no alternative! I continued my studies through the medium of Afrikaans and also attended an Afrikaans University, and completed my teaching Certificate in Afrikaans.

When I moved back to KwaZulu Natal in my late 20s, I found it problematic to change back and converse on a daily basis through the medium of English, which was my home language. I have met many Zulu students in KwaZulu-Natal who attended English medium schools from a young age, and whose parents encouraged them to have English friends; they, too, find it hard to relate to their African friends and fellow students as they have lost the ability to converse in their home language, and they seem to have a different mindset; their culture and values have changed, and they are not always sure where they fit in.

The majority of my African students were hungry for information and were extremely keen to do well and succeed. They spent many hours in my IT lab

asking questions, practising on computer but also, in desperation, resorting to rote learning, way above the designated hours suggested in the course outlines. Even though they spent all these hours of learning and practice, they could not always communicate adequately to earn the necessary grades to excel in the course. They lacked the vocabulary and grammar needed in research assignments to express themselves. Students often plagiarised to try to compensate for the lack of academic ability.

Students who attended English medium schools had a huge advantage, as they quickly mastered the skills and could understand and were familiar with the vocabulary used in the curriculum. These students normally had their own computers at home and were technologically advanced. They did not need translation of assignments or of lectures. They assisted other students and often translated work for them and would translate while I was lecturing. The students were respectful and humble and would never challenge me as their lecturer. However, the students expected to be spoon-fed, and they wanted all the work summarized for them in order for them to try to understand what was being taught. The students' aim was to complete their studies and get a good job in a rural or isiZulu-medium school. Many of the students had no intention of teaching in an English medium school as they were not comfortable teaching through the medium of English.

My Kuwaiti students were very different from my African students. They came from wealthy families, where each child was equipped with the best and latest technology. The bandwidth of their internet speed was discussed and they would often compete to have the best equipment. Students received one-on-one tuition at home and expected assistance from their tutors to complete assignments. The Kuwaiti students would often challenge teachers and envisage themselves as superior. They majority of the students did not require or need translation of assignments and would confidently hold a debate or discussion on the latest technology. The students' aim was to leave their home country to continue with their studies abroad, as there was a perception that

the education was better overseas and they would easily be offered excellent jobs on returning to their country.

In Vietnam, where I now teach, the wealthy parents send their children to International schools in order to master English. Children are placed in International schools, where they are expected to speak English at an early age. By the time the students reach High School the majority of the students are confident to write their examinations, debate, communicate and are highly articulate through the medium of English. However when they socialize they revert to their home language whenever they can. Many of the parents cannot speak English, and their goal is for their children to continue their studies in America. They believe that if their children get a degree from an American University and they can communicate fluently in English, they will get excellent jobs. An online tuition company in Vietnam which does online teaching of English has over 70 000 Vietnamese students. The students all have degrees, but lack English communication skills. They told the tutor that they cannot find jobs, and it seems that many students are obtaining degrees, but few are managing to get employment. Students hope that, if they can speak English, they will be more easily employed.

I would like to conclude this reflection by saying that It is quite evident that all non-native English-speaking students all over the world share a similar goal, and that is to be able to communicate in English, attend an English speaking university and get a good job. However, the younger a child is, the easier and more quickly they will master the language. When students are forced to communicate through the medium of English because no one else can speak their home language, they learn fast. I witnessed this when two Arabic-speaking students arrived in Vietnam. No student could speak Arabic and they could not speak Vietnamese. The two Arab students mastered the language within one year.

To end off with a word of advice in my “second” language, Afrikaans, which was my “hegemonic choice” of MOI in childhood:

> Maak nie saak wat jou huistaal is nie. ’n Taal kan baie vinnig geleer word as daar nie ’n ander opsie is nie. Kinders leer baie vinniger as volwassenes. Met deursettingsvermoë, herhaling en oefening kan ’n mens ’n taal vinnig bemeester.
>
> Translation: It doesn’t matter what your home language is. A language can be learned very quickly if there’s no alternative. Children learn much faster than adults, (but) with perseverance, drilling and practice anyone can quickly master a language.

6.7 Conclusion

In Chapter 1, I set forth the main themes of the research as follows:

- The dominance of English as a second language worldwide;
- The power relations set in place by the necessity to use ESL as a medium of instruction and their effects on student populations;
- The effects of different cultural and instructional contexts on learning in a second language;
- The impact of MOI on the instruction and assessment of a technical subject (CAT/IT); and
- Empowerment of student populations through critical action research.

I have attempted to describe the dominance of English as global second language in the literature review (Chapter 2), account for this phenomenon in the orientation section (Chapter 3), and show the results of the “hegemonic choice” of English as MOI in my empirical work (Chapters 4 and 5). The power relations set in place are dealt with in the critical theory and critical action research, as well as in my account of language ideology. The effects of different cultural and instructional contexts on learning in a second language, as well as the impact of MOI on the instruction and assessment of a technical subject, have been explored in Chapters 4 and 5. The outcome of the whole dissertation was intended to work through critical action research towards the empowerment of student populations, to which I hope that I have contributed in some small measure.

Appendix A: Questionnaire for third-year CAT students

COMPUTER APPLICATIONS TECHNOLOGY STUDENTS – 3RD YEAR

CTYP301

QUESTIONNAIRE

I would really appreciate it if you would fill in the following questionnaire.
I am investigating the impact of medium of instruction on the learning of Computer Applications Technology.

The ***Computer Applications Technology Curriculum*** has been designed to develop academic excellence and train student teachers to become competent Computer Applications Technology students, therefore I would like to gain information from you in this regard.

There are no "right answers", and the responses will remain anonymous, so please put down what you think is the case, and not what you think I want to hear. You are not required to explain your responses, but feel free to do so if you like, and if you have time.

Mark relevant box/s with a cross;

1. Gender

1 ☐ (Male) 2 ☐ (Female)

2. Age Group
Your age falls under which group?

1 ☐ (18 –20) 2 ☐ (21-30) 3 ☐ (31-40) 4 ☐ (older than 40)

3. School
The school you attended had mostly: -------- learners

1 ☐ (isiZulu speaking) 2 ☐ (English) 3 ☐ (Mixed) 4 ☐ (Other)

4. When you were in Grade 12, the teachers taught you mostly, through the medium of …

1	2	3	4
☐	☐	☐	☐
(Only isiZulu)	(Only English)	(A little English)	(Other)

5. Computer Access
You had access to Computers during your school career:

1	2	3
☐	☐	☐
(yes)	(only a few times)	(no)

6. Tertiary Education
You have access to Computers after lecturers:

1	2	3
☐	☐	☐
(yes)	(limited)	(no)

7. Language of Lectures
Your Computer Applications Technology Lecturer communicates:

1	2	3
☐	☐	☐
(only in English)	(only in isiZulu)	(both)

8. Understanding:
How do you rate your understanding of the lecturers?

1	2	3	4	5
☐	☐	☐	☐	☐
(nil)	(weak)	(average)	(good)	(excellent)

9. Assignment:
How do you rate your understanding of the questions set in you assignments/examination papers.

1	2	3	4	5
☐	☐	☐	☐	☐
(nil)	(weak)	(average)	(good)	(excellent)

10. Access to computers:
Do you have the use of a computer at home/in your residence/rooms?

1	2
☐	☐
(Yes)	(No)

11. Access to the Internet:
Do you have access to the Internet at home/in your residence/rooms?

1	2
☐	☐
(Yes)	(No)

12. Translators:
How often do you ask another isiZulu speaking student to explain/translate a question or task in isiZulu?

1	2	3	4
☐	☐	☐	☐
(never)	(sometimes)	(frequently)	(always)

13. Work Integrated Learning
How often do you revert to speaking and explaining work to learners in isiZulu, during your WILL?

1	2	3	4
☐	☐	☐	☐
(never)	(sometimes)	(frequently)	(always)

14. Teaching:
Do you like the idea of teaching Computer Applications Technology in 2010?

1	2	3
(yes)	(not sure)	(no)
☐	☐	☐

Comments, if you want to:

_____

_____

_____

_____

_____

Appendix B: Ethics statement

DURBAN UNIVERSITY of TECHNOLOGY

ETHICS STATEMENT: Please complete and sign the attached Ethics Questionnaire.

All students who intend to complete research projects under the auspices of Durban University of Technology are required to complete this form. This is an abridged version of DUT's ethics questionnaire for students conducting research in the field of Arts and Design.

Use the Durban University of Technology's Research Ethics Policy and Guidelines to ensure that ethical issues have been identified and addressed in the most appropriate manner, before finalizing and submitting your research proposal.

Please indicate [by an X as appropriate] which of the following ethical issues could impact on your research. Please type the motivations/further explanations where required in the cell headed COMMENTS. Copying and pasting the appropriate sections from your proposal may not suffice - please ensure that your justification/comments are addressed fully, as issues that inadequately answered will be returned to the student for further comment.

No	Question		
1.	**DECEPTION** Is deception of any kind to be used? If so, provide a motivation for acceptability. Comment:	No	X
		Yes	
2.	**CONFIDENTIALITY** Does the data collection process involve access to confidential personal/organizational data (including access to data for purposes other than this particular research project) without prior consent of the subjects? Comment:	No	X
		Yes	
		N/A	
3.	Will the data be collected and disseminated in a manner that will ensure confidentiality of the data and the identity of the participants? Please explain	No	
		Yes	

	Comment: Emancipatory Action Research means that all participants will be involved, and that general results will be known to participants. However, pseudonyms will be used in publication and individual permission will be obtained for use of any digital illustrations	N/A	X
4.	Will the data obtained be stored and ultimately disposed of in a manner that will ensure the confidentiality of the participants? If "No" please explain. If "Yes" how long will the confidential data be retained after the study (and by whom) and how will it be disposed of at the end of the period?	No	
		Yes	X
	Comment: The data will be retained for the duration of the study by the researcher; at the end of the study period data will be deleted from all data bases and spreadsheets. Printed material will be shredded by the researcher.		
5.	Will the research involve access to data banks that are subject to privacy legislation? If yes, specify and explain.	No	X
		Yes	
	Comment:		
	RECRUITMENT		
6.	Does respondent recruitment involve any direct personal approach from the researchers to the potential subjects? Refer to the sampling plan in your proposal and copy the relevant sections here.	No	
		Yes	X
	Comment:		
	The researcher will make use of random sampling, as all of the students will be invited to take part in the research process. For the qualitative aspect, purposive sampling will be done by selecting students to interview and observe. For the quantitative aspect, all students will be requested to answer a questionnaire.		
7.	Are participants linked to the researcher in a particular relationship i.e. employees, colleagues, family, students? If yes, specify how.	No	
		Yes	X
	Comment: Participants are students whom the researcher lectures for Computer Applications Technology and IT.		
8.	If yes to 7, is there any pressure from researchers or others that might influence the potential subjects to enrol? Elaborate.	No	X
		Yes	
	Comment: Participation will be optional.		
9.	Does recruitment involve the circulation/publication of an advertisement, circular, letter etc? Specify.	Yes	
		No	X
	Comment:		
10	Will subjects receive any financial or other benefits as a result of participation? If yes, explain the nature of the reward, and safeguards.	Yes	
		No	X
	Comment:		
11	Is the research targeting any particular ethnic or community group? If yes, motivate why it is necessary/acceptable. If you have not consulted a representative of this group, give a reason. In addition explain any consultative processes, identifying participants. Should consultation not take place, give a motivation.	Yes	X
		No	
	Comment: The research targets isiZulu-speaking students studying CAT and Arab students studying IT because the point of the research is to investigate any language difficulties this group might experience and to find solutions. Consultation with this group has taken place in advance.		
		Yes	X

12	Does the research fulfil the criteria for informed consent? [See guidelines]. If yes, no further answer is needed. If no, please specify how and why. Comment: A letter of information and consent will be provided in English, isiZulu and Arabic(See attached).	No	
13	Does consent need to be obtained from special and vulnerable groups (see guidelines). If yes, describe the nature of the group and the procedures used to obtain permission. Comment: This group is of adults capable of making their own decisions. Permission has been obtained from the Head of School.	Yes No	 X
14	Will a Subject Information Letter be provided and a written consent is obtained? If no, explain. If yes, attach copies to proposal. In the case of subjects who are not familiar with English (e.g. it is a second language), explain what arrangements will be made to ensure comprehension of the Subject Information Letter, Informed Consent Form and other questionnaires/documents. Comment: The letter of Information and Consent will be translated into isiZulu and Arabic.	Yes No	X
15	Will results of the study be made available to those interested? If no, explain why. If yes, explain how. Comment: Copies of the dissertation will be displayed in the Indumiso Library and pdf copies will be available in the DUT IR. The researcher will also confirm the results with the participants as part of the Action Research process.	Yes No	X
	RISKS TO SUBJECTS		
16	Will participants be asked to perform any acts or make statements, which might be expected to cause, discomfort, compromise them, diminish self-esteem or cause them to experience embarrassment or regret? If yes, explain. Comment:	Yes No	 X
17	Might any aspect of your study reasonably be expected to place the participant at risk of criminal or civil liability? If yes, explain. Comment:	Yes No	 X
18	Might any aspect of your study reasonably be expected to place the participant at risk of damage to their financial standing or social standing or employability? If yes, explain. Comment:	Yes No	 X
19	Does the research involve any questions, stimuli, tasks, investigations or procedures which may be experienced by participants as stressful, anxiety producing, noxious, aversive or unpleasant during or after the research procedures? If yes, explain. Comment:	Yes No	 X
	BENEFITS		
20	Is this research expected to benefit the subjects directly or indirectly? Explain any such benefits. Comment: This research is expected to benefit the subjects indirectly. It is hoped that this research will offer some solutions to the problems experienced student learning CAT and IT.	Yes No	X
		Yes	

21	Does the researcher expect to obtain any direct or indirect financial or *other benefits* from conducting the research? If yes, explain. Comment: The researcher will be rewarded only by obtaining the degree Master of Technology.	No	X
22	**SPONSORS: INTERESTS AND INDEMNITY** Will this research be undertaken on the behalf of or at the request of a company, or other commercial entity or any other sponsor? If yes, identify the entity. Comment:	Yes	
		No	X
23	If yes to 22, will that entity undertake in writing to abide by Durban University of Technology's Research Committees Research Ethics Policy and Guidelines? If yes, do not explain further. If no, explain Comment:	Yes	
		No	
		N/A	X
24	If yes to 23, will that entity undertake in writing to indemnify the institution and the researchers? If yes, do not explain further. If no, explain. Comment:	Yes	
		No	
		N/A	X
25	Does the researcher have indemnity cover relating to research activities? If yes, specify. If no, explain why not. Comment: Only the cover available to DUT staff on duty.	Yes	
		No	
		N/A	X
26	Does the researcher have any affiliation with, or financial involvement in, any organization or entity with direct or indirect interests in the subject matter or materials of this research? If yes, specify Comment:	Yes	
		No	X

The undersigned declares that the above questions have been answered truthfully and accurately.

STUDENT NAME : Lorraine Els

SIGNATURE : [redacted]

DATE : 2 September 2009

LETTER OF CONSENT

Dear Participant

Thank you for agreeing to participate in this research study entitled: *The impact of medium of instruction on the learning of Computer Applications Technology.*

This study will examine the impact the medium of instruction has on the learning and teaching of Computer Applications Technology by student teachers at the DUT School of Education. It is hoped that this study will assist the researcher in improving the third year curriculum and prepare the student teachers to be better prepared for teaching and learning.

- The researcher undertakes to assure you of the following:
- To maintain your confidentiality;
- To obtain consent for display of any graphic representations in which you appear;
- To protect your rights and welfare, i.e. to ensure that no harm comes to you as a result of this research;
- No manipulation or withholding of information is involved in this study;
- To present information and transcripts used in this research in such a way as to maintain the participant's dignity and, when in doubt, to consult you first;
- The participant is free to withdraw from this research process at any time whatsoever if the need should so arise.

It is hoped that student teachers will benefit from this research. I acknowledge your sacrifice in volunteering to add to the body of academic knowledge and your perseverance in carrying out the research task to its completion.

Yours sincerely

L Els
MTEch student

Participant's signature of agreement_____

Date: _____

PLEASE PRINT NAME: _____

LETTER OF CONSENT TRANSLATED INTO ISIZULU

Mbambi Qhaza

Ngiyabonga ukuthi uvume ukubamba iqhaza ezifundweni zocwaningo ngaphansi kwesihloko esithi: Iqhaza *elibanjwa wulimi okufundwa ngalo ekufundeni iComputer Applications Technology.*

Lolucwaningo luzocubungula ukuthi liyini iqhaza elibanjwa wulimi okufundwa ngalo ekufundeni Computer Applications Technology kubafundi base DUT School of Education. Lokhu kwenziwa ngethemba lokuthi lolucwaningo luzosiza umcwaningi ekukhupuculeni izinga izinga lekharikhulamu yabafundi bonyaka wesithathu futhi kubacijele ekubeni othisha abakulungele kangcono ukufunda nokufundisa. Umcwaningi uzibophezela kulokhu okulandelayo;

- Ukugcina konke okuyimfihlo ngendlela efanele
- Ukuthola imvume kuwe mayelana nakho konke okuthintana nawe uma kuqhutshwa ucwaningo
- Ukuvikela onke amalungelo akho i.e. ukuqikelela ukuthi awuhlukumezeki ngokuba yingxenye yalolu cwaningo.
- Akuzuba khona u kungaphathwa ngendlela nokugodlwa kolwazi okumayelana nalolu cwaningo.
- Ukuvezwa kolwazi olusetshenziswe kulolu cwaningo kuyoqinisekiswa ukuze obambe iqhaza akhululeke. Uma enokungabaza ngokuthile, uzobonisana nawe.
- Obambe iqhaza ukhululekile ukuhoxa kulolu cwaningo uma kunezinkinga ezivelayo noma ngabe ezaluphi uhlobo.

Ngiyethemba ukuthi abafundi abangothisha bazosizakala kakhulu kulolu cwaningo. Ngiyabonga ukuthi uchithe isikhathi sakho ekwandiseni ulwazi lokufunda nokubekezela kwakho ekuqhubeni lolu cwaningo luze luphele.
Ozithobayo

L Els
Umfundi we-MTEch

Ukuvuma ngokusayina kwaloyo obambe iqhaza……
Usuku……
Ngicela ubhale igama nesibongo
ngokugcwele:……

LETTER OF CONSENT TRANSLATED INTO ARABIC

خطاب الموافقة

جامعة دوربان للتكنولوجيا

مشارك عزيز

شكرا لموافقتك على المشاركة في هذا البحث الدراسي بعنوان: أثر الوسائل التعليمية على تعلم تطبيقات الحاسوب الآلي.

سيتناول هذا البحث تأثير الوسائل التعليمية على تعلم وتدريس تطبيقات الحاسوب الآلي من قبل الطلاب والمعلمين في مدرسة DUT التربية والتعليم. ومن المؤمل أن يساعد هذا البحث الباحث في تحسين مناهج السنة الثالثة وإعداد الطلاب والمعلمين استعدادا افضل للتعليم والتعلم.

يتعهد الباحث أن يؤكد لكم ما يلي:

- **للحفاظ على السرية الخاصة بك.**
- **للحصول على موافقة للعرض أي البيانية التي تظهر فيها.**
- **لحماية حقوقك والرفاه، أي لضمان أن لا ضرر يأتيكم نتيجة لهذا البحث.**
- **لا تلاعب أو حجب المعلومات تشارك في هذه الدراسة؛**
- **لتقديم المعلومات والنصوص المستخدمة في هذا البحث في مثل هذه الطريقة للحفاظ على كرامة المشارك، وعندما تكون في شك، للتشاور أولا.**
- **المشارك حر في الانسحاب من هذه العملية البحثية في أي وقت على الإطلاق إذا كان ينبغي أن تنشأ الحاجة لذلك.**

ومن المؤمل أن الطلاب والمعلمين سيستفيدون من هذا البحث. أعترف تضحياتكم في العمل التطوعي لإضافة المزيد إلى المعارف الأكاديمية ومثابرتكم في تنفيذ مهمة البحث لاستكماله.

تفضلوا بقبول فائق الاحترام

توقيع المشارك للموافقة: _____

تاريخ: _____

اسم طالب: _____

Appendix C: Results from CTY301 Assessment, assignments and examinations

THEORY	PRACTICAL	TOTAL	60%	DP	40%	TOTAL
%	%	%				
96	58	77	46.2	71	28.4	**75**
68	33	50.5	30.3	64	25.6	**56**
53	30	**41.5**	24.9	48	19.2	**44**
25	30	**27.5**	16.5	46	18.4	**35**
86	57	71.5	42.9	49	19.6	**63**
68	61	64.25	38.55	69	27.6	**66**
15	22	**18.5**	11.1	46	18.4	**30**
43	38	**40.5**	24.3	56	22.4	**47**
69	59	64	38.4	54	21.6	**60**
77	54	65.5	39.3	56	22.4	**62**
42	37	**39.5**	23.7	49	19.6	**43**
49	55	52	31.2	59	23.6	**55**
83	66	74.5	44.7	73	29.2	**74**
62	44	53	31.8	46	18.4	**50**
69	53	61	36.6	47	18.8	**55**
45	34	**39.5**	23.7	43	17.2	**41**
94	83	88.5	53.1	74	29.6	**83**
72	67	69.5	41.7	77	30.8	**73**
52	51	51.5	30.9	49	19.6	**51**

31	34	**32.5**	19.5	52	20.8	**40**
41	56	**48.5**	29.1	56	22.4	**52**
76	56	66	39.6	61	24.4	**64**
80	73	76.5	45.9	66	26.4	**72**
68	83	75.5	45.3	72	28.8	**74**
77	59	68	40.8	56	22.4	**63**
27	35	**31**	18.6	**49.5**	**20**	**39**
28	44	**36**	21.6	46	18.4	**40**
50	57	53.5	32.1	45	18	**50**
46	55	50.5	30.3	63	25.2	**56**
67	70	68.5	41.1	66	26.4	**68**
46	52	**49**	29.4	52	20.8	**50**
71	68	69.5	41.7	76	30.4	**72**
37	29	**33**	19.8	56	22.4	**42**
43	35	**39**	23.4	47	18.8	**42**
50	55	52.5	31.5	52	20.8	**52**
60	51	55.5	33.3	54	21.6	**55**
33	22	**27.5**	16.5	44	17.6	**34**
19	26	**22.5**	13.5	44	17.6	**31**
38	34	**36**	21.6	41	16.4	**38**

Appendix D: Specimen CAT syllabus

SUBJECT GUIDE CAT

FACULTY OF EDUCATION AND SOCIAL SCIENCES
B ED: FET: ECONOMIC & MANAGEMENT SCIENCES

2012

COMPUTER APPLICATIONS TECHNOLOGY 1

ITS CODES:	**CTY101S**
CREDITS:	**0.200**
CESM Category	**60501**

COMPUTER APPLICATIONS TECHNOLOGY 2

ITS CODES:	**CRY200S**
CREDITS:	**0.250**
SPASE CODE	**060213922**

COMPUTER APPLICATIONS TECHNOLOGY 3

ITS CODES:	**CRY300S**
CREDITS:	**0.250**
SPASE CODE	**060214003**

Table of Contents

1 LECTURER'S INFORMATION AND CONSULTATION TIMES

[redacted]

Mowbray

[redacted]

Please refer to the time-table on the door in front of my office to see when I am available for any enquiries.

2 WELCOME

Welcome to the CAT class. This subject is designed to provide you with the opportunity to become proficient, efficient and effective in any office environment. Use this opportunity to exercise your curiosity, question what you know, and learn even more about the software applications presented to you.

One of the goals for you in this subject is to begin to think about what *knowledge* and *practical abilities* you have. As a lifelong student, you are to focus on what you can excel in and believe that knowledge is most powerful when its limits are understood.

As we move through the year, you should pay attention to the factual knowledge presented in class and apply it to your class assignments. Constructive discussions and interaction between lecturer and students are encouraged. Remember that technology has its drawbacks, but the advantages are limitless. Success in your studies is possible – the key is to learn from your mistakes.

3 COMPUTER APPLICATIONS TECHNOLOGY

3.1 What is CAT?

Computer Applications Technology is the study of the integrated components of a computer system (hardware and software) and the practical techniques for their efficient use and application to solve everyday problems. The solutions to problems are designed, managed and processed via end-user applications and communicated using appropriate information and communication technologies (ICTs). ICTs are the combination of networks, hardware and software as well as the means of communication, collaboration and engagement that enable the processing, management and exchange of data, information and knowledge.

3.2 Specific aims of CAT

In Computer Applications Technology a student, will:

- use end-user software applications proficiently to produce solutions to problems within a defined scenario;
- understand the concepts of ICTs with regard to the technologies that make up a computing system;
- understand the various technologies, standards and protocols involved in the electronic transmission of data via a computer-based network;
- use the Internet and the WWW and understand the role that the Internet plays as part of the global information superhighway;

-
- find authentic and relevant information, process the information to draw conclusions, make decisions and communicate the findings in appropriate presentation media; and
- recognize the legal, ethical, environmental, social, security and health issues related to the use of ICTs and learn how to use ICTs responsibly.

4 ALLOCATION OF CREDITS, NCS STATUS AND TIME

CAT 1		CAT 2		CAT 3	
Credits					
0.20		0.25		0.25	
Notional Hours (Credits x 10)					
200 Hours		250 Hours		250 Hours	
Time Table Hours					
5 x 45 minutes x 26 weeks = 97.5		4 periods x 45 minutes x 26 weeks = 78 Hours		4 periods x 45 minutes x 26 weeks = 78 Hours	
Class Time & Test Time	**Study Time**	**Class Time & Test Time**	**Study Time**	**Class Time & Test Time**	**Study Time**
98 hours	102 hours	78 hours	172 hours	78 hours	172 hours

5 TEACHING METHODOLOGY

New material will be presented by means of lectures, tutorials, demonstrations and presentations, which will be followed by discussions, question sessions and then by a practical tasks to apply.

Class time is insufficient time for students with little or no previous experience in computers. Students are required to perform additional practical work in their own time **(See above Table for hours allocated to Study Time)**.

Students who do not have access to a computer off campus, i.e. at home or work, are strongly advised to make use of the computer facilities on campus during open times in order to complete all the required tasks and practice the skills being learned. The e-learning centre (Cape Town Campus) can also be used; it has a 7 day, 24 hour service.

The Internet will be a constant source of reference for your tasks.

Certain sections of the syllabus will have to be mastered by means of independent study.

The medium of instruction will be English.

5.1 Prescribed textbooks and resources

It is compulsory that you buy the prescribed textbooks. Activities will be given from these books. You cannot master the subject by merely attending classes; practice is essential. Most schools are using these books as well; it will assist you when you are preparing your lessons for your Teaching Practice session in April and July. You will also use it in your Professional Studies/Subject Didactics period.

CAT 1	CAT 2	CAT 3
Computers part of your life Grade 10 – CAPS Edition Published by Study Opportunities ISBN: 987-1-919867-80-9 Computers part of your life Book 2 Edition 2 ISBN 987-1-919867-74-8	Computers part of your life Book 2 Edition 2 ISBN 987-1-919867-74-8 Computers part of your life Book 3 Edition 2 ISBN 987-1-919867-77-9	Computers part of your life Book 3 Edition 2 ISBN 987-1-919867-77-9 Tutorials will be given
2 Flash Disks for: • class tasks; and • formal assessment (tests and assignments) ○ this disk must be handed in at the beginning of March ○ label it with your Name, Student Number FET and Year group ○ this disk will be handed back to you at the end of your study time.		

5.2 Tutorials periods

Tutorial periods are indicated on your timetable. Tutorial periods are held under the supervision of a senior student. It is highly recommended that students attend these periods so that tutors can assist them if they experience problems. Use these periods to practise and complete assignments/exercises that are given in the class.

6 ASSESSMENT METHODS

All students MUST familiarise themselves with the INFORMATION TO STUDENTS REGARDING ASSESSMENT POLICY: FACULTY OF EDUCATION.

Continuous Assessment

Your performance will be evaluated on a continuous basis throughout the year by means of practical tests and individual assignments.

Please note that there is no formal examination at the end of the year.

All evaluations count towards your final mark. To pass you must obtain an average of 50%.

All assessments are compulsory.

Please note that information for students regarding the assessment policy specifically states that the last assessment mark must be withheld and will form part of the final mark. Final marks will only be made available on the official date of publication at the end of the year.

No E-mail/telephone requests regarding final marks.

6.1 Re-evaluation

To qualify for re-assessment, *at the lecturer's discretion*, you must have achieved at least 50% for one of your tests, and an 80% class attendance. The average mark at the end of the year must be between 45% - 49% for re-assessment to be considered.

If you have one or more incomplete assessments without a formal, written excuse being lodged AND ACCEPTED, you do not qualify for re-assessment if your mark is less than 50%.

6.1.1 Formal Tests

If you miss a formal test/assignment, it is your responsibility to provide the lecturer with a valid medical certificate or, in the event of a death, a valid death certificate, within 3 days after you return to campus. You will then be required to write a sick/replacement test at an appointed time given by your lecturer.

Download and complete the absentee form. Print the form, hand it in to your Lecturer for arrangement to be made for assessment or handing in of Assignments. Without this form, no permission will be granted for evaluation. The form will be proof of permission granted.

Tests will be conducted according to test rules and regulations of the Faculty.

6.1.2 Assignments

Due dates must be strictly adhered to. If you fail to submit an assignment on the specified due date, 5 marks will be deducted per day late.

NOTE: ***After feedback of assessments, the student has 5 (five) days in which to query results.***

Plagiarism and dishonesty could lead to a null (zero) mark being awarded. Read plagiarism policy.

Complete and hand in a declaration of own work with every assignment that is handed in.

6.2 Important information - CAT STUDENTS

Students are expected to attend all classes. Do not miss classes. Even if you have a valid reason, it is your responsibility to catch up work before you attend the next class.

Late assignments blamed on technology will not be accepted. Allow yourself plenty of time. A signed authorisation for doctor's visits, funerals, etc. will be required.

Assignments sent by e-mail to the lecturer will not be accepted.

You are responsible for saving all your Tests/Assignments on the appropriate storage. You will then copy them to the I:/Stud_Save folder.

Your Test Disk (flash drive) will be used as a backup. These files will only be used in a case of files that are corrupted etc on Stud_Save. The properties of these files will be checked e.g. the date and time of creation. If you have changed or accessed these file after submission date it will not be used and a zero mark will be allocated.

It is your responsibility to check that your work has been copied to I:/StudSave the moment you leave the room. When you leave the room you are declaring that you handed in your work and the lecturer can access it. If your work is not, there it will not be marked.

The lecturer is not available for telephone calls. Make an appointment to discuss any problems with the lecturer.

6.3 Tests – formal

6.3.1 Assessment Dates and Weights Summary 1st years

Date Uploading	April	July	Oct	Nov	
Type of Assessment	Test	Test	Test	Task	**Total**
Weight	10	35	35	20	100

1st Years - Test/Assignment Dates 2012

Test 1 – 26 March
Test 2 – 18 June
Test 3 – 22 October
Task 1 – End September

Re-evaluations:

List up in class 23 November

Re-evaluation starts 26 November

6.3.2 Assessment Dates and Weights Summary 2nd years

Date Uploading	April	July	Oct	Nov	
Type of Assessment	Test	Test	Test	Task	**Total**
Weight	25	25	25	25	100

2nd Years Test/Assignment Dates - 2012

Test 1 – 27 March
Test 2 – 19 June
Test 3 – 23 October
Task 1 – End September

Re-evaluations:

List up in class 23 November

Re-evaluation starts 26 November

6.3.3 Assessment Dates and Weights Summary 3rd years

Date Uploading	April	July	Oct	Nov	
Type of Assessment	Test	Test	Test	Task	**Total**
Weight	25	25	25	25	100

3rd Years - Test/Assignment Dates - 2012

Test 1 – 27 March
Test 2 – 19 June
Test 3 – 23 October
Task 1 – End September
Re-evaluations:

List up in class 23 November

Re-evaluation starts 26 November

7 OVERVIEW OF THE TOPICS

ICTs develop and change rapidly and, as a knowledge domain, include the following broad knowledge categories that affect Computer Applications Technology:

Topic Area	Sub-Topics	Resources
Solution Development	Word Processing Spreadsheets Databases Presentations	Computers Textbook Internet Access Web browser Search engine Office Suite Word processor Spreadsheet Presentations Database Typing Tutor
Systems Technologies	Concepts of computing Hardware Software Computer Management	
Network Technologies	PANs LANs and WLANs WANs	
Internet Technologies	Internet and World Wide Web E-communications	
Information Management	Access Information Process Information Present Information	
Social Implications	Impact on Society Legal and Ethical Issues Health and Ergonomic Issues Environmental Issues	

7.1 Topic links and overlap

It is important to note that there will always be a degree of overlap between topics. Solution development is enabled by systems technologies in the form of application software. Systems technologies allow for electronic communication.

Network technologies enable the Internet that is used for various applications, which include information dissemination and electronic data interchange. Information management is a key concept and secondary activity overlapping concepts in many other areas such as solution development and Internet technologies. Information management is enabled by systems technologies. All ICT activities are primarily driven by human involvement, human need and intervention, which in turn give rise to social and ethical issues.

For example, when one deals with Information Management, one could incorporate the topic with Internet Technologies and application software from Solution Development. This is also

applicable to the Systems Technologies topic where the relevant Social Implications could be highlighted.

The topics will be dealt with as follows:

• **CAT**: **Practical**	
Solution Development	Internet Technologies
System Technologies	
• **PROFESSIONAL STUDIES/SUBJECT DIDACTICS PERIOD**: Theory	
Systems Technologies	Information Management
Network Technologies	Social Implications
Internet Technologies	

8 CONTENT AND SCOPE PER TOPIC

8.1 Solution Development

Solution development is the actions and processes involved in developing a computer-based solution by utilising appropriate tools such as application packages to solve a variety of problems represented by real-life scenarios. For Computer Applications Technology these applications are end-user applications which include word-processing, spreadsheet, database and presentation applications.

Word Processing	Spreadsheets	Databases	Fourth Application
CAT 1			
Practical			
Term 1 & 2	**Term 3**		**Term 4**
• Documents • File management • Text, paragraphs and page functions and manipulation • Lists and columns • Graphics, shapes and diagrams • Tables • Formatting and editing • Review and proofing functions • Basic templates • Advanced document layout • Customising • Electronic forms	• Workbooks and worksheets • Cells, rows, and columns • Formatting and editing • Calculations • Formulae and functions • Charts/graphs • Error indicators • Basic file management • Introduction to integration • Advanced formatting Manipulate worksheets • Import/export data • Integration techniques • Troubleshooting		Presentations • Slide design and layout elements • Editing and formatting • Text and lists • Charts, illustrations and tables • Slide manipulation • Basic custom animation • Slide show • Introduction to integration

Word Processing	Spreadsheets	Databases	Fourth Application
• Mail merge • Styles • Sections • Reference functions • Integration Techniques • Troubleshooting			
CAT 2			
Term 1	**Term 1**	**Term 2 & 3**	**Term 4**
• Advanced file handling • Customise templates • Import/export data • Data sources • Professional documents • Use/reinforce word processing skills • Integration techniques • Troubleshooting • Problem solving	• Complex functions • Text manipulation • Date and time calculations • Advanced graphs/charts • Validation of data • Integration • Troubleshooting • Problem solving	Basic skills and basic knowledge in working with • Tables: Records, fields and data types • Record manipulation • Basic field properties • Formatting and editing • Forms • Basic data validation • Basic queries • Simple reports • Calculations • Integration techniques • Reports • Grouping information	**HTML / Web design** • What is HTML? • HTML syntax • Basic HTML tags • Basic text and text formatting • Structure of a simple HTML page • HTML links • HTML images • HTML lists • HTML tables

Word Processing	Spreadsheets	Databases	Fourth Application
		• Calculation fields in queries and reports • Data validation techniques • Troubleshooting • Problem solving	
CAT 3			
Term 1	**Term 1 & 2**	**Term 2**	**Term 3 & 4**
• File handling • Advanced Electronic Forms • Advanced Mailing • Review Functions • Long Documents • Add ins • Use / reinforce word processing skills • Integration • Troubleshooting • Problem solving	• Complex functions • Text manipulation • Tables • Review: Proofing, Comments and Changes • Data: Get external Data, Connections, Sort and Advanced Filter, Data Tools, Outline • Insert Functions: Pivot Tables and Tables • Developer: Code, Controls • Formula Auditing: Watch Window • Integration • Troubleshooting • Problem solving	• Advance calculation fields in Queries and Reports • Relationships • Switchboard • Troubleshooting • Problem solving	• Creating Blogs/WebPages

8.2 Systems Technologies

Systems technologies refer to the physical and non-physical components of a computer system. The components of the system are independent units which are designed to perform a particular function. These components which include hardware, peripherals and software components are connected as a unit to perform the basic functions of a computing system, which include input, processing, output, storage, communication and transfer of data in an electronic format.

Introduction to Concepts of Computing	Hardware (Systems Unit)	Software	Computer Management
Theory	**Theory**	**Theory**	**Practical**
CAT 1			

Introduction to Concepts of Computing	Hardware (Systems Unit)	Software	Computer Management
• Describe ICTs • General model of a computer • Introduction to data and • information • Types of computers • Role of computers • Advantages and disadvantages of • computers • ICTs in everyday life - overview and introduction	• Describing hardware • Hardware components • Ports and connectors • Hardware configuration • I/O devices • Storage devices and media • Processing concepts	• Describing software • Software components • Definition and overview of system and application software • Classification of software • Purpose and use of software • Introduction to operating system concepts	• Introduction to using computers – working environment and keyboarding • Introduction to files and folders • File Manager • Print management • Adding hardware
CAT 2			
• Information processing • cycle • Role of ICTs • Types of computers • Computer categories	• Input, output, storage and processing • Mobile technology • Portable devices • Devices for physically challenged users • Alternative I/O and storage devices	• Software updates, versions and compatibility • Application software • System software • Web applications • Software for physically challenged users • System requirements • Help files	• Software installation • File management • System properties • Basic trouble-shooting
• Computer systems for different uses • Case studies/scenarios regarding use of ICTs • Use of computers in a variety of contexts	• Appropriate use of devices • Buying decisions • Productivity issues • Factors influencing performance • Case studies	• Productivity issues • Role of operating system • Utilities • Buying decisions • Human error potential • Case studies	• File properties, attributes and metadata • Housekeeping • Case studies • Troubleshooting

Introduction to Concepts of Computing	Hardware (Systems Unit)	Software	Computer Management
	• New technology	• New technology	

8.3 Network Technologies

Network technologies include various network technologies to facilitate the management and dissemination of digital data from one point to another. Network technologies also refer to the electronic systems used for electronic data interchange used to facilitate information dissemination between various individuals or groups at a single point or dispersed locations.

NETWORKS
Theory
CAT 1
• Introduction to networks and network concepts • Aims and objectives of networks • Advantages and disadvantages of using networks • Types of networks: PAN/HAN • Internet access
CAT 2
• Types of network: LAN and WLAN • Basic components of network • Connection • Intranet • Introduction to network security concepts
• Types of networks: WAN • Internet as a WAN • Internet services • Buying decisions regarding Internet connection and access

8.4 Internet Technologies

Internet technologies include the WWW and all interrelated processes in the digital presentation of multimedia data on a web page. Internet technologies are defined as a set of related and interconnected technologies which enable the establishment of global networks, for various purposes such as collaboration, electronic data interchange, electronic commerce, electronic communication and social networking.

Internet and WWW	Electronic Communications
Theory	**Theory**
CAT 1	
• Introduction to the Internet and World Wide Web • Overview of the Internet and WWW • Internet and web addresses • Types of websites • Overview of browsers and search engines • Browsing and searching techniques	• Introduction to electronic communications • Overview of e-communication • Overview of applications/tools to facilitate electronic communications • E-mail as a form of e-communication • E-mail software features
	Practical

	• Introduction to the use of Internet and e-mail • Netiquette
CAT 2	
Theory	Theory
• Overview of online services • Features of browsers • Web page and websites • Website usability issues • Limitations of fixed Internet access • Portable and mobile Internet access	• Types of digital communications • Uses of computer communications **Practical** • Managing e-mail
Theory	Theory
• Overview of Internet services • Features of browsers • Browser plug-ins • Evaluation of websites • New trends and technology	• Communication devices • Extension of types of digital communications • Advantages, disadvantages and limitations • Good practices • Extension of uses of computer communications • New trends and technology

8.5 Information Management

Information management refers to the techniques and technologies involved in the collection, storage, processing of data into information that leads to knowledge and decision-making. It includes the use of appropriate communication and presentation tools to communicate new knowledge and recommendations.

Find and Access Data and Information	Process Data and Information	Present Solution
Theory	**Theory**	**Theory**
CAT 1		
• Data vs information • Understanding of the problem/task • Role of questions and questioning • Using questions • Utilising a plan to solve the problem/carry out the task • Types of information sources • Information and data gathering • Using a questionnaire • Using one other source	• Information vs knowledge • Information sifting • Engaging with information • Tools and techniques for manipulating information • Make notes and summarise • Ethical use of information • Processing data • Utilising data questions • Data handling - the role of the spreadsheet	• Knowledge vs insight • Utilising specific software tools to communicate findings • Simple report • Personal understandings • Organise information into logical groupings and flow • Findings/conclusions • Copyright and plagiarism • Acknowledgement
CAT 2		

• Task definition in different contexts - understanding the problem/task • Questions and questioning • Utilising main question • Formulating other questions • Quality control of questions • Indentifying appropriate sources • Information and data gathering • Add questions to questionnaire • Using one other source • Quality control of information	• Extracting appropriate information • Utilising appropriate tools and techniques to process data/organise and manipulate information • Processing data • Adding data questions • Data handling - the role of the spreadsheet and the database • Analysis of data and information • Trends and patterns	• Utilising appropriate software tools to communicate findings • Report • Interpreted knowledge and understanding • Cohesive and logical organisation and flow of content and recommendations/ conclusions • Communication using supporting texts and graphics • Copyright and plagiarism issues • Appropriate referencing
CAT 3		

• Reformulation of problem/task into a complete statement
• Questions and questioning
  ◦ Formulate main question
  ◦ Formulating other questions
  ◦ Quality control of questions
• New questions and discarding irrelevant questions as investigation develops
• Indentifying appropriate sources
• Finding information and gathering data
  ◦ Set a questionnaire
  ◦ Using two other sources
• Advanced searching techniques
• Quality control of information
  ◦ Information evaluation
	• Using a variety of information
	• Using the most appropriate information and data for processing
	• Effective manipulation of information
	  ◦ Rework and/or combine
	• Processing data correctly into useful information using a variety of tools and techniques leading to a solution
	• Use correct software for processing and manipulation
	• Formulating data questions
	• Data handling - the role of the spreadsheet and the database
	• Meaningful analysis of data and information - trends and patterns
		• Utilising best software tools in an integrated fashion to communicate findings
		• Comprehensive report
		• Interpreted knowledge and new understanding
		• Present information in logical grouping and flow supported by appropriate texts and graphics to enhance understanding
		• Cohesive and logical recommendations/ conclusions
		• Complete referencing using variety of tools and techniques
		• Quality control of report
		• Clear link between original task/problem, discussion and conclusion

• Website evaluation • Manage volumes of information

8.6 Social Implications

Social implications refer to issues relating to the digital age and bridging the digital divide and include issues that lead to the responsible use of ICTs. This section of the CAT curriculum should consider the impact the use of computer technology has on everyday life.

Impact on Society	Legal and Ethical and Security Issues	Health and Ergonomic Issues	Environmental Issues
Theory	**Theory**	**Theory**	**Theory**
CAT 1			
• ICTs in everyday life • ICT influence on life and life styles • Influences on life and life styles • Economic reasons for using computers • Communication etiquette • Safe Internet and e-mail use	• Ethical use of computers • Basic security concepts • Software piracy • Intellectual property • Licensing • E-mail threats, issues and remedies • Computer criminals	• Ergonomics to promote health and well-being	• Green computing issues • Environmental issues relating to the use of ICTs
CAT 2			
• Enhancing accessibility • Computer and human error • Impact of ICTs in the workplace and employment practices • Social engineering • tricks • Online safety and protection issues	• Hardware theft and vandalism • Ethical use of networks • Unauthorised access • Network safety and security • Privacy issues • Information accuracy • Data protection • Computer misuse • Currency of protective software	• Factors that influence health • Health risks	• Power settings and savings
CAT 2			
• Distributed computing power	• Computer criminals and crimes • Fraud scams	• User-centred design in software	• Interpret scenarios

• Impact and use of social networking and virtual communities • Tele-working/telecommuting • Information overload • Different scenarios and case studies • Making recommendations • New issues	• Internet attacks • Misuse of personal information • Malware and safeguards • Different scenarios and case studies • Making recommendations • New issues	• Usability and functionality issues • Interpret adverts • Interpret scenarios • Making recommendations • Buying decisions • New issues	• Make recommendations • New issues

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