

**The Impact of Computer Technology on Teaching and Learning
English Listening and Speaking as a Second Language
in the UK Higher Education**

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Abstract

It is well-acknowledged that the use of computer technology has signified changes in our learning patterns as teachers or students. However, despite the optimism, the effectiveness of an e-learning environment has also been questioned. Skepticism mostly concerns whether a computer-assisted learning environment is advanced and stable enough to enforce learning and to what extent learning can be enhanced. The aim of this study was to examine the impact of computer technology on learning and teaching English listening and speaking as a second language, with a special attention to listening. The study examined the impact from three aspects: teaching modules where various approaches were adapted to use computers for training listening and speaking skills; learning processes, in particular the learning strategies used; and CALL courseware and tasks.

A big difficulty in undertaking this study was gaining access to programmes and students. Due to the small size of the sample, it was unlikely to be feasible to use quantitative research methods in the study. In order to get as much information as possible from the limited number of students available, I adopted the case study to gather the data for the main study.

The main contribution of this study was to isolate three different application approaches of computer technology in the UK higher education, namely, self-access approach, instructed approach and semi-instructed approach. In all these approaches, the impact of computer technology on the choice of material, the way of implementing curricula, the roles played by computers and the roles played by teachers were various. Moreover, this study identified problems in researching CALL listening and speaking in UK higher education, such as conceptualisation of CALL, CALL practice and research methods with a specific perspective on language acquisition.

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Chapter One

Introduction

‘Computer-assisted language learning (CALL) is broadly defined as the search for and study of applications of the computer in language teaching and learning’.

(Levy, 1997: 1)

‘A computer-assisted second language research (CASLR) task is defined as one in which learners are expected to work on the target language interactively with a computer programme or with other people through the medium of the computer. Such tasks may appear to the learners to be a regular part of instruction or testing, or they may be explicitly introduced to learners as research tasks’.

(Chapelle, 2001: 132)

The early 1960s witnessed dramatic changes in the ways that languages are taught. The focus of instruction has broadened from grammatical structures to communicative ability. In the context of changes in language education, one of the most innovative introductions is learning with the aid of computers, rather than just performing drills. In a multimedia language centre, students can use CD-ROMs or laser discs to practise language skills; seek background information for language classes; take language exams; and communicate with native speakers by email or internet-phone.

Compared with the rapid development of CALL activities in language education, CALL research began to boom only in the 1990s. In order to understand the CALL activities better, researchers have been looking to cross-disciplinary sources for perspectives and research methods. Theories from other disciplines such as Anthropology, Cognitive Psychology, Communication, Linguistics, Instructional Design, and Second Language Acquisition (Salaberry, 1996: 6) have been introduced

to CALL research. These cross-disciplinary perspectives have broadened and enriched CALL research.

The most tangible technological and theoretical development has been connected to teaching reading and writing, but there are few studies on listening and speaking. This is because, first, the technology available is mostly for learning reading and writing. For example, language learners can write emails to native speakers or read electronic newspapers on the Internet, but listening and speaking activities via computers requires more advanced technology which requires a fast internet speed and large storage space to store sound files and to support synchronous online voice communication. Second, day-to-day spoken language is more colloquial and flexible than written language, and this has caused difficulties not only for language learners but also for language educators. However, both speaking and listening remain important language skills required by every language learner. And last, from my own experience of being a language learner and teacher, I realise that the biggest barrier for those who learn a second language is not writing and reading, but listening and speaking. It is this combination of the current popularity of CALL in second language education together with the relatively sparse research into CALL speaking and listening which aroused my research interest. As with any other significant research, what is needed then is a perspective on CALL to investigate the critical questions of how CALL can be used to improve instructed second language acquisition (SLA).

1.0 A Brief Overview of the Study

The main research question of this study is: **what is the impact of computer technology on learning and teaching English listening and speaking as a second language?** Measurement of *impact* is the key focus of this dissertation. It is important to distinguish impact from outcomes. The most accepted classification of outcomes is the four-level system first proposed by Kirkpatrick (1998). The four levels are:

- *reaction to training*: this determines how much the learner might learn.

- *learning*: a measure of how much is learned and is therefore available to transfer to the acquisition of knowledge and skills.
- *behaviour transfer*: how much work behaviour changes as a result of training.
- *organisational results*: in what ways and how much the organisation benefits from changed behaviour.

In this sense, the outcomes are the direct and immediate results or effects of the training. Instead, the impact indicates a general and long-term result. The levels of impact might change from the situation of individuals to the structure of the training modules and to the related supporting arrangements. In this study, impact is investigated by looking for the evidence of the influence of computer technology on curriculum design and implementation, on students' learning strategies, and on the evaluation of CALL programmes. However, because this study is exploratory in nature, the aim is to explore, rather than determine, the use of teaching methods, learning strategies and the criteria and methods of evaluating CALL programmes.

Chapelle (2004, unpublished conference paper) suggests three approaches to studying CALL activities and developing useful CALL research questions:

- (1) the task: indicates the best way to structure learning tasks.
- (2) the learner: indicates successful strategies for using software.
- (3) the software: indicates the most successful software design strategies.

Accordingly, the main research question is divided into three smaller sub-questions:

- (1) How do teachers design and implement CALL tasks within the different approaches?
- (2) How do different approaches to applying computer technology affect students' listening and speaking as regards to learning strategies?
- (3) What are the criteria and methods used to evaluate CALL programmes?

Unfortunately, due to the limited practice of using CALL programmes in speaking

training in the UK higher education, the current study was not able to collect a sound quantity of data to undertake an in-depth study into the impact of computer technology on speaking. Instead, Section 3.4 will make a special effort to survey the current applications and existing challenges in computer-assisted speech instruction in order to shed light on the future research.

There were three stages in this study: a preliminary study to validate the feasibility of the research; a pilot study to examine research methods and the main study. A variety of research methods were employed through out the three stages including email questionnaire, print questionnaire, interview and in-depth interview.

1.1 Preliminary Study

1.1.1 Study description

In November, 2002, I conducted a national survey by sending out questionnaires, first by email (See Appendix 1) and then by post (See Appendix 2) to universities around the UK. I used questionnaires to find out whether some universities in the UK were using computer programmes to teach listening and speaking in L2 classes and the latest state of their development. The questions were all open-ended, because at the initial stage of research, I began with few expectations and wanted people to suggest details which could be followed up at a later stage.

At the first stage, the object was to discover, at a general level, if some universities in the UK taught L2 listening and speaking with the assistance of computers. I sent out 111 questionnaires by email to the addressees over 75 UK universities, who were on the contact list of BALEAP (British Association of Lectures in English for Academic Purposes). I used the email questionnaire because first, it was easy to arrange for a wide coverage; second, it was economical in both time and cost; and finally, the format was familiar and brief. An email questionnaire stood a relatively high chance of being acceptable to the addressees, as it only took a few minutes to write down and send back

answers. However, addressees received large amounts of emails and emails were often treated as less formal than print, so this could also lead to a decreased rate of return and shorter or less thought-out answers. In the end, I received replies from 30 out of 75 universities, a response rate of 40%. Among the 30 responses, 17 universities claimed to offer listening or/and speaking courses with the assistance of computers.

At the second stage, I sent 16 printed questionnaires to the respondents of 14 universities. I excluded three universities because, in their answers to the email questionnaire, the respondents stated that only small parts of their language programmes in use involved listening or/and speaking via computers. The aim of the printed questionnaires was to collect further detailed information on using computer programmes to assist the teaching of listening and speaking, the commercial programmes and self-developed programmes in use, their plans for future development, and the papers published in this field by their teaching staff and students. I received eight responses from seven universities, which included traditional universities, such as the University of Leeds and the University of Edinburgh, and universities founded in the 1960s, such as the University of Bath. The mixture of universities with different backgrounds allowed me to draw a relatively concrete picture of the use of CALL programmes in listening and speaking classes in the UK universities.

The following table sets out the main points of these answers.

Universities Questions	University 1	University 2	University 3	University 4
Q1	<ul style="list-style-type: none"> • One listening programme is networked across the university • A number of other programmes used in self-access language centre. • Students in the self-access language centre can record pronunciation. 	<ul style="list-style-type: none"> • Currently used as an individual basis in the self-access centre • Some commercial software plus a 'Listening Link' page, which guides students to useful online listening with support. • Medical English case studies train Students to take a history • A digital language lab has been installed, but content material is currently being installed. They have not yet been used for class teaching. 	<ul style="list-style-type: none"> • Open-access learning materials for students and staff 	<ul style="list-style-type: none"> • Authentic video records are used with fairly standard worksheets. • Role play of phone calls and email responses
Q2	<ul style="list-style-type: none"> • Sky • Pronunciation software 	<ul style="list-style-type: none"> • Sky: Active Listening; • Sky: Pronunciation; • Virtual Language Lab; • Body Parts (Medical English) • English for Business • Business Letter Writer OUP • FLE Grammar (CD-ROM) <p>Encarta: Look & Listen</p>	<ul style="list-style-type: none"> • EuroTalk's Talk Now • MacDonald's Breakthrough series • BBC's Suenos • Language skills web pages • Digitized audio materials via Divace • On-screen videos and live television shows. 	<ul style="list-style-type: none"> • EASE • Extr5acts from Ship or Sheep, Headway Brazil's Advanced Pronunciation (not kept on the webs)

Q4	<ul style="list-style-type: none"> To use Boxmind and Black-board To use Clarity Author plan 	<ul style="list-style-type: none"> Teacher Development in the use of the technology Setting up of forum of interested teachers to develop ideas and specific programmes for EFL Twin task programme to install and monitor use of materials for self-access and class use 	<ul style="list-style-type: none"> Continuation and extension of all the above 	<ul style="list-style-type: none"> Increasing collections Developing open access webs in the labs
Q5	None	None	None	None

Table 1.1 Answers to the posted questionnaires

Universities Questions	University 5	University 6	University 7	University 8
Q1	<ul style="list-style-type: none"> For listening and speaking, EASE and BBC TV programmes are used, with structured interactive exercises based on Hot Potatoes. Students can practise pronunciation and speaking using visual CD ROM and web materials 	<ul style="list-style-type: none"> Students use the material for listening and speaking in the self-accession centre with the help from the teachers, but there is no taught class using networked computers. 	<ul style="list-style-type: none"> Using first class computer conference software to kick-start discussion. Students write their comments. In the class this is followed up by spoken discussion. 	<ul style="list-style-type: none"> Two concepts of 'speaking': as part of another task before, during or after a writing task on the word processor; and as the focus of computer task itself
Q2	<ul style="list-style-type: none"> EASE Boxmind 	<ul style="list-style-type: none"> 'The Student Guide to Making an Oral Presentation' by Drew & Gilson (CD-ROM); EASE series: Listening to Lectures 	<ul style="list-style-type: none"> OPT Quick Placement Test 	<ul style="list-style-type: none"> Sky software products on speaking Issues in English focusing on integrated skills Some web material (dedicated sites) PowerPoint for presentation skill

Q3	<ul style="list-style-type: none"> To develop materials available via web 	None	None	In EFL no specific material in MFL or authoring package.
Q4	<ul style="list-style-type: none"> More use of web sites More use of other universities' materials More pooling of resources with partners More use of commercial broadcast (webcast) material 	None at the moment	None	<ul style="list-style-type: none"> Integration of IT software (MS WORD, web, Power Point etc) in language classroom. Use more self-dedicated software
Q5	None	None	None	None

Table 1.1 Answers to the posted questionnaires

1.1.2 Findings

The preliminary study concerned the general information about using computer technology in language learning in UK universities. The questionnaires concerned how universities used computers to assist in teaching listening and/or speaking; the CALL programmes they used and their future plans. Comparing and analysing the replies from seven universities, three dimensions were established by generalising the replies in order to classify the types of CALL programmes used in training listening and speaking skills. They were:

(1) The ways that universities used computers to assist in teaching listening and/or speaking

- the computer's role as tutor or its role as tool
- computer programmes as part of other tasks vs. independent programmes

targeting listening and/or speaking

- the focus of speaking programmes
- the focus of listening programmes

(2) software in use

(3) plans for future development

It should be noted that the three dimensions are not clearly separated; instead they interact in one way or another.

1.1.2.1 Computer's role as tutor vs. role as tool

The tutor/tool role of the computer was a useful point of departure in discussions about CALL. The different roles that computer programmes played in teaching directly influenced the results achieved by the programmes. According to the preliminary study, in general, there were two types of tutor role played by computers. First, the computer was a temporary substitute for the teacher and a teacher was not present. Second, the tutor role also implied that CALL work was taking place in self-access mode outside the traditional language classroom. Of the seven responding universities, three stated that their programmes in use were partially or exclusively self-access for students. Students in the three universities could do listening and speaking practice in the language labs via university networks or the Internet. In these cases, the computer programmes played the role of tutor to guide students in practice.

The tool role of computer has been identified in a number of studies (Bax, 2003; Auld 2002), suggesting that in this role, the computer is employed by users to enhance their own learning and communication (Auld, 2002: 41). Four universities in the preliminary study used computer programmes in the taught language listening and/or speaking classes, where teachers controlled the process of the class and instructed the students to do listening and speaking exercises with computer programmes.

1.1.2.2 Computer-assisted listening/speaking programmes as part of other tasks vs. independent programmes

Listening and speaking programmes via LAN (Local Area Network) and/or the Internet were integrated with other tasks such as reading and writing with Word Processors, PowerPoint and Email. For example, the University of Ulster manipulated computer conferencing software to start online discussion that was followed up with spoken discussion in class. Students at the University of Salford used PowerPoint to practise presentation skills. The University of Kingston integrated listening and speaking activities with Microsoft Word. In addition, some universities installed specific networked computer programmes focusing on listening and/or speaking skills. For example, the University of Bath, the University of Edinburgh and the University of Salford also used Sky software products focusing exclusively on pronunciation and listening. Additionally, the University of Roehampton and UCE adopted the EASE (Essential Academic Skills in English) series for both listening and speaking.

1.1.2.3 Focuses of speaking programmes

The speaking programmes employed by different universities had different foci. The University of Bath, the University of Edinburgh and the University of Roehampton paid attention to speaking skills at the initial stages of language acquisition, such as pronunciation. The University of Salford and UCE trained students in presentation skills. The University of Glamorgan and the University of Salford also integrated speaking skills with listening. More specifically, the University of Glamorgan gave access to an Internet chat room, where both listening and speaking activities could take place.

1.1.2.4 Focuses of listening programmes

The seven universities aimed at skill training with the exception of the University of Ulster whose only means of practising computer-assisted listening activities was via

the Oxford Quick Placement Test, part of which relied on listening, comprehension and responding to questions.

1.1.2.5 CALL programmes in use

Software adopted by the seven universities could be generally classified as either commercial or self-developed. The two most popular software packages were the Sky series and EASE (Essential Academic Skills in English) series produced by the University of Warwick. Other major programmes in use included Boxmind (Roehampton and Bath), BBC TV programmes (Roehampton and Glamorgan), The Student Guide to Making an Oral Presentation (UCE), and the Oxford Quick Placement Test (Ulster).

By contrast, in rare cases, universities applied self-developed programmes to teach listening and/or speaking with the computer. The University of Edinburgh installed productions by the IALS (Institute of Applied Language Study) Medical team to train clinical medical students in taking histories using Microsoft Access, sound cards and visuals.

1.1.2.6 Plans for future development

According to the replies, plans for future development by the seven universities concerned a range of areas, such as expansion of the established CALL programmes; installment of new programmes, both commercial and self-developed; teacher training in the use of technology; setting up a forum for interested teachers; and extension of current programmes.

1.1.2.7 Summary of the preliminary study

The first stage of the preliminary study provided a starting point for the research by providing a general picture of CALL application in the UK universities, while the

second stage suggested a number of objectives for future work. First, it drew a general picture of the state of computer-assisted listening and speaking programmes in the UK universities. Although the computer technology had not been widely used by the UK universities to teach English, there were still quite a few universities that had shown their interest in this new way of teaching, and had been trying to integrate the computer technology into their main curricula. Second, the preliminary study provided a basis for locating target universities for future more detailed investigation.

The preliminary study was followed by the pilot study which tested the research instruments. Based on the results of the preliminary study and the pilot study, the main study examined in great depth the impacts of computer technology on learning and teaching English listening and speaking skills.

1.2 A Glossary of Key Terms and Concepts

In this section, some key terms and concepts in this thesis are outlined.

- *CALL*: is an acronym for Computer-Assisted Language Learning. It refers to a language teaching and learning system that is aided by the use of technology. When used loosely, this term refers to any language learning activity done with a computer. In this sense, e-mail exchanges in English can be a CALL activity. When the term is used more specifically, it refers to using technology for providing a more individualised practice on specific language points. In this thesis, CALL refers to the latter — English language teaching and learning activities aided by computers in different learning contexts, such as classrooms and self-access language centres.
- *The role of computer in CALL*: The different roles that computer programmes played in teaching influenced the results achieved by them. In this study, computers in CALL have been described as tutors or tools. As tutors, computers are a temporary substitute for teachers, evaluating the student's learning process and responding to it. As tools, computers are employed by the users to enhance

their own learning and communication.

- *Self-access CALL*: refers to the learning context where students are supposed to work on computers without the presence of teachers. The self-access approach gives students flexibility in managing their learning activities so that they can choose the materials, time and place to study.
- *Instructed CALL*: refers to the learning context where computer activities are integrated into the lesson as a whole. Teachers play an important role in successful integration by choosing course material, designing and implementing pedagogy.
- *Semi-instructed CALL*: refers to the learning context that is a mixture of self-access and instructed CALL. Learning activities are carried out in an organised classroom. Although teachers are present in the class, they do not tightly control the practice activities. The interactive activities between teacher-student, student-student and student-computer are flexible and open-ended. The semi-instructed CALL resembles the self-access CALL in the way that students still control their learning process. They choose tasks and control the learning speed. The semi-instructed CALL also resembles the instructed CALL. Teachers are often present in the classroom, compose the general arrangement of the topics and tasks that students work on, and help students with both linguistic and technical problems.

1.3 Synopsis of the Present Study

Apart from this Introduction, the dissertation includes seven chapters.

The first two chapters comprise the literature review. Chapter 2 reviews the literature with respect to second language acquisition (SLA). It discusses the SLA theories on which the theoretical framework of computer-assisted listening and speaking is based.

Chapter 3 addresses the literature review in computer-assisted language learning. It discusses the theoretical basis of computer-assisted language learning; the strength and limitation of CALL application methods in listening and speaking; and the evaluation criteria and methods to CALL programmes.

Chapter 4 concentrates on the description of the methodology and examines the instruments developed for the main study. It presents the pros and cons of the research methods employed. It also generally describes the design and procedure of the pilot and main studies.

Chapter 5, 6 and 7 analyse the data and discuss the results of main study. Chapter 5 investigates CALL listening and speaking modules. In general there are three approaches to applying computer technology to listening and speaking pedagogies. They are: the self-access approach, the semi-instructed approach and the instructed approach.

Chapter 6 examines learning activities in different modules, in particular, the impact of the different approaches of computer technology to students' learning strategies.

Chapter 7 addresses CALL programmes and tasks. According to the comments of students and teachers on their learning and teaching experience with various programmes, suggestions are made about courseware design strategies

Chapter 8 looks forward and considers the usefulness of the current study to future computer-assisted second language research. It offers general guidelines and concrete suggestions for the improvement of students' learning patterns, upgrading teaching methods and training modules, and CALL programme design with regard to second language acquisition.

Chapter Two

Literature Review on Second Language Acquisition—Interactive Language Learning, Learning Strategies

The definition of Computer-Assisted Language Learning is ‘the search for and study of applications of the computer in language teaching and learning’ (Levy, 1997: 1). Although the name is a fairly new one, the study of CALL is undoubtedly one of the fast developing research areas in language acquisition. This is, to a large degree, a reflection of the development of computer technology and its expanding application in language learning contexts. However, the effectiveness of CALL applications has also been questioned. This skepticism mostly concerns how to make appropriate use of the computer technology in language learning and how to integrate CALL materials into different learning contexts such as instructed classes, self-access centres and distance learning. The skepticism is largely due to the gap between CALL theories and reality, or more specifically, ‘a lack of guidelines or standards for the present generation of CALL materials...CALL authors have no reliable conceptual framework, or yardstick by which to measure their work’ (Levy, 1997: 4; Smith, 1988: 5; Last, 1989: 35).

In order to make up the gap between CALL theories and practice, researchers and CALL teachers have been seeking appropriate and productive ways to conceptualise CALL. The results have involved a broad range of theories and frequently, an interdisciplinary literacy approach. The fields which have had an influence on the theoretical development of CALL include psychology, communication theories, human-computer interaction, linguistics, second language acquisition and sociocultural theory (Chapelle, 1997; Levy, 1997; Salaberry, 1996). In particular, CALL theories have drawn on second language acquisition which has implications for our understanding of CALL application and activities.

The SLA literature contains work representing a variety of objectives and approaches for investigating the process of second language development. In particular, the

theories of SLA have reliable research methodologies available to properly frame hypotheses and evaluate the results of CALL practice. The implication of SLA theories for CALL has been addressed in the CALL literature by a number of researchers (Holland, 1995; Krashen, 1982; Long, 1996; Pica, Lincoln-Porter, Paninos & Linnell, 1996; Swain & Lapkin, 1995). The SLA theories that have been used in CALL studies include interaction hypotheses, communicative language theory, instructional design and theories of teaching and learning. However, the very abundance of SLA theories has brought problems to the conceptualisation of CALL. As Burston points out:

The failure to provide a firm research base for CALL certainly has not come about for any lack of second language acquisition (SLA) theory to follow. On the contrary, the problem with respect to language learning theory stems from the superabundance of theories to choose from and, concomitantly, no well-defined, generally accepted theoretical basis for SLA.

(1996: 31)

Burston further explains the reason for this problem:

The heart of the problem is the monumental chasm which exists between those in linguistics (psycho-socio-applied, as the case may be) concerned with theory construction, on the one hand, and those involved on the chalk face of language teaching in the classroom (at whatever educational level).

(ibid.)

One of the effective ways to bridge the gap between theoretical frameworks and concerns of much SLA and the CALL practice is 'a perspective on CALL which provides appropriate empirical research methods for investigating the critical questions about how CALL can be used to improve instructed SLA' (Chapelle, 1997: 21).

The aim of this study is to investigate the impact of computer technology on teaching methods and learning strategies and what are the appropriate methods to design CALL programmes. Accordingly, this literature review does not attempt to provide complete or even-handed coverage of SLA. Rather, it tries to argue more narrowly for particular theories on which the present study of computer-assisted language learning activities is based. The relevant SLA theories which will be discussed in the following sections are interactive language learning theories and learning strategies, and language learning motivation and attitude.

2.1 Interactive Language Learning Theories

Interactive language learning is not a new term to second language teachers and researchers. In Wells' words, 'Linguistic interaction is a collaborative activity involving the establishment of a triangular relationship between the sender, the receiver and the context of situation' (1981: 29, 46-47). The interactive relationship can be drawn as follows (Figure 2.1).

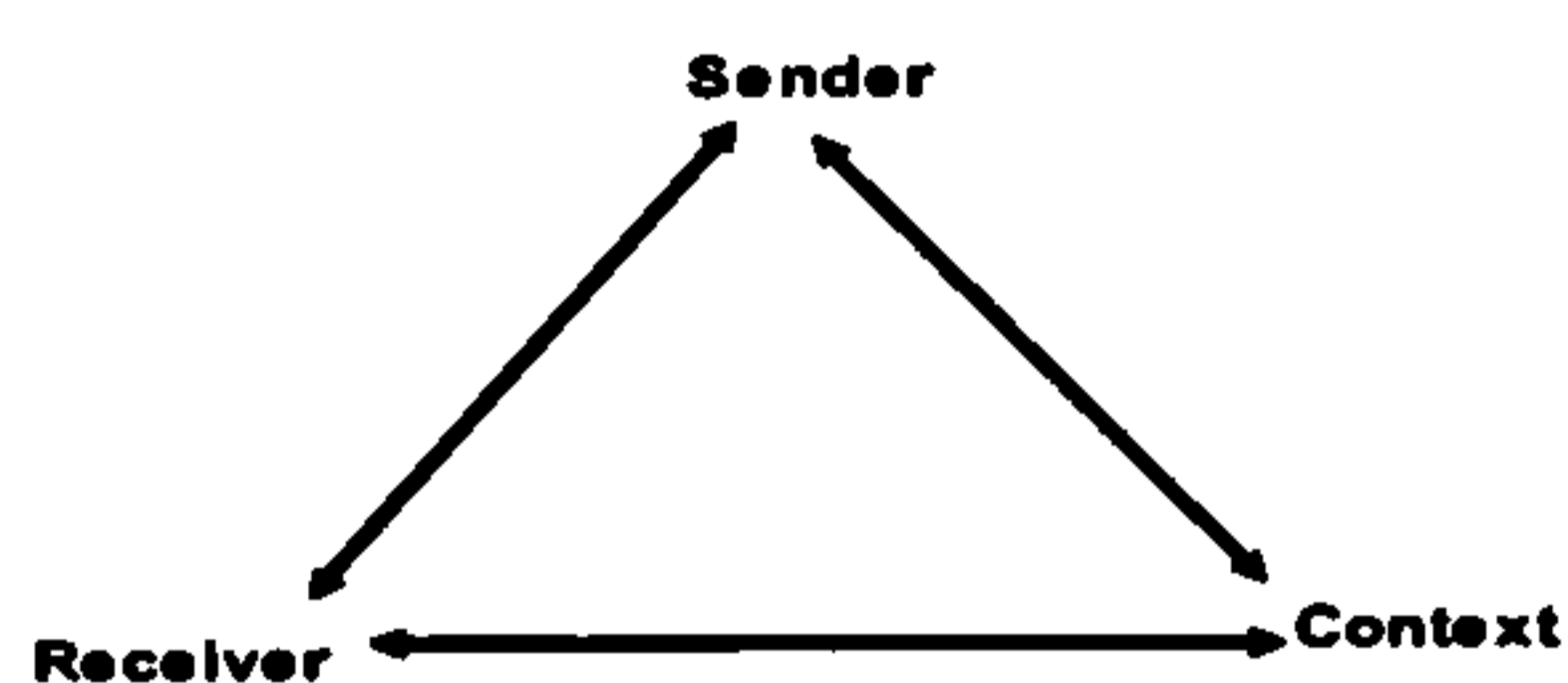


Figure 2.1 Triangular relationship of linguistic interaction

In an educational context, the goal of the interaction is to create a situation in which students can 'use for actual communication what they have been learning in a more formal fashion' through the cooperative activities with teachers and other students (Rivers, 1987: 4). An interactive learning environment has several advantages for foreign language acquisition. For example, an interactive learning environment fosters learners' motivation (Beauvois, 1997; Warner, 2004; Warschauer, 1997). It also enhances communication which guarantees the kind of modification needed to make

input and output comprehensible (Long, 1983a).

The study of the function of interaction has been undertaken by researchers since at least the 1920's. The following sections will introduce the development of interactionist perspectives on language learning, another connection to second language acquisition and more specifically, to computer-assisted language learning.

2.1.1 Development of interactionist perspectives

The early version of the interactionist perspective can be dated back to the 1960s when Corder (1967) makes an important distinction between what he calls *input* and *intake*. Input refers to what is available to the learner, whereas intake refers to what is actually internalised by him/her. Although input is available to the learner, it does not necessarily constitute intake as it can “go in one ear and out the other”. In such a case, it will not be integrated into the learner's current language system.

2.1.1.1 Krashen's Input Hypothesis

The study of language input attracted attention from psycholinguists and second language researchers in the light of the *Input Hypothesis* proposed by Krashen (1982, 1985). The Input Hypothesis claims that exposure to comprehensible input is both necessary and sufficient for second language acquisition to take place. The hypothesis states:

Humans acquire language in only one way—by understanding messages or by receiving ‘comprehensible input’... We move from i , our current level, to $i + 1$, the next level along the natural order, by understanding input containing $i + 1$.

(Krashen, 1985: 2)

The Input Hypothesis has been criticised in a number of ways. Firstly, the hypothesis as formulated by Krashen is supported by little empirical evidence and is moreover not easily testable (McLaughlin, 1987: 36-51). Secondly, the concepts of the learner's

current state of knowledge i and the next level of knowledge $i + 1$ are not clearly spelled out. And lastly, the process whereby the language is analysed and new elements are identified and processed, so that they can integrate into and influence the learners' existing language system, are not clarified (Mitchell and Myles, 2004: 165).

Krashen's Input Hypothesis encourages other researchers to examine more closely the characteristics of language input being made available to language learners, among which Long's Interaction Hypothesis (IH) (1981a, 1983b) has had a major influence on the study of language acquisition.

2.1.1.2 Long's version of the Interaction Hypothesis

The early version of the IH was closely linked with the Krashen's Input Hypothesis. Long (1980, 1983b) agrees with Krashen that comprehensible input is necessary for acquisition, but differed from him with regard to the importance of interactionally modified input, which was, Long claims especially beneficial in that it supplies learners with information relating to linguistic forms that are problematic to them.

Long (1983c) accordingly suggests that conversational tactics such as repetitions, confirmation checks, comprehension checks or clarification requests are very useful for language learning. As Larsen-Freeman and Long put it:

Modification of the interactional structure of conversation ... is a better candidate for a necessary (not sufficient) condition for acquisition. The role it plays in negotiation for meaning helps to make input comprehensible while still containing unknown linguistic elements, and, hence, potential intake for acquisition.
(1991: 144)

In order to facilitate empirical research based on the IH, Long suggests researchers follow three steps:

Step 1: show that (a) linguistic/comprehensional adjustments promote (b)

comprehension of input.

Step 2: show that (b) comprehensible input promotes (c) acquisition.

Step 3: deduce that (a) linguistic/comprehensional adjustments promote (c) acquisition.

(1985: 378)

However, this early version of the IH is challenged on a number of fronts. Firstly, Long's claim that comprehensible input promotes acquisition is questioned. Theorists such as Sharwood (1986) and Faerch (1986) argue that it is necessary to distinguish input processing for comprehension and input processing for language learning. The learner can successfully comprehend the input by inferring the meanings of message without attending to the linguistic forms. But for acquisition to take place, the learner needs to attend to the linguistic form and the meaning in the input and to compare what they notice with their own output. In such cases, acquisition may take place with or without comprehending the message.

Secondly, Long's hypothesis that interactionally modified input is especially beneficial for acquisition was questioned. A study by Pica, Young and Doughty (1987) shows that simplified input like premodified input is equally beneficial for acquisition. There is no statistically significant evidence to show that interactional input is more effective than premodified input for learners' comprehension and acquisition.

In response to the ongoing development of both linguistic and information processing theory within second language acquisition studies, Long reverses the IH:

It is proposed that environmental contributions to acquisition are mediated by selective attention and the learner's developing L2 processing capacity, and that these resources are brought together most usefully, although not exclusively, during negotiation for meaning. Negative feedback obtained during negotiation work or elsewhere may be facilitative of L2 development, at least for vocabulary,

morphology and language-specific syntax, and essential for learning certain specifiable L1-L2 contrasts.

(1996: 414)

This new version of the IH highlights the contribution of negative evidence and selective attention to L2 acquisition. These concepts are also discussed in the current study of output and its contribution to L2 acquisition.

2.1.1.3 Output Hypothesis by Swain

Another challenge to Krashen's Input Hypothesis is put forward by Swain (1985; 1995) in her Output Hypothesis. Swain argues that only L2 production (e.g. output) really forces the learner to become aware of gaps and problems in their existing L2 system and thus drives forward most effectively the development of second language syntax and morphology. In 1995, she proposed three further functions for learner output:

- (1) the 'noticing/triggering' function, or what might be referred to as the consciousness-raising role;
- (2) the hypothesis-testing function;
- (3) the metalinguistic function, or what might be referred to as its 'reflective' role.

(Swain, 1995: 128)

Although a number of studies (Ellis and He, 1999; de la Fuente, 2002) have shown that pushed output is beneficial for developing certain language knowledge like vocabulary, there is still a lack of data to show that learner output and output modification have any marked effect on L2 learning (Shehadeh, 2002: 597).

2.1.1.4 Feedback

The studies of feedback have suggested that feedback in fact serves a corrective

function with respect to learner output (Gass and Varonis, 1989; Pica, Holliday, Lewis and Morgenthaler, 1989). Learners respond differently to different types of feedback. It is acknowledged by the theorists (Long, 1996; Trahey and White, 1993) that providing learners with positive evidence can reveal to them the presence of information in the L2 that is different from their native language, which is beneficial to L2 acquisition. But Trahey also argues that positive evidence alone is not sufficient. Negative evidence is also needed to show what is not possible in the L2 but is possible in the native language. 'Negative evidence' is defined as 'some kind of input that lets the learner know that a particular form is not acceptable according to target language norms' (Mitchell & Myles, 2004).

The evidence question remains unresolved and there is currently controversy over whether negative evidence is necessary or helpful for L2 acquisition. This is mainly due to the fact that research investigating negative feedback in L2 is still in its infancy (Ellis, 1999:11). There is in short, a lack of strong evidence that negative evidence is necessary for the acquisition of core aspects of language (Mitchell & Myles, 2004: 177).

2.1.1.5 Attention and 'focus on form'

The amount of attention which the learner is paying to matters of form may influence the extent to which L2 input and interaction actually produce L2 intake, that is, new language which has been processed sufficiently for it to become incorporated into the learners' developing L2 system.

(Mitchell & Myles, 2004: 183-184)

Implicit in this statement is the concept of focus on form which refers to a need for meaning-focused activity into which an attention to form is embedded. In Long's words, a focus on form 'overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication' (1991: 45-46).

Learners' attention to form may not always come naturally and may require some pedagogical training. The definition of 'form-focussed instruction' is given by de Bot et al. as 'any pedagogical effort which is used to draw the learners' attention to language form either implicitly or explicitly. This can include the direct teaching of language (e.g. through grammatical rules) and/or reactions to learners' errors (e.g. corrective feedback)' (2005: 210).

In a teacher-instructed class, teachers can design the curriculum which can direct students' attention to language form, but teachers also need to consider what language forms the students need to pay attention to and how best to relate the information to a learner's individual knowledge state.

2.1.1.6 Interaction models

The interaction model introduced by Chappelle hypothesises that 'target language input acts as a potential starting point for acquiring aspects of the L2...It attempts to explain what makes input comprehensible and how received information is processed to influence the development of the learner's linguistic knowledge' (1998: 22-34).

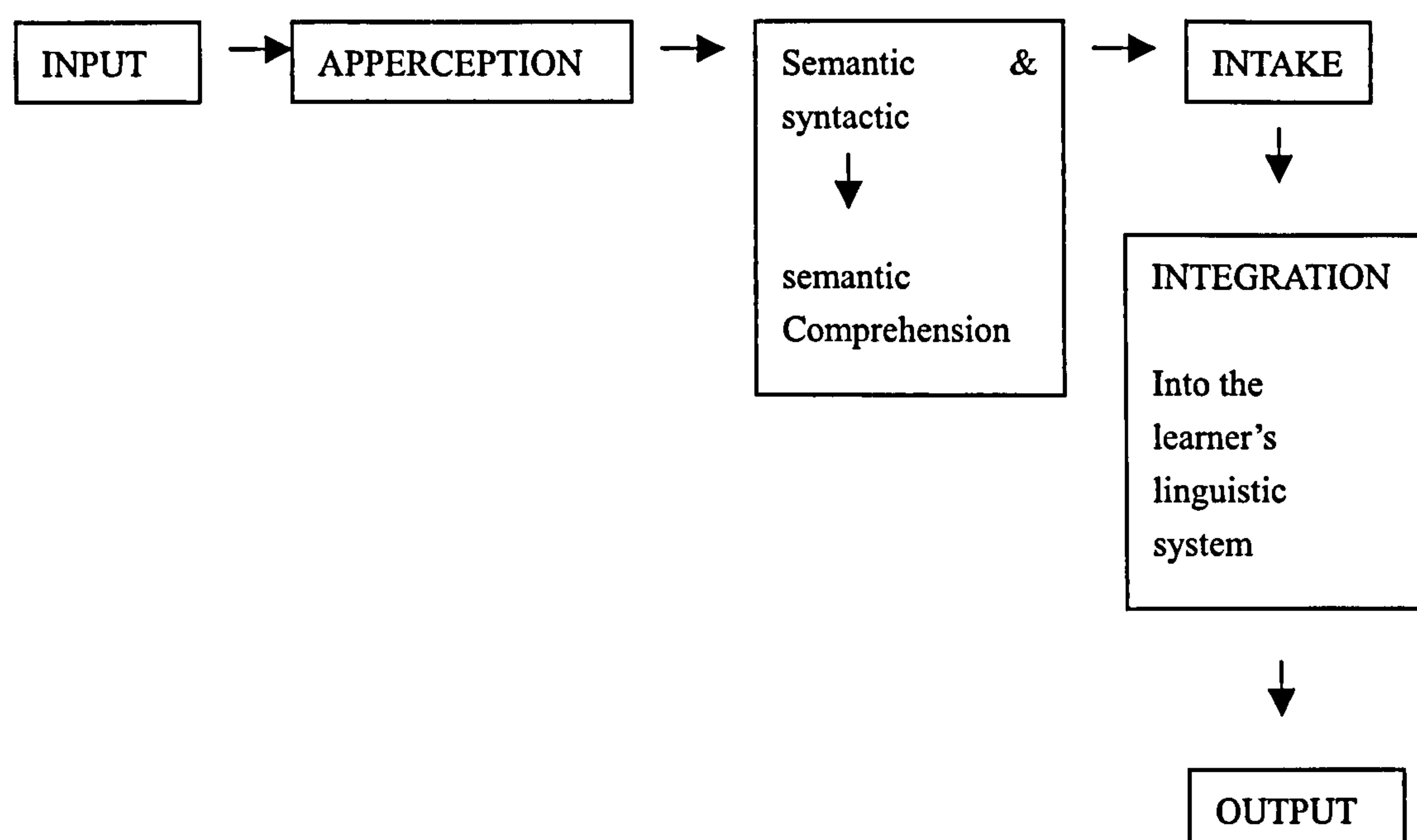


Figure 2.2 Basic components in the SLA process in interactionist research (Chapelle, 1998: 23)

'INPUT refers to the target language that the learner is exposed to' (ibid: 23). A particular relevance to multimedia is the principle of the multimedia effect (Alessi & Trollip, 2000; Mayer, 1997; Mayer, Steinhoff, Bower & Mars, 1995), which suggests that learning is enhanced when complementary information codes are received simultaneously. The best example of this is the combination of visual information and narration when listening to a person speaking. Learning is facilitated for many learners at least by a combination of visual and auditory information.

Information we perceive must be interpreted and integrated into our current knowledge, which is called comprehension. Comprehension means not only storing and retrieving information, but also classifying it, apply it, evaluating it and so on. The first step of comprehension is APPERCEPTION which is 'the learner's noticing aspects of the input' (Chapelle, 1998: 23).

The second step in comprehension is INTAKE. When comprehension takes place through a combination of semantic and syntactic processing, the linguistic characteristics of the input can become INTAKE, that is, comprehended language that holds the potential for developing the learners' linguistic system.

The last step of comprehension is INTEGRATION—the 'processes for using to influence the development of the linguistic system, which in turn affects the L2 OUTPUT that the learner produces' (ibid).

OUTPUT is the observable results that learners produce. It is influenced by comprehension. Chapelle explains two ways in which output contributes to linguistic development:

(1) Producing linguistic output forces learners to use the syntactic system and therefore to develop this aspect of their ability. (2) This elicits subsequent input from interlocutors, some of which may contain indications of problems with the learner's output which results in the learner's noticing aspects to as negotiation of meaning, is believed to facilitate L2 development.

(ibid: 23)

Learners thus need to have opportunities to notice errors and correct them in their output.

Another substantial aspect of interactionist thinking is an emphasis on interactive language learning. The learner requires interaction with the teacher, learning tools and other learners. An interactive environment has several claimed advantages. For instance the understanding of the input message is enhanced; the output is improved; and motivation is fostered. Long's model explains the importance of interaction in language learning.

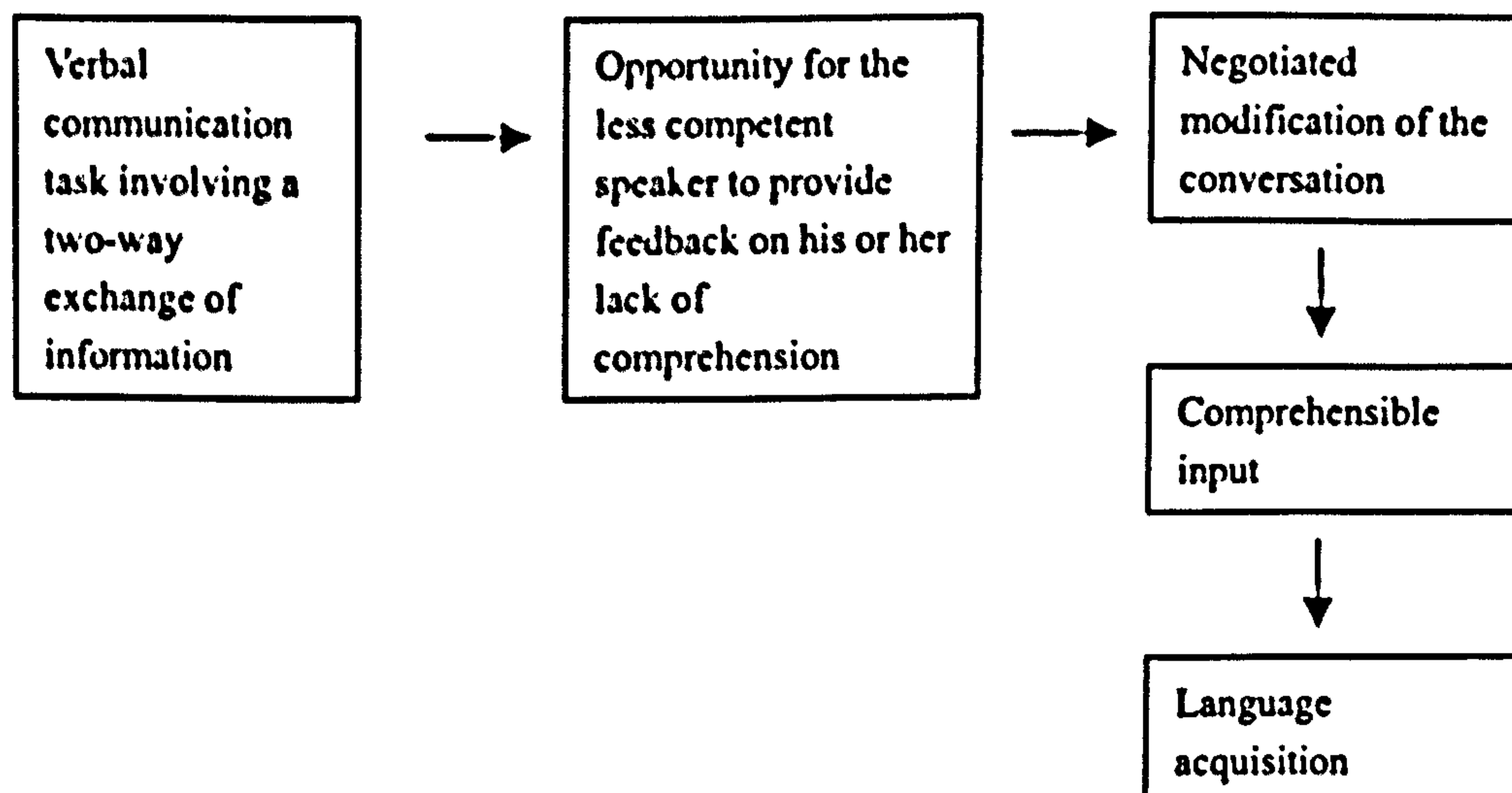


Figure 2.3 Long's model of relationship between types of conversational task and language acquisition

Long explains the model thus, 'communication involving a two-way exchange of information will provide more comprehensible input than communication which does not. Two-way communication tasks should also promote acquisition better than one-way tasks, for one-way tasks cannot guarantee the kinds of modifications needed to make input comprehensible' (Clarke, 1983: 214).

2.1.2 Interaction and SLA Instruction

Interaction is important in L2 acquisition. Through interaction, learners can increase their language store by listening to and reading authentic materials. Through interaction, they can also use the language knowledge in real life exchanges where expressing meaning is important to them. In a second language learning situation, interaction is essential for learners to live in a new language and culture, but learners need help with skills of interaction. Rivers stresses the role of teachers in introducing interaction:

In a language classroom, the teacher plays the role of introducing students to the skills of interaction. But the teacher needs to consider the techniques and approaches to achieve interaction. Firstly, the teacher needs to consider students' needs since the student is the centre of a class. More specifically, the teacher needs to consider 'the age of students, their scholastic background, their culturally absorbed ways of learning without ignoring the political and social pressures that are largely determining their motivation.

(1987: 5)

Furthermore, the teacher needs to consider choosing methods suitable to their individual teaching styles—the technique and approach which they feel comfortable to

use to introduce interactivities. The teacher also needs to be flexible to employ a repertoire of techniques in various circumstances.

Promoting interaction in a language class requires that the focus of a class is on the student instead of the teacher. As Rivers points out, 'Teacher-directed and -dominated classrooms cannot, by their nature, be interactive classrooms, and this is what language teachers need to learn. Interaction can be two-way, three-way, or four-way, but never one-way' (1987: 9). Similarly, the study by Ellis shows that class interactions (i.e. the learners receive assistance from the teacher in expressing and developing their own ideas) contribute to language acquisition, so 'it can be argued that giving learners control of the discourse is one way of making the classroom acquisition-rich' (1999: 219).

To this end, Rivers proposes twelve interactive activities in the language class. The twelve interactive activities introduce interactivity into the learning of language skills such as listening, speaking and reading, as well as considering the cultural and social influence on learning. Special attention is also paid to the effects of interaction on language testing and special-purpose language education. Rivers suggests that students should be put in situations where they hear and react to real uses of language or where what they read is to be incorporated into some further language-using activity. In Rivers' words, 'students can discuss and explain technical information in articles and books they are reading; they can propose activities that simulate the types of problems they will face in the work' (1987: 14).

More specifically, the twelve interactive activities in a language class are:

- (1) much listening to authentic material, with no prohibition or discouragement of spoken response or student-initiated contribution.
- (2) students from the beginning listen and speak in reacting to pictures and objects, in role plays, through acting out, and in discussion.
- (3) students are involved in joint tasks.

- (4) students watch films and videotapes of native speakers interacting.
- (5) pronunciation may be improved interactively not only while listening and speaking conversationally, but also in other activities such as poetry reading, and preparing dialogues and plays.
- (6) cross-cultural interaction is important in language use in the real world.
- (7) if reading is the activity, there should be lively interaction of reader and text—interpretation, expansion, discussing alternative possibilities or other conclusions.
- (8) what is written should be something that will be read and discussed by others in the group or class.
- (9) students perform better if they understand the grammatical system of the language.
- (10) testing should be interactive and proficiency-oriented, rather than a sterile, taxonomic process.
- (11) interaction with the community that speaks the language is also important to language learning.
- (12) special-purpose language classes such as preparing students for international banking, journalism and foreign affair can also be interactive.

(1987:10-14)

Although Rivers suggests that the learning context where the twelve activities happen is a language classroom in general, the twelve interactive activities have four implications for the current research. First, the listening materials chosen for the class need to be as authentic as possible. Second, simply listening to authentic materials cannot guarantee the improvement of students' listening and speaking skills. It is equally important to encourage students to use the language in interactive class activities. Third, it is necessary to give students cultural background information so that they can have a better understanding of what they listen to and better performance when they speak. And finally, practice in a simulated learning context can also help improve students' listening and speaking capabilities.

Similar methods are discussed by Richard-Amato et al. (1995), who agree that since no two learners will acquire a second language by exactly the same methods, it is necessary for teachers to develop their own interactive language teaching principles. They further examine several methods and activities that are for the most part compatible with an interactionist approach (e.g. music and poetry, story-telling and role play, drama and games). However, the interactive teaching methods proposed by Rivers and Richard-Amato et al. do not specifically discuss how the fast developing computer technology is used in the language classroom and what role it might play in increasing interactivity in the language classroom, which is what the hypotheses suggested by Chapelle explore.

2.1.3 Interactionist theory and CALL

Interactionist theories and research have provided valuable principles to apply to CALL. Chapelle suggests seven hypotheses developed from interactionist theory relevant to CALL development:

- (1) the linguistic characteristics of the target language input need to be made salient.
- (2) learners should receive help in comprehending semantic and syntactic aspects of linguistic input.
- (3) learners need to have opportunities to produce target language output.
- (4) learners need to notice errors in their own output.
- (5) learners need to correct their linguistic output.
- (6) learners need to engage in target language interaction whose structure can be modified for negotiation of meaning.
- (7) learners should engage in L2 tasks designed to maximize opportunities for good interaction.

(Chapelle, 1998: 23-25)

The seven hypotheses of interaction illustrate the relationship between learning activities and basic components (e.g. input, comprehension, intake, integration and output) in the SLA process. In a computer-assisted language learning environment, the seven hypotheses of interaction offer guidelines for developing CALL programmes.

The following are seven guidelines that Chapelle proposes for designing CALL programmes:

- (1) making key linguistic characteristics salient.
- (2) offering modifications of linguistic input.
- (3) providing opportunities for 'comprehensible output'.
- (4) providing opportunities for learners to notice their errors.
- (5) providing opportunities for learners to correct their linguistic output.
- (6) supporting modified interaction between the learner and the computer.
- (7) providing opportunities for learners to act as participants in L2 tasks.

(Chapelle, 1998: 27-28)

However, the seven guidelines for CALL development are problematic in several respects. Firstly, every student has different levels of existing linguistic knowledge. It is difficult to design a CALL programme that can meet the needs of every single student. Therefore, teachers play an important role in helping students understand input and modifying output. Secondly, in the environments of self-access learning and distance learning, the interaction between students and students, and students and teachers is likely to be less intense than that of face-to-face class instruction. Therefore, it may be harder for students to get immediate help from teachers. Thirdly, in a distance learning environment, it is not easy to design joint tasks in which students can participate concurrently. Fourthly, the technology available needs to be advanced enough to support online interactive activities. Furthermore, it is necessary to motivate students to participate in joint CALL tasks, especially those who are not confident or

comfortable with computers. Finally, it is important to give students necessary training on learning strategies in an elearning environment. The interaction in CALL contexts will be further discussed in Chapter 5, 6 and 7.

2.2 Language Learning Strategies

Since the amount of information to be processed by language learners is high in a language classroom, learners use different language learning strategies in performing the tasks and processing the new input they encounter. The importance of learning strategies is clearly stated in National Standards in Foreign Language Education Project by the US Department of Education, 'Learning Strategies are an integral part of language programmes, providing students with the tools for a lifetime of learning' (1996: 30). Oxford also states that language learning strategies '... are especially important for language learning because they are tools for active, self-directed movement, which is essential for developing communicative competence' (1990: 1). Apart from developing communicative competence, students become more proficient advanced language learners with help and instruction from teachers. Helping students to understand sound language learning strategies and training them to develop and use such good language learning strategies can be considered to be characteristics of a good language teacher (Lessard-Clouston, 1997: 3).

2.2.1 Definition of a language learning strategy

In the context of second language education, several definitions of language learning strategies have been offered by the key figures in the field. The definitions reveal a change of research focus over time. The early research has a focus on communicative competence; indeed, Tarone defines the language strategy as 'an attempt to develop linguistic and sociolinguistic competence in the target language—to incorporate these into one's interlanguage competence' (1983: 67). A more recent research trend is to examine the process and characteristics of language learning strategies. Rubin suggests that language strategies 'are strategies which contribute to the development of the

language system that the learner constructs and which affect learning directly' (1987: 22). Later, in their book for teachers, Chamot et al. define learning strategies as 'procedures or techniques that learners can use to facilitate a learning task' (1999: 2). A similar view is shared by O'Malley and Chamot. In their seminal study, O'Malley and Chamot stress that learning strategies are 'the special thoughts or behaviours that individuals use to help them comprehend, learn, or retain new information' (1990: 1). Finally, Oxford provides a definition:

...Language learning strategies -- specific actions, behaviours, steps, or techniques that students (often intentionally) use to improve their progress in developing L2 skills. These strategies can facilitate the internalisation, storage, retrieval, or use of the new language. Strategies are tools for the self-directed involvement necessary for developing communicative ability.

(1992/1993: 18)

When processing new information and all language, learners use language learning strategies consciously and unconsciously. At the same time, we should note the features of learning strategies. In her teacher-oriented book, Oxford summarises the characteristics of learning strategies. They are:

- contribute to the main goal, communicative competence: Learning strategies help learners participate actively in communication which will develop learners' communicative competence.
- allow learners to become more self-directed: Language learning strategies encourage greater overall self-direction for learners.
- expand the role of teachers: The process of identifying and training students' learning strategies expands teachers' managerial role to more varied and creative roles such as guide, consultant, adviser and coordinator.

- are problem-oriented: Language learning strategies are used because there is a problem to solve. For example, memory strategies are used because there is something that must be remembered.
- are action-based: Language learning strategies are specific actions or behaviours accomplished by students to enhance their learning, for example, taking notes, planning for a language task, self-evaluating.
- involve more aspects, than just cognition: Language learning strategies also include metacognitive functions like planning, evaluating, and arranging one's own learning, and emotional (affective), social, and other functions as well.
- support learning both directly and indirectly: Some learning strategies involve direct learning. Other strategies, including metacognitive, affective, and social strategies, contribute indirectly to learning.
- are not always observable: Many aspects of cooperating in learning activities can be observed, but the act of making mental associations cannot be seen.
- are often conscious: Learners often make conscious efforts to take control of their learning. After a certain amount of practice and use, learning strategies can become automatic.
- can be taught: Compared to learning style or personality traits, learning strategies are easier to teach and modify, which can be done through strategy training.
- are flexible: Language learning strategies are not always found in predictable sequences or in precise patterns. There is a great deal of individuality in the way learners choose, combine, and sequence strategies.
- are influenced by various factors: Language learning strategies are affected by many factors such as degree of awareness, stage of learning, task requirements, teacher expectations, age, sex, and so on.

(1990: 8-14)

With these features, learning strategies are distinct from learning styles, which are 'stable ways of approaching tasks that are characteristic of individuals' (Schmeck,

1988: 185), and refer more broadly to a learner's 'natural, habitual, and preferred way(s) of absorbing, processing, and retaining new information and skills' (Reid, 1995: viii).

Language learning strategies that language learners use during processing new information and performing tasks have been identified and described by a number of researchers, and various classifications have been developed (Wenden and Rubin, 1987; O'Malley et al., 1985; Oxford, 1990; Graham, 1997; Chamot et al., 1999; Grenfell and Harris, 1999). However, most of these classifications reflect more or less the same theoretical framework without a radical change. The following section will introduce the taxonomy proposed by several key figures in this field.

2.2.2 Taxonomy of language learning strategies

2.2.2.1 The early version of the classification of language learning strategies

The earlier version of the classification of learning strategies is practically oriented. It outlines the processes effective learners use to work through any challenging language learning task and describes ways to transfer strategy use to other subject areas as well as to real-life situations. In stead of taking a multi-angle look at learning strategies, often researchers analysed and classified learning strategies based on theories of a single discipline. The typical example is the taxonomy of language learning strategy following the psychological approach (O'Malley, 1985; Chamot et al., 1999). There are three major domains of current psychological approaches to language learning strategy classification: cognitive learning strategies, metacognitive strategies and social/affective learning strategies. O'Malley (1985) explains the three groups of learning strategies:

Cognitive strategies are more limited to specific learning tasks as they involve more direct manipulation of the learning material itself. Repetition, resourcing (making use of language materials such as dictionaries), translation, grouping

(organising learning on the basis of ‘common attributes’), note taking, deduction, recombination, imaging, auditory representation, contextualisation (placing a word or phrase in a meaningful language sequence), elaboration, transfer and inferencing (guessing meanings by using available information—I think of the whole meaning of the sentence, and then I can get the meaning of the new words). Metacognitive is a term to express executive function. Metacognitive strategies which require planning for learning, thinking about the learning process as it is taking place, monitoring of one's production or comprehension, and evaluating learning after an activity is completed. Socio/affective strategies are related to context-mediating activity and transacting with others. Cooperation and questioning for clarification are the main socio/affective strategies.

However, O'Malley's psychological approach to classifying language learning strategies is problematic in several ways. First, social/affective strategies include diverse behaviours such as cooperation, questioning and clarification, and self-talk. These strategies are not related to the cognitive theoretical basis. In Dörnyei's words, ‘these strategies admittedly represent a broad grouping, a miscellaneous category that appears to have been introduced simply to accommodate all the strategies that did not fit into the first two types but which could not be left out either’ (2005: 168-169). Second, the classification does not show the coordinating links among the strategy groups. The cognitive strategies, metacognitive strategies, affective strategies and social strategies mutually support one another. For example, cognitive strategies are for understanding and producing the language while metacognitive strategies are for coordinating the learning process; affective strategies are for regulating emotion and social strategies for learning with others. All these strategies service learning process. And the last problem of this classification is that a more comprehensive and systematic perspective of the classification of learning strategies need to be adopted in order to link not only individual strategies but also strategy groups.

Compared with the psychological approach, the multi-level classification proposed by Oxford presents a more comprehensive and detailed framework of language learning

strategies.

2.2.2.2 Comprehensive and multi-level classification

Oxford's classification of language learning strategies

Oxford divides language learning strategies into two major classes: direct and indirect. These two classes are further subdivided into six groups. However, these six groups interact with one another. In Oxford's words, 'direct strategies and indirect strategies support each other. Each strategy group is capable of connecting with and assisting every other strategy group' (1990: 14). The six groups of learning strategies are specified as follows:

- Direct Strategies

- I. Memory

- A. Creating mental linkages
 - B. Applying images and sounds
 - C. Reviewing well
 - D. Employing action

- II. Cognitive

- practicing
 - receiving and sending messages strategies
 - analysing and reasoning
 - creating structure for input and output

- III. Compensation strategies

- guessing intelligently
 - overcoming limitations in speaking and writing

- Indirect Strategies

I. Metacognitive Strategies

- centring your learning
- arranging and planning your learning
- evaluating your learning

II. Affective Strategies

- lowering your anxiety
- encouraging yourself
- taking your emotional temperature

III. Social Strategies

- asking questions
- cooperating with others
- empathising with others

Oxford's classification of language learning strategies is different from the earlier taxonomy in several ways. As Oxford remarks, 'it is more systematic in linking individual strategies, as well as strategy groups, with each of the four language skills (listening, speaking, reading and writing); and it uses less technical terminology' (1990: 14). However, there are two concerns about this scheme. First, 'compensation strategies' are related to language use rather than language learning. A number of authors (Cohen, 1998; Ellis, 1994; Selinker, 1972; Tarone, 1981) have argued that these two concepts are different both in terms of their function and their psycholinguistic representation. A second concern is the separation of cognitive and memory strategies because most memory strategies are associated with shallow processing whereas most cognitive strategies are associated with deep processing. The study by Purpura (1999) confirms that memory strategies constitute a subclass of cognitive strategies.

The strategy system presented by Oxford helps our understanding of language learning strategies. It has contributed to the current research in several ways. First, the strategy system indicates that direct strategies and indirect strategies support each other, and that each strategy group is capable of connecting with and assisting every other strategy group. Therefore, studying students' use of learning strategies in a computer-assisted learning context has to consider the effect of students' capability of planning, managing and evaluating computer-assisted learning activities, concentrating and self-motivating in study via computers, and cooperating with others in both online and off-line activities. Second, the strategy system also sheds lights on the choice of research methods. For instance, observation by videoing computer-assisted learning activities has been conducted by a number of researchers (Ludvigsen & Mørch, 2005, Rasmussen, 2005). However, the strategy system indicates that some learning strategies such as cooperating, asking questions and many aspects of arranging and planning learning are readily observable. But if strategies are cerebral and non-behaviouristic, they cannot be seen. Another problem with observing learning strategies is that if strategies are used outside of the classroom in informal naturalistic situations, it is difficult for researchers to trace students' use of certain strategies. And finally, the strategy system suggests that many factors affect the choice of strategies, such as task requirements, motivation levels and communication abilities. Therefore, in a computer-assisted learning environment, the analysis of learning strategies needs to take into account the characteristics of elearning tasks, students' learning styles in an elearning context and designs of elearning curricula. This point is particularly important to the current research, which studies learning two language skills—listening and speaking in computer-assisted learning contexts. The following section will examine language learning strategies in learning and practising listening and speaking skills.

2.2.3 Listening and speaking strategies studies

There are two approaches to researching listening and speaking learning strategies. One is to see them as a top-down process; the other is the bottom-up process. Using the

top-down approach, researchers like Oxford (1990) propose a theoretical framework of language learning strategies based on theories in the related subjects like cognitive psychology, and then respectively apply them to the four language skills including listening and speaking. On the other hand, O'Malley (1990), Graham (1997), Cohen (1998) and Grenfell (1999), adopting a bottom-up approach through class instruction practice and observation, use language learning strategies in learning listening and speaking skills.

Generally, there are two groups of learning strategies related to listening skills (Graham, 1997: 49): those to improve students' performance and those used in comprehending a message.

2.2.3.1 Learning strategies for listening

Listening strategies to improve students' performance

In this group, six main strategies are noted by Oxford:

- arranging and planning learning
- evaluating learning
- creating practice opportunities
- self-management
- cooperating with others
- developing cultural background knowledge

This group of strategies can be labeled as indirect strategies as suggested by Oxford, which 'support and manage language learning without (in many instances) directly involving the target language' (1990: 135).

Listening strategies used in comprehending a message

In this group, listening learning strategies directly involve the target language and

require mental processing of the language. They are:

- listening out for specific details
- concentrating on task
- naturalising practice
- comprehension monitoring
- inferencing from context

However, there are two concerns about applying Oxford's listening learning strategy inventory. First, the learner's choice of learning strategies has to be in tune with a specific learning task. It is acknowledged that 'successful language learners tend to select strategies that work well together in a highly orchestrated way, tailored to the requirements of the language task' (Chamot & Kupper, 1989). This viewpoint supports the idea of using learning strategies in a computer-assisted learning task. But since computer-assisted language learning is a relatively new way of learning, the use of learning strategies needs to be adapted to the new learning context. The second problem is that some of the learning strategies like listening out for specific details and advance organisation are difficult to investigate using qualitative research methods like observation and interview. Therefore in her study, Oxford collects evidence to validate her inventory by mostly using questionnaires (1990: 282-300). However, to study an individual student's use of learning strategies, no matter whether he/she is an English speaker learning a new language or a speaker of other languages learning English, the researcher needs to trace individual cases over a period of time and considering the factors which influence the use of learning strategies such as learning contexts, individual learning styles, learning activities and material available.

2.2.3.2 Learning strategies for speaking

Researchers often compare learning strategies employed in speaking tasks with those used in writing, for the both are production skills and share similarities with respect to the learning process. For instance, Grenfell (1999) even classifies speaking learning

strategies into a broader group, communication strategies, because speaking is a kind of face-to-face communication.

Graham (1990) summarises three main strategies: planning what to say, selecting what to say, and a degree of translation.

Oxford (1990) gives more specific list of speaking learning strategies, involving:

- memory strategies: placing new words into a context; representing sounds in memory; using memory strategies for retrieval;
- cognitive strategies: repeating; recognising and using formulae and patterns; practicing naturalistically; using resources for receiving and sending messages; reasoning deductively; translating; transferring;
- compensation strategies: switching to the mother tongue; getting help; using mime or gesture; avoiding communication partially or totally; selecting the topic; adjusting or approximating the message; coining words; using a circumlocution or synonym;
- metacognitive strategies: centring your learning; arranging and planning your learning; evaluating your learning;
- affective strategies: lowering your anxiety; encouraging yourself; taking our emotional temperature;
- social strategies: asking for correction; cooperating with others; empathising with others.

The above generalisation of listening and speaking learning strategies will form a background for the discussion on class instruction of listening and speaking skills. In the following section, we will look into strategy instruction in class.

2.2.4 Listening and speaking strategy instruction

There are strong arguments for assuming that learning strategy instruction should be

useful to language learners. In this section, I shall briefly review the intervention studies in which students are taught to implement learning strategies in listening and speaking tasks.

2.2.4.1 Listening strategy instruction studies

Different models of instruction have been worked out by researchers, but more often than not, the listening tasks ask students to listen to and watch a video and then answer questions.

In the study by O'Malley, students listened to tapes of authentic dialogues, and then completed comprehension exercises. Students were instructed to use four-stage listening comprehension strategies: selective attention, elaboration, inferencing and transfer. 'The sequence of instruction-listening-discussion-instruction-was repeated at a rapid and enthusiastic pace throughout the classes observed' (1990: 180). The result shows that 'students were alert, and most seemed to enjoy the pace and concentration required' in the learning process.

In addition, O'Malley and Chamot (1990) in their study suggest a reciprocal teaching method in which the teacher initially models the strategies to be used; students then work in groups and take it in turns to play the part of the 'teacher', going through the strategies again and helping the group as a whole to arrive at the comprehension of the text. But Graham (1997: 144) further states that 'as students become more proficient in using strategies, they will need less teacher support. They will become more self-directed and will assess how they might best approach a learning task.'

Grenfell and Harris (1999: 83-84) describe a circle of listening strategy instruction: Awareness raising-Modelling-General practice>Action planning-Focused practice and fading out the reminders-Evaluating strategy acquisition and Recommencing the cycle. At the same time, Grenfell and Harris also suggest the integration of strategies in four language skills, which will be discussed later in this section.

2.2.4.2 Speaking strategy instruction studies

Learning strategy instruction studies for speaking are few in number. A number of researchers have compared learning strategies either with respect to speaking and writing (Chamot et. al, 1999; Leki, 1995; O'Malley, 1990; Graham, 1997) or with respect to speaking and communication (Grenfell & Harris, 1999; Cohen, 1987).

In the experimental study by O'Malley, the instructor provided specific instruction in the use of three strategies for speaking exercises: substitution, cooperation and self-evaluation. 'With each new activity, the instructor reminded students of the strategies and explained how they could be applied to the new task as well as to communicative situations in real life, thus providing direct instruction in transfer of the strategies' (1990: 181). O'Malley also tested another type of instruction: instructors provided instruction on inferencing and self-monitoring as aids in developing speaking skills (ibid: 182).

A study of speaking strategy instruction was also conducted by Grenfell and his colleagues (Grenfell & Harris, 1999). They refer to communication strategies as those techniques used in face-to-face conversations. Two basic strategies are recommended:

- keep it simple
- keep it going:
 - turn-taking and turn-giving gambits
 - topic manipulation
 - 'fillers'
 - circumlocution
 - picking up on the interlocutor's expression

(Grenfell and Harris, 1999: 98)

Grenfell further suggests that 'learners may need extensive exposure to the strategies

before they can be expected to produce them in spontaneous speech. The use of audio and video recordings may be necessary' (ibid).

Moreover, researchers also suggest an integration of learning strategies across the four language skills. Wenden notes that integrated strategy training 'enables the learner to perceive the relevance of the task, enhances comprehension, and facilitates retention' (1987: 161). Grenfell also asserts that strategy instruction should be integrated into everyday lessons. 'Strategy instruction should reflect a communicative view of the nature and purpose of language learning and should promote learner autonomy' (1999: 104). Against this, Little (1996) warns that it should not be assumed that merely 'training' students in strategies use will automatically lead to the development of their communicative competence. Similarly, Wenden warns that fully integrated strategy training may not necessarily lead to the spontaneous application of strategies by individual learners, nor will it necessarily produce autonomous learners (1987: 161).

2.2.5 Factors affecting learning strategies

A number of factors affect strategy choice such as learning style, gender, age, nationality or ethnicity, previous educational and cultural experiences, and learning environment. For example, the study by Gao (2006) provides insights into the influences of learning environment on strategy use over time. And Hong-Nam and Leavell study the language learning strategy use of ESL students in an intensive English learning context. As they point out:

Recent research has focused on determining the connections between strategy use and language proficiency. Studies have shown that proficient language learners employ more strategies in language learning than less proficient language learners...Studies have established a great deal of evidence of gender differences in the use of language learning strategies...Cultural background has been linked to use and choice of language learning strategies.

(2006: 399-415)

Furthermore, a significant number of studies have been carried out to identify the links between learning styles and learning strategies (Riding and Cheema, 1991; Sadler-Smith, 2001). It is claimed by researchers like Oxford (1994) that learning styles in particular play an important role in determining the choice of language learning strategies. However, the research into learning style itself is problematic, and the effect of learning style on learning strategies is not determined (Bloomer and Hodkinson, 2000). For example, the review on learning styles by Coffield et al reveals that

Research into learning styles can be characterised as small scale, non-cumulative, uncritical and inward-looking. Our review provides detailed evidence of a proliferation of concepts, instruments and pedagogical strategies; for instance, we listed no less than 31 different dichotomies (verbalisers v imagers; activists v reflectors; left brainers v right brainers). This proliferation is a clear symptom of the current conceptual confusion, the serious failure of accumulated theoretical coherence and the absence of well-grounded findings, tested through replication. Moreover, most of the 13 models we studied closely exhibited serious psychometric weaknesses. Each model was examined for evidence, provided by independent researchers, that the instrument could demonstrate both internal consistency and test-retest reliability and construct and predictive validity. These are the minimum standards for any instrument which is to be used to redesign pedagogy. Three of our 13 models met none of these criteria, four met one, four met two, one met three and only one met all four. It also needs to be remembered that these self-report inventories are not sampling the behaviour of learners but only their impressions of how they learn, impressions which may be inaccurate, self-deluding or influenced by what the respondent thinks the psychologist wants to hear.

(<http://www.llda.org.uk/files/PDF/Unplearnstylespost16.pdf>)

Moreover, although a number of researchers (Beishuizen and Stoutjesdijk, 1999; Cunningham-Atkins et al., 2004; McNutt and Brennan, 2005; Rovai 2003) have used various approaches to examine the features of students' learning styles in computer-assisted learning, the research into learning styles in CALL contexts is still a relatively new area. The existing inventories are not effective in a CALL context and need to be revised. Therefore the current study will not investigate how learning styles affect students' using learning strategies in computer-assisted language learning environment.

2.3 Language Learning Motivation and Attitude

Motivation is important to language learning because it helps determine that extent of involvement in language. High motivation spurs learners to interact with native speakers of the language, which in turn increases the amount of input learners receive (Krashen, 1982; Scarcella and Oxford, 1992).

2.3.1 Social-Education Model

In the Social-Education Model, Gardner and his colleagues (Gardner, 1985, 1988; Gardner, Lalonde, Moorcroft, and Evers, 1985; Gardner and MacIntyre, 1991, 1993; Gardner and Tremblay, 1994b; Lambert, Gardner, Barik, and Tunstall, 1963) explain motivation in three levels.

The desire for learning the language for the purpose of cultural/linguistic integration is found on all levels within this social psychological construct of language learning motivation. At the most specific or first level is found integrative orientation. An orientation is a class of reasons for studying a language (Gardner and Tremblay, 1994a). Integrative orientation deals with the individual's desire for cultural or linguistic integration.

The second level is (1) integrativeness and (2) attitudes towards the L2 language learning situation. Integrativeness refers to the integrative orientation mentioned above, plus two attitudinal factors: general foreign language interest and attitudes toward the target community. Attitudes toward the L2 learning situation are comprised of evaluation of the teacher and evaluation of the course (Gardner and MacIntyre, 1993)

The third level consists of (1) effort, (2) desire to learn the language, and (3) attitudes toward learning the language. These taken together, are viewed as motivation.

However, Gardner and group were criticised for creating a false split between integrative and instrumental motivation (Dörnyei, 1994; Oxford and Shearin, 1994). Instrumental motivation is motivation to learn the language for an instrumental (practical) purpose, such as getting a better job, earning more money, entering a better university, and so on. Dörnyei (1990a, 1990b) even suggests that instrumental motivation might be more important than integrative motivation for foreign language learners. According to Dörnyei, foreign language learners rarely have sufficient experience with the target language community to have clearly articulated attitudes toward that community and they are therefore uncommitted to integrating with that group.

Interestingly, Tremblay and Gardner (1995) have expanded all early versions of Gardner's Socio-Education Model. Their study includes variables such as goal salience, self-efficacy, attributions about success or failure, the expected language attitudes, language dominance in the environment, motivation effort, desire to learn and achievement. This expansion goes well beyond the previous bounds of the Socio-Educational Model and answers some of the main questions that have dogged the model in the past.

2.3.2 Motivation and learning strategies

Motivation is linked with use of language learning strategies (Oxford and Nyikos,

1989). Motivation helps students maintain their language ability after students leave the classroom (Gardner, Lalonde, Moorcroft and Evers, 1985). A study by Schmidt and colleagues (Schmidt, Boraie and Kassabgy, 1999) demonstrates that learners who are more motivated tend to use a wider range of strategies more frequently. This suggests that learning strategies are an important element in the learning process and that teachers and students might benefit from an explicit discussion of strategies. Therefore, they conclude that

Improvement of strategies can be highly motivating, particularly if students realise that it is their strategic effort that creates greater language skill. The use of particular strategies or sets of strategies seems tied in a complex way to levels of motivation, kinds of motivation, nature of the language being learned, amount of cultural and linguistic stimulation available, and classroom instructional design. It is crucial to understand how these factors fit together. A major model of language learning needs to be developed that includes these factors.

(Schmidt, Boraie and Kassabgy, 1999: 118-119)

The current study studies the relationship between students' use of learning strategies and their motivation in a computer-assisted language learning environment, which will be explained in Chapter 6.

2.4 Summary

This chapter provides a review of two theoretical topics in SLA—interactive language learning theory and learning strategies on which the present research—the effect of computer technology on teaching and learning listening speaking skills—has been based.

Interaction in language learning is a collaborative activity between the sender, the receiver and the context of situation. Since the 1960s, interactionists have begun to

explore the relationship between language acquisition and interactive activities. Krashen's Input Hypothesis, Long's Interaction Hypothesis, Swain's Output Hypothesis, Feedback theories and Chappelle's Interaction Model have all contributed to the development of interactive language learning research.

Interactionist theories have important implications for SLA research. Interactive learning can help learners increase their store of language input and improve their ability to use language in real life exchanges. Students also need help with the skills of interaction. In particular, in the language classroom, teachers play an important role in introducing interaction techniques.

Interactionist theories have also provided valuable principles to CALL research. Chappelle proposes seven constructive guidelines to developing interactive CALL programmes. However, in the application of these guidelines, the instructor also needs to consider the learning styles of individual students and their use of strategies in language learning.

The second section of this chapter focused on the theories about learning strategies. 'A learning strategy is a set of one or more procedures that an individual acquires to facilitate performance on a learning task' (Riding & Rayner, 1998: 80). Strategies vary depending on the nature of the task. Researchers (e.g. Cohen, O'Malley, Chamot, Oxford and Stern) over the years have offered various types of criteria to classify learning strategies. This chapter pays special attention to the learning strategies of listening and speaking skills. Based on Graham's study, the listening skill is divided into two groups: those to improve students' performance and those used in comprehending a message. Under each category, there are a group of strategies used by learners to acquire listening skills effectively. Furthermore, researchers (e.g. Graham, Grenfel and Oxford) also propose the classification of learning strategies to acquire speaking skills. This will help our understanding of students' use of learning strategies in an elearning context.

The effectiveness of learning strategies is affected by a number of factors such as learning style, gender, age, nationality or ethnicity, beliefs, previous educational and cultural experiences, and learning environment. Although among which individual's learning styles is claimed by researchers to play an important role in determining the choice of learning strategies. However, the models of learning style themselves are problematic, and the effect of learning style on learning strategies is not determined. Therefore, the present research will not examine learning styles in computer-assisted learning environment.

This literature review also briefs the theories of language learning motivation and attitude, particularly the links between motivation and the use of language learning strategies. It has been demonstrated that learners who are more motivated tend to use a wider range of strategies more frequently (Schmidt, Boraie and Kassabgy, 1999). This suggests that learning strategies are an important element in the learning process and that teachers and students might benefit from an explicit discussion of strategies.

Chapter Three

Literature Review on Computer-Assisted Language Learning

3.0 Background

This chapter is prompted by the rapid changes associated with one of the most significant areas of innovation in language education, Computer-Assisted Language Learning (CALL). With the fast development of computer technology, the traditional audiotape-based language lab is gradually being replaced by language media centres, where learners can use multimedia CD-ROMs, access foreign language documents on the World Wide Web, and communicate with their teachers, classmates, and native speakers by electronic mail (Kern & Warschauer, 2000). However, if language teaching has become more exciting, it has also become considerably more complex.

The present review focuses on the development of CALL theories and practices. Section 1 generalises the current research focuses on CALL, that is, CALL theories, learners in CALL programmes, CALL tasks and computer technology, and in particular, courseware development methods and assessment. Section 2 discusses the efforts by CALL researchers, teachers and courseware developers in establishing theoretical basis for CALL. Section 3 discusses the strengths and limitations of different CALL application approaches. Lastly Section 4 examines criteria and methods for the evaluation of CALL programmes.

Aims

The aims of the review are as follows:

- to identify the current major research focuses of CALL
- to search for a theoretical basis for CALL study by discussing different school

of thoughts

- to determine the strengths and limits of CALL application methods, in particular, those relating to listening and speaking
- to examine the evaluation criteria and methods of CALL programmes so that practice relating to the use of computer technology can be evidence-based

3.1 Major Focuses of CALL Research

A search for studies through the ERIC (Education Resources Information Centre) databases for 1980—2004 was guided by the above-mentioned four research foci. A total of 187 studies were found. Keywords and summaries of these studies were examined in order to understand their characteristics and foci. The results showed that there were obvious research trends in the past two decades to CALL theories, learning activities, learning tasks and technology, especially courseware design and evaluation.

Because CALL is a relatively new research field in Educational Studies, researchers have been engaged in identifying proper research methodology (Chapelle & Hegelheimer, 2000), or explaining and clarifying terms and conceptions of CALL (Florez, 1998). Moreover, some researchers put effort into building up a theoretical basis for CALL by making use of theories from Psychology, Sociology and Second Language Acquisition (Chapelle, 1997; Selfe & Wahlstrom, 1988).

35 out of the 187 articles and books focus on learning activities. The early studies tended to compare computer-aided learning with traditional teacher-instructed learning (Amberg, 1984; Stanford, 1992). But in recent years, researchers have become more interested in examining the learning process by using the computer technology, such as learning strategies, learning styles and learning attitudes (Beauvois, 1995; Murray, 1999; Burston, 2001). Moreover, with the developing usage of computers, some studies are engaged in the impact of the computer on learning (Nikolova, 2002; Chanier, Renie, 1995, etc.); and explore effective ways to carry out this new learning

activity (Newman, 1985; Barty, 2000, etc.).

More articles and books (about 82) have been found in studying the learning task. The focus of studies varies as follows:

- Curriculum design methods in particular subjects (Pollard, 1986; Emery, 1991; Watts, 1990; etc.)
- the methods of integrating the computer technology into the existing curriculum (Hawkins, 1982; Jordan, 1988; Lemerise, 1990; Kurshan, 1997; Hokanson, 2001; Jancewicz, 2002; Thomson, 2003; etc.);
- distance learning modules (Baugh, 1997)
- special Education (Andrews, 1999);
- evaluation of a specific CALL module (Brown, 1983; Lopez, 1985; Sherman, 1999a);
- impact of computer technology on teaching methods (Mojkowski, 1989; Mydlarski, 1998; Sherman, 1999b)

There are also a number of researchers engaged in the study of technology, which includes the software design and evaluation (Falleur, 1984; Boyce, 1985; Ginsberg, 1989; Gina & Egbert, 2002); system development (Kaiser, 1985); computer learning environments (Jessup, 1996; Zollman, 1990; Battista, 1994); and the role of a computer in language teaching (Mydlarski, 1987; Sheingold, 1990; Dicheva, 1998).

To summarise, there are four major focuses of CALL research in the last two decades: on theories, on learners, on learning tasks and on technology.

Focus	Indication
The theoretical basis	the search for the theoretical basis of CALL
The learner	learning activities when using CALL programmes
The learning task	the ways to frame learning tasks
The technology	the design and evaluation of software and technical problems solving methods in CALL

Figure 3.1 The foci of CALL research

The brief overview suggests three questions which are of relevance to the present study.

First, since CALL research has interacted with other disciplines such as Psychology, Sociology and Second Language Acquisition, what theories can best explain CALL activities and give guidance for future CALL practice in an educational environment?

Second, what are the present uses of CALL programmes, in particular, of teaching and learning listening and speaking skills?

And the last, how can a CALL programme be assessed? What are the evaluation criteria and methods?

3.2 Searching for a Theoretical Basis for CALL Research

CALL theory plays a role in conceptualizing research aims, formulating research questions and choosing research methods. However, mere theoretical study fails to keep up with the rapid changes in various ways of using CALL programmes. On this point, Chapelle suggests ‘...what I find most useful are those (CALL theory studies) that provide some evidence about the design of the software, the learners’ use of CALL, or the way that the teacher has organised the task’ (2003: 81).

To explain the complexity of CALL activities, researchers have looked to cross-disciplinary sources for perspectives and research methods. In his book, Warschauer (2000) examines how three theoretical movements—structural, cognitive, and sociocognitive—in recent history of language teaching have influenced how computer technology has been used in language teaching. He also notices that shifts in theoretical perspectives have paralleled developments in technology from the mainframe to the personal to the networked computer. The movements in theoretical study also correspond roughly to three metaphors of computer-based educational activities posited by Crook (1994): a tutorial metaphor (computer-as-tutor), a construction metaphor (computer-as-pupil) and a toolbox metaphor (computer-as-tool).

The earliest CALL programmes consisted of grammar and vocabulary tutorial, drills and practice programmes and language testing instruction, in which a computer played a tutor role. The next generation of CALL programmes shifted attention to the learner. Papert (1980) maintains that computers are controlled by, rather than controlling the learner.

Although computer provides tools and resources, it is up to the learner to do something in a simulated environment. However, critics point out that computer activities based on either a tutor or a pupil metaphor potentially distance the teacher from what students are doing and can compromise the collaborative nature of classroom learning (Kenning & Kenning, 1990; Crook, 1994). Recent CALL programmes widen the concept of interaction from learners' interaction with computers to interaction with other humans via the computer. Crook's (1994) computer-as-tool model emphasises the role that computers can play as a mediation tools that shapes the ways we interact with the world. There are two application environments that need to be noticed, (1) computer-assisted classes and (2) the World Wide Web. In different environments, the tool role of computer can be interpreted into different practices (Warschauer, 2000). CALL researchers interpret CALL activities from wider perspectives by borrowing

theories from Anthropology, Cognitive Psychology, Communication Theory, Linguistics, and Second Language Acquisition (SLA) (Salaberry, 1996: 6). Chapelle summarises the various research approaches throughout the 1990s:

In the commentary on a recent collection of papers about intelligent tutoring systems for foreign language learning, the authors draw their comments from perspectives in learning theory, psycholinguistics, human-computer interaction, psychology (MacWhinney, 1995), 'a computationally oriented theory of language use' (Bailin, 1995), psycholinguistic theory (Garrett, 1995), theory of novice vs. expert learning, constructivism, and individual differences theory (Oxford, 1995).

(1997: 19-43)

These diverse perspectives of CALL research increase our understanding of CALL activities. And yet, each of these theories falls short of providing the concrete principles needed to investigate CALL for instructed SLA, and it is here that we need to make use of SLA literature. SLA research offers a variety of approaches to investigating the process of second language development. Chapelle suggests 'our understanding of CALL would benefit from addressing questions similar to those posed about other L2 classroom learning and from applying the methods used to study L2 learning in other types of classroom activities' (1997: 19). On this point, Salaberry strongly argues that:

The literature review on research perspectives of classroom discourse needs to be further expanded. While I do not wish to deny the importance of the specific perspectives on classroom discourse explicitly described by Chapelle, I believe that Chapelle's review of the background literature is limited. For instance, the recent appearance of a substantial number of theoretical and empirical studies on the analysis of L2 classroom interaction from the perspective of sociocultural theory has not been incorporated to Chapelle's analysis.

(1999: 104)

It is undeniable that the theories from other disciplines develop our understanding of CALL from various perspectives. However, the SLA literature contains work representing a variety of objectives and approaches for investigating the process of second language acquisition and development. In particular, theories of SLA have reliable research methodologies available to properly frame hypotheses and evaluate the results of CALL practice. The implications of SLA theories for CALL have been addressed in CALL literatures by a number of researchers (Holland, 1995a; Krashen, 1982; Long, 1996; Pica, Lincoln-Porter, Paninos & Linnell, 1996; Swain & Lapkin, 1995). Theories of SLA that have been used in CALL study include interaction hypotheses, communicative language theory, instructional design, theories of teaching and learning.

3.2.1 Theoretical studies of CALL from SLA perspectives

The shift from structural to communicative perspectives on language teaching has influenced the use of computer technology in language education. In general, there are three theoretical movements—structural, cognitive, and sociocognitive—in the recent history of language teaching (Kern & Warschauer, 2000).

3.2.1.1 Structural approaches to CALL

Structural methodologists conceived of language learning as habit formation and thus saturated students with dialogues and pattern drills designed to condition learners to produce automatic, correct responses to linguistic stimuli.

(Warschauer & Kern, 2000: 3)

Early CALL programmes, which were consistent with the structural approach,

emphasised that repeated drilling on the same material was beneficial or even essential to learning. Due to the technology limitation, the early CALL programmes mainly focused on vocabulary and grammar structure practice. As Underwood puts it 'the programmes work on a Wrong-Try Again model. They do not aim at encouraging the student to communicate, but instead focus on the form of the language, evaluating student responses in terms of correctness' (1984: 45).

In recent years, the simple repetitive drill has become more integrated to cover several language skills. For example, listening practice is integrated with vocabulary practice. When listening to a conversation, students are asked to fill in the blank by using the word or expression in the conversation. Or reading practice is combined with the grammar correction practice. For example, programmes like SKY integrate vocabulary tasks, listening tasks and grammar tasks.

However, because of their lack of variation in form, these programmes tend not to be stimulating to either students or teachers. Although the computer gives immediate feedback on the practice, there is no further explanation on why the answer is wrong and how to correct it, particularly in pronunciation drills.

The computer-assisted language teaching in structural approaches, despite a number of attacks, is certainly a defensible one. As Mohan maintains, 'Interpreted with a sophisticated concept of teaching and definition of language which includes both natural and artificial varieties, it (structural approach) opens up important avenues of research, not the least of which is the application of second language research techniques to the study of the acquisition of programming languages at the computer' (1999: 113). In the current study, CALL programmes consistent with the structural approach were commonly used in the sample universities, thereof these programmes and the tasks and class activities along with the programmes will be studied in Chapter 5, 6 and 7.

3.2.1.2 Cognitive approaches to CALL

The cognitive approach is based on the view that learning a language is an individual psycholinguistic act. Language learners construct a mental model of a language system, based not on habit formation but rather on innate cognitive knowledge in interaction with comprehensible, meaningful language. Krashen, one of the most influential second language acquisition theorists, proposes an Input Hypothesis. In Krashen's words, 'people acquire second languages when they obtain comprehensible input...; comprehensible input is the true and only causative variable in second language acquisition' (1983: 60). Instruction in the second language 'helps second language acquisition only when it provides comprehensible input' (ibid.). This means, for instance, what is important about a computer programme is not whether it aims to teach languages, but whether it helps learners to receive comprehensible input. Krashen's views have been criticised on both empirical and theoretical grounds. For example, Long (1980; 1981; 1983) concludes that there is a need for *negotiation* of comprehension input. 'Learners must be put in a position of being able to negotiate the input thereby ensuring that the level of language which is heard is modified to exactly the level of comprehensibility they can manage' (Long & Porter, 1985: 214). Higgins and Johns (1984) discuss an example of the CALL programme, *Invent a Monster*, which is intended for group use and group talk. Underwood also thinks highly of communication activities in learning, 'the students get involved in much healthy discussion centring on how you get the thing to work, or the best way to solve the problem' (1984: 54).

There is a general sense in which CALL programmes in line with the cognitive perspective shift the attention from the structure of the language output to the learner. In self-access CALL programmes, the computer plays the role of tool. It is the learner who controls the practice and utilises his existing knowledge to foster new understandings. But this type of self-access CALL programme is based on the view that there is a full interaction between the learner and the computer, and that the learner

is capable of controlling the process and interpreting the feedback from the computer. However, it is difficult to achieve such an ideal situation. On the one hand, the technology available constrains the learner-computer interaction. The computer is not intelligent enough to be fully communicative with the student. As Warschauer points out:

Despite the apparent advantages of multimedia CALL, today's computer programmes are not yet intelligent enough to be truly interactive. Although programmes like Philippe put the learner in an active stance and provide an effective illusion of communicative interaction, the learner nevertheless acts in a principally consultative mode within a closed system, and does not engage in genuine negotiation of meaning. Computer programmes that are capable of evaluating the appropriateness of a user's writing or speech, diagnosing learner difficulties, and intelligently choosing among a range of communicative response options are not expected to exist for quite some time.

(Warschauer, 2000: 11)

On the other hand, the learner's existing knowledge may not be enough to develop new understanding, particularly for beginners and low-level learners who do not have profound language knowledge as well as learning strategies. Moreover, the interaction which occurs as a result of lack of comprehension is vital to the learner's language development.

Another obvious constraint of self-access computer-assisted programmes is how the student gets detailed feedback. For example, in a computer-assisted pronunciation programme, automatic correction of pronunciation can have its limitations if it is not accompanied by understandable directives about what is wrong and what needs to be done to correct mispronunciation.

3.2.1.3 Sociocognitive approaches to CALL

In contrast to the cognitive perspective, the sociocognitive perspective emphasises ‘the social aspect of language acquisition; learning a language is viewed as a process of apprenticeship or socialisation into particular discourse communities’ (Cameron, 1999). In learner-centred sociocognitive instruction, learning is viewed not just in terms of changes in individuals' cognitive structures, but also in terms of the social structure of learners' discourse and activity (Crook, 1994: 78). Thereby, the goal of language instruction is not only to provide comprehensible linguistic input but also to build the learners' communicative competence and to ‘help them enter into the kinds of authentic social discourse situations and discourse communities that they would later encounter outside the classroom’ (Warschauer & Kern, 2000: 5). Similarly, Chapelle (2001) explains the construct of ‘willingness to communicate’ (WTC), ‘a situation-specific variable representing an intention to communicate at a specific time to a specific person’ (MacIntyre et al., 1998: 559). WTC explains the goal of learning from a psychological perspective as developing learners' interest in seeking out opportunities for communication and their willingness to communicate in these situations.

According to Chapelle (2001: 50), WTC consists of several layers of underlying predispositions, including (1) the desire to communicate with a particular person, (2) communicative self-confidence at that particular moment, (3) interpersonal motivation (the desire to control or affiliate with others), (4) intergroup motivation (related to the speakers' group affiliation), (5) self-confidence, (6) intergroup attitudes (e.g. integrativeness), (7) social situation (i.e., features of context affecting communication), (8) communicative competence, (9) intergroup climate, and (10) personality.

A sociocognitive perspective extends the concept of communication in computer-assisted learning from learner-to-machine to learner-to-learner and learner-to-teacher. CALL programmes in line with the sociocognitive perspective

foster communication in learning. For instance, at the Frankfurt International School the single most popular use of computers by students in their free time is to write e-mails to their friends. Some teachers have set up joint projects with a school in another location and others encourage students to take part in discussion groups. (Shoebottom, 2001) There is no doubt that such activities are motivating for students and allow them to participate in many authentic language tasks. However, what communication activities that computer technology can facilitate depends very much on pedagogical design. In Shoebottom's words, 'certainly many computer activities of dubious pedagogical value have been devised in the past simply to justify the existence of an expensive computer in the classroom' (2001). The computer is more likely to play a useful part in fostering communication activities in the language class if the teacher includes communicative CALL pedagogy.

Each of the three theoretical perspectives on language teaching—structural, cognitive and sociocognitive has influenced how computer technology has been used in language teaching. However, apart from SLA theories on CALL application, what can SLA theories explain and support in choosing and designing CALL material? A theoretical approach that is useful in CALL material design is the interactionist perspective on SLA theory and research.

3.2.2 SLA and CALL

The interaction theory provides a plenty of suggestions for CALL pedagogy. In general, there are three types of interaction in CALL: learner-computer interaction, interpersonal communication and intrapersonal interaction.

3.2.2.1 Learner-computer interaction

Learner-centred CALL programmes expand the interaction between the learner and the computer. When doing these programmes, the learner has more control over his/her

progress. The learner can interrupt the normal interaction by asking for help or requesting a repetition or requesting a subtitle, or skipping to the next practice. As Chapelle states:

...the computer programme created the opportunities for modified interaction by offering modified input to the learner upon demand. The data documented that the learner actually engaged in modified interactions and received the modified input, thereby constructing potentially beneficial interaction.

(2001: 59)

However, there are two critical issues affecting the quality of the learner-computer interaction (1) technology advancement, and (2) the quality of modified input in the computer. On the one hand, the technology available needs to be kept in a stable condition. On the other hand, the computer can give sufficient help, tips and feedback whenever the student requests.

3.2.2.2 Interpersonal interaction

Based on three theoretical perspectives: negotiation of meaning, co-constructing meaning and prompting learners' attention to form, this type of interaction includes both learner-learner interaction and learner-teacher interaction. Through interacting with the teacher and with other learners, a learner expands the received comprehensible input, which is important to the learner's language development.

The development of computer technology maximises the opportunity for interpersonal interaction. In particular, the Internet and computer-mediated synchronous and asynchronous communication technology frees learners from the constraint of space and lets them to work together.

3.2.2.3 Intrapersonal interaction

As the term suggests, intrapersonal interaction takes place in the learner's mind. Chapelle suggests its significance, '...it prompts learners to focus on linguistic form; it stimulates the learners' inner voice, and entails deep cognitive processing of input. Because input is typically enhanced interactively in CALL, the learner-computer interaction that is hypothesized to be of value in delivering enhanced input should simultaneously focus on linguistic form and perhaps engage the other valuable processes as well' (2003: 60). Therefore, both the interpersonal interaction and the learner-computer interaction will strengthen intrapersonal interaction. And in turn, intrapersonal interaction helps to improve the quality of interpersonal interaction and the learner-computer interaction.

3.2.3 Perspectives for future CALL theoretical research

A glance through the literature of CALL theoretical exploration reveals that the cross-disciplinary sources have expanded the theoretical basis for CALL. The rapid development of technology and CALL programmes has expanded learning environments from classrooms to various work places and to the Internet, created new means of learning such as multimedia and mobiles, and initiated new research questions. All these have been requiring the expansion of CALL theoretical research. There are four perspectives for the future CALL theoretical research.

3.2.3.1 Theoretical research needs to adapt to the various forms of CALL application: self-access, instructed and distance learning

Because the different ways of applying computer technology to language learning have distinct features, CALL theoretical research needs to pay attention to these differences. Generally speaking, there are three major approaches of CALL application: self-access, tutor-instructed CALL which include semi-instructed approaches, and distance

learning. Under the different learning environments, there are different learning activities, teaching methods, curriculum design methods and evaluation criteria. Therefore, after establishing a general theoretical basis, CALL theoretical research needs to go deeper to look to the distinction among the different CALL learning environments.

3.2.3.2 Research methods need to be refined

Although many researchers have been looking for the suitable CALL research methods, there is still a lack of methods that can guide the development and evaluation of CALL activities. In Chapelle's words, 'What is needed then is a perspective on CALL which provides appropriate empirical research methods for investigating the critical questions about how CALL can be used to improve instructed SLA' (1997: 21).

3.2.3.3 Expansion of CALL software and programme evaluation methods

Cross-discipline sources such as computational linguistics, instructional design, communicative language theory, or second language acquisition theory, to some extent, have provided methods of evaluation. However, none of these theories has provided concrete guidelines for investigating and evaluating CALL for SLA. Therefore, it is necessary to expand the current evaluation principles to a concrete and integrated evaluation model.

3.2.3.4 Teacher training methods: pedagogical and technical

The majority of CALL research has paid attention to the learning activities of the learner and the teaching methods rather than teacher training. However, it is the teacher who designs CALL curricula, carries out class activities, gives instructions, operates the computer system and even deals with the technical bugs. Hence, there is a need to define training methods for CALL teachers. Although the teacher training is not going

to be addressed in the current study, during the investigation, I have realised that what an important role that teachers play in both pedagogy and use of technology. Therefore, teacher training methods is part of CALL research and needs more attention in the future CALL studies.

3.3. Application of Computer Technology in Language Learning and Teaching

In most current practice, CALL teachers and researchers have been seeking suitable ways to integrate the developing computer technology into the existing main curriculum. The ways to achieve integration are, first to design CALL courseware to meet the needs of learners; second to evaluate the information from feedback and implementation procedures, and finally, according to the information from evaluation, to modify the courseware design. Therefore, the application as a whole is an interactive process involving courseware development, implementation and evaluation. The figure 3.2 described by Hubbard (Pennington & Stevens, 1999: 39) illustrates the interactive relation.

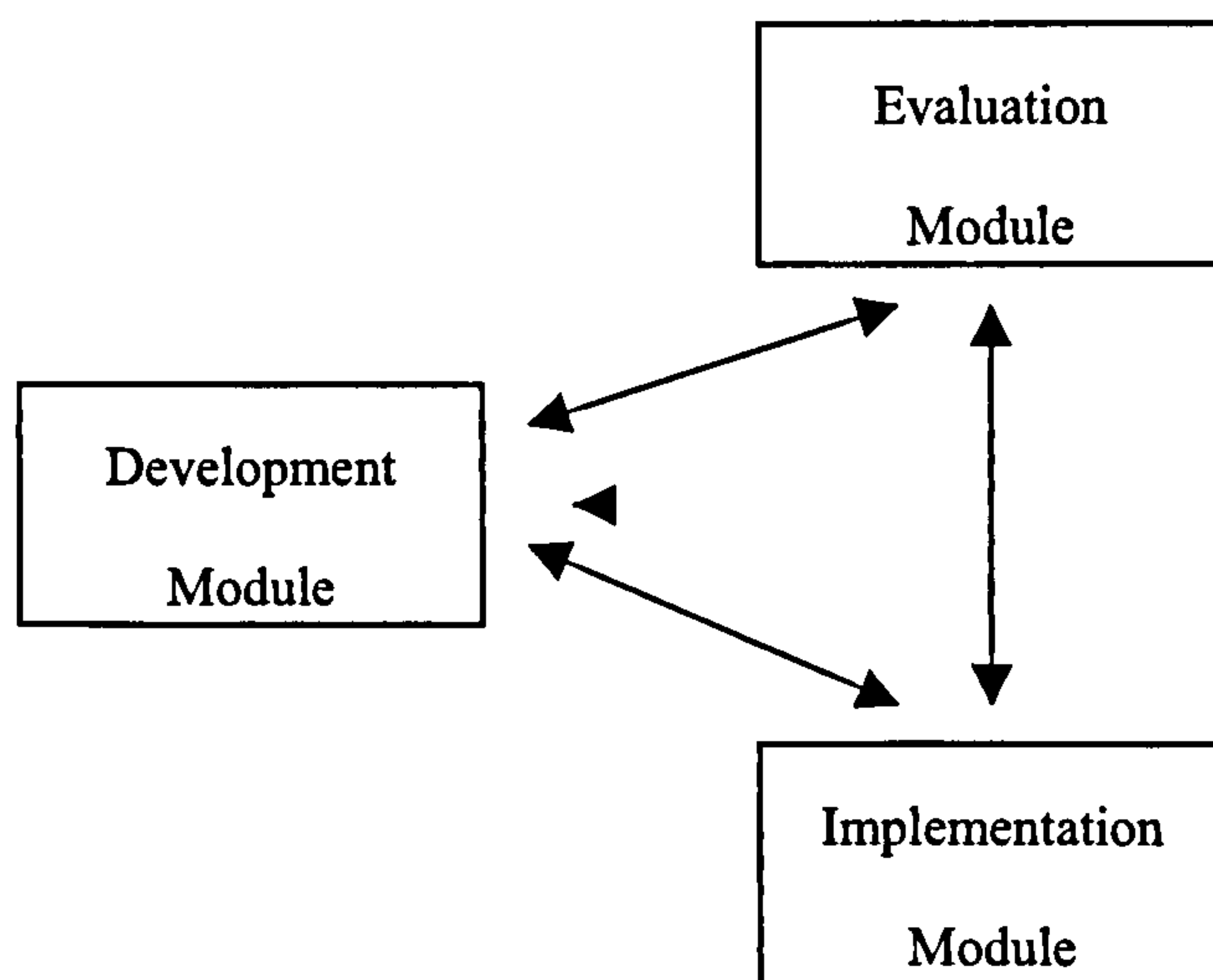


Figure 3.2 CALL application model by Hubbard (1999)

According to Hubbard, there are three major components for integrating CALL

courseware into a specific teaching/learning situation: courseware development, evaluation, and implementation. Each specifies the characteristics of the teaching and learning process. The double headed arrows suggest the fact that apart from the general process from development to evaluation to implementation, there are other directions for interaction. For example, the development process involves field testing. The first version of courseware is implemented to collect information from teachers and students for modification of the design. This model reveals the links among CALL programme design, application and evaluation, which suggests that in order to evaluate the impact of a CALL programme, it is necessary to study its application (implementation) and its content (development).

3.3.1 CALL courseware development

A language teacher, to successfully design a CALL courseware, needs to understand the needs of learners, the strength and limitation of the technology and the aim of a CALL programme. A number of articles and books on CALL courseware design have focused on summarising the criteria of CALL courseware design and have defined the key contents of successful CALL courseware.

Criteria of curriculum design

By merging the developer's views of language teaching with the strengths and limitations of the computer as the interactive delivery system of language material, Hubbard summarises a list of design criteria:

- gives meaningful rather than mechanical practice, contextualised in a coherent discourse larger than a single sentence.
- provides hints of various types to lead students to correct answers
- accepts alternative correct answers within the given context

- offers the option of explanations for why correct answers are correct
- anticipates incorrect answers and offers explanations concerning item.

(Hubbard 1999: 49)

The list of criteria proposed by Hubbard provides guidance for designing successful CALL courseware. It has paid specific attention to the task form, the help or tips to students and a complete and immediate feedback. However, this list fails to consider the influence of technology on the design. In her article about CALL courseware design, the American researcher, Meskill (1987) discusses three crucial attributes in the design of CALL: environment, visuals and timing. More specifically, a sound computer-assisted language environment must be 'dynamic, flexible, challenging, and engaging'. Since one of the acknowledged challenges of CALL courseware is how to keep students' interest and curiosity in learning, it is important to create an energetic, forward-moving environment which encourages students' desire for learning and achieves effects similar to teacher-generated classroom environments.

As for the requirement of visual effects, the courseware needs to create an 'easily readable, uncluttered and consistently laid out screen display' (Meskill, 1987:11). It is important that text be written in a clear structure and with correct grammar. It is also important that text appears properly highlighted in well-chosen areas on screen for easy access. Consistency and regularity in word choice and patterns will determine the ability of the user to interact with the system. Otherwise, 'poorly planned or gratuitous visual images send mixed messages. This is a danger when confusions and requests for clarification can only be directed to a computer screen' (ibid.). As for listening material, it is necessary to provide user-friendly sound effects. The voice record must be clear, easily understandable and consistent.

Another critical element of computer-assisted learning environment is timing, which

refers to the timing of the computer system's response and the timing required on the part of the user. In order to maintain a natural and consistent computer-student interaction, it is important that timing in the computer-student interaction roughly parallels to that in teacher-student interaction. 'The system's responses, in order to keep the conversation going, should be complete thoughts, not quick partial responses which sacrifice the conversational aspect of the learning process. Likewise, learners should be allowed to respond in complete thoughts in order to appropriately participate in the dialogue' (Meskill, 1987: 12).

The criteria of CALL courseware design are not exclusive. Many other CALL researchers, language teachers and developers have developed various criteria according to their experience and material and facilities available. However, no matter what criteria will be defined, it is important to consult CALL users to find out what are the best ways to implement CALL courseware into the curriculum.

3.3.2 Implementing technologies into the second language curriculum

3.3.2.1 The role of computer technologies in language learning and teaching

Our understanding of what role technology plays in the second language class has developed with the various approaches to introducing technology into the second language curriculum. In fact, this subject has been under discussion for years. One of the widely acknowledged polarities is the role as a tutor versus the role as a tool. Some researchers suggest a three-way classification: instructional role, collaborative role and facilitative role (Smith, 1987). However, this taxonomy is in effect just a more specific explanation of the tutor-tool role.

The computer's role as a tutor

In the role as a tutor, the computer is supposed to be a 'temporary substitute' for a

teacher (Levy 1997: 181). A computer 'presents some subject material, and the student responds. Then the computer evaluates the response and from the results of the evaluation, determines what to present next' (Taylor, 1980: 3). In such an instructional CALL programme, the computer presents language learning material in a highly structured and predetermined way. The student plays a passive role in learning. The computer functions as an instructor. However, such a CALL programme lacks any real mutual communication between the computer and the student, which is likely to discourage the student's concentration, interest and motivation in learning. This one-way learning is an acknowledged drawback of using computers in language classes because students are merely passive information responders (Butler-Pasc, 1997). Thereby, the instructional CALL programme fits lower level learning practices such as pronunciation, vocabulary and basic grammar, which require less complex communication. Moreover, in the role as a tutor, the computer requires an advanced technology, but there is still a long way to go to achieve a real artificial intelligence.

Another misunderstanding of the computer's role as a tutor is that the computer can replace teachers. In fact, the computer is a vehicle to learning that is driven by the teacher with his ingenuity and inspiration. Most educators, who study computer-assisted language learning, agree that the computer is a tool to assist and/or enhance second language learning (Le, 1997). Forrest supports this sentiment saying that 'technology will only serve teaching goals to the extent that teachers continue to be responsible for their thoughtful and meaningful implementation' (ibid.).

The computer's role as a tool

The role of the computer as a tool is rather complex. Many researchers have suggested explanations and classifications as to how the computer plays the role of a tool in language learning. The tool role of the computer can usefully be split into three divisions; the computer can take on a facilitative role, a collaborator role or a learning environment role.

In *facilitative* CALL, the computer serves purely facilitative applications in teaching and learning, such as word processing, spell checking and text analysis. There are two main characteristics. On the one hand, it is the teacher or the student who is responsible for learning activities. In self-access CALL tasks, students are initiators who dominate the choice of practice material and the practice process. In the teacher-instructed CALL class, teachers use particular computer programmes to create the class material. For example, they might use a CALL courseware package through which a teacher can choose and download material into the computer system and create updated course tasks. And on the other hand, the computer emancipates students by reducing 'inauthentic labor' (Smith, 1987; Kemmis, Atkin & Wright, 1977; Auld, 2002). It is also claimed (Smith, 1987) that there is no inherent pedagogical bias to a facilitative CALL programme. Learning objectives and paths are not specified. Thus, they are adaptable to different approaches to the second language learning. However, some authentic programmes developed in recent years have specific paths to help teachers design tasks.

Collaborative CALL has a prime focus on process and communication. Some collaborative software is primarily intended for single student use. In this case, a mutual communication between the student and the computer is necessary. Although it is the student who decides what and how task material of the programme is to be used, it is important that the computer is prepared to give help and feedback when requested. Besides, it is necessary that the computer can provide a wide range of learning aids and detailed feedback so that the student can select how to use the aids to meet individual needs. Other collaborative software is designed for use by groups of students. The group-oriented CALL programme is different from the single-student programme because it involves interactive activities among students such as discussion, games and role play. In this situation, the computer serves as a collaborator among students, providing them with synchronous or asynchronous communication.

However, no matter what type of collaborative programme is involved, it is important

that the teacher can organise and support learning activities. Therefore, the computer is also a communication tool between students and teachers.

Many CALL researchers believe that apart from the tutor/tool role, the computer itself presents an *environment* in which learning takes place (Hanson-Smith, 2000; Egbert & Hanson-Smith, 1999). The computer-assisted language learning environment has expanded the traditional concept of classroom from a restricted area to the world connected by the Internet.

The attitude towards what role that the computer plays in a language class influences the methods to the pedagogical application of CALL programmes. The following section will discuss present progress in applying CALL.

3.3.3 An overall picture of CALL application

Computer technology has been widely used in language teaching and learning. As mentioned earlier, there are three major approaches to CALL application. First, CALL programmes are used as self-access material. Second, CALL programmes are used in a semi-instructed class with tutors' support. Third, CALL programmes are integrated into class teaching which is under the instruction of the teacher. The term 'approach' is used to be distinct from 'method'. As Anthony and Norris interpret, '*Approach* constitutes the axiomatic or theoretical bases of language teaching. *Method* is procedural; and it is the selection of materials to be taught, the gradation of those materials, their presentation, and pedagogical implementation to induce learning' (1969: 2).

3.3.3.1 Self-access CALL programmes

A self-access CALL system is assumed to be one where the learner works without the teacher (Atkinson, 1996; Bax, 2003; Chapelle, 2001). However, there are common

misunderstandings about self-access CALL systems.

First, a self-access system is often assumed to be a way of saving money, because once the system is installed, there is no need for teaching staff or further investment. In fact, the system must be designed to meet the needs of the environment it serves, which means realistically that it must be manned. There must be frequent technical maintenance. Its material must also be frequently updated. Students must be trained about how to make most use of the system. All of these things cost money (Little, 2001).

Second, a self-access system is assumed to be self-instructed. It is true that some learners who have good skills of self-management and self-instruction will achieve their learning purposes, but many will not. There is still a need for teachers who can answer questions, provide technical support and give feedback and suggestions (Little, 1991).

Third, 'self-access' is assumed to be an equivalent concept to 'autonomy'. When students study without a teacher, they are assumed to be autonomous learners. The concept of autonomy, however, is not that simple. 'According to the theory of adult education, the autonomous learner is capable of managing, monitoring and evaluating his or her own learning; and this capacity for self-regulation enables the learner to transcend the barriers that pedagogy often erects between learning and living' (Barnes, 1976: 30). In reality, the presence of autonomy in learning is not guaranteed because not a single student is a fully autonomous learner. A learner who displays autonomy in one area may be not autonomous in another (Little, 1991).

The main advantage of the self-access CALL programme is that it gives the learner flexibility in managing their learning activities. The learner can choose the materials, time and place to study. The practice set by the learners themselves is likely to be more effective, purposeful and individualised than those by the teacher. However, it is

unlikely to obviate the need for the teacher from the self-access CALL programme. It is necessary and important for the teacher to run the programme and give support to the student because the system needs to be maintained; programmes need to be updated regularly; and the students need help when they require it.

3.3.3.2 Semi-instructed CALL programmes¹

Another approach is to use CALL material in a semi-instructed class. The features of this approach are first, there is a language class in which CALL material is used. Second, although present in the class, the teacher does not tightly control the practice activities. Third, the role of the teacher in the class is to organise the class process, answer questions and give support when required. In such a learning environment, students have flexibility to work at their own pace. They also have a chance to communicate with the teacher and other classmates.

Some potential disadvantages are also ascribed to semi-instructed models, notably that they benefit some students more than others. It is likely that the students with better language knowledge, learning strategies and autonomy will progress faster in practice than those without. Moreover, if students work on the same material, it is difficult for the teacher to choose material which suits all students; hence it is important to provide a range of practice materials so that students can choose according to their individual needs.

3.3.3.3 Integrated CALL programmes

This approach involves using CALL programmes as a part of the course materials in a teacher-instructed class. The success of the integrated approach depends very much on the CALL material. This practice has been debated among CALL researchers and

¹ The term of semi-instructed was concluded from the present study. Although there is no background literature on the term of semi-instructed, in the chapter one, there is a clear explanation of semi-instructed CALL. (see Section 1.2, p13)

language teachers. On the one hand, Pugh, for example, states, ‘... there is no intrinsic reason why learning a language using a machine should be superior to learning it naturally by conversing and corresponding with other humans in authentic contexts’ (1997: 277). This is mainly because the advantage of computer technology has not been fully presented in teaching and learning. Some software used in class requires the learner to fill in blanks, to select the correct answer in a multiple-choice question, to answer questions after reading or listening to a paragraph. Such software hardly fulfils the promise of the computer technology, ‘... simply using a computer as a replacement for a set of flash cards does not strike us as an effective or an imaginative use of a powerful technology’ (Green & Meara, 1995: 98). On the other hand, with the advanced technology and a wide choice of software, the computer has brought an efficient and effective learning environment to the language class. For example, the learner benefits from multimedia which combines different visual and aural information. Multimedia programmes can include texts, speech, drawings, photographs, music, animations and videos with or without sound. They also promote communication between the teacher and the student, and among students, especially in a class with a large number of students (Mohan, 1999). It is good to see that current computer technology is much more advanced than that in the 1990s. More software in both teaching and learning is available in the market. For instance, VLT (Visual Language Tutor) is a piece of language learning software containing an agent (an animated 3D-figure) that allows a communication between learners and computers (Beskow, 2003; Granström & House, 2003).

3.3.4 CALL application to listening and speaking

During the past two decades, spoken language skill training has received increasing attention among educators. Learners' ability to engage in meaningful conversational interaction in the target language is considered an important, if not the most important, goal of second language education. This shift of emphasis has generated a growing need for instructional materials that provide an opportunity for controlled interactive

listening and speaking practice outside the classroom.

Recent advances in multimedia technology integrate sound, voice interaction, text, video and animations to create self-paced interactive learning environments that promise to enhance the classroom model of language learning significantly (Ehsani & Knodt, 1998). Although a number of programmes with listening and speaking exercises are available in the market, the practice of CALL listening and speaking has been rather modest. Many educators are reluctant to embrace a technology that still seeks acceptance by the language teaching community as a whole (Kenning & Kenning, 1990). A number of reasons have been cited by Ehsani and Knodt:

First, the lack of a unified theoretical framework for designing and evaluating CALL systems...Second, the absence of conclusive empirical evidence for the pedagogical benefits of computers in language learning... And finally, the current limitations of technology itself...

(1998: 45-46)

Therefore, the need for improving listening and speaking instructional materials and practices has been confronted by the relatively slow application of technology into listening and speaking pedagogies. This section will discuss the current common practices of computer-assisted listening and speaking training in the field of foreign language education, and will synthesis the strengths and limitation of each approach.

3.3.4.1 Using the computer technology in teaching listening

Generally speaking, there are two types of listening tasks and two approaches to applying the computer technology to listening classes.

According to the technology available, listening tasks can be accompanied with or

without a visual channel. When doing a listening and viewing task, the student can watch a video, see pictures relevant to the topic, or be located in an invented computer environment with computer images. In recent years, there has been an increasing focus on examining the complementary nature of the visual and auditory channels in listening and viewing comprehension (Granström, 2004; Granström & House, 2004; Hoven, 1999; Brett, 1995; Felix, 1995; Kennedy, Tiziana & Murray, 1995). Areas of study include the following:

- the importance of visual context (Hanley, Herron & Cole, 1995; Herron, 1994; Secules, Herron, & Tomasello, 1992);
- the role of non-verbal aspects of communicative competence (Kellerman, Ammerlaan, Bongaerts & Poulisse, 1990; Meyer, 1990; Neu, 1990);
- the complementary nature of visual and auditory cues in CALL packages involving video and multimedia resources (Graham, 1990; Hurley, 1992; Kellerman, 1992; Neu, 1990);
- messages conveyed through the visual channel (Herron, Morris, Secules & Curtis, 1995; Herron & Seay, 1991; Kellerman, 1992; Neu, 1990).

The other type of listening task is not accompanied by a viewing channel, which is similar to practice with the tape recorder.

There are two common ways to implement listening tasks in a CALL context. One is student self-access practice, in which students choose when, where and what to practise. Normally, after listening to a task, students will complete the exercise by typing in answers. The computer will give immediate feedback on their answers. The other is a lecture with the assistance of computers (Carla, 2000).

Self-access tasks provide students with the flexibility of choosing times and places to learn. Students also work at their own pace by choosing how often to review a text, the level of cognitive difficulty, and the type of texts. However, the self-access approach implies a lack of realistic person-to-person interaction (Hoven, 1999). But it is easy to

partially compensate for the lack of interpersonal interaction by appropriate structuring and guidance provided in the software. Another constraint is limited feedback. In most cases, the feedback given by the computer only tells which answers are right or wrong, but fails to explain why they are wrong and how to correct the mistakes.

Another way of applying computer technology in listening is the lecture with the assistance of computers. Carla suggests a revised approach of EFL (English as a foreign language) listening curriculum with recording of 'short-story renditions, interaction through discussions and collaborative tasks among students' (2000: 27).

Compared to the self-access approach, the computer-assisted lecture involves interpersonal interaction between students and students, and students and teachers. It is also important that teachers can give timely comments and detailed explanation to students' answers. However, in a teacher-controlled lecture, students who have better language knowledge and communication skills are likely to dominate the class performance while students at the lower language levels will behave passively in the class.

3.3.4.2 Using the computer technology in teaching speaking

Students of a foreign language must master the four main language skills: reading, writing, listening and speaking. The first three skills have adapted themselves more readily to CALL application. Computers are, however, less versatile as a training medium for the primary means of communication: speech. The challenges of using computer technology in speech instruction range from the technical to the linguistic. Technically, instructing speech by computers requires larger data storage and transfer capacity, additional equipment such as microphones, and a quiet practising environment. Linguistically, speech processing is challenged by the variety of speech signals and the complex chain of events required to generate a suitable response to a spoken utterance. Despite the challenges, researchers and engineers in the field of

speech research have been searching for ways in which the spoken language can be better supported by multimedia technology which integrates sound, voice interaction, texts, video and animation.

Unfortunately, as will become clear in Chapter 4, Section 4, I was unable to collect sufficient data on speaking instruction involving computers in the present study. This is because the use of CALL speaking programmes in the universities was very limited when the present study was conducted. Moreover, the only CALL programme related to speaking was limited to pronunciation training, and only two of the sample students actually used the programme on a regular basis. In order to provide a better understanding of the problems in CALL speech instruction and possible ways of application, the following section will make a special effort to survey the current applications and existing challenges in computer-assisted speech instruction.

3.4 Investigating CALL Speech Instruction

Compared to the application in the three other areas of language skills, computer technology has limited use in helping learners to improve their speaking capability. In general, computer technology has been used in two areas of speech training: pronunciation and speaking skills.

3.4.1 Computer-assisted pronunciation instruction

The learning and teaching of pronunciation mainly focuses on (1) the segmentals, that is, the articulatory phonetics of individual sounds, and (2) prosodic patterns such as intonation, amplitude and duration (Chun, 1988; Hurley, 1992; Morley, 1991; Wennerstrom, 1994, 1998). In recent years, however, the growing speed and memory of commercially available computers is making speech recognition systems feasible.

Of the principles described as contributing to the success in pronunciation training (Kenworthy, 1987), there are five principles which are applicable to automatic

language training systems (Eskenazi, 1999):

- (1) learners must produce large quantities of sentences on their own.
- (2) learners must receive pertinent corrective feedback.
- (3) learners must hear many different native models.
- (4) prosody (amplitude, duration, and pitch) must be emphasised.
- (5) learners should feel at ease in the language learning situation.

The first four principles refer to the 'external' environment of language learning while the fifth principle addresses learners' attitudes and language learning capacity. A brief discussion of the pros and cons of computer technology in pronunciation instruction in line with the five principles is presented below. It is worth mentioning that these five principles reflect the discussion of interaction theories and language learning motivation and attitude in Chapter 2.

3.4.1.1 Learners must produce large quantities of sentences on their own

Ideally students benefit most in one-to-one interactive language training situations with trained language tutors. However, in reality most learners attend classes in which they share the tutor's attention with their classmates and one-to-one tutoring with human tutors is usually too costly and impractical. This greatly reduces the chances of each learner producing foreign language utterances.

With the help of computer technology, learners usually have one-to-one interactive speech activity with computers which can increase their chance of producing utterances in the foreign language. However, one of the major problems in automatic language training lies in the fact that students are usually assigned a passive role. Computers can only recognise the utterances that are pre-stored in the system. The system simply matches exemplars in the system against incoming signals produced by students. For example, students can either repeat the words or sentences they have just

learned or they read aloud one of the choice on the screen (Bernstein, 1994; Bernstein & Franco, 1995; Byrne et al., 1998). In both cases, students do not actively construct any utterance.

Another problem with automatic speech recognition is that it is not able to sufficiently recognise the utterance of a foreign speaker due to the imperfect phonology and intonation. The possible consequences are that the computer will interrupt students to tell them that they are wrong when, in fact, they are right; or the computer will overlook errors made by students which need to be corrected before they become fossilised.

3.4.1.2 Learners must receive pertinent corrective feedback

In natural conversation, listeners often interrupt one another when they detect errors and when they are in a situation to allow them to offer correction to the speaker. Correction also occurs when the intended message does not get across.

In teacher-instructed pronunciation training, teachers often point out incorrect pronunciation. It is important that teachers understand the pace of correction; they need to intervene soon enough to prevent errors from being repeated several times and from becoming habits. On the other hand, if teachers interrupt too often, students will feel discouraged from speaking. When using speech recognition systems in pronunciation training, the key questions are whether errors can be correctly detected and what kind of feedback the system can provide.

Electronic visual displays have been used to improve intonation by giving visual feedback of students' utterances. An example of a programme that displays visual pitch curves is called Visi-Pitch from Kay Elemetrics. With Visi-Pitch, students are able to see both a native speaker's and their own pitch curve simultaneously. Students first speak a sentence into a microphone; their utterance is digitised and pitch-tracked, and

they can see a display of their pitch curve directly under a native speaker's pitch curve of the same sentence.

The major benefit of the electronic visual feedback is reported by Anderson-Hsieh:

It provides the student with an accurate visual representation of suprasegmentals in real time paired with the normal auditory feedback that occurs during speech.

Students can thus more easily replicate native suprasegmental targets using both the target form and the visual feedback from their own speech to guide them.

(1992: 61)

However, the electronic visual feedback is also problematic. First, it is difficult for learners to monitor themselves and assess their product critically because other than the visual display, no further feedback is provided. In other words, in a typical exercise, learners record themselves, then replay their utterance and see a visual display of their intonation curve and compare it to the intonation curve of a native speaker. This requires learners to have well developed phonetic criteria for critical listening.

Moreover, the technical limitations of speech technology systems both hardware and software have made research more difficult. With regard to hardware, the computers and devices are often incapable of dealing with weak speech signals and voiceless consonants. As for software, it often lacks feedback processing. In other words, it is not programmed to provide students with detailed feedback. For instance, the pitch can be measured and directly fed back to learners, but interruptions in the intonation contour during unvoiced parts of the utterance and the inclusion of perceptually irrelevant pitch variations make it difficult for learners to interpret the feedback.

Finally, the cost of the equipment required can be high, especially the high-end machines required for the most accurate processing. The maintenance fee can also be

high.

3.4.1.3 Learners must hear many different native models

Listening to different native accents will expose students to a wide range of native speech. This is especially helpful for students who are planning to travel and study in a particular country or region. One optimal situation is to learn from different native teachers (Celce, Murica & Goodwin, 1991), but the number of teachers available to students is usually limited due to financial and scheduling constraints.

Computer technology with large memory and easy accessibility provides students with the opportunities to be exposed to a variety of native speech models. In particular, the distance learning technology enables students to hear and speak with native speakers from different countries or regions.

3.4.1.4 Prosody must be emphasised

Prosody refers to the suprasegmental features of speech, such as stress, rhythm, pitch, duration and intonation. Although learning to pronounce phones is important, experience shows that a person with good segmental phonology who lacks correct rhythm, stress and intonation is hard to understand.

Prosody information has been used in speech recognition in order to enhance recognition results. For example, pitch information includes pitch increases and decreases and pitch anchor points. Rhythm information shows segmental duration and acoustic features of vowel quality, predicating strong and weak vowels.

The FLUENCY project carried out at Carnegie Mellon University (Eskenazi, 1999) investigated the detection of changes in duration, amplitude and pitch where the difference can be reliably detected between native speakers and non-native speakers.

The three aspects of prosody can be applied to visual display mechanisms that show how to correctly produce pitch, duration and amplitude changes. One of the specialities of the FLUENCY prosody training, as Eskenazi mentioned, was that the training was linked to segmental aspects, with students producing real, meaningful phones, not isolated vowels. However, this training module required students to have the knowledge of pronouncing phones correctly.

3.4.1.5 Learners need to feel at ease in the language learning situation

Students tend to lose confidence when pronouncing sounds that do not exist in their native language, which will hamper students from acquiring L2 sounds (Laroy, 1995). According to Laroy, one-to-one instruction is helpful to increase students' confidence, as it allows students to practise in front of the teacher alone until they can correctly pronounce the sounds. However, the frequency of interruption and correction will also affect students' performance. As explained earlier in this section, if the correction happens too often, students may be intimidated, but the incorrect pronunciation can become a habit if teachers' intervention does not come soon enough. In the computer-assisted learning environment, students can receive one-to-one feedback from computers shortly after their practice, but the feedback is usually not specific enough to help students discover where they are wrong and how to correct it. For example, the visual display is not able to tell students the reason for their mistakes. Therefore, it is necessary to have human tutors around to give instruction.

In addition, the learning environment is helpful to ease students' discomfort. A relatively independent learning space can decrease the disturbance of noise among students. Comfortable facilities (e.g. fast computers, ear phones) can help students' concentration.

3.4.2 Computer-assisted speech skills training

Apart from the studies of computer-assisted pronunciation training, a number of studies have investigated the potential of using computer technology to improve L2 speaking competency in real-time, conversational exchange via text and speech (Abrams, 2003; Beauvicious, 1998; Payne & Whitney, 2002).

In general, there are two types of speaking practice on the internet—real-time, conversational exchange via text, and spoken conversation via online telephone. The first type refers to applying computer-mediated communication (CMC) technology to help learners exchange text messages over a computer network in real-time, known as *chatting*. The second type is that learners use online telephone service or online conference technology to talk to each other. This section will explicate the characteristics of each type and the present studies on them.

3.4.2.1 Synchronous computer-mediated communication via text

It is acknowledged that speaking is improved by practising speaking in a variety of situational contexts and on a range of topics with diverse socio-pragmatic requirements. However, emerging evidence from synchronous computer-mediated communication (SCMC) research suggests that real-time, conversational exchange via text may indirectly develop L2 speaking ability (Abrams, 2003; Beauvois, 1997; Payne & Whitney, 2002) and more importantly, may provide an extra benefit to learners with specific memory capacity limitations (Payne & Whitney, 2002).

In text chat rooms, language learners converse in real-time using computers and the Internet to send typed messages, which appear within seconds on their interlocutors' computer screens. Each textual turn appears in the same format in which it is sent, containing the learner's language and typographical errors.

Because of its real-time nature, text chat resembles face-to-face interaction, and carries many of the same language development benefits such as negotiation for meaning and repair moves (Smith, 2003; Warschauer, 1996). For example, in both text chat and face-to-face conversational contexts, language learners pay more attention to their lexical development than grammatical development, and they also use similar international modifications (Blake, 2000; Pellettieri, 2000; Sotillo, 2000).

However, not all aspects of the text chat and face-to-face environments are similar. In text chat rooms, it is possible that several participants can send messages at the same time on more than one topic. This is different from face-to-face conversation where participants usually take turns to speak on a single topic thread (Doughty & Long, 2003; Negretti, 1999). Due to the fact that participants in text chat often do not follow turn adjacency conventions and continuously switch topics, there is more of a need for repair moves and meaning negotiation (Smith, 2003; Werry, 1996).

Challenges of text-based synchronous CMC

Sociocultural study on text-based chat suggests that compared with face-to-face interaction, text chat has an equalising effect on the quantity and quality of participation across gender, socioeconomic status and age, because participants feel less anxious or shy (Beauvois, 1992; Kern, 1995; Sullivan & Pratt, 1996; Warschauer, 1996, 2000). Consequently, language learners may also be more willing to experiment with linguistic forms (Kelm, 1996; Kern, 1995; Turbee, 1996, 1999). However, in research on text-based synchronous CMC, Pellettieri (1996, 2000) suggests that electronic, task-based, synchronous text discussions between Spanish NNS university students facilitated negotiation of meaning that was meaning- and form-related. This suggests that language learners using text chat have to acquire certain amount of vocabulary and grammar in order to conduct text conversation.

Compared to text chat, voice chat is a closer hybrid of face-to-face interaction. In voice

chats, participants orally communicate in real-time using computers, the Internet, microphones, and earphones or speakers. Each spoken turn is transmitted within seconds. However, unlike face-to-face interaction, voice chat participants cannot see one another or one another's environment, gestures or facial expressions.

3.4.2.2 Voice-based synchronous computer-mediated communication

With the increasing availability of synchronous voice-based groupware and the additional facilities offered by audio-graphic tools, language learners have opportunities for collaborating on oral tasks, supported by visual and textual stimuli via computer-conferencing. Used synchronously with real-time voice-based work, these tools present learners with a new type of oral interaction and researchers with the challenge of developing a theoretical background and methodologies for redefining L2 oral competence in this environment.

Characteristics of voice-based synchronous CMC programmes

The characteristics of voice-based synchronous CMC programmes are discussed in this section.

- There is always a virtual common room for an online community

On logging into a programme, students go to the 'common room' to join in group discussion or one-to-one talk. The example programmes are Voxchat (Lamy, 2004) and Melissi (www.melissi.co.uk) which provide students with a list of different 'rooms'. Students can click the name of the 'room' and join in different online communities. In the room, students can use microphones to talk to each other.

More advanced programmes like Lyceum (Lamy, 2004) offer an interactive whiteboard, with dedicated collaborative work tools and recording facilities for all

students to record the conversation of the group to which they belong for purposes of later revision or reflection. Students can also 'post' documents on the whiteboard to share with other students.

- **Displayed identification of speakers**

An icon is displayed against the name of the person who is talking. The names for display are chosen by the students. Students can also manage their presence and absence from the environment, which can be displayed by using different icons (e.g. online, away, not available, do not disturb and invisible).

- **Inviting people:** students can talk to a group of people or they can invite certain people to talk to

Challenges of voice-based synchronous CMC

One of the challenges of voice-based synchronous CMC is the stability and advancement of the system (both hardware and software). As for the hardware, online oral conversation requires a stable and fast internet speed, and facilities (e.g. headphones, microphones and web cameras if software supports visual communication). Some systems (e.g. Voxchat and Melissi) allow students to send their voice recordings to each other, but the transfer of voice files requires a large storage space and fast internet speed. As for a system itself, five major challenges have been recognised (Wetzel, 1991). First, a system must recognise the speech of a variety of individuals. Second, a system must require little pre-training as a teacher may find it difficult to give lengthy training to every student in a class. Third, a system must accept continuous speech. Continuous speech refers to the transcription of a large natural vocabulary without pauses between words. Fourth, a system must be reasonably accurate at converting a high proportion of the words spoken to their text equivalent. In addition, a system must be sensitive to the speaker's voice, not the background noise.

Another challenge is to choose appropriate methods to analyse students' conversation on electronic media. For example, what types of evidence do researchers record and choose to analyse the conversational competence of individual students? What are the appropriate methods to interpret evidence? What are the appropriate ways to represent non-individual conversational competence displayed in pair or group discussions?

Computer technology connects speakers from a wide range of backgrounds and enables expanded opportunities for practising speaking skills either via texts or via voice. Typed messages are used to interact in real-time text chats. These messages have evolved as a new hybrid of spoken, written, and electronic chat discourse (Blake, 2000; Sullivan & Pratt, 1996; Warschauer, 1996; Werry, 1996). Likewise, in online voice chat rooms, language learners talk without seeing one another's faces. This 'faceless' way of talking encourages learners, in particular those who are too shy to hold face-to-face conversations.

3.4.3 Problems of researching computer-assisted speech instruction

Although the name of computer-assisted speech instruction is a fairly new one, the study on this subject is undoubtedly one of the fastest developing research areas in language acquisition (Barr, Leakey & Rancoux, 2005; Jiang & Ramsay, 2005). This is, to a large degree, a reflection of the development of computer technology and its expanding application in language learning contexts. However, the study of computer-assisted speech instruction is still a problematic area of CALL research.

3.4.3.1 The limitations of speech recognition technology

For language teachers interested in deploying speech recognition technology in CALL applications, perhaps the most important considerations are: how good is the technology? Is it ready to be deployed in language learning? These questions cannot be answered without reference to particular applications of the technology. As Ehsani and

Knodt explain:

Speech recognition performance is always domain specific--a machine can only do what it is programmed to do, and a recogniser with models trained to recognise business news dictation under laboratory conditions will be unable to handle spontaneous conversational speech transmitted over noisy telephone channels. The question that needs to be answered is therefore not simply "How good is ASR (Automatic Speech Recognition) technology?" but rather, "What do we want to use it for?" and "How do we get it to perform the task?"

(1998: 49)

Furthermore, Ehsani and Knodt point out an 'important lesson learned in the development of large-vocabulary continuous speech recognition (LVCSR) systems is that 'the technology itself is highly adaptable, yielding increasing robustness when tailored to a specific recognition task' (1998: 49). Therefore, the key to a successful application of ASR lies in designing tasks suitable for the potential users and optimising the variables (i.e. voice-dialing, online directory, and information retrieval) that affect recognition performance. When designing tasks, it is important to know who potential users are in order to load specific grammar and vocabulary into the system. Therefore, authentic user data must be collected in the early stages of developing a system.

3.4.3.2 Teachers and students' attitudes towards computer-assisted speech instruction

From an attitudinal standpoint, both students and teachers are aware of the benefits of computer technology in learning: such as the large volume and wide range of information available on line, its open accessibility, fast processing speed and interactive nature. However, it is also often reported by teachers and students that

speech technology is of no use because it is not perfect. If it 'cannot account for the full complexity of human language, why even bother modeling more constrained aspects of language use' (Higgins, 1988: vii)? A number of reasons have been cited for limited practical impact of computer-based language speech instruction: first, the current limitations of the technology itself (Holland, 1995b; Warschauer, 1996b). Second, the ways in which the computer is used for speech instruction. In particular, if a computer is only used as a substitute for a tape recorder it can hardly fulfill the functions of computer technology: students benefit from multimedia which combines different visual and aural information such as speeches, videos and visual feedback to students' oral output. It is necessary for a teacher to consider the ways to make full use of the capabilities of the computer technology. Finally, the lack of integration of CALL into the language teaching curriculum. Despite the development of CALL practice in the past decade by the enthusiastic and dedicated CALL advocates, CALL programmes mostly remain as supplements to the main curricula. As Burston points out:

CALL based activities have for the most part remained ancillary. The total number of applications in use is limited, and their pedagogic quality too frequently leaves something to be desired. The range and content of existing CALL applications is similarly problematic.

(Burston 1996: 32)

3.4.3.3 A lack of framework for conceptualising computer-assisted speech instruction

Although computer technology has been introduced to language speech instruction, its effectiveness has been questioned. Scepticism mostly concerns how to make appropriate use of the computer technology in improving speaking skills. The scepticism is largely due to the gap between CALL concepts and practice, or more specifically, 'a lack of guidelines or standards for the present generation of CALL

materials...CALL authors have no reliable conceptual framework, or yardstick by which to measure their work' (Levy, 1997: 4; Smith, 1988: 5; Last, 1989: 35).

The literature on CALL speech instruction focuses on reporting empirical studies (e.g. 'Analysing oral skills in voice e-mail and online interviews' by Lisa M. Volle; 'Oral interaction around Computers in the project-oriented CALL classroom' by Gumock Jeon-Ellis et al.; 'Rapport-building through CALL in teaching Chinese as a foreign language: an exploratory study' by Wenying Jiang and Guy Ramsay), but very little on conceptualising computer-assisted speech instruction.

3.5 Evaluation Methods of CALL Programmes

The investigation of the CALL programmes in use is a part of the impact study. This is because language programme evaluation is the systematic collection and analysis of information necessary to improve a curriculum, assess its effectiveness and efficiency, and determine participants' attitudes within the context of a particular institution (Brown, 1989/1995). As regards the current study, the evaluating work mainly aims at collecting information to improve CALL curricula.

However, evaluating CALL software and its application is a formidable task, even for those who are familiar in the field. There are at least three parameters that make the evaluation of CALL software and tasks difficult and challenging.

First, CALL is a fast developing research field. It is essential to establish a theoretical basis which can guide CALL evaluation.

Second, there are visual and auditory dimensions in computer courseware, which require a judgment of what effects they have on teaching and learning activities and whether they 'enhance or detract from the lesson' (Hubbard, 1987).

Finally, CALL learning activity is an interactive process among learners, teachers and

computers. Therefore, it is also necessary to consider the interactive aspects in evaluation (Hubbard, 1987; Goodfellow, 1999).

3.5.1 Principles for CALL evaluation

Brown (1989, 1995) defines language programme evaluation 'as the systematic collection and analysis of information necessary to improve a curriculum, assess its effectiveness and efficiency, and determine participants' attitudes within the context of a particular institution'. Regarding the distinct features of the language programme aided by computers, there are at least four needs or principles to improve CALL evaluation.

First, CALL evaluation is a content-specific judgment rather than a categorical judgment. Therefore, criteria need to concern the content, purpose, subject and particular setting of a CALL task.

Second, evaluation criteria need to be based on findings of theoretical research, especially those of second language acquisition. As Chapelle (2001: 51-52) remarks, 'evaluation criteria should incorporate findings and theory-based speculation about ideal conditions for SLA'.

Third, there needs to be guidance on how to use the evaluation checklist (Chapelle, 2001; Hubbard, 1987).

Finally, criteria need to be applicable to both CALL software programmes and tasks (Chapelle, 2001). CALL task is what a teacher designs and a student practices, which is based on the CALL software programmes.

Overview of existing checklists

Today, more and more advanced and state-of-the-art computer technology has been applied to the second language classroom. Teachers, CALL researchers and software developers need to be concerned about what kind of CALL software may be beneficial and what kind of CALL task may make full use of potentiality of CALL programmes, and integrate computer technology into the language class. Given the need to make judgments about CALL programmes and tasks, a number of checklists have been published since the 1980s (Marler, 1982; Strei, 1983; Decoo, 1984; Curtin & Shinall, 1987; Hubbard, 1987; Brickerton, Stenton & Temmerman, 2001; Chapelle, 2001), which have set some criteria for what good CALL is supposed to be. However, how do these checklists measure up to the principles for evaluating CALL?

The International Council for Computers in Education produced the MICROSIFT form to assess CALL software. However, its criteria have been designed for use in any field. This checklist is clearly inadequate when measured by the first principle because learning a second language is not as same as learning mathematics or Physics (Hubbard, 1987).

In addition to such general-use-oriented evaluation checklists, there are others that have been developed particularly for second language learning material (Curtin & Shinall, 1987). However, these checklists do not consider language teaching approaches, a shortcoming which a checklist developed by Hubbard (2001) tries to meet.

The checklist by Hubbard takes into account the characteristics of three teaching approaches, namely, the behaviorist approach, the explicit learning approach, the acquisition approach and learning strategy considerations. Hubbard states that an evaluation form should look directly at important aspects of language-teaching approaches which, he believes, is the 'essential foundation of all language instructional

material' (228). *Approach*, as Hubbard defines it, is 'the set of underlying principles that outline a set of conditions for successful language learning and that, in turn, often follow from a theory of language acquisition and provide the foundation for specific classroom methods and techniques' (228). Thus, Hubbard first defines three major categories of language-teaching approaches and suggests that the principles can be applied to software evaluation, and then introduces the evaluation form and outlines a procedure for using it to evaluate CALL materials. However, this checklist only focuses on evaluating CALL material and does not give guidance for how to assess CALL tasks.

The checklist introduced by Chapelle offers six simple but effective criteria to examine both CALL materials and tasks. They are:

- *language learning potential*, the degree of opportunity present for beneficial focus on form;
- *learner fit*, the amount of opportunity for engagement with language under appropriate conditions given learner characteristics;
- *meaning focus*, the extent to which learners' attention is directed toward the meaning of the language;
- *authenticity*, the degree of correspondence between the CALL activity and target language activities of interest to learners out of the classroom;
- *positive impact*, the positive effects of the CALL activity on those who participate in it;
- *practicality*, the adequacy of resources to support the use of the CALL activity.

(2001: 55)

These criteria given by Chapelle are drawn from the theory and research on SLA in

addition to the other considerations such as individual differences, learning situation, task purpose and resources available.

3.5.3 Evaluation approaches

As for implementation of evaluation criteria, Chapelle introduces two approaches, namely, judgmental analysis and empirical analysis. According to Chapelle (2001), the judgmental analysis is applied to the first level of evaluation, examining characteristics of the software and tasks. The empirical analysis is directed towards the second level of evaluation: practice of CALL tasks, such as teacher planned activities and learner's performance through data gathered about the details of CALL implementation and learning outcomes.

Similarly, Bickerton, et al. (2001) introduce two approaches to evaluation: taxonomic and implementation. Taxonomic evaluation is based on manufacturers' product specification of what software is supposed to be able to do, or analysis of what software is used for, or observation of how software is used. According to Bickerton et al., taxonomic evaluation establishes lists of possible or desirable features and checks whether software possesses them. The result provides a score, and this converts into a rating. Generally speaking, taxonomic evaluation investigates whether software fulfils its expected function. However, the taxonomic approach focuses solely on evaluating software rather than performance when using software, a shortcoming the implementational approach tries to correct.

Implementational evaluation uses different software in sample lessons or applications, and then a measure is taken of the time and cost of each. This approach is widely used in commercial evaluation. The drawbacks of this approach are apparent, however. For example, it is difficult to examine all the features of software in sample lessons; this approach does not include the influence of the individual difference of performers on the results; it is difficult to generalise the results because results vary when software is

used in different settings.

Neither of the above approaches to evaluation is without weakness. A possible solution is to combine the two approaches, examining both features of courseware and implementation results in various settings, and then to find out its pros and cons in different usage.

3.5.4 Implication for CALL programme application and evaluation

The application and evaluation of a CALL programme are complex issues, especially implementing and examining listening and speaking programmes. It is easy to say that it depends on an educator to select and use a variety, but the successful implementation of a programme is very time-consuming and depends on the teacher's time, effort and technical capability.

Ultimately, a CALL teacher needs to adapt to the needs of different learners, subject areas and environment when choosing approaches to applying computer technology to teaching listening and speaking. It is equally important that a CALL teacher uses a combination of evaluation methods to judge both software and teaching and learning activities.

3.6 Summary

The current state of instructional computing is still emergent. Much remains to be learned regarding establishing theoretical frameworks to guide the practice of computer-based instruction. Different schools of thoughts have contributed to setting up a theoretical framework for CALL, among which SLA has significant implications. This is because 'SLA literature contains work representing a variety of objectives and approaches for investigating the process of second language development' (Chapelle, 1998: 22), which may suggest CALL design, application and evaluation and to guide

research on effectiveness.

Based on SLA theory, criteria and methods for designing CALL courseware have been proposed and discussed among educators, CALL researchers and software developers. In general, it is important to create an encouraging and forward-moving environment with sound visual effects and timing.

Three approaches of CALL application have been summarised. That is the self-access approach, the semi-instructed approach and the integrated approach, each of which has its strengths and limitation. For example, the self-access approach gives learners flexibility in managing their learning activities but lacks detailed feedback and interaction in learning activities. In the semi-instructed approach, teachers who are present in the classroom can give feedback and assessment to learners. However, it is likely that learners with better knowledge, autonomy and learning strategies will achieve more than those without. In addition, it is not easy to choose materials suitable to learners at various language levels. The success of the integrated approach depends on the class organisation by teachers. Although learners may not work at their own pace, a well-designed class will make a full use of computer technology and encourage communication in class.

The practice of CALL listening and speaking has been rather modest although a number of programmes on the exercises of listening and speaking are available in the market. Listening and speaking programmes are essential components of CALL, and ready to be deployed successfully in the second language education. This chapter discusses various application practices and synthesises the strengths and limitation of each practice approach.

Evaluating CALL software and application is a difficult task. A number of checklists have been developed since the 1980s. These checklists serve as guidelines to judge CALL software and application. However, not a single checklist and evaluation

method is omnipotent. A solution is to combine various evaluation methods and to examine both features of courseware and implementation practice.

Chapter Four

Methodology

4.0 Introduction

In this chapter, I deal with the aim of the main study, the main research question, the reasons for choosing particular methods, the nature of my sample, the difficulties I encountered when collecting the data, and how I analysed the data.

4.1 The Aim of the Research

The main aim of this study is to investigate the impact of computer technology on the learning and teaching of English listening and speaking as a foreign language. The study examines the common approaches to using computer technology in teaching listening and speaking in an English-speaking environment, especially the UK. It encompasses several areas of concern, including students' learning activities in the different skills; teaching methods, curriculum design, and evaluating CALL courseware. It is hoped that this research will provide some alternatives and insights to present understanding in the field.

4.2 Main Research Questions

The main research question was: **what is the impact of computer technology on learning and teaching English listening and speaking as a second language?** Impact is studied by investigating the influence of computer technology on teaching methods (how to use computers in different pedagogies), students' learning strategies (how to study), and CALL programme evaluation so as to give suggestion for CALL programme design (how to assess courseware; how to design courseware to meet the needs of CALL listening and speaking learning and teaching activities). The main research question may be divided into three smaller sub-questions.

- 1. How do teachers design and implement courses within the different approaches?**
- 2. How do different approaches to applying computer technology affect students' listening and speaking as regards to learning strategies?**
- 3. What are the criteria and methods used to evaluate CALL courseware and tasks?**

Having planned the research questions, the next step was to find the most appropriate methodology to achieve the best result from the subjects.

4.3 Methodological Approach

The current research is exploratory in nature. It is a small-scale study because from the very beginning, I have had difficulty in finding a large size of sample. The size of sample has also determined that this is largely a qualitative study. The research method adopted was mainly in-depth interviews, but other methods such as questionnaires were tested in the pilot study which is illustrated in the following section.

4.4 Research Design

The current research includes three stages: the preliminary study (see Section 1.1), the pilot study (see Section 4.6) and the main study (see Section 4.7). The diagram below shows the links between the three stages including sample sizes and methods used.

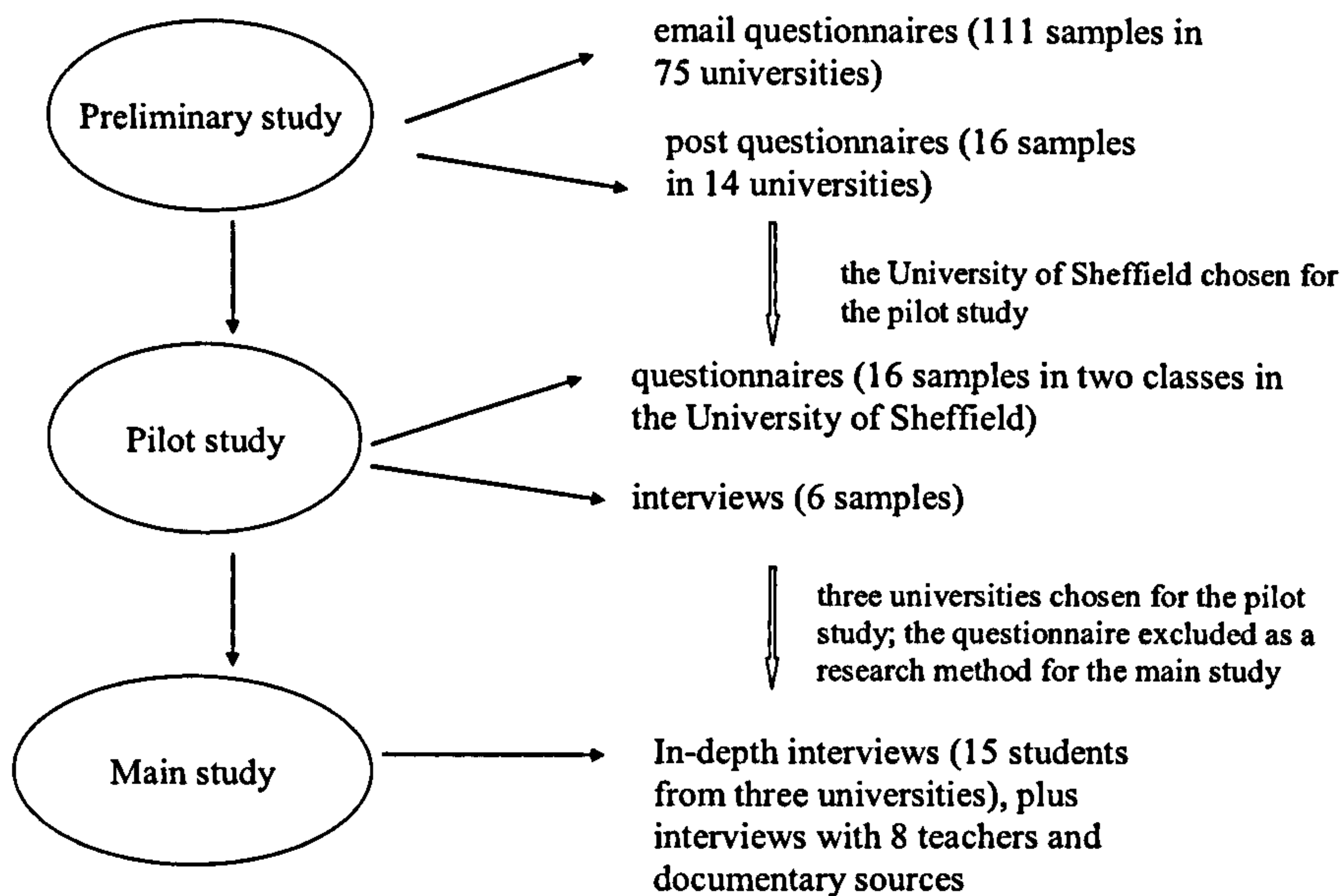


Figure 4.1 The overall structure of the current study

4.5 Research Methods

A variety of research methods have been used to date by CALL researchers to obtain useful information about learning activities, learning tasks and software. Those most commonly used include quasi-experimental comparison of groups, pretest and posttest design, discourse analysis, interview, questionnaire and observation. Chapelle (1999), for example, illustrates the use of discourse analysis to investigate learners' linguistic output in CALL tasks in which language was used communicatively. Zähler et al. (2000) employed observation and post-observation interviews in their LEVERAGE project which aimed to 'assess the practicality of providing learners of various European languages with opportunities to collaborate with their peers in the target language community via a broadband telecommunications network' (186).

When I started to choose suitable methods, I considered various research methods in the relatively new research area of elearning, which include technology-specific methods, such as online chatting and email as well as traditional methods such as interviews, questionnaires and observation. However, each method has constraints which affect the possibility of fully achieving the aim of the study.

4.5.1 Technology-specific research methods

Data-gathering tools specific to a CALL context such as online chatting and email are alternatives to the classic traditional methods, but there are problems in accessibility and depth. For example, emails have been used instead of the phone for long-distance interviewing as a means of collecting for research purposes, but it is only possible when the email technology is available to both interviewers and interviewees.

Online chatting is also used by some CALL researchers especially because it is flexible in terms of time and place. However, the words used in online chatting tend to be simple and abbreviated (Kern, 1995: 468), which may cause misunderstanding. The lack of visual communication cues in an online interview is another significant disadvantage of online interviews (Kuehn, 1994). When nonverbal cues—gestures, smiles, or tone of voice—are absent, interviews have to make certain assumptions about their interviewees (Hara, Bonk & Angeli, 1998: 4-5). In addition, it is also time-consuming to type long sentences. The stability of technology and speed of the Internet can also affect the quality of data.

In digital environments, thinking aloud protocol is being used extensively for usability testing. In most of the research on website usability, tests are set up in which a user is given a set of realistic tasks and asked to perform them using some version of a website while thinking aloud. Standard statistics, such as task completion rates and times, are commonly tracked, along with usability issues derived from the analysis of the protocols (van Waes, 2000: 280). However, concurrent verbal protocols have been seen to cause problems when some of the participants are not able to generate complete Think Alouds while performing the task. Stratman and Hamp-Lyons list factors which influence participants use Think Aloud. These include poor Think Aloud directions, limited capacity in short-term memory to do task and Think Aloud, hearing the sound of one's own voice, increase in learning due to Think Alouds, and influence of researcher's verbal and non-verbal cues (Stratman & Hamp-Lyons, 1994). Moreover, it is hard to implement Think Aloud when the processes are automatic for the participants.

Branch (2000) suggests in order to get the best and most complete data, researchers must ensure that learners are given time to become familiar enough with the task so that they can speak about what they are doing. However, learners must not be so familiar with the task that it becomes automatic and they are unable to think aloud about the task.

User-behaviour tracking technology is also used in studying learners' learning behaviours in computer-assisted learning environment. This technology provides insights into not only the product of learners' efforts but also the process (Hulstijn, 1997, p.132). User-behaviour tracking technologies, for instance, document learners' experiences (e.g., digital videos, sound files) as they acquire knowledge (Ellis & Schmidt, 1997; Robinson, 1997). Traditionally, such documentation is provided by ethnographic documentation which is quite labour intensive (Davis, 1995). However, user-behaviour tracking technology is not problem-free when used in studying learners' behaviours in computer-assisted environment. This is because computer-assisted instruction has the potential to lack ecological validity: even if certain behaviours occur during (or result from) CALL-based instruction, it is reasonable to question whether such behaviours would occur in naturalistic or classroom settings (Salaberry, 1996).

4.5.2 Conventional research methods

The conventional quantitative and qualitative methods, such as questionnaires, interviews and observation are capable of eliciting data with considerable breadth and depth.

4.5.2.1 Observation

Observation is used as a research technique when data on actual practices are required. However, after contacting the language centres at different UK universities, I found it was difficult to apply observation in the elearning environment for three reasons. First, it proved difficult to observe students on a continuous basis because the duration of

CALL programmes was usually less than six months. Second, although observation of collaborative learning activities by videoing has been conducted by researchers (Jordan & Henderson, 1995; Rasmussen, 2005), much of the information in elearning activities cannot be observed directly because it is mentalistic and non-behaviouristic, especially when it is a question of observing students' learning strategies by using computers. Lastly, the absence of students' presence, for instance in the case of distance learning, makes the observation of online elearning activities particularly difficult and problematic.

4.5.2.2 Questionnaires

Questionnaires are a very popular research technique for carrying out wide ranging surveys. As Bennett suggests, questionnaires are particularly useful for collecting data on:

- teachers' views of a programme.
- teachers' reported behaviours in relation to a programme.
- students' views on particular aspects of their experience.

(2003:59)

The advantages of a questionnaire are clear. It is not only efficient in both time and cost, but also standardises the questions and simplifies data analysis. Besides, the possibility of respondent anonymity may lead to more candid and honest responses. However, the questionnaire also has its constraints. Response rates are typically low (Gillham, 2000: 8), particularly in the case of mailed questionnaires. Many people are inclined to answer questionnaires quickly and superficially because they receive them too often. It is difficult to check respondents' seriousness and hard to identify wrong answers (Gillham, 2000: 13). It is also difficult to explore issues in depth using a questionnaire. Moreover, the students may not understand the intent of the questionnaire, and answer according to their perception of the 'right answer' (Breen, 2001: 27), the so-called

‘acquiescence effect’!

Despite its disadvantages, in the case of investigating computer-assisted listening and speaking learning activities, a questionnaire survey has the advantages of speed in eliciting overall knowledge of the field, and breadth in seeking the views of students. Therefore, it was decided to use a questionnaire survey in the pilot study. The pros and cons of the questionnaire survey will be examined in greater depth in Section 4.4.4.

4.5.2.3 Face-to-face interviews

Interviews are another commonly used technique in qualitative research. They are often used in conjunction with questionnaires, as they can probe the responses given in questionnaires in more depth. Interviews have several strong points. Firstly, the data collection has considerable flexibility in terms of areas explored and the direction of the discussion.

Secondly, interviews are particularly useful when observation cannot be carried out, because the discussion that takes place during an interview is a good means of finding out how people think or feel in relation to a given topic.

Finally, interviewing is an active, meaning-making process. On this point, Holstein and Gubrium note:

Both parties to the interview are necessarily and ineluctably active. Meaning is not merely elicited by apt questioning, nor simply transported through respondent replies; it is actively and communicatively assembled in the interview encounter.

Respondents are not so much repositories of knowledge—treasuries of information awaiting excavation, so to speak—as they are constructors of knowledge in collaboration with interviewers.

(1997:114)

However, this constructor role of the interviewee can also be dangerous to the objectivity of data collection, particularly when the interviewee attempts to help by making up answers. Another possible disadvantage of the interview is that it can be time-consuming. The time spent on actual interviewing is the least of it. Usually, a single face-to-face interview takes no more than one hour, but dozens of one-hour interviews may require hundreds of hours of transcribing time. There are also the costs of developing and piloting interview schedules, traveling to and from the interview location, and analysing extensive data. Moreover, interviews only allow access to what people say, but not to what they do, because interviews do not involve observation in a given situation.

Despite these limitations, interviews in exploratory research areas, such as CALL, can prove extremely useful where a small sample is involved. Chapelle describes the significance of qualitative data (such as interviews and tests) in a study of the impacts of the TOEFL (Test of English as a Foreign Language) on teaching and learning within an intensive English programme in the US as: ‘without such data (the data from qualitative research), one can only speculate, as the logical analysis is intended to do, on the extent to which CALT (Computer-Assisted Language Testing) affects learners positively or negatively’ (2001: 130). Moreover, during an interview, an interviewer can clarify and explain for an interviewee to avoid misunderstanding of questions.

Differences and similarity of interview and questionnaire

Both interviews and questionnaires are usually seen as part of the survey main method. Fetterman explains the similarities and differences between questionnaires and interviews.

Structure interviews are close approximations of questionnaires. Questionnaires represent perhaps the most formal and rigid form of exchange in the interviewing spectrum—logical extension of an increasingly structured interview. However, questionnaires are qualitatively different from interviews because of the distance

between the researcher and the respondent. Interviews have an interactive nature that questionnaires lack. In filling out a questionnaire, the respondent completes the researcher's form without any verbal exchange or clarification.

(1998: 485)

Questionnaires are not necessarily 'quantitative method' and interviews necessarily 'qualitative method'. This is because 'qualitative research usually emphasises words rather than quantification in the collection and analysis of data' (David & Sutton, 2004: 35). And qualitative methods employ 'no quantitative standards and techniques; based on theoretical and methodological principles of symbolic interactionism, hermeneutics and ethnomethodology' (Sarantakos, 1998: 467). Quantitative research usually 'emphasises quantification in the collection and analysis of data' (David and Sutton, 2004: 35). And quantitative methods 'employ quantitative theoretical and methodological principles and techniques and statistics' (Sarantakos, 1998: 467). Therefore, both questionnaires and interviews can be used in the quantitative or qualitative research. For instance, David and Sutton list two main traditional methods of data collection when adopting quantitative research: the self-completion survey, also known as the social survey or questionnaire survey, and the structured interview (David & Sutton, 2004: 159).

4.5.2.4 Reliability and validity of data

The use of indicators and tests raises issues of reliability and validity. Reliability is 'the degree to which the indicator or test is a consistent measure over time, or simply, will the respondent give the same response if asked to give an answer at a different time. In other words, reliability of a measure is measured by consistency in response and the limitation of the error measure. Validity refers to the degree to which a measuring instrument actually measures and describes the concept it is designed to (David & Sutton, 2004: 171).

A number of researchers (Becker, 1970; Fielding & Fielding, 1986; Miles & Huberman, 1994; Scriven, 1974) have introduced strategies in order to improve the reliability and validity of the data, such as searching for discrepant evidence and negative cases (Miles & Huberman, 1994); triangulation (Fielding & Fielding, 1986); rich data (Becker, 1970) and comparison (Miles & Huberman, 1994).

The present study used strategies of triangulation and reinterivew to improve the reliability and validity of the data which will be discussed in section 4.7.5.3.

4.5.2.5 Summery

As in any other research context, none of the research methods is by itself appropriate for the present study. The traditional methods such as questionnaire and interview are relatively reliable to apply, but there are problems of finding a well-established CALL programme and gaining access. Methods such as online chatting and email provide alternative choices and flexibility of time and place, but there are still problems of data validity and accessibility. Applying these methods also requires stable technology, both hardware and software. After consideration of the advantages and disadvantages of available research approaches, I chose questionnaires and interviews for the pilot study mostly because these two methods complemented each other well to collect data both in depth and breadth. Compared to other research techniques, they were also relatively easy to design, apply and modify.

4.6 The Pilot Study

4.6.1 Problems of gaining access to the sample groups and programmes

In order to locate the appropriate CALL programmes for the pilot study, I selected five universities for further contact according to the results of the feasibility study. However, when I contacted the persons in charge of applying the computer-assisted language learning programmes in the respective language centres, the situation became

unexpectedly disappointing. Some universities had given up CALL programmes after an experimental period. The students attending the computer-assisted language courses had simply finished the course and left. More often, the language centres of the universities had just installed language tasks on the computers in the language lab, with little or no integration with regular class teaching. It was up to the students whether they were willing to do some extra practice in their spare time. Although most of the language centres recorded the students' log-on times, there was no record of what the students chose, how they did the tasks, or what the result of their practice was.

Even if there were ongoing CALL programmes in the language centre, it was only in the form of semi-structured courses. In other words, the students did the tasks on their own on the computer with the tutor around to give support when students requested it. In most cases, this kind of semi-structured CALL programme was carried out on a small scale, and depended on the tutor's interest, time, effort and technical capability.

Moreover, the teachers in the language centres had to consider not overloading the students by participating in my survey because the students were already busy and tired by their study. Besides, if the survey was to take a long time, it would disturb the normal teaching schedule. Normally, I had to wait quite a long time till the language centre told me it was the proper time to start my work. Although the teacher would inform the students of my survey beforehand, I still found that some of the students were not well prepared to take it. I had to ask them to be serious with the questionnaire and interview, and be patient to finish it.

The accessibility to the students was only part of the difficulty. The number of the sample students had also been problematic throughout the data collection. Normally, the CALL programme was only a supplementary task to the major curriculum in the language centre, and as I mentioned above, it was the teacher who decided how much the computer technology should be involved in teaching. Therefore, the number of students attending the CALL programme was fairly small.¹

¹ For example, in the University of Sheffield, only 15 students attended the supplementary CALL class once a week for one and a half hours. In the University of Hull, only five students used the CALL programmes for a long period

4.6.2 CALL tasks in the ELT Centre at the University of Sheffield

According to the results of the questionnaire surveys (Section 1.1.2), the University of Sheffield was selected for the pilot study in order to test and revise research methods. The ELT (English Language Testing) Centre had applied computer technology in training listening and pronunciation for several years. More importantly, it was easy to gain access to both teachers and students.

The ELT centre at Sheffield had integrated the computer technology into listening and pronunciation pedagogy. Listening tasks were also integrated with other tasks. For example, students listened to a conversation through computers, and then finished gap-filling exercises. This therefore provided practice in grammar and vocabulary at the same time. As far as the speaking task was concerned, the Language Centre had installed a software package, SKY, to train students' pronunciation, the basic speaking skill. Each part of a SKY programme focused respectively on phonetic symbols, pronunciation of words and phrases and then tone and inflection. Basically, students heard words, phrases or sentences from a computer through headphones and then imitated the pronunciation into microphones. Then the computer would automatically compare the two sounds and give an immediate feedback on whether the students' pronunciation was correct or not. But this kind of feedback had its limitation in that there were no directives about what was wrong and what should be done to correct the mispronunciation.

Additionally, the ELT Centre employed a complete language learning software package, College English, as supplementary practice material in the semi-instructed CALL class. Students could do listening, writing and reading tasks (no speaking task was available at that time) on computers with the tutor around to give instruction and support.

Although the ELT Centre at the University of Sheffield applied computer technology to the English language course on a small scale, it was an example of CALL curriculum design and CALL teaching methods, and was an attempt to integrate a commercial

CALL software package into an established pedagogy.

4.6.3 Sampling

The pilot study was intended to test and refine the research methods for the main study. 16 students from two classes were available. They were intermediate English learners who had been studying English for at least three years. All 16 students were attending a CALL listening course for at least six months. Some of them attended computer-assisted pronunciation courses as well. More importantly, both the students and teachers in the ELT Centre were cooperative and accessible.

4.6.4 Research methods

The pilot survey at the University of Sheffield was carried out at the end of March, 2004. There were two stages: questionnaire to and interviews with both students and teachers.

4.6.4.1 Questionnaires

The questionnaire survey aimed at investigating the impact of computers on students' learning strategies. Altogether 16 students from two classes participated in the questionnaire survey. The 16 participants completed the questionnaires in front of me or the tutor, which guaranteed a high response rate of 100%.

Design of questions for the questionnaire

In order to examine issues in depth, the questionnaire (See Appendix 3) was semi-structured, and made up of 21 closed and open questions in English. Low's study (Low, 1995) had shown that a questionnaire consisting of 25 short questions was unlikely to cause problems of tiredness.

The questionnaire concerned students' personal and educational background, their

listening and speaking practice with computers in the language lab. It also sought their comments and suggestions on the computer-assisted listening and speaking course modules.

Questions (1) to (15) were about the personal and educational background of the respondents, such as their English proficiency, their experience of using computers in language learning, and their attitudes towards CALL. These questions were to provide me with a clear view of the social and educational background of respondents and to check with their patterns of answers in relation to their social group and education.

Questions (16) to (18) were multiple-choice. Question (16) and (17) concerned respectively respondents' experience of using listening and speaking learning materials on computers. Question (18) was about respondents' views of the computer-assisted courses.

Questions (19) to (21) were open questions. As Gillham points out, '(open questions) can be a good way of finishing a questionnaire, which can otherwise easily leave respondents with the impression that their personal opinions or experiences have to fit the straitjacket of prescribed answers' (2000: 34). The purpose of the three open questions was also to explore unpredictable responses. They are,

19) When you are doing practice on the computer, are you often distracted, or bored by the practice? If YES, please state the reasons.

20) Which is the aspect of the computer-assisted listening and speaking learning you consider most useful? And why?

21) Do you use computer to practise listening or speaking after class? If YES, what software have you used?

The constraints of questionnaire in the pilot study

The survey result revealed three constraints of applying questionnaires in the current

research.

(1) The number of students available was not sufficient for a sound quantitative survey.

In the current research, the number of the students available for the pilot study questionnaire was rather small, just 16 students. It is hard to draw significant conclusion from such a small sample.

(2) Learning via computers was a new way of learning. When using a computer as a tool to practise English, students hardly paid a second thought to the rationale behind it. So the students were easily misled and misinterpreted the questions. To explain the situation, I would like to consider two examples first.

The first example (Q 16) concerned the use of strategies when practising listening.

Question 16) The following questions are concerned with your listening practice in the computer-assisted class. (Please tick the reply.) If you tick 'disagree', please write down the reasons.

	Agree (the number of students)	Disagree (the number of students)	Reasons for the disagreement
I can easily concentrate on practice.	14	2	<ul style="list-style-type: none"> ● Sometimes is boring or boring themes. ● It easily makes me tired.
(b) My listening class is well arranged, so I can easily understand the aim of practice.	15	1	<ul style="list-style-type: none"> ● Sometimes is boring.
(c) I have enough chances to practise in class.	12	4	<ul style="list-style-type: none"> ● I wish we had more CALL courses. A class per week is not enough. ● We just have one and a half hours per week. ● Once a week is enough.

			<ul style="list-style-type: none"> ● Getting bored of what I am doing now. It's different in what I listen, but the style is all the same. ● The subject you can talk about is limited.
(d) The practice on the computer is similar to the day-to-day situation.	9	7	<ul style="list-style-type: none"> ● Some practices are quite different from the real life. ● Computer is slower and articulated speech. ● Not always. ● Sometimes the practice is not natural or realistic. ● We can obtain the "idea" of the real situation, though real situation is often different. ● It's too organized, so it's boring. ● Different accent
(e) I can control the progress of the practice.	13	3	<ul style="list-style-type: none"> ● Sometimes when I haven't listened very carefully, I'd like to repeat the conversation, but there is no way (CE). ● The progress is decided by the teacher. ● Not sure.
(f) I am developing cultural background knowledge through practice with the computer programme.	11	5	<ul style="list-style-type: none"> ● Less exposure. ● At the moment I've worked with CE (I am proving if it works) on banking theme. So I don't think that is a cultural background. ● The computer programme is just limited in a few areas. ● For exam rather than culture. But watching website often develop my cultural knowledge as well

			as chatting with people. ● I have never seen such a thing.
(g) I can get hints or answers to the exercise questions from the computers.	12	4	● Some are a little bit difficult to answer. ● It is very slow. ● The computer programme is just limited in a few areas. ● Especially there is no fixed answer.
(h) I can evaluate my practice during or after a task.	14	2	● It depends on the task.

Table 4.2 Pilot questionnaire, excerpt 1

From the students' answers, it is possible to identify some misinterpretation of the questions.

Example 1

	Agree (the number of students)	Disagree (the number of students)	Reasons for the disagreement
(c) I have enough chances to practise in class.	12	4	● I wish we had more CALL courses. A class per week is not enough. ● We just have one and a half hours per week ● Once a week is enough. ● Getting bored of what I am doing now. It's different in what I listen, but the style is all the same. ● The subject you can talk about is

			limited.
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Table 4.3 Pilot questionnaire, excerpt 2

One of the students' answers to Question (c) was 'Getting bored of what I am doing now. It's different in what I listen, but the style is all the same'. This answer was about whether the practice is interesting rather than how much chance of practice a student can get in class.

Example 2

	Agree (the number of students)	Disagree (the number of students)	Reasons for the disagreement
(g) I can get hints or answers to the exercise questions from the computers.	12	4	<ul style="list-style-type: none"> ● Some are a little bit difficult to answer ● It is very slow ● The computer programme is just limited in a few areas ● Especially there is no fixed answer.

Table 4.4 Pilot questionnaire, excerpt 3

Question (g) was about whether a computer would give feedback to students' practice. Several students misinterpreted the question. One answer (The computer programme is just limited in a few areas.) was about the poor variety of the content. Another (It is very slow.) was ambiguous. It might indicate the technical or design problems; or it can be interpreted into, 'I can, but it is slow, so it is of limited use'. This sort of misinterpretation and ambiguity is explained by Low:

(In a questionnaire survey) respondents presume that a given question has been designed with them in mind, and in the absence of negotiation, further assume that their initial interpretation is what is wanted. As a result, they may fail to

notice where the designer is using words differently from them.

(Low, 1999: 505)

Another interesting point that needs to be noticed is that students are likely to overrate their English capability. For example, one student (S3) claimed in his answer that his spoken English was fluent; but during the interview, I was disappointed to find that he hardly expressed himself in English.

(3) The third constraint was it was difficult to check seriousness of answers. For example, Student 7 chose 'Agree' for all eight sub-questions of Q17); and again in Q18), she chose seven 'Agree' and one 'Disagree' but without explaining the reasons. Moreover, answers in at least five (out of 16) questionnaires were apparently frivolous. The following example was extracted from the questionnaire of Student 8.

Q 21) Which is the aspect of the computer-assisted listening and speaking (pronunciation) learning you consider most useful? And why?

(a) Listening

A: I think listening is more useful than speaking by using computer.

(b) Speaking

A: speaking is useful too, but not as useful as listening.

In his answer, Student 8 only admitted the listening and speaking programmes were useful, but he ignored to explain why he thought they were useful.

Summary

The pilot revealed three constraints on applying questionnaires in my study, of which the most serious was the limited number of students available.

4.6.4.2 Interviews

The other part of the pilot was to test if the interview instrument was appropriate to collecting information for the main study.

The questionnaire survey was followed by interviews of students selected according to their answers to the questionnaire. Six out of 16 students attended the interview as volunteers. In the interview, the students were asked for an account in a semi-structured fashion about what they observed themselves doing with the computers while performing listening and speaking tasks.

Design of interview questions

The interview schedule (Appendix 4) was created at the same time as the questionnaire. While the questionnaire focused on the strategies that students used in learning listening and speaking via computers, the interviews were about students' general opinions on the computer-assisted learning activities.

The interview schedule consisted of ten open ended or semi-open ended questions. Some questions concerned students' *learning experience*, for instance, the questions:

(3)/(4) What difficulties do you find in listening/speaking exercises on a computer?

What are your difficulties? Please cite one or two examples.

(5) Some people say they feel shy or embarrassed expressing themselves in the foreign language in the classroom. Have you ever felt this way in the lab? Can you explain? If you HAVE experienced some of these feelings, what did you do to overcome them?

(6) Do you find computer-assisted learning encourages or discourages your use of English after class? Please explain.

(7) Do you think it is important that tutors should teach you strategies to overcome difficulties?

Other questions were about students' *attitudes* towards computer-assisted learning, such as:

(1)/(2) Compared with your learning experiences without the computer, what are the advantages and disadvantages of the computer-assisted listening/speaking courses?

(10) Do you have any other comments about your language learning experiences that you would like to tell me that relate to the topic of the research?

There were questions asking for students' *suggestions* for the computer-assisted listening and speaking classes:

(8)/(9) What is your suggestion for your computer-assisted listening/speaking classes?

My motive here was to find out students' expectations of CALL material, curriculum design and teaching methods.

Issues of concern in running the interview

The role of interviewers as active listeners

In an interview, it is the interviewee who has information, so when doing interviews, interviewers will be listening rather talking. Unfortunately, interviewers tend to dominate an interview. Gillham generalises a number of elements which lies behind a nominal interviewer's desire to dominate an interview.

- *Interviewer anxiety*: a desire to make things work and to get a response may make the interviewer feel that he or she has to push the thing along, to 'make it happen'.
- *Lack of confidence in technique*: a related issue, which manifests

itself in a kind of impatience. Interviews are sometimes slow to start, with interviewees getting their bearings.

- *A failure to appreciate the active role of silence.*

(2000: 35)

Interviewers have to *listen*, but listening is not a passive business. The fundamental skill of active listening in an interview is that interviewers allow and encourage interviewees to respond. Interviewers leave enough time for interviewees to respond and are patient enough to let them finish. If misunderstanding of questions occurs, interviewers will explain and clarify the questions to interviewees.

However, one needs to ask, to what extent, explanation and clarification are appropriate, so that interviewers do not put words in interviewees' mouths and dominate the interviews. Gillham suggests that 'skilled interviewers are remarkable for the economy of what they say. And through the clarity of that economy they are able to steer interviewees to reveal what they know that is relevant to the focus of the interview' (2000: 30). Thereby, when conducting an interview, I attempted to clarify questions for interviewees, so as to avoid their misunderstanding of questions. I also checked the interviews that I conducted for evidence of guiding, but found none. Transcripts show that I avoided impatient intervention when interviewees were talking. The following examples come from two of the interviews.

Interview 1

Interviewer: What are the advantages and disadvantages of learning speaking with a computer compared to traditional class learning?

Interviewee A: en.....¹

Interviewer: *Have you thought about the advantages and disadvantages?*²

Interviewee A: Yes³. For example, in the English Town, if I speak with the teacher, sometimes, the connection is not very good, so I can't hear him very well...

Interviewer: so it's a technical problem, one of the disadvantages⁴. Then what are the

advantages?⁵

Interviewee A: ...but I think, that if I can speak just at home, I don't need to face other students, so maybe...I don't feel ner...⁶

Interviewer: ...you don't feel what?Nervous or you feel relaxed.

Interviewee A: ⁷I feel more relaxed to practise speaking through a computer.

Notes:

1: He paused.

2: I changed the way of questioning, simplifying the question, repeating the key words 'advantages' and 'disadvantages'.

3: He was nodding to show he understood the question.

4: Generalised what the interviewee A said.

5: Repeated the questions to remind him.

6: Word failure.

7: Nodding to agree.

.....

Interview 2

Interviewer: What are the advantages of learning listening with a computer?

Interviewee B: I think, there is no much difference between using computer and using walkman to learn listening. But a computer is easier to operate than a walkman¹.

Interviewer: Do you think it's more vivid and simulated to the real situation because you can see the computer images like College English?²

Interviewee B: Oh...You mean the computer programme like College English. In the listening programme we practised before, there was no picture on the screen. It was more like a media player. If you mean College English, I think it's more interesting and vivid than the tape.....

Notes:

1: She attended two computer-assisted language courses. One used multimedia which was visual while the other was only aural.

2: I realised she only talked about the aural programme and forgot the multimedia one,

so reminded her.

An interview is a social interaction. Hitchcock and Hughes point out, 'The main sources of bias and influence upon interviews is generally regarded as being the personal characteristics of the interviewer. The key variables of age, gender, class, and ethnicity will all play a crucial role' (1995: 165). For example, I am an overseas postgraduate student in my twenties. All the interviewees were overseas students who were at a similar age to me. The majority of them were postgraduate students; the rest were attending language courses in order to get into postgraduate programmes. The similarity of ages and educational backgrounds helped me to set up an easy atmosphere for the interviews. For example, an interviewee from Saudi Arabia voluntarily participated in my interview because, as he said, 'as a Ph.D. student, I know how difficult it is to collect data'. I also kept contact with some of the interviewees so that I could re-interview them if necessary.

It was also interesting to notice that my ethnic and cultural background also helped to get access to the interviewees in my pilot study. For example, of the six volunteer interviewees, three were Chinese, and one was Japanese.

Adding non-verbal language, such as facial expression, eye contact, head nods and gestures, was a useful technique in interview. Appropriate and responsive non-verbal language was an effective communication tool, which showed interviewers' understanding, interest, and confusion. It also encouraged less confident interviewees and helped them to feel comfortable in an interview. However, in my interview, video equipment was simply not available so that interviewees' gestures and facial movements, so an audio tape recorder was used for recording the interviews. Compared with notes, tape-recording the interviews offered a more truthful and detailed record of an interview so that I could make reference to the tone of voice and my own ways of questioning.

The issue of languages

As a bilingual interviewer of English and Mandarin Chinese, I had to consider which language I would use if the interviewees were Mandarin Chinese speakers. I preferred using English in interviews because of the concern of mistranslation. All the questions on the interview schedule were in English. Sometimes it was difficult to find exact Chinese counterparts to some key terms and technical terms. Mistranslation also occurred in translating interviewees' answers from Chinese to English. Accordingly, all of the six interviews were conducted in English. However, if the Chinese interviewee came to a key term but could not find the matching English word, he/she could switch to Chinese. According to the records of the interviews of the three Chinese students, Mandarin Chinese was rarely used, only to explicate some key terms.

4.6.5. Analysis of pilot study interviews

The preparation stage of data analysis was time-consuming and involved transcription, organising and categorising of the data, interpreting it and making what amendments were needed for the main study research instrument. All but one interviewee (S4) allowed me to tape-record the interviews. The tape recorder was maintained in an unobtrusive position so as not to intimidate the interviewees. The interview lasted 20 minutes on average. The interviewees did 90% of the talking.

4.6.5.1 Transcription

In order to maintain the authenticity of the interview, I chose to transcribe the whole process. When transcribing the interview in Mandarin Chinese, I tried to match Chinese words with English equivalents that have the closest meanings to them. Sometimes interviewees tended to switch to English when it came to key terms, which helped me to avoid misunderstandings in the translation process. For example,

Question 7: Do you think it is important that tutors should teach you strategies

to overcome difficulties?

Student 6: Yes, because sometime, we don't know the background information of the listening exercise. For example, a listening exercise is about...□□□□ (Gene Crop). If the teacher doesn't give us the background information, I can not understand the content.

Because Student 6 could not remember the English word 'Gene Group', she switched back to Chinese.

4.6.5.2 Summarisation and categorisation

The next step was to summarise and allocate the interview data to different categories. As the interviews aimed to study students' general opinions on computer-assisted listening and speaking learning activities, curriculum design and courseware design, these three areas formed the categories to which responses were assigned. The answers of every respondent were condensed into short texts that carried the main theme. The answers to Q3 and Q4, and Q8 and Q9 were put under the same rows because Q3 and Q4, and Q8 and Q9 were identical to each other, apart from asking about listening and speaking. After summarisation, different answers consisting of similar comments were selected and grouped together for further analysis to discover the emerging patterns and themes.

Appendix 6 presents the summary of responses from the six interviewees. Appendix 7 shows the categorisation of interview data.

The categories are different, but not mutually exclusive. They overlap at times or the same information fits two categories. For example, interviewees' comments on curricula may also be relevant to courseware used and their learning activities. After being summarised and categorised, the information becomes clear and meaningful to answer the research questions, which shows the feasibility of using summarisation and categorisation for analysing the main study data.

4.6.6 Findings from the pilot study

The data summarised in Appendix 6 and Appendix 7 revealed some interesting issues concerning the students' attitudes towards computer-assisted learning, curriculum design and software design.

4.6.6.1 Students' comments on using a computer to learn listening and speaking

The majority of students thought highly of computer-assisted language learning. They agreed that this learning experience had encouraged their using English after class. This was because first, the computer tasks simulated a daily discourse; it was natural and vivid because the programme was visual. Second, students felt relaxed when practising with a computer because the computer was 'always patient' and students' 'privacy is guaranteed'. Third, through this simulated practice, students could build up their confidence in using English in real discourse. Student 5 commented, 'after I use computer to learn listening and speaking, I can see the progress of my English, which encourages me to use English after class. I feel more confident'. Fourth, students could work at their own paces; Student 4 mentioned, 'I can choose time to study. Unlike attending lectures, sometimes I have to force myself to sit in the classroom, listening to the teachers. But with the computer, I can choose time to study especially when I have the right mood to study'; and Student 6 also agreed, 'learning listening with multi-media computer is better than with tape, TV or other means because I can control the listening process'. And lastly, to learn listening and speaking was to learn how to listen and speak. It was a kind of strategy training. As Student 1 commented, 'I can learn how to listen and the listening strategies through the computer-assisted learning and have improved my understanding in real life'.

However, there were also some students who had negative opinions about using the computer technology in language learning. There were a number of reasons for this.

Firstly, from the psychological point of view, some students had a short 'patience span'.

A teacher in charge of the CALL programme explained what he observed, 'Some students in the class don't connect it (the CALL task) very well. There is one student (Student 2) who doesn't like computers. She just clicks, clicks, clicks. I am surprised. There is also a patience span. She has a very short patience span. It's a kind of personality. She almost doesn't have any benefit from that course at all. Sometimes, it's surprising that some very young people use the computer a lot. I think they have different expectation of the computer. I think, they use the computer for chatting, nice pictures and interesting articles. They don't have such a patience span to look at anything in a great detail. So when you tell them there is a lesson, they have to be concentrated. They don't think it's a valuable learning'.

Subsequently, I interviewed Student 2 mentioned by the teacher. She said, 'I find using (a) computer to practise listening is more convenient. I only need to click the button to access the information I want. I feel there is no big difference to learning English through computers and walkman. ...I don't have any technological difficulties. To be honest, I don't like using computer. I am that kind of person who is out-of-date. Sometimes, the modern technology can be troubling like that'. Therefore, the student's personality traits initially decided his or her attitude towards this new way of learning.

Secondly, technical problems reduce the student's interest in CALL. A teacher described the technical bugs in a CALL programme as, 'clicking here, but nothing happens...things like that. There are some technical problems need to repair...' However, it is time-consuming to fix the technical bugs in practice, and this can affect the students' patience and interest to practise. As Student 6 commented on the CALL programme she used, 'C.E. (College English) which we are using in the CALL class is very interesting, but if we miss one thing (one segment of the task), we have to listen again from the beginning of the section. This time-consuming thing makes me distracted and bored very much'.

Last but not least, a student's existing language knowledge also decides whether he or she can make good use of a CALL programme. Student 3 had a rather negative

comment on CALL, because 'boring themes and system. (There is) too much unknown vocabulary'.

According to the students' comments, computers can be helpful in learning listening and speaking if used appropriately. The students' comments also suggested that it would be useful to explore the appropriate ways of using computer technology in learning and teaching English listening and speaking. Therefore, one of the focuses of the main study was to find out how different approaches to applying computer technology affected students' listening and speaking learning strategies so that improvement could be made in application approaches.

4.6.6.2 Curriculum design

There were two interesting points about curriculum design that emerged from the pilot study. One was, what role does a CALL programme play in the main curriculum: as the main curriculum, or as an integrated part of the main curriculum, or as a supplement to the main curriculum? The other was the importance of interaction between teachers and students, between students and students, and between students and computers.

What role a CALL programme plays in the main curriculum

Generally speaking, the universities in my survey employed CALL programmes as a supplementary tool to the main curriculum. Teacher T1 described their use of CALL programmes as, 'the listening and pronunciation work that we do on the computer are attended to as a supplementary activities. So the design of listening and speaking curriculum is done for class-based activities. And the main work that students do on listening and pronunciation will be done with the teacher. They can ask teachers and teachers who can answer them immediately. Teachers are native speakers. Teachers can tell them if they are making a sound wrong or if they are setting a word wrong or using a wrong expression. The curriculum design is separated from the computer work. The CALL programme, if you like, is designed as suitable extra activities, supplementary

activities’.

The reason for using CALL programmes as a supplement to the main curriculum was partially because of the limited availability of CALL software, facilities in the language lab and teaching staff. As teacher T2 stated, ‘The software is limited. Although we might have a great goal and a great idea of CALL, it depends on the software available. If the software is good, you can make a difference.... In this place, due to the constraint of actual availability of software, we don’t have the listening curriculum in the lab. What we have is a sort of supporting practice. ...At the moment, I am not quite sure how to use C.E. (College English). I am still experimenting with it. It’s difficult to use. It’s too big, a complete course. You don’t have time in the class for that. At the moment, I just let the students help themselves’.

Apart from that, it was time- and effort-consuming work to integrate CALL programme into the main curriculum because, as T2 said, ‘At the moment, we don’t really integrate it at all because we just test it and try it.... You have to very carefully integrate it into the course, because it’s a different course, different subjects and different topics’.

Moreover, all the interviewees agreed that a computer was a tool for learning. It was unlikely that a computer would replace a teacher. Student 5 said, ‘computers are tools to learning. We need teachers to organise the course, give instruction how to practise, how to operate the computer, how to use tips in the programme.’ Besides, if students tended to rely heavily on a computer in learning, they could lose valuable, genuine conversation experience. As teacher T3 mentioned, ‘we know from the feedback from the students that one of the things they value the most is the interaction, meeting people from all over the world in classes, genuine conversation exchange... genuine communication’.

The importance of interaction between teachers and students, between students and students, and between students and computers

Although students practised listening and speaking on computers, it was important to have teachers around to control the class progress, give technical and language support, and evaluate students' work. Students mentioned the importance, 'it's impossible to learn listening by myself with computers. I need the instruction from the teachers' (Student 3). 'I am easily distracted because no one can tell what I am doing on the computer' (Student 1). 'If there is no teacher to control the process of the class, sometimes I tend to play again and again what I cannot understand. It's very time-consuming' (Student 5).

The interactive work between students could stimulate students' interest in learning on computers. Student 4 said, 'the pronunciation programme is fascinating. When I worked with my pal, we both could record our voice. It was the first time I listened to my voice through recorder, and I knew how I spoke. I spotted the incorrect bits of my pronunciation, and improved it'. A teacher also commented on computer-assisted learning, 'computer-assisted learning is a kind of dry way of study. If there are a lot of students talking, mixing and interrupting, it will be an exciting lesson'.

Every student whom I interviewed mentioned that there was lack of communication between students and computers. To be more specific, communication here meant that students could receive tips and help while practising, and could get feedback on their work after practice. A complete interaction between students and computers required advanced technology, both of hardware and of software.

The pilot study suggested three different approaches to applying CALL programmes to main curricula: as main curricula, as integrated parts of main curricula, and as supplements to main curricula (also see the discussion in Section 3.3.3). It also suggested the importance of interaction between teachers and students, between students and students, and between students and computers. Therefore, one area of the main study further explored how to design CALL curricula to enhance interactive learning activities.

4.6.6.3 CALL courseware design

Areas concerning tasks, one of the main advantages of computer-assisted learning listening, is that the students can individualise their listening experience with an appropriate audio player. They can select a section of the 'text' very easily. They can listen to it again and again. T3 thought highly of the individualisation that the computer technology gave to students, 'I think that the most important advantage is its individualisation of listening, focusing on selecting section of texts...With the traditional cassette recorder, it's more difficult'.

CALL software needs to give full attention to individualising tasks. On the one hand, tasks are designed to meet the various needs of students. For example, if the software is to train students' pronunciation, it will consider the influence of students' mother tongues on their English pronunciation. In this connection, Student 5 commented on the pronunciation task she had done on the computer, 'The exercise lacks individualisation. For example, different students have their specific problems in speaking, particularly in pronunciation. It is difficult for me to differ /θ/ from /ð/. But the speaking exercises haven't paid special attention to it'.

In addition to specificity, individualisation can also refer to the flexibility with which the students can control the procedure of their practice. Students can choose the practice according to their needs and levels. All the students in my interview thought that easy control of the practice was one of the main distinctive features of CALL. As Student 1 said, 'the most important thing for the computer learning is that we (students) can choose the topics we like, speed, situation and time'.

However, technical or design bugs constrain the individualisation of CALL programmes to their full extent. For example, as Student 5 described, 'The access to each exercise is too slow. It is annoying me to have to listen to a conversation about the future exercise each time. The last comments are a bit ridiculous. Cohesions are sometimes hard to find'. Student 1 had a similar experience, 'sometimes the operation

of most software is not very effective. If we click some button, we have to wait for a short time to access. Sometimes, if we are bored of the topic, we have to finish and cannot skip’.

As for listening and speaking, it is important to choose the task topics which simulate real discourse and are easy to talk about. Students whom I interviewed complained that the content of the listening and speaking exercise was boring, and suggested enriching the subjects in a way that simulated real conversational situations. Moreover, the form of tasks is also important to hold the interest of students. Students in my study liked to have some varieties in form of the tasks. ‘Most of the practices are very similar. That’s why I feel bored’. ‘Structure is always the same. Topics are different, but I get bored easily’. ‘All structures are the same. I easily get bored’. Conversely, a French student enjoyed the speaking software she used before because ‘I used to have “Tell Me More”. I find it useful and interesting. It has a log of different little exercises. And you can work on your pronunciation, on words and then sentences’.

Feedback from the computer on students’ practice is also essential. However, the CALL programme I was investigating lacked a proper feedback system, though software provided limited feedback. It was not accompanied by directives about what was wrong and what should be done to correct mispronunciation. But as mentioned above, most of the language centres used CALL programmes as a supplement to their main curricula. If the CALL software did not provide enough feedback to students, students would not make full use of it. As Student 1 said, ‘I need feedback of my performance, or how can I know if my listening or speaking has been improved?’

The pilot study revealed several issues central to designing CALL courseware to which attention needed to be paid. Based on this information, the main study included a section on how to evaluate the sample CALL courseware so that suggestions could be given on how to design user-friendly CALL courseware.

4.6.7 Summary of the pilot study

The pilot study showed the potential of research in three areas: how different approaches to applying computer technology affected students' listening and speaking activities, curriculum design, and courseware evaluation so as to improve CALL courseware design.

The pilot study also tested the research instruments of questionnaires and interviews. The result showed that it was unlikely to be feasible to use questionnaires in the main study, mainly due to the small size of the sample. It also suggested that in order to get as much information as possible from the limited number of students available, the most appropriate approach for the main study would be case study. Within it, the major method used is in-depth interview.

4.7 Design of the Main Study

The main study adopted a case study approach. Three universities (the University of Sheffield, the University of Hull, and the University of Newcastle) were chosen to study different ways of using computer technology in language teaching and learning. There were two reasons for choosing the three universities as three individual cases. On the one hand, the three universities used computer technology in teaching English listening and/or speaking in different ways so that I was able to encompass a broad range of study types. At the University of Hull teachers integrated the computer technology into class teaching by using commercial software to develop their own courseware. This was a good example of how to integrate a complete commercial software package into the main curriculum (See Section 5.2). The University of Newcastle installed a variety of self-designed and commercial courseware on the ELT Centre's website. Students could choose the time and place to practise, which made it a good example of the self-access mode of CALL application (See Section 5.3). The University of Sheffield used both self-developed and commercial software packages to train students' listening and speaking. Although the CALL tasks were only supplements

to the main curricula, there were organised CALL classes. Therefore, it was an example of the organised semi-instructed CALL practice (See Section 5.4). On the other hand, it was possible to access their ongoing CALL listening/speaking programmes. Teachers and students in the three universities were cooperative and helpful. It was possible to conduct interviews of teachers and students and to obtain access to key documentation.

4.7.1 Case study

Case study offers an opportunity to research one aspect of situation in depth (Denscombe, 1998). Case studies have a number of advantages. For example, 'the case study is a direct and satisfying method of adding to experience and improving understanding' (Stake, 2000: 25); and helps researchers 'to understand the case in depth and in its natural setting, recognising its complexity and its context. It also has a holistic focus, aiming to preserve and understand the wholeness and unity of the case' (Punch, 2005: 144). Some researchers also claim that case studies can help researchers to study a specific situation in depth. As Cohen *et al.* addresses,

The single instance is of a bounded system, for example a child, a clique, a class, a school, a community. It provides a unique example of real people in real situations, enabling readers to understand ideas more clearly than simply by presenting them with abstract theories or principles.

(2000: 181)

4.7.1.1 In-depth interview

In-depth interviews are excellent tools to determine individuals' perceptions, opinions, facts and forecasts, and their reactions to initial findings and potential solutions. In-depth interviews are particularly useful in an exploratory study because they are open-ended, discovery oriented methods that are well suited for describing both

programme processes and outcomes from the perspective of the target audience.

One of the greatest advantages of in-depth interviews is that they can investigate research questions in depth because interviewees will be required to give explanations for their answers instead of just replying 'yes' or 'no'. Another advantage of in-depth interviews is that during the interview procedure, interviewers may clarify questions for interviewees so that interviewees will not misunderstand the questions. Moreover, in-depth interviews suit exploratory research, where it is difficult to find a large sample.

4.7.2 Sample

I chose five students from each of the three universities. This was because firstly, only five students were available of the University of Hull. According to the record of students' log-on times at the ELT Centre, only five students had been continuously using a computer to do listening practice over one year. Second, although there were nearly one hundred students in the University of Newcastle participating in the pilot work of College English, only five students were willing to participate in my study. In order to keep the balance of student numbers, I chose five students from the University of Sheffield, too. However, fortunately, the education background of the total group of 15 students was very similar. They were all university students who had learned English for at least three years.

4.7.3 Ethical issues

When I contacted the teachers and students in the three universities, I explained the purpose of this study was to look at the impact of computer technology on learning and teaching English listening and speaking as a second language. The data was just for research purposes and would stay confidential. I also emphasised that the personal information was private. I would not disclose the participants' identity after information was gathered ensuing the individual remaining anonymous.

4.7.4 Design of in-depth interview questions

The main aims of the interview were to discover how different approaches to applying computer technology affect students listening and speaking learning strategies; how to design and implement CALL courses, and how to evaluate CALL listening and speaking courseware. The interview questions were divided into three parts: questions on computer-assisted listening learning activities; questions on computer-assisted speaking learning activities; and questions on students' comments on their learning experience and CALL material.

Twelve questions on CALL listening learning activities were based on a list of learning strategies (to be discussed further in Chapter 6) to improve students' performance and to comprehend messages. The questions were: is your computer-assisted listening class well arranged, so you can easily understand the aim of practice? When you are working on the computer, can you easily concentrate on your practice? Or are you often distracted and bored by the practice? Can you develop cultural background knowledge through practice with the computer programme?

Similar to the questions about computer-assisted listening strategies, the questions on speaking strategies were based on research on learning strategies for speaking (See Chapter 6) in second language acquisition, but took into account of specific features of computer-assisted learning environment. For example, the questions: is the practice on the computer natural and realistic? Is the speaking practice interesting and encouraging? Do you find difficulties in speaking exercise on a computer?

Apart from the learning strategies, I was also concerned with students' experience of using computers in learning listening and speaking, and their comments on courseware. I used open-ended questions in order to elicit more opinions. For example, which is the aspect of the computer-assisted listening and speaking learning you consider most useful? What are your suggestions for improving your computer-assisted listening and speaking classes? What are your comments on the software in use?

4.7.5. Towards the analysis framework

At the beginning of this chapter, I explained the aim of the present study was to investigate the impact of computer technology on learning and teaching English listening and speaking as a foreign language, which are reflected in three areas: students' learning strategies, teaching methods and courseware design. Three subsidiary questions which the main study attempted to answer were:

1. How do teachers design and implement courses within the different approaches?
2. How do different approaches to applying computer technology affect students' listening and speaking as regards to learning strategies?
3. What are the criteria and methods used to evaluate CALL courseware and tasks?

4.7.5.1 Impacts on students' learning activities

According to the literature survey in Section 3.3.3, there are in general three ways to apply computer technology in listening and speaking pedagogy: self-access approach, semi-instructed approach and instructed approach. In the self-access approach, students are supposed to work on computers without the presence of teachers. They can choose materials, times and places to study. The practice chosen by students is likely to be more effective, purposeful and individualised than those by teachers. In semi-instructed approach, teachers do not tightly control the practice activities, although they are around to give help when students required. Students have flexibility to work at their own pace, and have direct communication with teachers and classmates. The instructed approach involves using CALL material as a part of course materials in a teacher-instructed class.

Different applications of computer technology influenced students' learning activities particularly their learning strategies. Section 2.2.3.1 suggests two groups of listening learning strategies proposed by Oxford (1990) to improve listening performance and to comprehend information.

Group 1: listening strategies to improve students' performance

- arranging and planning learning
- creating practice opportunities
- naturalistic practice
- self-management
- cooperating with others
- developing cultural background knowledge

Group 2: listening strategies to comprehend the message

- listening out for specific detailed
- concentrating on the task
- advance organization
- comprehension monitoring
- inferencing from context

When students do listening practice on computers, their use of learning strategies is likely to accommodate to the elearning context. Therefore, one of the aims of the main study was to study how computer technology influences students' using learning strategies to improve their listening.

Speaking strategies are also summarised into six groups:

- memory strategies: placing new words into a context; representing sounds in memory; using memory strategies for retrieval;
- cognitive strategies: repeating; recognizing and using formulas and patterns; practicing naturalistically; using resources for receiving and sending messages; reasoning deductively; translating; transferring;
- compensation strategies: switching to the mother tongue; getting help; using mime or gesture; avoiding communication partially or totally; selecting the topic; adjusting or approximating the message; coining words; using a circumlocution or synonym

- metacognitive strategies: centring your learning; arranging and planning your learning; evaluating your learning
- affective strategies: lowering your anxiety; encouraging yourself; taking our emotional temperature
- social strategies: asking for correction; cooperating with others; empathising with others

The pilot study, however, revealed the limited usage of computers in speaking pedagogy in the UK universities. The three target universities only used computer technology in the self-access mode, so that not every sample student did computer-assisted speaking practice; as a result, the conclusions which could be drawn from the interview data were limited. In spite of the difficulties, the main study sought for information of what listening learning strategies are used in various computer-assisted learning contexts.

	Sample 1	2	3	4
Listening strategies to improve students' performance	Arranging and planning learning			
	Creating practice opportunities			
	Naturalistic practice			
	Self-management			
	Cooperating with others			
	Developing cultural background knowledge			
Listening strategies to comprehend message	Listening out for specific detail			
	Concentrating on the task			
	Advanced organisation			
	Comprehension monitoring			
	Inferencing from context			

Table 4.5 Analysis frame for listening strategies

	Sample 1	2	3	4
Memory strategies				
Cognitive strategies				
Compensation strategies				
Metacognitive strategies				
Affective strategies				
Social strategies				

Table 4.6 Analysis frame for speaking strategies

4.7.5.2 The appropriate ways to instruct computer-assisted listening/speaking tasks

An interactive learning environment has several claimed advantages for language acquisition. For example, it can arouse students' interest in study, enhance their motivation, improve their communication skills and build up their confidence. Chapelle (2003) suggests that computer technology has indeed expanded interaction in language acquisition. This is in part because in an elearning environment, 'interaction' refers not only to communication between teachers and students, and between students and students, but also communication between computers and students. An interactive elearning activity depends very much on the material chosen, the curriculum design and the ways to carry out the curriculum. Therefore, the aim of the main study was to seek for information on: the choice of material in different application approaches, the roles of computers, the roles of teachers, the curriculum design and the ways to carry out curricula.

	Self-access approach	Semi-instructed approach	Instructed approach
Choice of material			
Ways to carry out curricula			
The roles of teachers			
The roles of computers			

Table 4.7 Analysis frame for teaching method

4.7.5.3 CALL courseware design strategies and evaluation

Because developing pedagogy is relevant to the specific course design, I needed to be able to evaluate various CALL programmes by comparing the results obtained from different software used in the three universities.

Section 3.5.2 introduces six criteria and two approaches proposed by Chapelle to examine both CALL materials and tasks. The six criteria provide a simple but relatively comprehensive tool to analyse courseware. It focuses not only on the features of courseware, but also on the task that the teacher plans and that the learner carries out. Meanwhile, the two analysis approaches give guidance as to how the criteria should be used, which makes it easy to apply the criteria. Therefore, the main study would base the analysis of the CALL listening/speaking courseware in the three universities on the six criteria above; and follow both the judgmental analysis approach and the empirical analysis approach.

Issues of validity and reliability

In-depth interviews are frequently used along with qualitative methods such as

questionnaires in order to seek information and understanding (Johnson, 2001). However, if in-depth interviews were used as a single method in my study, the validation of the data was of great importance.

Triangulation

‘Triangulation refers to the use of more than one method of data collection within a single study’ (Hitchcock & Hughes, 1995: 180). Hitchcock and Hughes also point out both the importance and the difficulty of triangulation in qualitative research:

Triangulation of data in the case of the analysis of interview and conversational materials can add some depth to the analysis and potentially increase the validity of the data and consequently the analyses made of them... There are also disadvantages and problems. The researcher has always to be careful that the data elicited by means of the different techniques are actually comparable. In other words, there are many different kinds of data and one data source cannot be used unproblematically to validate another source of data.

(ibid.)

In this study, apart from the interviews with students, data were also collected from the interviews with teachers and documentary sources (report from the University of Newcastle on their pilot of College English), but due to the accessibility to the target students and programmes, it was difficult to carry out persistent observation. First of all the students from the University of Sheffield and Hull finished their language courses, so it was impossible to observe their learning. Moreover, the University of Hull ceased the teacher-instructed CALL course due to the non-availability of the teacher.

Re-interviewing and re-analysis

Another major way I used to validate the interview material was to go back to the

respondents with themes and issues which emerged, or those on which I was not clear in the first interviews. Re-interviews were followed by the subsequent re-analysis of the data from the first interviews. Both of these two ways 'offer the subject the opportunity of adding further information and the researcher the opportunity of checking on what data have been collected' (Hitchcock & Hughes, 1995: 182). I had kept contact with the interviewees who agreed to be re-interviewed if it was necessary.

Half a year after the first interview, I finally managed to re-interview five students from the three universities. None of them was still using the CALL programmes after they finished their language courses. As the five students said, 'I am too busy with my study. I do not have enough time' (see Appendix 8). But all of the five students claimed the improvement in their language skills, especially listening skills. The evidence that they gave to me was their scores of pro- and post-exams. Four students provided their listening and speaking scores from two IELTS exams before and after the language courses while another student gave the scores of the exams by the Language Centre (see Appendix 8).

However, the use of CALL programmes was just one of the foci contributing to students' improvement in language skills. The overall language courses they attended and the communication with native speakers also contributed to their improvement of language efficiency. As S5 from the University of Sheffield said, 'talking to real people is more interesting, I have more opportunities to discuss with other people than before'.

4.8 Summary

It was a frustrating process looking for a suitable sample and programmes, and then to get access to them. In the preliminary study which aimed at investigating the feasibility of the current research, I was informed that a dozen UK universities had used ICT in teaching listening and/or speaking. However, before starting the pilot study which aimed at testing the research methods, I recontacted five or six of the universities which seemed promising for collecting data. I was disappointed to find that few universities

had actually used the computer technology in an instructed language course in general, let alone specifically with respect to listening and speaking. Because of the contradictory results of the two studies, I had to ask: why are there hardly any instructed CALL programmes in UK universities? What is/are the best way(s) to employ computer technology in language teaching? What are the effects of the different CALL programmes on students' learning?

The most fruitful results of the pilot study were that the research methods were tested and revised for the main study, and I got to know the teachers and students. As for the research methods, I gave up questionnaires and focused on in-depth interviews because in-depth interviewing seeks 'deep' information and understanding with a limited number of interviewees and addresses and articulates the multiple views of, perspectives on, and meanings of some activity (Johnson, 2001).

The research questions also became more specific from the results of the pilot study. There were finally three questions that the main study tried to answer.

1. How do teachers design and implement courses within the different approaches?
2. How do different approaches to applying computer technology affect students' listening and speaking as regards to learning strategies?
3. What are the criteria and methods used to evaluate CALL courseware and tasks?

The answers would contribute to answering the basic research question: What is the impact of computer technology on learning and teaching English listening and speaking skills as a foreign language?

The main study was carried out in three UK universities in 2004-2005: the University of Sheffield, the University of Newcastle and the University of Hull.

Chapter Five

Findings and Discussion I—Investigating Computer-Assisted Listening Teaching Modules

5.0 Introduction

The present chapter addresses the first of the three subsidiary research questions set out in the previous chapter: How do teachers design and implement courses within the different approaches? The data collection was completed in early 2005 with in-depth interviews as the tool for collecting data. The interviews were conducted with students and teachers from the three UK universities where different CALL listening/speaking modules were used (see Chapter 4).

The chapter begins with a brief introduction to the background. Previous literature or research studies that are relevant to the specific question will be incorporated into the discussion. The following sections examine the impact of computer technology on listening course modules. The areas covered include the choice of material, the way to implement the curriculum, the roles played by computers, and the roles of teachers based on the cases of the three universities. However, due to the great difficulties in finding computer-assisted speaking courses in UK universities, the data collected are unfortunately limited. Therefore, the discussion in this section will not cover the areas as broadly as those of listening modules but will look into the available data in great detail.

5.1 CALL Listening Course Modules in the Three Universities

It will be recalled that the main study was conducted in the language centres at three UK universities: the University of Hull, the University of Newcastle Upon Tyne and

the University of Sheffield in 2004 and 2005.

In the Language Institute at the University of Hull, listening courses were carried out in a multimedia digital language laboratory under teachers' instruction. The computer technology was fully integrated into class teaching. The interactive activities between teachers and students, between students and students, and between computers and students occurred throughout a class. However, the use of computer technology in speaking classes was very limited. And the interview results suggested (see below) that students only used computers for speaking practice once or twice.

The English Learning Centre at the University of Sheffield used both commercial language courseware and self-developed programmes in the listening/pronunciation courses. The listening and pronunciation courses were semi-instructed, in that the students did the exercises at their own pace with a teacher around to give technical and linguistic support.

The Language Centre at the University of Newcastle Upon Tyne applied commercial language courseware and self-developed programmes in training students' listening and speaking. But the present study only investigated their pilot application of new commercial courseware, College English, as an example of self-access use of computer technology in teaching and learning listening.

A big variety of CALL programmes, both commercial and self-developed, were used in the three universities. The duration of courses also varied, from three months to one year. Such complexity caused difficulties when it came to choosing sample students and courses. Because of the fact that different approaches were used with respect to the employment of computer technology in listening courses at the three universities, the present study examined the instructed computer-assisted listening courses in the University of Hull, where CALL listening practice was integrated into class activities under teachers' instruction; the semi-instructed computer-assisted listening courses in

the University of Sheffield, where students did listening exercises on their own in an organised class with a teacher's presence. When students had any problems in their practice, they asked the teacher for help; and the self-access computer-assisted listening practice in the University of Newcastle Upon Tyne, where students accessed to online material anytime anywhere on campus. They had to manage and plan their own study while teachers were available for help by email.

5.2 The University of Hull: Instructed Computer-Assisted Listening Courses

The EFL Centre ran a full time English language course, the BRIDGE Programme, for international students who wanted General English and English for Academic Purposes. It helped prepare students for university-level study in the UK. The BRIDGE Programme consisted of five modules and each module ran for five or six weeks. There were approximately twenty hours of tuition per week with around 15 students in a group. The main aims of the course were to improve students' language skills in general and to prepare students for the IELTS examination and future academic study in the higher education in the UK. There were four main components of the BRIDGE Programme:

- (1) general English: general language development in grammar, vocabulary, pronunciation and integrated skills using a course book.
- (2) skills Focus: key strategies for improving English language skills with a specific focus on IELTS examination.
- (3) English for Academic Purposes: integrated skills and language work in an academic context, and
- (4) computer assisted language learning: IT training and guided independent learning using IT facilities in the EFL centre.

The BRIDGE Programme was facilitated by an asynchronous web-based learning environment, Merlin, which was designed, developed and supported by the University of Hull. The EFL centre used the Merlin as a subsidiary resource to the class-instructed BRIDGE courses. Material on Merlin was used in a self-access way, but both oral and written communication through Merlin between tutors and students, and among students was encouraged. For example, students did exercises on Merlin whenever they wanted in a self-access computer centre. If they had any questions regarding their exercises, they sent emails to their tutors through Merlin; or they posted a message on the Notice Board within Merlin. The tutor also set up areas in the Exchange where discussion on specific topics was generated. Moreover, students had access to the Merlin Resource Centre which consisted of Web resources and a number of other special resource templates such as File Bank, Image Library, Lecture Presentation and Case Study Exercises. With these functions, Merlin provided a framework of collaboration and resource sharing and was used as a subsidiary resource to the instructed BRIDGE courses.

The BRIDGE course covered extensive training for listening. The listening course was carried out either in a classroom or in a multimedia laboratory, mainly depending on how teachers designed their curricula. Once a week for about two hours, a group of 15 students attended the listening course instructed by Teacher A in a state-of-the-art digital language laboratory, Melissi Digital Classroom (see www.melissi.co.uk) for a different approach to listening.

The Melissi Digital Classroom was designed for the University of Hull. It consisted of a teacher's programme and students' programmes, which allowed communication between teachers and students across the network. The teacher's programme used a variety of tools to control the class. These tools included:

- a constant overview of the class;
- an integrated word processor capable of reading .doc, .rtf, .txt etc.;

- audio and video real time recording;
- the ability for the teacher to set permissions to disallow individual or all students access to the internet, telephones or text;
- the ability to send a file, or group of files, to an individual, a group, or the entire class. This can be performed before the students log in so saving time at the start of a class. Teachers can also produce complete “activities” in advance that can include audio, video, pictures, text and instructions;
- monitoring students’ recording which allows teachers to view and listen to students’ activities. Viewing is possible either in "thumbnail" mode, showing the classroom layout, or at the resolution of the student screen. Teachers can also use their mouse to control the student computer, or type on their keyboard straight into the word processing programme or subtitling on a student computer;
- classrooms can be arranged on the screen to reflect the reality of a room. What is more, teachers can switch ‘call-class’ on and off and also talk to individual or many students;
- all the students’ recordings and other files can be collected by the teacher, at the end of the class, for correction later;
- the ability to speak to individuals or the entire class without interrupting what they are doing and to monitor their conversations;
- high speed CD audio extraction and compression;
- ability to record Internet radio;
- subtitling is included as part of the Digital Classroom.

(www.melissi.co.uk)

With these functions, Melissi Digital Classroom provided the teacher with multimedia tools to organise and instruct a class. Similar to the traditional language class, the listening classes run in the digital laboratory at the University of Hull were instructed by the teacher who chose course material and carried out class activities.

The following sections will examine the instructed computer-assisted listening courses from four aspects which were suggested in Table 4.6: the choice of course material, the ways to carry out curricula, the roles of teachers, and the roles of computers. At the end of this section, issues concerned with teaching instructed CALL listening class will be addressed.

5.2.1 The choice of course material

Because there was no pre-selected material in the Melissi Digital Classroom, the listening class relied on Teacher A to choose the course material. The multimedia computers expanded her choice of resources which included videos, audio recordings, CD ROM and Internet materials.

Every single listening class in the digital classroom had foci. One of the important criteria for Teacher A to choose course material was to meet the specific focuses of an individual class. As she described, 'I usually work with topics. So I find materials on specific topics, and design tasks to go with it, transfer them to students' computers, and give them the task.' Because the focuses of the BRIDGE Programme's five modules ranged from fundamental language skills to academic lectures and the IELTS examination, the material chosen for each stage also changed from simple, general background topics to relatively difficult and specific academic topics. For example, Modules 1 and 2 concentrated on very general contexts. Following Module 2, Teacher A introduced more topics in an academic context, listening to lectures and preparing for the IELTS examination in Modules 3 and 4. By the end of the Bridge programme, Modules 5 and 6 were more or less academically focused. The change of module focus was to meet the aims of the BRIDGE Programme in general: to make sure that students get a good general background of daily life, and at the same time to prepare them for the study in UK universities.

However, it was difficult to choose material which met the needs of every student in the same class. Even in a group of fifteen students, students' English proficiency was varied, and their learning habits were different. For example, S2 reported that she easily lost her concentration when doing listening exercises on academic topics because 'there were always some new words in the academic lectures. I would lose my concentration if I could not understand them. And I like daily conversation more because it was easy to understand'. But both S3 and S4 thought academic and daily topics were equally important although the academic topics sometimes were difficult to understand. And it was necessary to keep a balance between them.

Another reason for their difficulty in comprehending both academic and daily topics, as students explained, was the lack of the cultural background information. S3 noticed that, 'the listening tasks focused on science or other academic topics. But cultural knowledge is quite important. If I don't understand the cultural, I don't understand what they are talking about'. However, the listening class did not emphasise cultural background information, possibly because the cultural information was supposed to be acquired outside the classroom, and there was not enough time to explain cultural background information in each session of the listening course. But it was useful if the teacher handed out reading material of cultural background information in class or install relative resources in the self-access CALL programmes for students to refer to after class.

Compared to the traditional language classroom, the multimedia classroom extended teachers' choice of material resources from textbooks and tape recordings to CD and videos. As a part of every lesson, CALL material was adapted to the needs of the overall curriculum. At the University of Hull, the students acknowledged that visual material such as video helped their listening comprehension. S4 described his experience:

With pictures, I can understand better. For example, if I don't understand this word, the picture will tell me what it is. But if I just listen to this word, I cannot work out

what this word means. And I cannot understand the whole text. So I think the video is better than tape recorder (S4).

But visual material also caused distraction during the listening procedure. As S1 noted:

Although video material was interesting and easier to understand, but I think the best way is only listening (without viewing pictures) because I could be completely concentrated on listening (S1).

Although there were several factors which affected teacher A's choice of the course material, such as availability, authenticity, being up to date and liveliness, what concerned her most was whether the material was relevant to the foci and aims of the syllabus.

5.2.2 The way to implement the syllabus

At the beginning of every lesson, Teacher A introduced the topics which were covered in the lesson. In some lessons, students were asked to do a warm-up exercise, for instance, on vocabulary. Then, Teacher A assigned students a task for listening. Students worked independently on computers at this stage. After students finished listening, Teacher A passed around exercise sheets and asked students to finish the exercise according to what they had watched or heard. Then she asked students to work with a partner to compare and discuss their answers. If they disagreed on the answers, they listened to the tasks again and check the answers. Or they also invited the teacher to join their discussion. At the end of a lesson, Teacher A brought the class together, went through the whole listening task, checked if everybody had the correct answers, and solved problems that the students generally had, to which they had not managed to find answers. She also gave students the text scripts of the listening material so that they referred to the text scripts to check what they misunderstood.

In the instructed CALL listening class, the interactive activities between teachers and students, students and students, and computers and students were direct and immediate. As with the traditional listening class, teacher-student interaction occurred throughout the class. At the beginning of a class, a teacher gave the general instructions about class aims, necessary background information, specific strategies to be used in the following practice, and so on. In the process of the class, the teacher supervised and also joined in the class activities. And at the end of the class, the teacher gave feedback on students' answers to the exercise, commented on their class performance and answered their questions. In an instructed listening class, the students were likely to get motivated in exercises because of the pressure of the controlled class. As S4 commented, 'if the teacher let me to do it, I must do it. I think...it is very useful to me'. However, students were unlikely to get actively involved in their learning activities because it was the teacher who had arranged the class activities, and the students just passively followed the instruction from the teacher.

Student-student interaction was animated in class activities like discussion. From the student's point of view, the in-class communication with classmates was interesting and encouraging. As S1 said:

I like the in-class conversation with my classmates. It makes the class interesting. There is a lot of activities, talking, discussing, arguing (S1).

From the teacher's point of view, the in-class communication among students was useful not only because it made the class live, but also students learned from each other. On this point, Teacher A commented:

In the class discussion, they (students) can help each other in any way because more often they can't help each other unless they see somebody else has something different. It will make them think, 'Hum, I need to listen to that again and go back to it, listen and check their own answers (Teacher A).

Although a computer was only a small part of an instructed listening class, the computer-student interaction was implemented when students did exercises on computers. A digital laboratory promised students more choices of material in particular, video material, which made the difference between a digital laboratory and an ordinary analogue laboratory with audio recordings. Moreover, multimedia also facilitated online student-student communication and teacher-student communication. For example, in Melissi, there was a phone mode that was used by teachers and students to record and speak to each other. In some programmes, computers gave help and feedback on students' exercises. But the form of the student-computer interaction was often decided by the courseware and curriculum design. For instance, when Teacher A used Melissi programme in the listening class, she switched off the phone mode and encouraged more face-to-face class activities. And more often, she gave students help and feedback on their exercise instead of using computers.

Apart from the above-mentioned three student-centred interactive relationships, the interaction between teachers and computers in an instructed class was Manager-Facilitator. Teachers chose the course material and decided how to integrate computers into class instruction while computers helped teachers carry out the teaching activities.

The interactive relationships among students, teachers and computers are shown graphically in Figure 5.1.

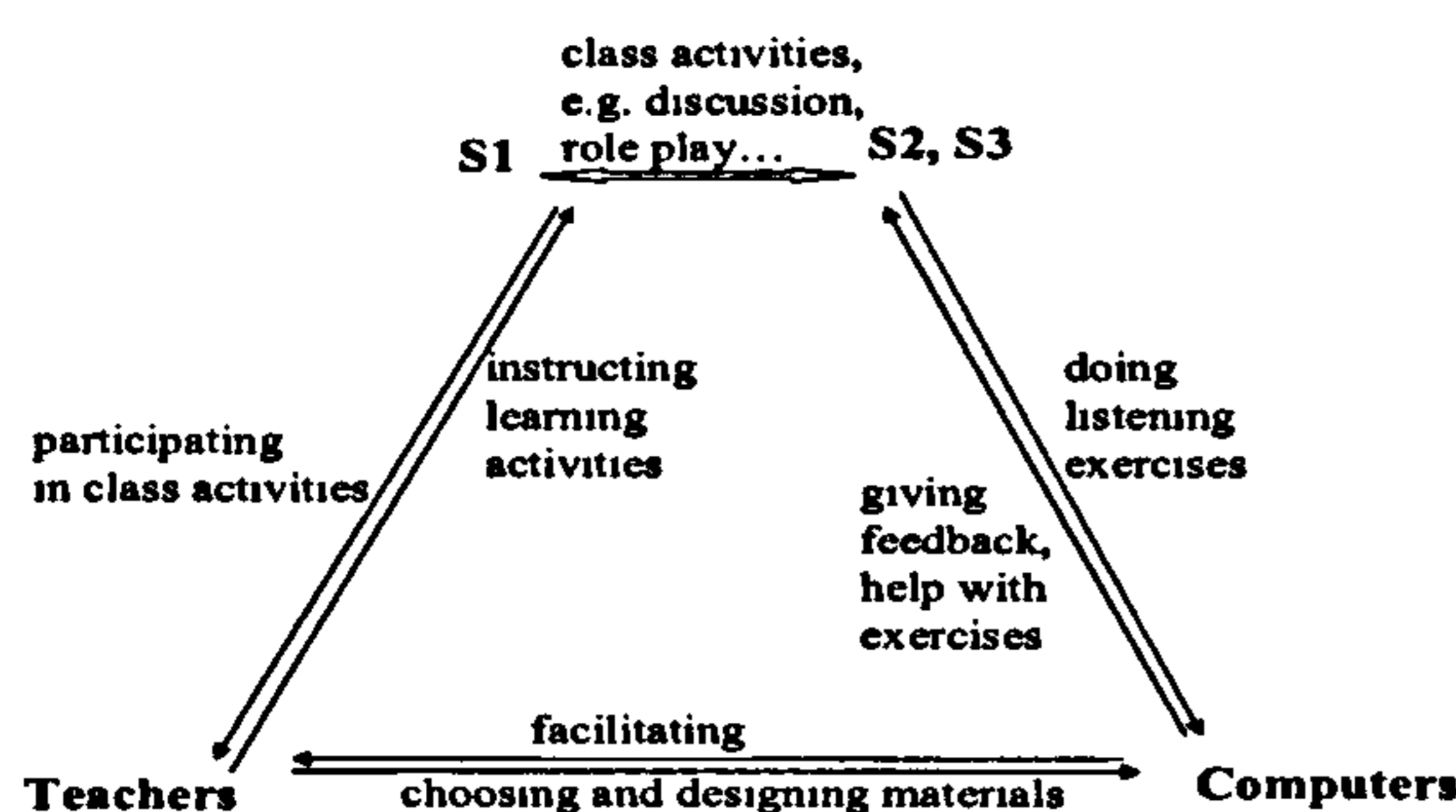


Figure 5.1 Interactive relationships in an instructed CALL listening class

5.2.3 The role of computers in the instructed listening class

In an instructed listening class, the computer was employed by students or teachers to enhance their learning or teaching activities. The computer-assisted listening activities in an instructed class had characterised the computers' role as a tool. The role of *tool* is identified in a number of studies (Bax, 2003; Auld, 2002; Warschauer & Lepeintre, 1997) suggesting that in this role, the computer is employed by the user to enhance his or her own learning or communication. However, in an instructed listening class, the computer facilitated not only students' learning but also teaching. For example, in the case of the University of Hull, the Melissi programme created a multimedia environment, which made teaching and learning activities diversified and easy to perform. The key features of the role of computers as a tool are summarised in Table 5.2.

	Facilities provided by computers	Effects
Teachers	A multimedia teaching environment, including Internet, CD ROM, videos, audio recordings...	Various choices of teaching material, reduce the labour from paper work, convenience, speed...
Students	A multimedia learning environment, word processors, spelling and grammar checkers, and so on...	Various choices of learning material, diversity

Table 5.2 Roles of computers as a tool in an instructed listening class

5.2.3.1 The role of computers as a tool in teaching

In the role of a tool in teaching, computers did not necessarily provide any language material, but rather empowered teachers to design and manage the class. In particular, the multimedia programmes assisted the teacher with convenient and simple tools to employ various resources in teaching listening, such as video, audio recordings, graphics and CD ROM. For example, in a listening class in the Melissi Classroom, Teacher A installed materials from a cassette tape into a teacher's computer in a few minutes, digitised it into files, and then transferred files to 15 students' computers. All these activities were done in a few minutes. In particular, the files were dropped to one student's machine or to a selected group of students. Teacher A made as many groups as she liked. She even sent message or talked to a student or students simultaneously through Melissi. She was also able to switch off communication facilities between students in class.

The tool role of computers was at the same time characterised by reducing teachers' workload. Moreover, it was economical in time to prepare class material. For example, if Teacher A wanted to use material from a CD, she pulled the audio track directly from the CD to a teacher computer at ten times the normal speed of transferring a document on computers.

However, there were still technical problems. Particularly, the difficulty of technology was magnified if a teacher relied too much on technology. From her experience, Teacher A was always aware of, and prepared for, technology failure. As she commented:

You are hoping it's going to work for you. Sometimes, computers don't work.

Sometimes, software doesn't work. But you are always prepared for the technology not working. If you've got tapes with you, you can put them into the tape recorder and broadcast it from the speakers if computers don't work. It is not going to be a

problem (Teacher A).

5.2.3.2 The role of computers as a tool in learning

The tool role that computers played in learning in an instructed listening class was characterised by giving students a multimedia learning environment which combined video, audio, pictures, texts, and so on to make learning as interesting and dynamic as possible. For example, when students were doing a listening exercise with a video extract in the Melissi Classroom, they were able to manage the size of the pictures, or play backward and forward, or take notes or make commentary with an integrated word processor. Students were also able to require fully synchronised sub-titles attached to a video file by teachers.

However, it was interesting to notice that in an instructed listening class, computers' ability to facilitate learning activities was subject to the overall design of the curriculum. Therefore, it was the teacher who decided how computers helped in learning and how much it was integrated in the curriculum.

5.2.4 The role of teachers in the instructed listening class

In the instructed CALL listening class, although computers were used in teaching, a teacher's role as a manager of the class remained the same. As a *manager*, a teacher designed the curriculum, chose the material, organised the class activities, evaluated and commented on students' class performance. At the same time, a teacher was also a *facilitator* of a class, assisting students to solve both language and technological problems.

5.2.5 Issues concerning the instructed CALL listening class

One issue in an instructed CALL listening class was what kind of material was

appropriate to the computer-assisted instructed learning environment. It was worth noticing that when I asked students for their opinions on course material for CALL listening courses, there were conflicting expectations between teachers and students. For example, in terms of the content of course material, students expected a balance of academic lectures and daily dialogues, because the majority of students who studied language courses in UK universities aimed to improve their understanding of academic lectures as well as their communication skills. However, English courses in language centres seemed to pay more attention to preparing students for IELTS and academic lectures.

Moreover, how much a computer was involved in a class and what effects it brought very much depended on how the teacher designed and implemented the syllabus. If a computer was only used as a substitute for a tape recorder or just simply required a student to fill in blanks, to select the correct answer in a multiple-choice question, to answer questions after reading or listening to a paragraph, it hardly fulfilled the promise of the computer technology.

... Simply using a computer as a replacement for a set of flash cards does not strike us an effective or an imaginative use of a powerful technology.

(Green and Meara, 1995: 98)

Students benefited from multimedia with different visual and aural information such as texts, speeches, drawings, photographs, music, animations and videos, which allowed full use to be made of the technology. Therefore, it was necessary for a teacher to consider the ways to make full use of the advantages of computer technology.

Another issue which needed attention was how to motivate students in a teacher-instructed class. Interactive class activities between students (such as discussion) were helpful in activating the class atmosphere. And also teacher's

participation in class activities enhanced the direct teacher-student interaction, which also contributed to improving students' motivation. However, there were still questions such as, what kinds of class activities were appropriate in an instructed CALL listening class to enhance students' active participation in class? Or to what extent was a teacher able to be involved in class activities? Chapter 7 will explore these remaining questions about teaching methods further.

5.3 The University of Newcastle Upon Tyne: Self-Access Listening Practice

The English Teaching Centre of the University of Newcastle ran a variety of English programmes from foundational courses to pre-sessional courses and in-sessional courses. Apart from the teacher instructed classes, there was an extensive range of language material in the Open Access Centre (OAC) as supplements to the language classes or as homework for students. The Centre was equipped with 44 combined video and television units, all capable of viewing pre-recorded videos or receiving satellite television. There were also computers with language learning software in the Centre. Software available included multimedia CD ROMs, videos and audio cassettes. The Centre additionally had 35 audio players with listening and recording facilities for students to practise listening and speaking. Students recorded their voice on to cassettes (to compare with the native speaker model) without affecting the master track. If students had difficulties with English, they consulted a Language Centre advisor for general language learning advice.

5.3.1 The choice of material

The material used for listening was mostly developed by the teaching staff of the Centre, and included videos on lectures for academic listening, BBC Radio 4 news, and commercial courseware packages such as College English and Clarity.

One of the Language Centre teachers produced sound files based on BBC Radio 10am

news every day. These were usually five-minute summaries of the news and exercises to go with the summaries which were true or false, gap-filling, or correcting segments. There were three levels of exercise: fundamental, preliminary and higher. The faculty staff always got those sound files by email every day about lunch time and they assigned the news programmes as students' homework. The OAC also installed those sound files onto its website. Students accessed the material either in the OAC or through campus network. The following is an extract from one of the worksheets in the sound file.

Example 1:

BBC RADIO 4 NEWS 10am TUESDAY, 11th JANUARY 2005

FOUNDATION LEVEL: CORRECT THE MISTAKE IN EACH SENTENCE

1. The chancellor's name is Gordon Blown.
2. The deputy prime minister is Tom Prescott.
3. Ann Milburn is Labour's election coordinator.

FOUNDATION LEVEL: ANSWERS

1. The chancellor's name is Gordon Blown. **Gordon Brown**
2. The deputy prime minister is Tom Prescott. **John Prescott**
3. Ann Milburn is Labour's election coordinator. **Alan Milburn**

PRELIMINARY LEVEL: QUESTIONS

1. What is the chancellor's name?
2. Who is John Prescott?
3. What is Alan Milburn coordinating?

PRELIMINARY LEVEL: ANSWERS

1. What is the chancellor's name? **Gordon Brown**
2. Who is John Prescott? **He's the deputy prime minister.**
3. What is Alan Milburn coordinating? **the election**

HIGHER LEVEL: SENTENCE COMPLETION

1. The chancellor, Gordon _____, the _____ prime minister, _____ Prescott and the man coordinating the election, _____ Milburn, are going to _____ a poster campaign this morning.
2. Labour _____ have been concerned by reports of a _____ between the prime minister and the chancellor.

HIGHER LEVEL: ANSWERS

1. The chancellor, **Gordon Brown**, the **deputy prime minister**, **John Prescott** and the man coordinating the election, **Alan Milburn**, are going to **launch** a poster campaign this morning.

2. Labour MPs have been concerned by reports of a split between the prime minister and the chancellor.

The Language Centre had also been developing an online self-access language learning programme for science, agricultural and engineering students. The programme was a collection of lectures and authentic talks on science, agricultural and engineering subjects for the purpose of academic English. As for the listening tasks, each segment of videos was condensed and short, about five to ten minutes, so that students had a quick practice during the break between lectures. All the listening tasks were accompanied by exercises. Students selected tasks by subject, by skill and by academic school. Because it was at the early stage of its development when the present study was conducted, there was no task example available for this thesis.

Apart from the teacher-developed listening material, the Centre also installed commercial programmes for students' self-access use. In particular, the Centre had introduced an advanced commercial courseware package, College English (C.E.).

C.E. was developed to meet the needs of institutions preparing students for entry to tertiary level education through the medium of English. The tasks covered four major skill areas (reading, writing, listening and speaking), with remedial 'loops' that targeted specific areas of difficulty for that individual student. In addition, C.E. included training in students' thinking skills, research skills, study skills and IT skills, which helped them study through English. C.E. originally consisted of 30 units at three levels. Each unit represented up to ten hours of online study materials, which contained texts and tasks for reading, listening, speaking and writing, study and research skills. Level One consisted of practice for TOEFL; Level Two focused on IELTS; Level Three targeted specific areas of academic English skills development, with tasks both separated and integrated. The following sample is taken from the C.E. Level Two, Unit One, Section Six.

¹Example 2:

Unit 1: Getting in touch

Section 6: Phone Etiquette	30 minutes
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LISTENING 3 - listen for specific information
 - transcode information from a listening text to a form (L)
 - being aware of and using correct register

STUDY SKILLS 1

Listening Task A – type a message in reply to one received.	
Listening Task B – click to select the best message of four.	
Exercise A – click on a statement to comment on a message (<i>Marks : 5</i>)	
Exercise B – complete telephone messages by dragging words from a table (<i>Marks : 24</i>)	Loop 6: Take notes from spoken messages

Description:

This section starts with Lan asking Dr Pegg for help with understanding phone messages. Lan and the user are asked to practise leaving a phone message by first typing in their messages and comparing them, looking for whether all the necessary information is included. This leads into listening to and comparing a series of messages left on Skuzzy's answer phone, and listening to Skuzzy's comments in response to the messages before evaluating how useful the messages are. The user then practises listening to short phone conversations and recording key words to complete brief notes. The conversations involve the virtual students and everyday functional language. The main skill focus is listening and developing the functional language skills to understand everyday phone messages.

Suggested classroom activities

(Note: if section 6 is used in class teaching)

Activity 1: Class discussion

Interaction: Whole class or groups

¹ Example 2 was extracted from College English website: www.collegeenglish.co.uk

Materials: Nil

Time: 10 – 15 minutes

Ask the class to make a list on the board of difficulties they have with listening to and leaving phone messages. Encourage them to be specific e.g. voice on phone too quiet, can't see speaker's face. This personalises the content and activates knowledge and experiences they have. If the class is larger, ask them to first discuss in groups, and have a group representative write their points on the board.

Activity 2: Leaving phone messages

Interaction: Individual / group

Materials: Tape recorders for pairs or groups, starter dialogues from workbook.
Evaluation checklist from workbook.

Time: 20 – 30 minutes

The teacher or a student can record an answer-phone message. Students respond to the answer-phone, leaving their own message and recording themselves if possible, and then listen to their recorded messages in pairs or small groups, take notes and evaluate whether the information is clear.

One of the features of C.E. was that it created a virtual learning environment. There were **virtual students** and **virtual tutors** who gave students hints and help in a simulated classroom. As the designers of C.E. expected:

C.E. can provide access to quality English Language teaching in a flexible, interactive, relaxed and self-paced virtual learning environment. Whether blended with other teaching methods or used on its own, it rapidly advances a student from a pre-intermediate level to an advanced user of English.

(www.collegeenglish.co.uk)

However, because C.E. was a new advanced language courseware package, when the Language Centre at the Newcastle University planned to use it, they launched a pilot study to investigate usage of the programme. In the pilot, C.E. was presented as a free resource for students of the University of Newcastle. In other words, it was up to the students to decide how much or little to use it. The next section will address their pilot study of using C.E. as self-access material.

5.3.2 The way to use C.E. as self-access material²

The pilot started around the beginning of February 2004 and finished at the end of May 2004. The Pilot group consisted of six groups of on-campus students, each led by a Language Centre tutor. The students were chosen from classes taught by each tutor except in the case of one group, where an email was sent out to ask for volunteers who were not attending any Language Centre courses. Each group had six to fourteen students, altogether 81 students. The six tutors were volunteers who were interested in taking part in the pilot study. Tutors also had a 'student' login to experience the material from a student's perspective.

The sample of students was intended to cover a cross-section of the nationalities, levels and courses of the University's overseas students. The students were from France, the Czech Republic, Spain, Germany, Italy, Portugal, China, Korea, Japan, India, Thailand, Saudi Arabia, Qatar, Nigeria, Libya, and Cameroon, and were studying ELSS (English Language and Study Skills, a preparatory language course mostly for postgraduates), IFP (International Foundation Programme, a preparatory course for undergraduate entry), and IS (In-sessional course, support classes for students on degree programmes).

At the beginning of the pilot study, students were given headsets and a document explaining the purpose of the pilot and giving them instructions for using C.E. There were no lengthy demonstrations or face-to-face sessions using C.E. The purpose was to see if C.E. was able to be open for use to all Newcastle's overseas students without tutor-supported training sessions.

Once pilot students had been introduced to C.E., they were given logins and passwords. Students chose the times, places, content and duration of practice. If they had any problems with either language or technology, students received the full support of their

² All references to C.E. pilot study, unless otherwise indicated, are from 'College English Pilot Report and Recommendations' (2004).

tutor online by email contact within the C.E. system. Students were encouraged to consult tutors using C.E. rather than face-to-face. This was to simulate the situation of distance learning, where tutors were supporting students that they never actually met.

By the end of the pilot study, feedback from students and tutors was collected in order to identify problems of both online materials and the self-access approach to delivering those materials, such as places to use self-access material, timing and feedback. The following three sections will address these issues one by one.

5.3.2.1 Places to use self-access materials

According to the ³feedback survey after the pilot study run by the Language Centre, the majority of students used C.E. on campus, either in OAC or other computer rooms on campus.

³ After the pilot, the Language Centre organised a questionnaire survey and face-to-face interviews. Of the 81 pilot students, 57 questionnaires were completed (return rate of 70%). All the questionnaire results were abstracted from the pilot report. All numbers in brackets, e.g. (2), are the responses of the off-campus group in Thailand. The Thai group was used to demonstrate using C.E. in distance learning, which is not the purpose of this thesis and will not be discussed further.

Question 3: 27 respondents [27 respondents selected 40 answers]*Percentage equals percentage of total answers*

Q3	I use College English...	
	<i>Please tick all the true answers.</i>	
	...in the OAC at Newcastle University	14 =35%
	...on computers at Newcastle University outside the OAC	11=27.5%
	...on another University campus (not Newcastle University)	1=0.025%
	...at home	4=10%
	...in my University accommodation in Newcastle	4=10%
	...in my University accommodation (not Newcastle University)	(4)=10%
	...in internet cafes	(1)= 0.025%
	...outside the UK	1= 0.025%
	Other	0 =0%
	(please specify) <input type="text"/>	

Table 5.3 Questionnaire, excerpt 1

However, one of the problems that students commonly experienced was that when using C.E. in a cluster computer room, students felt embarrassed and uneasy to recite the text after the computer because it would disturb other students. In my interviews with a sample of pilot students, S1 said, ‘the Centre should provide a place where I feel OK speaking in the cluster room—other people might get angry’. Besides, not all the computers had headphone sockets which made it impossible to do listening and speaking on computers. There were also problems accessing the Language Centre’s website from off-campus computers, which made it impossible for students to practise at home. This was mainly due to technical failures such as no java plug-in, no Internet access and minimum spec.

In order to solve the problem of disturbance in the common computer rooms, the Language Centre had planned to arrange a special area with separate computer booths where students felt free to recite or do speaking exercises. However, due to the high cost, this plan had not been implemented at the time of this study.

5.3.2.2 Duration of tasks

Another issue that a teacher needed to pay attention to when he/she designed self-access material was the duration of tasks. This is because attention spans varied from student to student. Table 5.4 is extracted from the questionnaire of the C.E. pilot study.

Question 2: 23 (4) respondents

Q2	Each time I log on to College English, I usually use it for...	
	<i>Try to estimate the average time you spend on each College English session.</i>	
	...less than 30 minutes	6 (2) = 30%
	...between 30 and 60 minutes	12 (2) = 52%
	...between 60 and 90 minutes	5 = 18%
	...between 90 and 120 minutes	0
	...more than 2 hours	0

Table 5.4 Questionnaire, excerpt 2

The majority of students (50%) preferred the duration of a task to be between 30 to 60 minutes which was similar to that of an ordinary lecture. For example, S1 felt he easily concentrated on practising for about 30 minutes, ‘when I worked on it (practice), I was just concentrated on it because I only did 30 minutes’. However, distraction was likely to be caused by emails, the Internet, and uncomfortable facilities. As S2 explained:

The headphone provided for working was very uncomfortable. I would become tired easily. In some cases, I could concentrate for four or five hours. But with those headphones, I could not concentrate for one hour (S2).

Therefore, it was helpful if the duration of each activity and section was more than 30 minutes so that students had ‘enough time to get involved with the programme’ (Questionnaire Report, P. 11), but less than one hour so that students did not get tired.

5.3.2.3 Necessity of a pre-training session for students

It was usually assumed that every student had a certain level of competency with software programmes. Thereby it was possible that all self-access materials were opened to students without tutor-supported training sessions. But in the case of complicated courseware like C.E., it was necessary to give students training with respect to the technology, the content and structure of the courseware, and suggested usage. This was because first, some students came from countries where computers are not as commonly used as others. It was likely to take them long time to get used to the new way of learning assisted by computers. Second, due to different educational cultures, some students liked to be told by their teachers what to do in and after class. Therefore, they felt uncomfortable and lost if they had to make decisions about their study. On this point, Teacher C described how the Language Centre helped students to overcome self-study-phobia:

What we are trying to do is to start the session in the classroom, and then going to the OAC. So initially they have training sessions, and then they go to the OAC, and then they work on their own. But they have help they need. This kind of training is very important to get them use it. Once they go on degree programme, they can't have the same kind of intensive help they have during the pre-sessional. For example, you do see students who take pre-sessional programme use the OAC, because they get used to it. They know where things are, they know what to do, so they can be successful (Teacher C).

Third, it helped students to plan their study if they understood the contents and overall structures of the materials they were going to use. As a student commented in the questionnaire, 'it was harder to use than a book as you couldn't see how much content there was, to get an idea of the time needed and to be able to plan' (Questionnaire Report, p.10). And last, teachers gave suggestions on how to efficiently use courseware

and left students to choose what was the best for them, which also helped students develop a serious attitude towards the online self-access materials.

Apart from the problems of the self-access approach to using online material, the pilot study also revealed design problems with C.E. which made it an example of how to design self-access language courseware to meet the needs of students.

5.3.3 The role of teachers in self-access use of CALL listening material

In the self-access CALL, students were supposed to work on computers without the presence of teachers. But self-access was not an equivalent concept to self-instruction. There was still a need for teachers who were able to answer questions, provide technical support and give feedback and suggestions. In the self-access CALL, the interaction between students and teachers was not direct and timely, but it was throughout a study process. For example, S3 was doing self-access online listening tasks. When she had a problem, she usually either sent emails to her tutor or wrote down the problems and asked her tutor later in class. She had 20 hours of classes a week where she met the tutor. Sometimes she got help from computers. For instance, after finishing a task, she received a score and checked her answers on the computer. But not all her problems were solved by simply checking answers and reading transcripts on computer. As she said, 'I don't know how to get more feedback. It is just a score. I hope there will be more explanation'. If she wanted detailed explanation, she had to turn to the tutor for help'.

Generally speaking, teachers played the roles of monitor and facilitator in self-access CALL. As a monitor, a teacher designed, maintained and upgraded online tasks in order to meet students' needs. The teacher also guided students in the learning process and traced their progress. For example, S3 explained her confusion in doing self-access listening tasks:

When learning listening, I need all things. I cannot see what help I need in a special area. The teacher can help if I know what I want. If I don't know what I want, how can she help me? (S3)

To be exact, the confusion that S3 had was that she lost her aims in learning rather than had any specific language problems. In this sense, it was necessary to have teachers' guidance in self-access learning, such as explicating learning strategies, designing online tasks along with students' natural process of language acquisition.

As a facilitator, the teacher ran training sessions on how to make the best use of computer technology before students started computer-assisted language tasks. When students were doing tasks, a teacher was available to solve both the technical and language problems when students required it. Feedback from the teacher on students' practice and progress were also necessary, particularly when computers failed to give the specific explanation that the students needed.

5.3.4 The role of computers in self-access use of CALL listening material

In self-access CALL, a computer was assumed to play the role of 'tutor' (Auld, 2002; Shoebottom, 2001), which indicated that a computer was a temporary substitute for a teacher. A computer evaluated students' input and responded to it. However, such functions of computers were affected by three critical issues. (1) Technology advances. A stable condition of technology available contributed to a productive learning activity so that students did not get distracted or discouraged by technical failures during practice. (2) Detailed feedback. A computer gave sufficient help, tips and feedback when the student requested. As Hoven remarks:

The importance of providing learners with timely, task-specific feedback in listening comprehension practice is widely acknowledged. Because of perception and recall constraints in listening comprehension, the availability of immediate

feedback can be a distinct advantage (of a computer-enhanced language learning environment).

(1999: 91)

(3) A variety of choices of learning tasks which individualised practice according to a student's needs. When the present computer technology failed to meet expectation there was still the need for teachers in self-access CALL.

In this sense, a computer's role in self-access CALL could not be simply and exclusively generalised as 'a substitute teacher'. It was a teacher who managed CALL programmes. Figure 5.5 shows the relationship between students, computers and teachers.

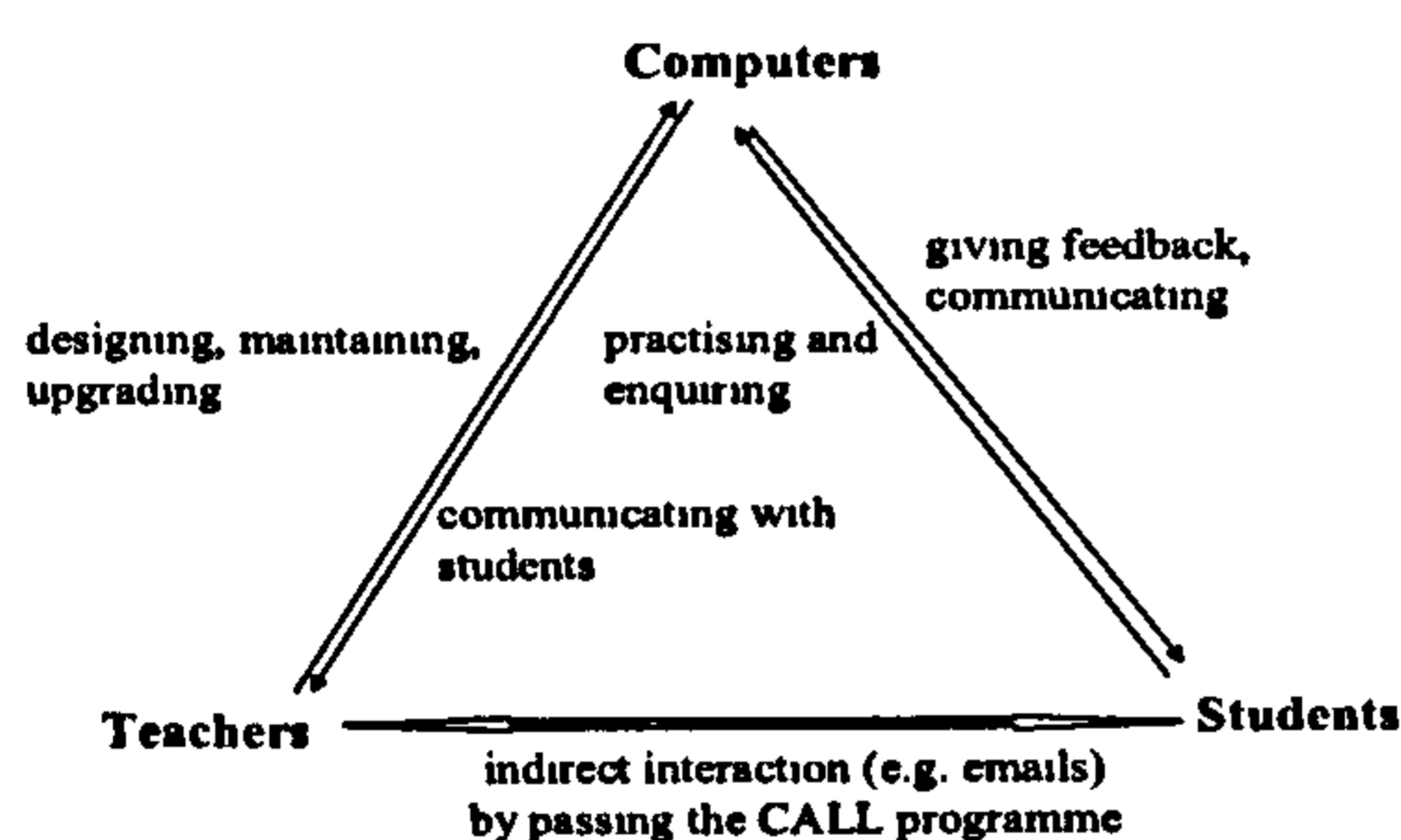


Figure 5.5 Interactive relationships in self-access CALL listening tasks

Computer-student interaction in self-access CALL was direct and explicit. Students did tasks on computers. They interrupted the normal interaction by asking for help or requesting a repetition or requesting a subtitle, or skipping to the next practice. In return, computers gave students feedback on their exercise although sometimes feedback was limited.

Meanwhile, teachers had direct control over computers by designing, updating, and upgrading systems and online tasks. Computers facilitated teacher-student interaction. However, compared to computer-student interaction and computer-teacher interaction,

teacher-student interaction was indirect and usually delayed. For example, teachers answered students' requests for feedback, detailed explanations, background information, and further suggestion on practice when computers failed to meet individual students' needs. But instead of face-to-face communication, the students and teachers contacted each other by email; or if the students left a message in an online chat room, the teacher replied to the message immediately or later.

5.3.5 Issues concerning the self-access CALL listening tasks

Because of the nature of self-access CALL, it gave students flexibility in managing their learning activities. They chose the materials, times and place to study. The exercise set by students was likely to be more effective, purposeful and individualised than the exercise chosen by teachers. However, the effectiveness of student learning was often affected by the material provided by the computers. First of all, the materials needed to be updated often; so did the accompanying tasks. Second, a range of materials was available in order to meet the needs of individual students, which included both academic lectures and daily conversation. As for the academic lectures, it would be better if the selected material covered a wide range of subjects because this increased students' motivation. On this point, S3 at the University of Newcastle explained, '...I couldn't find any lectures related to my subjects. So I was not interested in the lectures'. Third, students were able to individualise materials and tasks. Individualisation here refers to the fact that students select materials to set up practice, step by step, according to their learning progress. However, individualisation of learning activities with self-access materials required students to have good self-management and self-instruction skills; otherwise, teachers' suggestions and guidance were necessary. Lastly, the self-access materials also needed to encourage the interactivity between computers and students. Self-access study was an independent and to some extent, an individualised type of study, but it was unlikely to compensate for the necessity of interaction. In self-access study, interaction happened more often between students and computers. The quality of computer-student

interaction was affected by technology advances. For example, an ideal picture of computer-student interaction was given by S1:

There should be more interaction with the computer. We can easily access the hero (computer image). The computer can easily correct our errors and tell us how to do. It can give us a kind of what and how to do. It can tell us the strategies and methods to listen (S1).

However, mostly owing to technological limitations related to hardware and software it was not easy to achieve genuine computer-student interaction.

Apart from the material, the role that a teacher played in self-access CALL listening also affected learning. There were two issues which needed attention. One was how much a teacher got involved in a self-access listening CALL task; the other was the ways to deliver a self-access listening CALL task, for example, how to introduce students to various types of courseware; how to give students the feedback and help needed; and how to motivate students to make use of self-access material.

As explained above, in self-access study students controlled their learning progress, it was necessary to let students manage their own time, place and schedule of study. But when problems emerged regarding both language and technology, students knew how to access teachers for help.

As for the ways to deliver a self-access CALL task, 'self-access' was likely to be interpreted by us as an equivalent of autonomy and self-instruction. Accordingly, the commonest way to deliver a task was to leave it to computers and let students help themselves. However, this way was not suitable for less motivated and/or less self-disciplined students who needed some pressure to do tasks. This was the case for S3, who noted:

Sometimes, I am lazy. I need some pressure. It would be better if a teacher tells us what we need to do in the class, and then we practise, and come back to discuss the problems together (S3).

Similar comments were made by students who participated in C.E. pilot study. Students suggested that in order to encourage them to use C.E. more, they ‘need some pressure to motivate; “have to do” get a result, mark etc’; and ‘setting C.E. as homework’ (C.E. Pilot Report, p. 18). Therefore, another way to deliver self-access material was to use it as homework or supplementary work under a teacher’s guidance.

Another issue relating to self-access CALL was the learning environment, particularly the condition of the facilities and the place. Generally speaking, a pleasant self-access learning environment has comfortable, easy-to-use facilities, and provides students with relatively independent study space, which is particularly important for practising listening and speaking using computers.

5.4 The University of Sheffield: Semi-Instructed Computer-Assisted Listening Courses

Similar to the language centres in most of UK universities, the English Language Teaching (ELT) Centre at the University of Sheffield offered a range of English courses, such as Academic English Preparatory course (AEP), an International Summer School, and an In-Sessional Programme (ISP). Generally speaking, these courses took place in the classroom instructed by teachers. There were also regular CALL classes every week which were set in computer laboratories. In the computer laboratories, students were introduced to a range of courseware, either commercial or developed by the teaching staff at the ELT Centre. But the CALL classes were only supplements to the main curriculum: extra exercises for students.

5.4.1 The choice of material

The computer laboratories installed both commercial programmes and a self-developed programme to help students improve their listening skills.

There were two self-developed listening programmes: Textbuilder and Academic English Language Exercises. The Textbuilder was basically a text reconstruction programme with the option of listening to the text. Students listened to a text on computers, and finished exercises afterwards. There were three types of exercise. Students chose to do the C-Text which hid the second half of the word, or the X-Text which hid the first half of the word, or Total-Deletion in which a whole word, an entire phrase or sentence was missing. The C-Text tended to be used for grammar exercises as well, while the X-Text was more vocabulary focused. In this sense, the Textbuilder programme involved mixed skill training.

The listening task was only a part of Academic English Language Exercises which also covered other language skills. The basic structure of the listening tasks was similar to those of Textbuilder. Students completed exercises based on the texts they heard on the computer. The exercises were multiple-choice and gap-filling. This programme also offered students background language knowledge. They consulted the built-in dictionary for unknown words and checked the grammar rules related to the exercises. After students completed exercises, they received scores from computers. They were also able to turn to teachers for detailed explanation.

The commercial listening courseware used in EFL Centre was made by Wida in which the listening tasks were almost identical to Textbuilder's. Apart from Wida, the ELT Centre coincidentally piloted the College English programme for a short period of time. The difference between the University of Newcastle and the University of Sheffield was in the approach to using College English.

5.4.2 The way of using CALL materials

The ELT Centre used CALL listening material in a semi-instructed class. This was an approach between self-access and instructed class. The learning activities were carried out in an organised classroom. Although present in the class, teachers did not tightly control the practice activities. Students had the flexibility to work at their own pace, and had direct communication with teachers and classmates. For example, Teacher A usually instructed a listening class in a semi-controlled way:

We might let the students do the exercises themselves. I tend to introduce the subjects to the students and then talk about it at the beginning of the class. And show them how to do the exercises because they have not used the software before. Then I let them work at their own pace. While they are working, I need to keep an eye to how they are doing and help when they get stuck. Usually, we will come together again at the end of the class, and talk about it (Teacher A).

Therefore, the semi-instructed approach resembled the self-access approach in the way that students still controlled their learning process. They chose material which was suitable for them. They speeded up or slowed down their practice. They repeated sections which they found difficult to understand. Unlike the self-access approach of using CALL listening material, the semi-instructed approach also combined some features of the instructed approach. First of all, teachers were present in the class. They composed the general arrangement of the subjects students worked on in a class. Secondly, at the beginning of a class, teachers introduced students to different subjects and suggested learning strategies, skills that students needed to focus on their practice. Thirdly, when students were practising, teachers normally observed their progress and helped them with both linguistic and technical problems which the students had initiated. And finally, at the end of a class, teachers brought students together and gave general comments on the class, but this stage was likely to be excluded depending on individual teaching styles.

Compared with the self-access use of C.E., the semi-instructed approach had solved some of the concerns about the self-access approach.

5.4.2.1 Place to use online materials

A common experience of students when they did listening tasks in the Open Access Centre was that they felt embarrassed about reciting aloud. However, in a classroom, students felt more relaxed in practising among their fellow classmates.

5.4.2.2 Necessity of pre-training sessions to students

Because the nature of self-access approach was to leave it open to students to choose materials, times and methods, it was necessary to give training to students to help them make full use of the materials. Although training on how to use specific courseware was still helpful with semi-instructed CALL listening class, the teacher had the additional advantage that he or she organised the class, and helped students immediately when the problems arose.

5.4.3 The role of teachers in a semi-instructed CALL listening class

The acknowledged role of a teacher in class was as a monitor (Bax, 2002) to watch students learning activities, and to sort out language and technical problems when students required it. However, communication between teachers and students did not only occur when students initiated it. As Teacher B said, ‘what I usually do is to kick off the class. For example, I will say, today, we are going to do this exercise. Tasks are all open-ended. I just let the students help themselves’. With regard to how much teachers got involved in semi-instructed learning activities, students commented:

Sometimes, I don't know the background information of the listening exercise. For example, a listening exercise was about Genetic Crops. If the

teacher didn't give us the background information, I couldn't understand the content (S6).

We need teachers to organise the course, give instruction how to practise, how to operate the computer, how to use tips in the programme. For the students who are the first time to see the computer or who have computer-terror, teachers are even more important to give help in learning (S7).

These students expected an interaction with a teacher throughout a learning process. First of all, they expected teachers to be organisers of learning activities, explaining task aims, demonstrating technology and highlighting useful learning strategies. Second, the students expected teachers to be technical facilitators, to whom they were able to turn for help when problems arose during practice. Lastly, students saw teachers as knowledge resources that offered them background knowledge, gave them feedback and explained their mistakes when they did not get the information from the computers.

5.4.4 The role of computers in a semi-instructed CALL listening class

Since the semi-instructed approach of using computers in listening class presented features of both instructed CALL and self-access CALL, the role that a computer played in this approach was also a combination of the tutor role and the tool role.

5.4.4.1 Computers' role as tutor

In a semi-instructed CALL listening class, students still had control over their learning activities which their teacher suggested. To some extent, it was still a kind of independent study. But compared with the self-access CALL, the semi-instructed CALL eased certain constraints with the tutor role of computers, such as technology problems, detailed feedback and a variety of materials. There was also a direct

communication between teachers and students: the teacher solved the technological and linguistic problems that the students met, gave students detailed explanations about their tasks and helped them choose suitable materials. For example, in the case of the University of Sheffield, both Teacher A and Teacher B demonstrated to students how to use CALL programmes and solved technical problems on the site. This is what Teacher B said:

Sometimes the students have problems with the software. C.E. has some design bugs. Clicking here, but nothing happens...things like that. There are some technical problems I can repair immediately (Teacher B).

Apart from that, teachers observed students' learning activities and gave suggestions about the materials they worked on. For example, Teacher A recommended different materials to students according to their individual language proficiencies:

It's important to choose something which has a variety of levels for the students. The higher level students try to use more academic texts, mini-lectures or short passages. With the lower level students, it is important that they can have the chance to understand what they listen to (Teacher A).

5.4.4.2 Computers' role of tool

Similar to the tool role of computers in an instructed CALL listening class, computers created a multimedia learning environment to facilitate learning activities. Because the CALL listening classes were not integrated into the main curriculum but run as an extra exercise, the computers' ability to facilitate learning activities was adapted to students' individual needs. Therefore, it was the students, rather than teachers, who decided how computers functioned in learning.

The overall interaction among teachers, students and computers was generalised as in

figure 5.6,

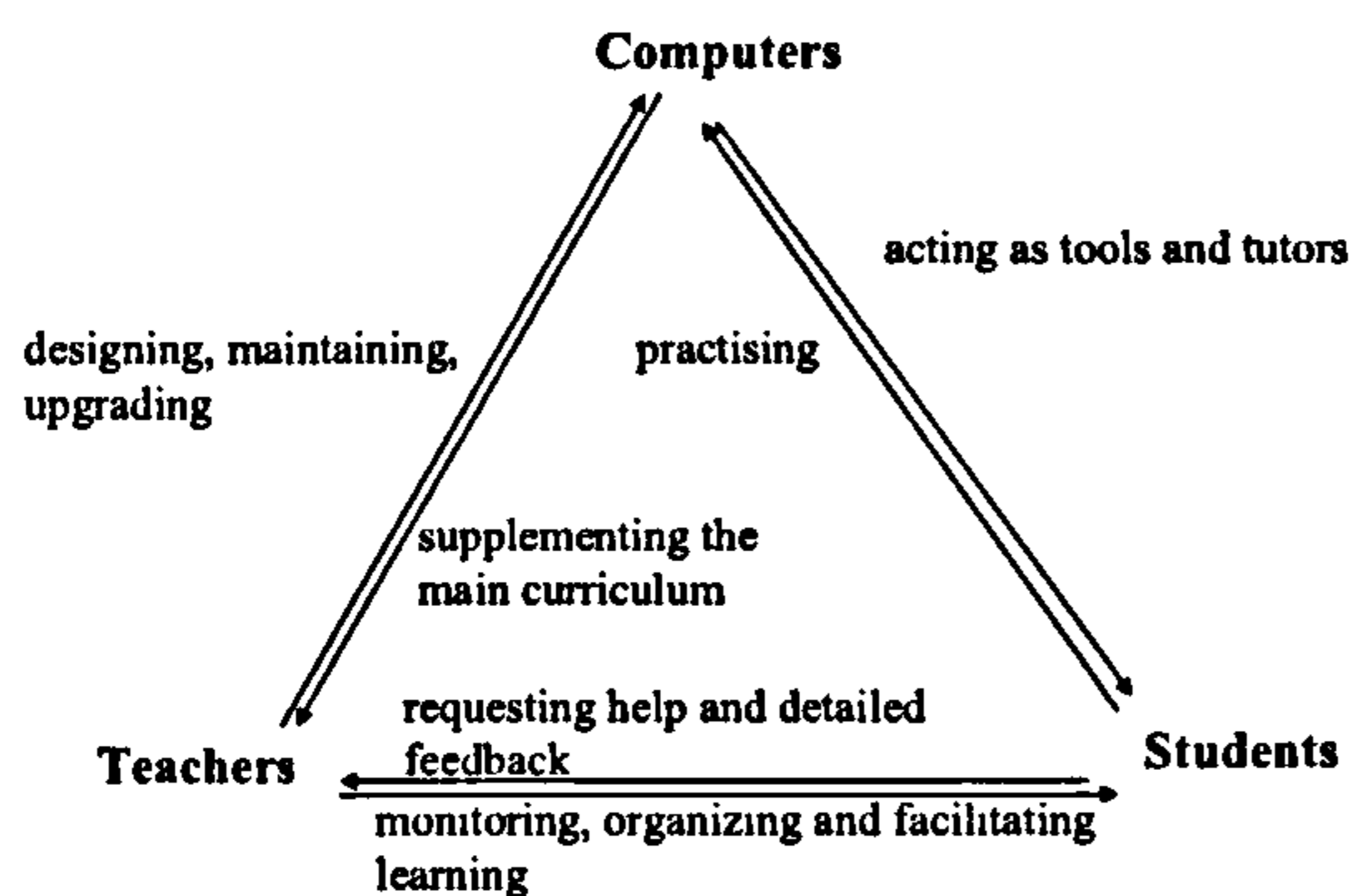


Figure 5.6 Interactive relationships in a semi-instructed CALL listening class

Figure 5.6 shows that in a semi-instructed listening class, computers serve as tool and tutor to help students in learning while learning activities are carried out on computers. Computer programmes are supplements to the main curriculum which facilitates teaching. At the same time, it is teachers who design, install and maintain the whole system. Because teachers are present in the classroom, the communications between them and students are direct and timely. Teachers can help students with their language and technical problems, recommend materials, and supervise students' learning activities.

5.4.5 Issues with semi-instructed CALL listening classes

As for the material used in the semi-instructed CALL listening class, it was necessary to give students flexibility to choose. For example, courseware had tasks at different levels, so that students chose the level most suitable to them. Another issue about materials was how a teacher kept a record of students' progress in one class. The students at lower English levels usually lagged behind those with higher English proficiency. As a result, students who lagged behind lost their confidence because of their slow progress, while students who progressed faster easily got bored due to the lack of challenges. Therefore, it was helpful if a teacher paid more attention to the

students who had difficulties while recommending other resources for practice to those students with higher English proficiency. However, it was not easy for teachers to take care of every student's individual requirements, and give help and recommendations to students at different English levels.

Moreover, the demands made on a teacher also rose, in particular, as a technical supporter; it was important for a teacher to keep up with the fast development of technology, but it was time-consuming and effort-consuming, and added extra work to an already busy teaching schedule.

5.5 Conclusion

This chapter has offered definitions and descriptions of the three approaches: instructed, self-access and semi-instructed, of using online listening materials to facilitate teaching.

An instructed approach involved using CALL programmes as a part of course materials in a teacher-instructed class. A teacher's choice of courseware and material and the ways to make full use of the advantages of computer technology determined the interactive activities. Compared with the traditional language classroom, the multimedia classroom extended teachers' choice of material resources from textbooks and tape recordings to videos, audio recordings, CD ROMs and the Internet materials. But it was difficult to choose material which met the needs of every student in the same class.

In the instructed CALL listening class, the interactive activities between teachers and students, students and students, and computers and students were direct and immediate. Teachers also needed to consider what kinds of class activities were appropriate in an instructed CALL listening exercise to enhance students' active participation in class. Class activities like discussion encouraged student-student interaction. Although a

computer was only a small part of an instructed listening class, the computer-student interaction was implemented when students did exercises on computers.

Self-access use of computer technology in listening was more complicated than its name suggested. In the self-access approach, students were supposed to work on computers without the presence of teachers. The main advantage of the self-access CALL programme was that it gave students flexibility in managing their learning activities and choosing methods, materials, time and places to study. But it was impossible for a computer to replace a teacher in teaching. Teachers still played the roles of monitor and facilitator in self-access CALL, choosing and designing materials, supporting learning, maintaining and updating the system in a self-access programme. Although there was a direct interaction between students and computers, the role of the computer was not simply generalised as that of a substitute teacher. It was also important that teachers considered various needs of students when they chose material, delivered tasks and supported students both in language and technology, which made a difference in students' motivation in CALL, attitudes and achievement.

The semi-instructed approach was a mixture of self-access and instructed approaches. The learning activities were carried out in an organised classroom. Although present in the class, teachers did not tightly control the practice activities. The interactive activities between teacher-student, student-student and student-computer were flexible and open-ended. However, teacher-student interaction was not easy. As a course designer, the teacher needed to choose material which suited all students; as a technical supporter, a teacher needed to understand and require the skills to use the new technology; as a knowledge resource, he or she needed to meet every student's needs. To conclude, each approach had its distinct advantages and disadvantages, so the choice of approach needed to match aspects of the situation, such as the availability of technology, courseware, and time.

Chapter Six:

Findings and Discussion II—Investigating Listening Learning Strategies in Three Approaches

6.0 Introduction

‘Learning Strategies are an integral part of language programmes, providing students with the tools for a lifetime of learning’.

(National Standards in Foreign Language Education Project, 1996:30)

‘...are especially important for language learning because they are tools for active, self-directed movement, which is essential for developing communicative competence’.

(Oxford, 1990:1)

Since the amount of information to be processed by language learners is high in language classrooms, learners use different learning strategies in performing the tasks and processing the new input they face. In a computer-assisted learning environment, computer technology inevitably brings changes, some expected, and others quite unexpected to students’ use of learning strategies. This chapter addresses (in sections 6.1, 6.2 and 6.3) the second of the three subsidiary research questions: ‘How do different approaches to applying computer technology affect students’ learning strategies in listening?’

The three sections are based on the three case studies at the University of Hull, the University of Newcastle and the University of Sheffield. As explained in Chapter 5, the three universities had different approaches to employing computer-assisted listening

programmes in their curricula. At the University of Hull, CALL listening programmes were an integrated part of a taught class; students' practice on computers was under teachers' instruction. The Open Access Centre of the University of Newcastle provided students with a wide range of CALL listening programmes for their self-study; students chose the time, place and materials which fitted their study schedules. The EFL Centre at the University of Sheffield used CALL listening materials as a supplement to their main curriculum; once a week, students attended CALL listening classes where they did exercises on their own while the teacher was around to give linguistic and technological support when it was required.

The three cases illustrated three contexts in which learning activities took place. Owen defined 'context' as follows,

Context here is a collective term for all those events that tell the organism among what set of alternatives he must make his next choice. An organism responds to the 'same' stimulus differently in differing contexts.

(Owen, 2004:31)

Therefore, learning activities in different learning contexts are various, which reflect on learners' use of learning strategies. As explained in Chapter 2, there are essentially two types of listening learning strategy: those aimed at improving students' performance and comprehending the message. Each includes several sub-strategies (see Table 4.4). This section will examine how learners from three universities used listening learning strategies in different computer-assisted learning contexts.

6.1 The Use of Listening Learning Strategies in the Instructed Approach

Section 4.7.4.1 illustrated the listening learning strategies proposed by Oxford (1990) to improve listening performance and to comprehend information (also see Table 4.4).

However, the data collected in the current study did not show clear evidence that three learning strategies-creating practice opportunities, listening out for specific detail and advanced organisation-were used by students in the instructed CALL classes. The following sections will discuss the learning strategies used by students.

6.1.1 Listening strategies to improve students' performance

The data collected in my study showed that in terms of listening practice on computers, there were five strategies commonly used by students in the three universities: arranging and planning learning, naturalistic practice; self-management; cooperating with others; and developing cultural background knowledge.

6.1.1.1 Arranging and planning learning

In the instructed CALL listening classes, the teacher designed the curriculum, chose materials and organised class activities. As an integrated part of the listening classes, practice on computers needed to go along with other activities in order to complete the specific aim of a class session. The major advantage of teacher control over a class was that every session had a clear learning purpose. This was particularly helpful to those students who were not good at self-management. Another advantage was that learning activities in a class were organised so that the students in the same class had the same learning foci. As S3 commented:

Sometimes we need to focus on one topic in class because there are many students in one class. If every student chooses different topics, the tutor will spend much time answering all kinds of questions (S3).

Even if a class was instructed by a teacher, to some extent, students still arranged their own practice on computers. For example, if students found difficulty in understanding a text, they rewound and listened to it again.

The major constraint of this kind of organised learning activities was that exercises were not readily available to meet different levels and needs of every single student. For example, S3 reported her difficulties in understanding listening texts:

Sometimes the material was very difficult to understand. There were words I don't know in the texts (S3).

S4 also mentioned the need for the variety of listening material which kept students' interest and motivation in learning,

You need to have large ranges of texts in different topics. To do the exercise is to practise your English. If you will find interesting things to practise, you will become interested in it (S4).

6.1.1.2 Naturalising practice

One of the advantages of a computer over a tape recorder was the use of videos or listening material with visual channels. It was recognised that visual context played an important role in helping listening comprehension (Hanley, Herron & Cole, 1995; Secules, Herron & Tomasello, 1992). A visual channel created a simulated learning environment in which listening activities became vivid and similar to the natural situation. S4 made a comparison between the multimedia courseware and the tape material:

With pictures, you can understand better. For example, if you don't understand this word, the picture will tell you what it is. But if you just listen to this word, you cannot work (out) what this word means. And you cannot understand the whole text. I think the video is better than tape recorder (S4).

The previous chapter mentioned two types of CALL listening materials chosen at the

University of Hull for the instructed listening class: academic lectures and daily conversation. When creating multimedia materials, special attention was paid to making the material as natural as possible. Academic lectures were videoed live in classes in the university so that students experienced what happened in the real situation. Other materials were extracts of TV programmes or commercial listening materials which simulated various contexts such as those in a bank, a hospital and a post office. The students' responses suggested that they benefited from the naturalistic tasks. As S1 noted:

The majority of the tasks are simulated to the daily discourse, such as family, banking, and hospital. I learn vocabulary and expressions. Since I can understand the task, I feel much easier to understand conversation in daily context (S1).

6.1.1.3 Self-management

Students had varying degrees of self-management skills. Some students who had good self-management and self-instruction skills achieved their learning purposes, but many did not. There was a need for teachers to give specific instruction to class activities (Little, 1991). This was particularly helpful to those students who were not good at self-study.

The teacher was also able to motivate students in learning. It was not easy for students to sustain high motivation especially when they found the listening material uninteresting or the tasks stereotyped. For example, S2 preferred doing listening tasks on computers under a teacher's instruction because,

If I do it on my own, I will find maybe it (a task) is not very interesting. I will not finish it. If the teacher let me to do it, I must do it. This is very useful to me' (S2).

However, when it came to the homework, her attitudes changed. Usually, her teacher

assigned listening tasks in Merlin, the multimedia system installed in the Language Centre, as homework. But S2 did not always find the tasks interesting or suitable for her:

Sometimes, the homework is not very suitable to me. I just think it's not very interesting. A lot of homework I haven't done...(laughing). Teacher always told me, "you should do it. You should do it". But I just did a little (S2).

The motivation that students got was mostly because they had the pressure from their teacher to complete the practice. However, teachers' instruction also constrained students learning activities because students were unable to manage their learning fully with respect to choosing tasks and controlling their learning progress.

6.1.1.4 Cooperating with classmates

In the instructed CALL listening classes at the University of Hull, there were two methods of encouraging cooperation among classmates. The first took place when students finished listening tasks on computers. They were asked to check the answers with a nearby classmate. If they disagreed on particular answers, they listened to the text again. They also consulted the teacher for right answers and explanation. Another cooperative activity occurred at the end of a class when the teacher divided students into groups, and started discussion or games. Students thought highly of the cooperative activities. As they commented:

It makes the class interesting. There is a lot of activities, talking, discussing and arguing. We also learn from each other. Because we are from different countries, we have different accents (S1).

My classmates were from different countries. We listened to different accents. We also communicated with our teacher. We invited the teacher to join the conversation (S3).

The cooperation among students not only encouraged students' enthusiasm in learning and activated a class atmosphere but also helped students to understand different accents, which was helpful in their daily life.

6.1.1.5 Developing cultural background knowledge

During the interviews, interviewees often reported that they had never thought about how cultural knowledge helped their learning a language, and the concept of culture was still new. As S2 noted:

It (the cultural background knowledge) is not very important. It maybe helps. But I haven't realised it (S2).

Even if students realised the importance of cultural background knowledge, their understanding of culture only seemed restricted to cultural events. In this case, S4 explained that,

I don't think I can develop cultural background knowledge through practice with the CALL listening tasks. The listening tasks focused on science or other academic topics. But cultural knowledge is quite important. If you don't understand the culture, you don't understand what they are talking about. Our listening class only gives a little cultural knowledge like the cultural events, but not too much (S4).

However, cultural background knowledge implies not only the introduction of cultural events but also the ways of thinking. S4 reported that he was aware of different ways of thinking when he did listening tasks on the computer, especially those with visual channels,

It (the CALL listening task) definitely can help to develop the cultural background information. If it has a picture...If you watch the picture when you listen, you will get some information from the pictures, and you also can get information from

listening. Comparing information, you can get what is wrong and what is right. It is better to understand the whole text. It also helps to understand the ways that English people think (S4).

Students' comments suggested that in class teachers help students become aware of relevant cultural background knowledge by choosing materials, introducing and explaining cultural events, phenomena and the effects on the ways of thinking and behaviours. In return, the cultural knowledge that students received helped them to improve their listening comprehension.

6.1.2 Listening strategies to comprehend message

When students did listening tasks on computers, the major strategies for understanding the message which were particularly relevant to the computer-assisted listening practice were (1) how students concentrated on tasks, (2) how they monitored their own listening activities, and (3) where they got references and feedbacks.

6.1.2.1 Concentrating on tasks

Because listening tasks were compulsory, students had to concentrate on practice in order to complete the exercises afterwards. But their concentration was affected by the content of tasks, the form of exercises, the length of tasks and the nature of the facilities.

It was reported by the students in the interview that even if under teachers' instruction, they were easily distracted if the content of listening tasks was difficult and not interesting. Students were also distracted if listening tasks and the form of the following exercises were not diverse, so that they were not able to choose tasks which they felt suitable for them.

Because listening tasks were set up by teachers, students did not control the duration of their practice. If a task lasted too long, students became distracted. S1 made a comparison of concentration duration between his self-study on computers and in an instructed listening class,

Averagely, I spend two hours a week to do extra tasks on the computer. I choose the time and place, so I don't want to waste time. That was why I can concentrate on tasks for a long time. But in class, I normally concentrate for half an hour, especially when tasks are not interesting (S1).

Moreover, the comfort of the facilities also affected students' concentration. For example, if a headphone was too tight, or the volume was too high, it was difficult for students to concentrate on the tasks for a long time.

6.1.2.2 Monitoring listening activities

In instructed listening classes, students' listening activities were under teachers' supervision. In the case of the University of Hull, students reported that teachers' monitoring their practice helped them to develop listening strategies and to realise their mistakes in listening skills. For example, at the beginning of a class, the teacher suggested what listening strategies were going to be used in the class so that students became aware of what they needed to do during their practice. S3 gave an example,

The teacher said in speaking, key words are always stressed. So when we are doing listening, we can pay attention to the stressed words. It is quite useful because when we do exercises on computers, we can catch the stressed words to understand them. (S3)

Teachers' monitoring occurred not only at the beginning of a class by introducing useful learning strategies, but also in the process and at the end of a class. For instance,

when students were doing exercises on computers, the teacher made sure that students did not have any technical problems, and helped them to solve language problems. Usually at the end of a class, the teacher gathered students together to comment on their listening activities, explaining exercises and suggesting further exercises or resources for students to practice after class.

6.1.2.3 Inferencing from texts

Students' listening practice on computers was designed, controlled and monitored by the teacher. Therefore, whether a student generated an inference from a text was determined not only by his ability to manipulate learning strategies, but also by how the teacher designed the listening task. For example, in a listening class at the University of Hull, computer-based listening tasks were a part of the class activities. Students did not read the text until they had finished the whole exercise and discussed the answers with their classmates. And then the teacher sent out the texts for reference. In order to improve students' ability to infer from the context, the teacher introduced the skills of listening to the key words and note-taking, and encouraged discussion among students. Usually, if students had questions about tasks and they were not able to get help from the computer, instead they discussed with classmates and ask the teacher for explanation. The face-to-face interaction in class among students and the teacher was one of the advantages of the instructed class, which gave students direct feedbacks to their practices and increased their interest and motivation in learning.

6.1.3 Students attitudes to computer-assisted instructed listening classes

According to the students in the instructed CALL listening classes, a computer was superior to a tape recorder by offering better sound quality. In particular, a multimedia computer loaded videos as listening material, which made listening tasks interesting and vivid. On the other hand, students thought there was not much difference in doing listening tasks via computers and tape recorders. This was mainly because the teacher

only used CALL listening tasks as a part of the class activities. Students were asked to listen to the texts on computers, which could be also achieved by using tape recorders.

6.2 The Use of Listening Learning Strategies in the Self-Access Approach

The Language Centre at the University of Newcastle provided a large amount of self-access language learning material which allowed students to use the online language material at anytime they wanted. The term 'self-access' suggested that students did listening tasks on their own, but online support from tutors was also available via email. In this approach, students were in the driver's seat deciding when and where they did tasks, what material they used, and how long practice lasted each time. Because of the change in a learning context, students' use of learning strategies to improve their listening skills also presented distinct characteristics. This section will discuss the learning strategies of self-access use of material based on the case of the University of Newcastle.

6.2.1 Listening strategies to improve students' performance

As described in Chapter Five, students at the University of Newcastle accessed the online material in the Open Access Language Centre or via the Language Centre's website whenever and wherever they wanted. Students had to manage the study on their own, such as setting up study plans, choosing material and arranging study times, but teachers still played an important role in designing online tasks, updating materials, maintaining facilities and helping students with problems they met in learning. The interactive relationship between students and teachers appears to have influenced the ways that students manipulated learning strategies to improve their listening performance.

6.2.1.1 Arranging and planning learning

Because the online language programme of the Language Centre at the University of Newcastle was only a supplement to the language courses, students had to arrange and make plans to use the material in their spare time. Students' learning plans thus varied according to their study schedules. Some students preferred going to the OAC late in the evening when it was quiet; others liked to do a number of short tasks during the breaks between lectures. Some students continuously practised for two or three hours while others only concentrated for 20 minutes. However, generally speaking, students preferred the materials where (1) they easily understood the structure and the aims of the tasks and (2) the tasks were as short as five to ten minutes so that they easily concentrated and grabbed some time for practice during lecture breaks.

However, unless students attended pre-sessional language courses at the Language Centre, not all students were informed about the OAC and the online materials in the Language Centre. As Teacher A noted,

It's surprising that in the in-session class, I asked students, 'have you been to the OAC?' They said, 'What's that?' they don't actually know it exists. So it's important at the beginning of the term to tell them about it, to direct them (Teacher A).

Although the students interviewed knew that there were various online materials available in the OAC, not all of them knew what kinds of materials were appropriate for them. For example, when S4 started to use online material, College English, she tried nearly everything in it. As she suggested:

I need some information, maybe some advice from the teacher. If the teacher knows that this part is good for me, I can start from this part (S4).

It was also interesting to notice that the more advanced learners were better at arranging the learning plans than the low-level learners. The improvement in the

ability to arrange learning activities was obvious in the case of S3. In the first interview, she did not know what tasks she needed in order to improve her listening skills:

Sometimes I don't know what kind of help I need. There are many exercises on the computer, but how can I know what I want exactly? When learning a language, I need all the things. I cannot see what help I need in a special area...I just do the tasks one by one. That is the only methods I can use (S3).

But half a year later, in the second interview, she had finished her language courses and was studying for an MBA while attending in-session language courses. She was now far more aware of her weakness in listening and knew what kinds of listening tasks she needed to improve her listening comprehension. As she noted:

To be frank, most of Chinese students are good at grammar, so if we cannot understand what we hear in English, it is mostly due to the lack of vocabulary. Of course, sometimes, it is because of accents, but most of the time, we don't know the meaning of the words, especially some key words. So when I am doing listening tasks or watching TV, I am tending to enrich my vocabulary (S3).

Another common problem for students to arrange their own learning activities was that they did not have pressure to learn. As S3 commented:

Students are students no matter how old you are and what position you are in. Without pressure, it cannot work (S3).

Particularly, when students were already busy with their degree courses or taught language courses, they did not feel like doing extra exercises in their spare time.

6.2.1.2 Naturalising practice

The Language Centre had a large range of listening materials for students to choose from. It included commercial programmes; the listening tasks from TV or radio news developed by the teachers, and videos of lectures across various subjects; and satellite TV in different languages. The commercial programmes, particularly those developed in recent years, have taken advantage of multimedia. They usually provided a visual channel along with the audio one. It was to create a simulated learning environment in which students experienced what happened in real life situations, such as class discussion, business meetings and daily communication. As for the self-developed listening materials, academic lectures were videoed live and news programmes were updated daily, which prepared students for their lectures and helped them understand formal speeches.

When choosing listening tasks, the students at lower levels preferred those relating to daily conversation. This was because compared with formal speeches, daily conversation was easier to understand and this kept up students' interest and motivation. Moreover, for students at lower language levels, the priority was to improve their language ability in daily communication. For example, S3 mentioned in the first interview that she preferred listening tasks on daily conversation to academic lectures because

I have some problems of conversation in the daily life. From the daily conversation (on the computer), I can learn how to express myself in a suitable manner. The teacher cannot tell me everything. I am the beginner of learning English. Everyone knows if you want to learn English well, you have to think in English, not translate it. But I cannot think in English (S3).

But half a year later, S3's language proficiency had improved so much that she was successfully accepted for a Masters programme. She chose academic listening material in order to enhance vocabulary and produce better communication with teachers and

classmates. As she said,

I now choose academic listening material. If I listen to the material about everyday life, it's just for fun (S3).

6.2.1.3 Self-management

In the self-access approach to using online listening material, students had to manage their own learning activities. However, not every student was good at self-management, such as identifying and correcting mistakes, looking for references and generating self-motivation.

In self-access sessions, the students at Hull controlled their own learning process. They picked a specific part of a listening task; they listened to a task as many times as they want; they stopped, forwarded or restarted a task if it was necessary. Usually, students got feedback from the computer programmes which helped them to identify their mistakes. They also consulted tutors for further explanation and reference. All the students I interviewed enjoyed controlling the learning process because 'it is flexible. And I decide what I will learn' (S2). However, a common challenge for students was how to keep motivated, since the CALL tasks were not compulsory and there was no pressure from teachers. There were two ways to keep students motivated: (1) giving students flexibility to manage their time and place for practice. Even if students were busy with their degree courses, they were still likely to squeeze ten minutes during the lecture breaks to do some online listening tasks in their offices, in the public computer rooms on campus or in the OAC; and (2) giving students encouraging and well-structured tasks so that it was easy for students to follow. As S3 explained:

The programme is step by step. You can see your progress. Your English must be improved if you want to finish the programme, because it will become harder and harder. When you finish the programme, you will get a score. If you cannot get to

the end, you have to go back to do the exercises again. So it (the programme) is continuous and interesting. That's why I find motivated (S3).

Therefore, to provide students with flexibility in terms of times and places for practice and well-designed tasks seemed to be the keys to maintaining students' motivation and enhancing their self-management skills in general.

6.2.1.4 Cooperating with others

As noted in the last chapter, although 'self-access' suggested that students used online material on their own, there were also interactive activities between computers and students, and between teachers and students. The students' expectations at Hull of what computers communicated with students were usually rather high. As S1 remarked:

There need to be more interaction. We can easily access to the computer image. The computer can easily correct our errors and tell us how to do. It can give us a kind of what and how to do. It can tell us the strategies and methods to listen. There need to be more interaction with the computer (S1).

However, such individualised instruction and feedback from computers required advanced technology which was available. When computers failed to take care of students' individual needs, help and instruction from teachers were important and necessary.

Cooperation among students was usually ignored and needed to be enhanced in the self-access use of CALL material. For example, an online community was set up to encourage students' communication, discussion and mutual help. But in reality, to set up such a community was not easy because there had to be facility available such as computers and the Internet.

6.2.1.5 Developing cultural background knowledge

Not every student was aware of the importance of cultural background knowledge and its effect on their listening comprehension. Therefore, teachers helped students to become aware and then develop cultural background knowledge by first, choosing and designing online listening material about cultural events; second, introducing reading material about cultural background; and last, in a more general sense, organising events to help students understand culture better, such as trips to cultural and historical cities, exhibitions on English cultures and arts and lectures.

6.2.2 Listening strategies to comprehend messages

6.2.2.1 Concentrating on tasks

In the self-access approach, one of the major factors which influenced students' concentration appeared to be the design of tasks and the facility rather than times and places for practice. The students mentioned that sometimes they got distracted by the noise in the common computer rooms, or they did not concentrate for a long time when they felt tired, but they had the flexibility to choose times and places for their study. For example, S1 always went to the computer room late in the afternoon when there were fewer people. And S4 only used online material when she felt like doing it.

Students started to lose their concentration when the listening tasks were not well-designed. For example, the structure of a task was too complicated for the students to follow; the form of exercise was not varied; or the duration of a task was too long. Moreover, whether a student felt comfortable with the facility affected their concentration. Some students found concentrating with headphones easy while others were not comfortable using them. As S2 pointed out:

The headphone they provided for working was very difficult (uncomfortable). I became tired easily. In some cases, I concentrated for four or five hours. But with

this headphone, I could not concentrate for one hour (S2).

In order to improve students' concentration in the self-access approach, it was necessary to provide students with a variety of tasks and comfortable facilities.

6.2.2.2 Monitoring listening activities

Student-directed learning was one of the characteristics of self-access CALL material. Listening tasks were usually accompanied by instruction to tell students how to use the online material. Students did not need to acquire advanced computer knowledge to operate the computers, but not every student felt comfortable with the technology at the beginning because possibly it was the first time for some of them to use computers to learn a language. It was also noticed by teachers that some students did not usually read instructions on the screen. Therefore, it helped students to get into CALL tasks early if teachers gave training or instruction to them face-to-face.

In the self-access approach, the students were given the opportunity to plan, control and evaluate their own learning activities. But Teacher C pointed out a common misunderstanding in the self-access approach,

A lot of students are motivated, but they don't understand their own learning techniques. So you have to go back to explain what the learning techniques are. A lot of software doesn't do that. A lot of learning programmes or some teachers presume that students have their own learning techniques (Teacher C).

Since not all students were good at monitoring their learning activities, it was helpful to have teachers available for instruction, enquiry and advice. For example, at the University of Newcastle, students sent their questions to their tutors by email; or the Language Centre offered tutorials three or four times a week in which students were able to book an appointment with language centre tutors to discuss problems in their

study.

6.2.2.3 Inferencing from texts

Because students usually did not get direct instruction and support when they needed it from their tutors in the self-access approach, students could only turn to computer for help, such as text transcripts, the built-in 'help' function of a language programme, online dictionaries, internet resources, and email contact with teachers and other students.

Online listening tasks were usually accompanied by text transcripts for students to refer to. Students clicked to read the texts that they were listening to. Some tasks also had a 'help' function which gave students hints about understanding texts and completing exercises. Students stopped where they had problems with vocabulary to consult online dictionaries for meanings and even for pronunciation. They also searched the Internet for further resources. If students were not able to solve the problems by themselves, they sent their emails to their tutors. Usually tutors got back to students with answers and suggestions in a short time.

6.2.3 Students' attitudes to self-access listening classes

Self-access use of CALL materials involved independent study. Students found such flexibility to manage their learning activities 'inspiring and encouraging' (S1) because they accessed to computers for practice anytime and anywhere they wanted. However, there was also a problem with developing a less serious attitude towards the study due to the lack of pressure. As S3 commented:

(This is) more like a game; less serious than the material in books...I need some pressure to motivate...I have to do this to get a result, mark etc (S3).

Another consequence of such study was that students did not have time for those materials. S2 explained:

Sometimes, I had many other things to do. There was no requirement that this time I had to finish an exercise. So I had to be responsible for my learning (S2).

Therefore, more involvement of teachers in the self-access study was helpful. For example, teachers sometimes assigned the students self-access materials as homework. It was still up to when and how they did it, but a little pressure motivated them to use the online self-access material. For example, I had a follow-up interview with S3 six months after the first interview. She acknowledged that she just had finished a credit-bearing in-session English listening course, in which the teacher assigned some of the self-access materials in OAC as their everyday homework. As she said:

It was homework assigned by the teachers. I had to finish it because it was credit-bearing course. I did most of listening exercises on computers (S3).

Her motivation for using those online self-access materials appeared to have derived mostly from the fact that the course was credit-bearing.

Moreover, S2 suggested that,

I hope there will be just a couple of classes where a tutor can support and show us all these things. When students start to use new software (CALL programmes), they will struggle with how to use it. If there will be a few lessons in which tutors can give instruction and demonstration, it was be useful (S2).

A few training lessons before they started to use online material helped students to become familiar and confident to use computers in learning, and to take advantages of them.

6.3 The Use of Listening Learning Strategies in the Semi-Instructed Approach

The semi-instructed approach was situated between the instructed approach and the self-access approach; students did online listening tasks on their own, but teachers were available in the classroom to give instruction plus technical and linguistic supports when students had questions. With teachers' help, students' use of learning strategies seemed to have adapted to the new learning environment. This section examines students' learning strategies in the semi-instructed listening classes at the University of Sheffield.

6.3.1 Listening strategies to improve students' performance

As a result of the teachers' instruction and the students' self-study, the five listening strategies to improve students' performance presented a different pattern from the strategies used by the self-access students.

6.3.1.1 Arranging and planning learning

There were two levels of organisation of learning activities in the semi-instructed listening classes. The first level was under teachers' instruction. For example, at the beginning of a class, a teacher introduced the listening tasks, demonstrate necessary technical skills, and explain the subjects which were the foci of a class. The second level of organisation was in the hands of students. Students chose different parts of a listening programme which were suitable to them. For example, there were three types of tasks in the Textbuilder programme at the Language Centre. If students wanted to practise both listening and grammar, they chose to do C-Text; if they wanted to build up their vocabulary in listening practice, they chose X-Text. Advanced students chose a Total-Deletion task, which required good knowledge of listening skills, vocabulary and grammar (also see Section 5.4.1).

Teachers' general arrangement and instruction and their presence in a class gave the students motivation and pressure to do the tasks while students were still left to plan their learning independently. Students' responses to the two-level arrangement of their learning activities were generally positive. As S1 commented:

Both ways (teachers' arrangement and students' arrangement) are OK. Sometimes we need to do something by force. And sometimes we need to do something as we like. We can use all kinds of material (S1).

S2 also told of her personal experience:

To be honest, I am quite lazy. I need someone to organize (me). If I study independently, I don't have the eager to study (S2).

The two levels of arrangement offered students the flexibility they needed in learning as well as the teachers' instruction which gave students clear learning foci and aims. There were two important issues in arranging and planning a semi-instructed class: individualisation of tasks and communication in class. DfES (Department for Educational Skills) gave the following definitions of 'personalised learning':

- (1) Tailoring the teaching to take account of each student's individual needs, interest and attitude.
- (2) Helping the student to develop the skills needed to access learning activities to achieve better results.

(DfES: 2004)

Accordingly, the personalisation of listening tasks gave the students a chance to select practice materials in line with their learning progress and to create practice

opportunities appropriate to individual students. S7 described what she expected from the individualising tasks:

The programmes should be more individualised, targeting at the students from different countries, and designing exercise according to the need of students from various countries (S7).

Although it was rather difficult to design listening tasks which satisfied every single student, there were two ways to create more individualised tasks: a wide range of listening material for students to choose from; and teachers' recommendation to students on their choice of listening material.

Because students' English proficiency was varied, a big choice of listening materials helped them to set up appropriate practice. As two students remarked:

If the programme can give a wide range of choices, it should be very very good...you can pick up what you need...It's good to have more choices. It's also one of the advantages of learning English with a computer (S3).

I prefer the individualised programmes because I need to learn more on what I am weak at (S4).

Apart from offering students multiple choices of materials, a teacher also advised students on other resources for practice after class. Students expected to get teachers' advice on practice to solve their individual problems in learning and the practice became individually focused. As S2 said:

I liked a teacher to instruct how to use the programme and recommend some good programmes to me. And then I practised on my own. So we didn't need to practise the whole section in class, rather we did the practice at home. I hope a teacher can

recommend more programmes and websites every day (S2).

It is interesting to notice that in S2's comments, she mentioned, 'I liked a teacher to instruct how to use the programme'. This was not a problem only to S2. Other students in my interviews also noted that sometimes they were confused by the big range of choices of listening materials and lacked knowledge of listening skills (S4 and S1). Therefore, the communication with teachers and classmates helped students become aware of their disadvantages in listening skills and more focused in practice. As mentioned in Section 5.4.3, the teacher's role in a semi-instructed CALL class was to monitor students' learning activities. But students expected more interaction with teachers and classmates in class. For example, S1 regarded the interactive activities in class as a chance to improve her daily conversational skills:

I hope there will be more communication in the class, so we have more chances to practise. Even if we study in universities, we still use some very simple words to talk to classmates and professors. We don't use academic words in daily conversation (S1).

When arranging and planning listening activities in a semi-instructed class, the teacher needed to pay attention to creating an interactive learning environment which helped students to improve their both communication and listening skills.

6.3.1.2 Naturalising practice

The listening tasks in the Language Centre at the University of Sheffield were mainly from newspaper articles and academic lectures. This was because the CALL listening class was a supplementary course to the main curriculum whose major purpose was to prepare students for university study. These listening materials were extracted from lecture recordings or recorded by the language centre staff. It did help students to become familiar with formal English and accents of native English speakers. Since

CALL classes were extra to the main curriculum, students reported that the content of listening material was limited and sometimes outdated (S1 and S2). They also lost interest if they listened to similar topics in every class. Students also suggested introducing topics about daily life and culture, and choosing speakers with different accents, even foreign accents. This was because

I like listening to different accents because I meet people from different countries. Some students are from Arabic countries. It is not easy to understand them. Students from Italy or France also have very strong accents...I prefer listening to more accents to only one because I have to communicate with different people both the English and foreigners. Nowadays, English has become an international language. I have to communicate with different nationalities. I need to understand them (S1).

It would be better if the beginner can follow a standard English accent. But to me, listening to different accents is important because I meet people from different countries (S5).

Although a variety of accents in listening material was useful for students to improve their listening comprehension in daily communication, teachers did not completely agree with using strong, particularly foreign accents in the listening material. It was teachers who decided what materials were going to be used and how many different accents were going to be included in listening materials.

6.3.1.3 Self-management

In the semi-instructed classes, under the general instruction of the teachers, students chose the materials and controlled their learning progress. The roles of the teachers were to monitor students learning activities and give help when students asked for it. For example, when students did listening tasks on computers, Teacher B tried not to

give instruction on students learning activities. He described how students used the 'help' function in class as:

They (students) just click 'show letter', 'show word'. They can control their listening, forward, backward and stop. But 'help' function is kind of cheating. It doesn't help. I also can tell students, 'try not to do it'. They can turn it into a dictation exercise. They can just click 'play', listen to one word, and type in the word. But I don't get too restrict on it. Everybody has different way of learning. More practicably, I will suggest, 'listen to the text completely'. When they are getting to understand it, then try the text. If it is difficult, they get back to the difficult bits (Teacher B).

In order to help students to manage their learning, when developing online listening tasks, teachers designed various forms of online supports into the tasks. For example, the Textbuilder programme was developed by the teaching staff of the Language Centre. While students listened to a task, they did not stop and ask questions, they had to pay attention to and complete the whole task before they checked answers and used the online 'help' function, which included a built-in dictionary to check the difficult words, transcripts of texts, lists of vocabulary and grammar rules. They also got scores to see how many questions they had answered correctly. The teacher walked around and saw the scores that students had obtained in order to know who was doing well and who was struggling and needed more attention.

6.3.1.4 Cooperating with others

Cooperative activities among students were not compulsory in the semi-instructed classes where students did online tasks independently. But they discussed things with classmates and asked the teacher for explanations and answers. Such cooperation or communication had to be initiated by students. If a student was too timid to ask questions or to launch and join in a discussion with classmates, his/her chance of

communicating with classmates and teacher became limited. For example, S4 was worried about her spoken English and chose to stay quiet in class:

I prefer to talk to a real person. But I am not good at speaking. I am very nervous when I talk to others (S4).

Students were aware of the significance of cooperation in class and expected an interactive class atmosphere. This was because communication in class not only created an interesting and interactive learning environment, but also helped students to acquire and improve language skills as well as communication skills:

I can communicate with my classmates during practice, the whole task will become interesting...If I don't speak English well, I learn to how to ask questions politely and how to speak politely. So it's important to communicate in a right way with a right (understandable) accent (S2).

In order to increase communication among students in class, teachers designed more tasks which encouraged cooperation. For example, students worked in pairs to complete a listening task; or the task asked students to discuss with their classmates; or teachers organised a class discussion or a role play following their exercise on computers.

Students suggested ways that improved cooperation in class. For example,

A kind of learning games was an interesting way of learning (S3).

Maybe the teacher can talk to us more. After we finish a listening practice, the teacher can talk about something relevant. That will help us to understand more about the topic (S4).

Maybe we can role play a situation in CALL tasks. We can listen to the CALL material first and then do role play (S5).

6.3.1.5 Developing cultural background knowledge

The sources for students to develop cultural background knowledge in the semi-instructed CALL listening classes involved both listening material and teachers' instructions. Sheffield teachers used authoring software to create listening texts. When designing texts, teachers chose material based on daily life. For example, the Language Centre organised a student trip to Beverley, a historical town near York. After the visit, teachers created a text about the education visit to Beverley. Students got more background information about its history and cultural events. Teachers also used texts from newspapers instead of transcripts of academic lectures so that the listening texts were close to the real life.

Since students and teachers communicated face to face in the semi-instructed listening classes, teachers were able to talk about cultural knowledge with the students. These small talks not only improved students' understanding of the English culture but also activated a communicative class atmosphere.

6.3.2 Listening strategies for comprehending message

6.3.2.1 Concentrating on tasks

The advantage of the semi-instructed approach was that teachers were present in class to supervise students' learning activities, and this put pressure on the students to study while giving them the flexibility to control the learning process. Pressure from teachers' supervision and flexibility in learning were two important factors which influenced students' concentration in the semi-instructed listening class.

In the semi-instructed CALL classes, students said they got distracted by the Internet and emails instead of doing listening tasks. For example, from Teacher A's observation of students learning in class, he found:

As for concentration, that's interesting. (Students) sit in front of the computers tend to open email, or...it's difficult to resist the temptation...I said to them at the beginning of a class, 'I am a very strict teacher. This is the rule you must do that. Occasionally, we find they all are playing computer games. So the concentration can be a problem, because of the distraction of the Internet. Usually we manage to get rid of the Internet (Teacher A).

However, on the other hand, the teacher did not to dominate the class. Students had the flexibility to choose listening tasks and control the learning process. Such flexibility improved concentration because students were doing what they liked to do. For instance,

I am more easily concentrated on the tasks on a computer because I can choose the way of practice and I can control the way of doing the tasks. Sometimes it depends on my mood. For example, today I want to study listening and vocabulary. I can choose the tasks (S2).

S3 also commented that a change of mood affected his concentration:

...If I have a good mood, I won't get bored easily and quickly. In the teacher-taught class, sometimes I don't have a good mood and force myself to go to the class.

Maybe I have many (other) things to do, so I am absentminded in the class... (S3)

It was helpful to students' concentration when they had a chance to personalise the learning activities.

6.3.2.2 Monitoring listening activities

Because students tailored their learning activities by choosing suitable listening tasks and adjusting the learning process, no distinct linguistic and technical difficulties were reported by students. If they had any questions, they either used the 'help' functions of the programme to get transcripts of texts and lists of vocabulary and grammar rules, or they asked teachers for a detailed explanation. After students finished a task, usually they got a score from the computer, except that some of the programmes were not designed to give feedback. It was also reported by students that some feedback from the computers gave few details so that they only discovered which answers were wrong rather than why they were wrong. But teachers were available to give students explanations in class.

In addition to detailed explanations, students also expected that a teacher was able to help them to monitor their learning activities, for instance: how to use a specific listening programmes (S1); what listening learning strategies were and how to use them effectively; and how to be concentrated on tasks (S5).

Students were able to identify their problems in learning and find solutions effectively if teachers helped them to monitor their learning activities.

6.3.2.3 Inferencing from texts

The students who did listening tasks on their own suggested that it was important for the CALL programme to give students full transcripts of listening texts which they referred to. As S1 said:

Sometimes when the listening texts are really difficult, it is important to read the texts. Also maybe some students want to write down every sentence, it is important to have the transcripts of the texts (S1).

Students' ability to inference from texts was limited by their language proficiency. In this sense, linguistic support from teachers strengthened the students' ability to inference from contexts and to comprehend information. This suggests that teachers need to be aware of how to deliver support, for example: introducing relevant background information at the beginning of a class; or introducing the background knowledge and vocabulary through the listening tasks.

6.3.3 Students' attitudes to computer-assisted semi-instructed listening classes

Teachers' presence and organisation in class stimulated students' motivation in learning. Meanwhile, students also reported that they enjoyed managing their learning activities. They chose listening tasks which fitted their learning progress; or controlled the learning process, by adjusting listening speed, repeating a listening task as many times as they liked, or using the 'help' function of a listening programme.

However, students reported that there was never the less a lack of communication with the computers (S1 and S3). Students had also hoped that there would be more interaction with teachers and among students.

6.4 Conclusion

This chapter has discussed how students in the three UK universities used learning strategies to practise listening skills on computers. The three universities had different approaches to using CALL listening programmes: an instructed approach, a self-access approach and a semi-instructed approach, and the way that learning strategies were used appeared to have varied correspondingly.

In the instructed computer-assisted listening classes, listening tasks on computers were integrated with other learning activities. It was teachers who arranged and planned class activities, so students' use of learning strategies was affected by the design of the curriculum, listening materials chosen by teachers, teachers' instruction of how to use

specific learning strategies. The instruction from teachers was helpful to those students who were not good at self-management, but it also offered students less flexibility to choose tasks and control the learning progress.

When designing class activities, it was important for teachers to encourage cooperative learning activities among students such as discussion, pair-work and game play; and to introduce cultural background information which helped students' listening comprehension.

In the instructed CALL listening classes, under teachers' monitoring, students had to concentrate on practice in order to complete the exercises afterwards. But their concentration was affected by the content of tasks, the form of exercises, the length of tasks and the quality of the facilities.

Students' attitudes towards computer-assisted listening tasks were not very positive because they could not see the difference between using computers and tape recorders. This was mainly due to tasks that had not taken the best advantage of the computer technology. Therefore, when designing listening tasks, teachers needed to consider how to best use computer technology to improve students' learning strategies.

In the self-access approach, students had to take the responsibility for managing their own learning activities. But students' ability to do this was varied. The advanced language students were more aware of, and confident in, managing and planning their study than those at less advanced levels. The pre-sessional training was able to help students become familiar with programmes study by themselves.

The Language Centre provided students with a range of listening materials which included videos of academic lectures, recordings of news programmes and commercial language learning programmes. The materials were intended to simulate real conversation contexts so that students experienced what happened in real life.

Although there was interaction between computers and students, and between teachers and students, communication among students and teachers needed to be strengthened perhaps by setting up an online community to encourage students' communication, discussion and mutual self-help. Through communication, teachers also helped students improve their cultural knowledge.

In the self-access approach, the major factors which influenced students' concentration were the design of tasks and the equipment rather than time and places for practice. Students were likely to lose their concentration when the listening tasks were not well-designed, or when they were not comfortable with the equipment.

Student-directed learning was one of the characteristics of self-access CALL material. Listening tasks were usually accompanied by instruction which told students how to use the online material. However, not all students were good at monitoring their learning activities, so it was helpful to have teachers available for instruction, enquiry and advice.

The students said they enjoyed the flexibility to manage their learning activities, but more involvement of teachers in the self-access study was thought to be helpful, such as pre-training students and giving online help.

The semi-instructed approach was somewhere between the instructed approach and the self-access approach. In semi-instructed CALL listening classes, learning activities were controlled by the students while under the general control of the teachers. The main roles of the teachers were to monitor students learning activities and to give help when students asked for it.

The students had the chance to communicate with teachers and classmates face to face. If they had any linguistic or/and technical problems during practice, and they did not find answers from the CALL programmes, they were able to turn to teachers for help

or discuss things with classmates. The interactive activities in the semi-instructed learning environment appeared to motivate students. But more interaction among students and teachers needed to be encouraged by introducing pair-work in exercises, class activities such as discussion and role play; and by more involvement of teachers, for example providing cultural background information, explaining learning strategies, and introducing the ways to use listening programmes.

In the semi-instructed approach, pressure from teachers' supervision and flexibility in learning were the two important factors which influenced students' concentration.

Although students monitored their learning activities by choosing suitable listening tasks and adjusting learning processes, it was necessary to have teachers' support throughout the learning process because students easily identified their problems in learning and found solutions effectively.

Students' attitudes towards the semi-instructed approach were that they enjoyed managing their learning activities as well as teachers' instruction which gave them pressure and a chance to communicate with the teacher directly. But they also expected that there would be more interaction among students and teachers.

Chapter Seven:

Findings and Discussion III—Investigating and Evaluating the Computer-Assisted Listening Courseware and Tasks

7.0 Introduction

The present chapter addresses the last of the three subsidiary research questions: What are the criteria and methods used to evaluate CALL programmes? The findings are based on the data collected in the main study by in-depth interviews.

Each university in my study employed a variety of CALL programmes, both commercial and self-developed to train students' listening skills. The language centres usually had a big range of programmes for teachers and students to choose. There was rarely a case of consistent use of one particular programme. Moreover, the three universities had different ways of implementing CALL programmes in teaching, namely instructed, self-access and semi-instructed, which were elaborated in Chapter 5. The complexity of the programmes and the ways in which they were used made the evaluation work difficult. In this chapter, I first classify the types of CALL listening programmes, and then analyse their effectiveness with respect to the different approaches based on the criteria suggested by Chapelle (2001) which has been discussed in Section 3.5.2.

7.1 Types of CALL Listening Programmes

The Language Centres usually used both commercial and self-developed CALL programmes. The tasks of some programmes had a focus on one specific language skill, for instance listening or writing, an example being the BBC News Programmes designed by the University of Newcastle, while others were comprehensive to train

different language skills, as well as learning skills and communication skills. Examples were College English and Clarity.

As for the listening programmes in general, the tasks are categorised into three types: tutorial tasks, contextualised tasks and simulation tasks.

7.1.1 Tutorial tasks

Tutorial tasks present new knowledge to students and then let students practise it. A tutorial task can explain listening skills, such as catching key words and generalising. Then, in the follow-up activities, the computer can help students get familiar with the skills by proposing exercises. A tutorial task can also explain concepts or rules and demonstrate examples. The computer has advantages of providing vivid, dynamic illustration such as charts, pictures, audios and videos; giving immediate feedbacks on students practice; and giving students the flexibility to navigate and choose tasks.

7.1.2 Contextualised tasks

Unlike tutorial tasks, contextualised tasks consist of units of texts. These tasks stress students' understanding and creative use of the language. The activities include cloze passages in which every *n*th word is missing and must be replaced. Paragraphs are recorded. After listening to the recordings, students need to fill in the gaps where sentences are missing, or to identify and change erroneous or misplaced words. This type of task emphasises not only students' listening comprehension of the language content, but also vocabulary and grammar structure.

7.1.3 Simulation tasks

Simulation tasks create an environment where students can participate in a role play

and interact in a scene on screen, or with other students via the computer. A scene is portrayed by graphics or by a videotape, and at some point students can join in a discussion or decision-making. The decision made by students will decide the sequence of the next scene or actions. A simulation task provides a learning context that students will experience in a real situation. For example, a task includes a multiuser, 3D simulation learning environment (such as the College English) supporting virtual communities of practice in order to help the learners to acquire and construct knowledge by doing shared "authentic" activities, to interact with each other as community members, and to perform informal, unstructured, spontaneous, and situation-oriented learning. Moreover, the graphics or videotapes can help students' understanding of a listening task. As CALL develops, with advances in artificial intelligence, the potential for more natural interaction is likely to be greater.

In fact, the recent CALL package usually includes more than one type of CALL listening task. It starts with the lower level tasks, such as tutorial tasks to present students grammar rules to ensure comprehension, and contextualised tasks to train students' the listening skills along with vocabulary and grammar. The latter part of a package usually contains simulated tasks that allow students to listen to a conversation or speech in simulated situations.

7.2 CALL Listening Programmes in the Three Universities

Each of the three universities had a variety of listening programmes which ranged from the beginning to advanced levels. The content included daily conversation, academic lectures, news reports and so on in order to build up students' knowledge of vocabulary and grammar rules, as well as to enhance their listening skills.

In an instructed listening class at the University of Hull, the teacher chose and designed both tutorial tasks and simulated tasks. Usually the tasks had two parts. The first part

was completed on computers. Students listened to texts on the computers, and then finished the exercises either on the computer or on exercise sheets handed out by the teacher.

The University of Newcastle had a big reservoir of self-access listening programmes which included tutorial, contextualised and simulated tasks. Some listening programmes contained single types of tasks; while other advanced packages consisted of two or more types of tasks, which allowed students to choose both level and task.

The University of Sheffield developed a listening programme focusing on contextualised tasks. They also used a commercial package with a mixture of different task types. In a semi-instructed listening class, students chose tasks with or without the teacher's help.

7.3 The Framework of Analysing CALL Listening Programmes

As explained in Section 3.5.2, the evaluation of a CALL listening programme can involve different levels of inquiry (Chapelle, 2001). The first level of analysis is the software used for training listening skills. The checklists exam points such as controllability of learners, interaction and feedback. The second level of analysis refers to teacher planned activities. CALL programmes are chosen or designed, and used by teachers. In Chapelle's words, 'any CALL activity that is assigned and used within a language class is influenced by the way in which the teacher introduces and structures it' (2001: 55). The way that the teacher instructs the tasks is crucial to the conditions for learning that the CALL activity provides. The third level of evaluation is directed to the learners' performance during CALL listening activities and its outcomes, in particular, learners' interactive activities in three learning environments, namely, instructed, self-access and semi-instructed.

In Section 3.5.2, I illustrated six criteria for evaluating CALL listening activities proposed by Chapelle (2001), namely: language learning potential, learner fit, meaning focus, authenticity, positive impact and practicality. The six criteria are developed from theory and research on SLA, and cover the three main elements in SLA instruction: materials, tasks and learning activities. These criteria can be applied not only to software, but also to the tasks that the teacher plans and to the learning activities incorporated into the different tasks. These are outlined in Table 7.1.

	software	tasks	Learning activities
Language learning potential	How interactive is the software? How much control is the learner allowed?	Does the task promote a language learning activity and present sufficient opportunity for learners to practise interactively?	Does the learner engage in the interactive activities? Does the learner acquire the target form from the activities?
Learner fit	Does the software interest different learners?	Does the task take into consideration individual differences in linguistic ability level and non-linguistic characteristics?	Does the learner find the task appropriate to their linguistic and technological ability level?
Meaning focus	Does the software attract and keep the learner's attention through practice? Does the software direct the learner's attention towards the purpose of tasks?	Does the task direct the learner's attention towards the meaning of the language required to accomplish the task?	Does the learner's construction of linguistic meaning help language learning?
Authenticity	How much correspondence is there between the CALL activities and learners' use of language out of class?	Does the task aim to prepare the learner to use the language outside the class?	Does the learner engage in the performance correspond to his use of language outside the class?
Positive impact	Is the software easy to use by learners or to employ in tasks in order to achieve	Does the task give the opportunity for the learner to acquire	Does the learner acquire more language knowledge and

	positive effects?	learning strategies as well as language knowledge?	learning strategies as the aim of the task? Does the learner have good experience of using technology?
Practicality	Is there adequate hardware and software available to students? Are there knowledgeable personnel available to support learning?	Is it easy for the teacher and student to implement a CALL task within the particular constraints of a class or language programme	Are there sufficient hardware, software and resources for the learner to successfully accomplish learning activities?

Table 7.1 Analysis frame for CALL listening programmes

In the next sections, I will apply this inventory to evaluate the CALL listening programmes used in the three universities in terms of software, CALL tasks and learning activities.

7.4. Evaluating CALL Programmes in the Three Universities

The criteria for evaluating CALL programmes in Table 7.1 need to be applied in relation to the overall learning context. The learning contexts varied because of the different methods of employing CALL programmes. In the different learning contexts in the three universities, namely instructed, self-access and semi-instructed, the evaluation of the materials, tasks and learning activities presented distinct characteristics.

7.4.1. First stage analysis: CALL software and materials

7.4.1.1. The instructed approach

In an instructed CALL listening class at the Language Centre at the University of Hull, the teacher chose the materials, planned tasks and organised learning activities. CALL

tasks became part of the whole class activity. The materials she chose for a class were from both commercial and self-developed programmes.

The listening class was set in a state-of-the-art digital laboratory, a Melissi Digital Classroom. In fact, Melissi was a software package with a teacher's programme and several student programmes, which facilitated communication between the teacher and the students. It also allowed the teacher to install her own listening materials for different training purposes. The materials chosen were in line with the aims of a class which were different at various stages of instruction.

Language learning potential

Melissi Digital Class offered tools for synchronous and asynchronous communication between the teacher and students. For example, the teacher used the 'call-class' function to talk to individual or groups of students. Students also participated in discussion via computers. Moreover, the teacher sent files to one student or a group of students, viewed their performance and talked to them via Melissi. With these functions, Melissi created a learning context similar to that of a real classroom which encouraged interaction among the teacher and students.

Melissi Digital Classroom provided the teacher and students with a flexible approach to communication. For example, the teacher viewed students' performances without disturbing them. The teacher also sent pictures, sound files and videos to students, which was difficult to achieve in a non-computer assisted class. However, in an instructed class, the function of supporting communication was carried out by the face-to-face communication between the teacher and students. The teacher arranged class activities such as role play, discussion and games instead of simply offering exercises.

Apart from the software, the materials chosen by the teacher began with daily conversation and moved to academic lectures, which gradually built up students' listening skills and prepared them for university study.

Learner fit

In an instructed class, with or without computers, it was difficult to choose materials which were suitable for every student in one class. Even if the Melissi programme had offered a range of tools such as audio/video tracks and Internet access to install versatile material, when the teacher chose the materials, she had to first take into account the purpose of a class. But lack of personalisation in materials was made up for by introducing other materials and exercises to students for practice after class or for direct communication between the teacher and students. For example, the teacher answered students' questions immediately and gave them suggestion on both linguistic problems and learning strategies.

Meaning focus

A meaning focus, as Chapelle explains, 'denotes that the learner's primary attention is directed toward the meaning of the language that is required to accomplish the task' (2001: 56). Because of the importance of a meaning focus in language learning, it is one of the criteria to evaluate CALL programmes. To use this criterion to analyse software and materials is to see whether the software and materials used in a listening class can attract and keep a student's attention to the purpose of a meaning focus task.

The Melissi programme allowed the teacher to use different types of materials such as texts, pictures, audio recordings and videos. Particularly, the visual effects of videos made a listening task interesting and helped students' comprehension. On the other hand, pictures were also distracting if a student was not used to audio-visual tasks. But

in an instructed class, the listening activities on computers were just a part of the curriculum and usually followed by other class activities such as accomplishing exercises, role play and discussion. All these activities were organised and supervised by the teacher, which pressurised students to concentrate on what they were listening to.

Authenticity

When choosing material for a listening class, the teacher always found materials in line with the specific topic of a class session. In general, the topics were classified into general day-to-day topics and academic lectures. The general topics were what the students were likely to experience in their day-to-day life. They were the foci of the primary stages of a whole language module. At the advanced stages, the foci were moved to the academic listening skills. The listening materials for the general topics were extracts of TV programmes and news reports, while the academic listening materials were videos of lecture sessions on various subjects. The aims of using the authentic materials in the listening class were to prepare students for real situations, and more importantly, to encourage them to develop their own listening skills. Apart from those purposes, the listening class also trained students in study skills—how to become independent learners.

Positive impact

Positive impact in the context of CALL task refers to ‘a CALL task’s effect beyond its language learning potential....A learning task should engage learners’ interest in the target culture in a way that will help develop their willingness to seek out opportunities to communicate in the L2’ (Chapelle, 2001: 57). But this criterion is equally important for CALL software and materials. Ideally, CALL software and materials are easy to use by teachers and students or to engage in tasks in order to achieve positive effects. For

example, the Melissi programme provided tools for the teacher to use authentic materials such as pictures, graphs, audio recordings and videos which simulated real language contexts. The teacher designed tasks to go with the materials in order to improve students' language skills as well as their communication skills.

Practicality

Practicality refers to the existence of adequate hardware, software and materials to plan activities. The availability of well-maintained software and sufficient materials to the students are important to successful CALL. In addition, knowledgeable personnel need to be available to instruct or assist students with both linguistic and technological problems students will encounter in practice (Chapelle, 2001; Marty, 1981). One of the advantages of the instructed CALL class was that the teacher was in the classroom to monitor, guide and assist students' learning activities. In the case of the University of Hull, the Melissi Digital Classroom was equipped with state-of-the-art computers. The teacher prepared materials for students to practise in class, and they also gave students suggestions for using other self-access resources in the Language Centre in their spare time.

7.4.1.2. The self-access approach

In the self-access approach, all the online materials were left open for students' use. The Language Centre of the University of Newcastle offered a range of online materials to students in the Self-Access Centre. The materials included commercial language training and self-developed programmes. The types of materials also varied from low-level tutorials and contextualised tasks, to simulated tasks which trained students' language skills as well as their communication skills. In the present study, I investigated two listening programmes for self-access use. One was developed by the staff in the Language Centre, named BBC News; the other was a commercial language

training package, College English, which had been used for a short period of time in a pilot study by the Language Centre.

The BBC news programme contained tutorial and contextualised tasks, such as gap filling, correction and questions and answers. The aim of the programme focused on language skill, training rather than communication skills.

The commercial language training package, College English, provided a virtual learning environment. It included tasks at three levels on four major skill areas: reading, writing, speaking and listening, and additional training in study and research skills. The listening texts were set in a visual environment where visual characters played roles in a simulated collaborative language context.

Language learning potential

When students used online materials on their own in the self-access centre, the interactivity between students and computers became important. In particular, an advanced language software package, for instance College English, aimed at improving students' language skills as well as their communication skills. In this respect, the visual characters played a role in creating an interactive learning environment where students were encouraged to participate in discussion and role plays. In contrast, BBC News Programmes mainly focused on language skills. The materials were extracted from daily news reports. It depended on how the teacher used them to create tasks to improve student-computer interaction, such as getting feedback from computers.

Moreover, it was also important that a language programme was easy to use. For example, students needed to be able to navigate its structure easily, understand the purposes of tasks and use the 'help' function. This was a problem with a complex

package like College English. One of the drawbacks of College English was that students were not able to navigate the whole programme in order to choose appropriate tasks. Besides, there were also technological problems which made it difficult for students to use the package. For example, students were not able to fast forward what they were listening to. And there were also technological problems in sending sound files to the teachers (Teacher B).

Learner fit

An advantage of a self-access programme was that the students evidenced the flexibility of being able to choosing suitable materials for practice. Both the BBC news programmes and College English included materials on different topics and at various levels of difficulty for comprehension. As for the self-developed programmes, the types of materials were limited. This was mainly due to the limited resources. Normally, teachers in the Language Centre used video tapes of academic lectures. Other materials, such as news reports and TV programmes, were only used on the local network of the Language Centre for reasons of copyright. It was impossible for students to access to them off campus. Compared to the self-developed programmes, the commercial CALL packages included more types of material such as videos, films and audio tapes. College English also included its own materials. For example, it contained lectures by the simulated characters in a visual environment.

Meaning focus

Because there was no direct supervision of the teacher, the students did not have the same pressure from the teacher as in an instructed class. In order to keep students' attention on tasks, the materials met the students' expectations. Generally speaking, the students reported in the current study that they expected the materials to be interesting, versatile and updated often. The Language Centre updated the sound files of the BBC

news programmes on a daily basis, although the types of task were not changed much. In comparison, the materials of the commercial CALL packages were not easily changed or updated, which became boring to students after they practised on them for a period of time.

Authenticity

The Language Centre developed their listening materials using extracts from radio or TV news programmes or live lecture videos, in order to prepare students for their study. As for College English, the visual environment allowed students to practise listening skills in a simulated learning context. The developers of College English assigned different accents to visual characters. But some of the characters had very strong foreign accents. As Teacher B commented:

You need variety of accents, but there is a character (in College English) that has an exaggerating Australian accent... That's ridiculous. So strong accent. I don't know if this is an English person pretending to be an Australian or there is a real Australian person.

Although the purpose of using various accents was to strengthen the authenticity of the listening material, it was unnecessary to use exaggerating strong foreign accents.

Positive impact

Whether material was easy to use to compile a learning task or whether a CALL package was easy to use was the first criterion when the teachers in the Language Centre designed or chose programmes. If the programme was difficult to operate, it was not useful to students, particularly when students did the exercise without direct supervision and immediate help from teachers. College English was an advanced level

programme in many senses, but the users were often disturbed by the technological failures of the system or by design bugs. For example, College English had a very complicated registering and log-on system. The students had to finish a long application form in order to register on the system. If a student had not used computers much in learning before, the registration procedure discouraged him/her. For example, Teacher A described one of their experiments with College English:

College English has huge disadvantages because it is difficult to get in. The students got frustrated. We ran an experiment in which the teachers were completely hands-off. The teachers were supposed not to exist. The students couldn't log in because the system didn't accept the fact of 'hyphen'. Simple things like that ruined the system. It took confidence away from the student. That's where self-access learning stopped. So we broke our rules of hands-off. We went in there and got in the programmes to show them how to actually get in. Their confidence was built up. They started working the way through the system...

Therefore, to offer students materials which were easy to operate was the first step to achieve positive results.

Practicality

It was essential to provide students with adequate hardware and materials in the self-access centres. The availability of computers, the quality of headphones and the arrangement of seats affected how often students used the facilities and how much they concentrated on tasks. The availability of teaching staff was also important to self-access study. If students had questions about tasks or technology, they knew how and where to ask for help. In the Self-Access Centre at the University of Newcastle, students were able to make appointments for tutorial sessions where they discussed with language centre tutors their problems and asked for suggestions.

7.4.1.3. The semi-instructed approach

The CALL listening class in the University of Sheffield was a supplement to the main syllabus, in which the students controlled their learning activities with the teacher's on-site supervision and support. The listening material used for a semi-instructed CALL class was in line with the main syllabus and easy for students to use on their own.

The materials used in the semi-instructed CALL class included self-developed programmes like Text-Builder and Academic English Language Exercises, and commercial CALL programmes like Wida and College English. The teacher designed Text-Builder and Academic English Language Exercises using materials which were interesting in terms of the content such as texts from newspapers. The commercial software package, Wida, consisted of three programmes, one of which was for listening, called Story Board. The Story Board programme was authorable. For example, the teacher installed his own materials on the Story Board and created tasks. College English was piloted in the semi-instructed CALL class for a short period of time. The teacher gave suggestions on how to use the tasks and then left students to do the tasks on their own.

Language learning potential

The materials used in the three programmes: Text-Builder, Academic English Language Exercises and Wida Story Board were chosen by the teacher. The materials covered a range of topics, from English cultural events to academic lectures, so that students chose materials which were interesting and suitable. College English was used in the semi-instructed classes where students had positive feedback. As Teacher A commented, 'students thought it (College English) was good because the texts were good and suitable. The exercises were mostly interesting...(I can) see that students

really enjoy it'. This feedback was different from that of the pilot study at the University of Newcastle, where College English was used as self-access material. The reason for this difference appeared to have been the way of usage. There was a direct interaction between students and students and between teachers and students in the semi-instructed CALL class. The direct communication helped students make better use of the programme.

Learner fit

Normally, at the beginning of a class session, the teacher introduced the topics that were covered in the class and explained the listening skills needed. There might be a discussion about the topics among the students and then they listened to the texts and finished the exercises at their own pace. These activities helped students get familiar with the contents of the materials. With the background information, the materials became easier for students to understand. However, as mentioned before, each session of the CALL course had a target in line with that of the main courses. Students only chose from certain materials to practise, following the instruction from the teacher. It was difficult to keep records of students' progress. The students with better English knowledge and better listening skills found the materials easy and finished the exercises earlier than others. In this case, the teacher recommended other materials for these students and helped those who had difficulties.

Meaning focus

The materials for Text-Builder, Academic English Language Exercises and Wida Story Board were easy to update. It usually took 15 minutes to write a new task. Therefore, the materials were regularly updated and diversified. Students also found the materials in College English interesting because of its visual nature. Moreover, the teacher in the class made sure that the students were not doing something irrelevant to the class such

as checking emails and surfing the Internet. Sometimes the students got distracted by the technical problems particularly with College English. But the teacher in the class helped students to sort out the technological problems immediately.

Authenticity

The listening materials used in the self-developed programmes in the University of Sheffield were mostly recorded by the teacher, which decreased the authenticity of the materials. It would be better if the material included live recordings such as radio and TV programmes and videos, but, of course, there would be a copyright problem.

Positive impact

The three self-developed programmes were easy to use for both teacher and students. From the teacher's point of view, all the three programmes were authorable which allowed the teacher to easily and quickly create new tasks. From the students' point of view, they usually received background information of the tasks from the teacher. Even if they met any problems during practice, they consulted the teacher face-to-face. This was also important with College English, where the students often got stuck because of the technological problems. For example, S3 recalled, 'there is a particular problem that when you are making a recording of your own voice, for some reasons I often get stuck there. It won't allow me to go to the exercises'.

Practicality

The Language Centre of the University of Sheffield had a large collection of CALL listening materials for the class. Moreover, all the computers in the digital classroom had been linked to the Internet which was convenient for students and teacher to search for further information. The teacher was present in the classroom to organise the class

and give support and instruction to students when they did tasks by themselves.

7.4.2. Second stage analysis: CALL tasks

7.4.2.1. The instructed approach

In an instructed listening class, the learning activity on the computer was only part of a task. Usually at the beginning of a class, the teacher clarified the aims of the class, introduced relevant background information and explained the related language knowledge, such as grammar rules, vocabulary and listening skills if necessary. Then students listened to the texts on the computer, followed by exercises and class activities such as discussion and role plays. At the end of a class, the teacher gathered the class to stress the common mistakes made by students, sent out text scripts and recommended further exercises. Therefore, there was no clear division between CALL tasks and class tasks. The computer-assisted learning activity had become a part of the main curriculum.

Language learning potential

The language learning potential of a CALL task refers to the extent to which a task promotes a language learning activity rather than simply an opportunity for language use. In order to promote a language learning activity, a task presented sufficient opportunity for students to practise interactively. The triangular interactive relationship among teachers, students and computers ought to motivate students with to learn and to improve the modification of language input and output.

In an instructed listening class, the degree and forms of interactive activities depended on how the teacher designed the curriculum. The main purpose of the listening curriculum was to help students acquire listening skills for daily conversation and

academic classes. Therefore, the task in the computer-assisted CALL class was in line with this purpose. The teacher's explanation of background information and listening skills, plus the exercises to practise the listening skills and class activities created an interactive class atmosphere.

Learner fit

This criterion took into account individual differences in linguistic ability levels and non-linguistic characteristics, such as willingness to communicate, age and individual learning styles. However, it was difficult to design CALL tasks which met this standard in an instructed listening class. One solution to the dilemma was interactive learning activities. This was because through communication with the students, the teacher identified individual problems. If the teacher did not take care of every student in a class, the students also helped each other through interactive activities like discussion.

Meaning focus

Chapelle explains the criterion of *meaning focus* to evaluate a CALL task as, 'meaning focus denotes that the learners' primary attention is directed toward the meaning of the language that is required to accomplish the task' (2001: 56). In the context of a CALL listening class, the defining feature of a meaning focus task was that it required students to acquire listening skills rather than vocabulary or grammar. For example, in the instructed listening class, some listening exercises asked students to fill in missing words after they had listened to a text. The purpose of such exercises was to train students how to pick out key words in listening instead of remembering a specific word.

Authenticity

Authenticity refers to ‘the degree of correspondence between an L2 learning task and tasks that the learner is likely to encounter outside the classroom’ (ibid.). As with the listening task, authenticity had two indications. The first level of indication concerned listening skills. The task trained students to acquire the skills they used out of the classroom. The second level of indication referred to the communication skills which required students not only to understand what they heard but also to participate in a conversation. Therefore, when designing a task for an instructed CALL listening class, the teacher took these two indications into consideration, in particular tasks to train students’ communication skills. The tasks in the CALL listening class at the University of Hull were designed to meet this criterion. For example, after the students finished their listening exercises on the computer, the teacher arranged class activities such as role play and discussion to improve students’ communication skills.

Positive impact

The positive impact of a CALL task refers to a situation where a CALL task teaches more than language knowledge. It helped the students develop cultural background knowledge and learning strategies. The cultural background information is important, even indispensable, to help students’ listening comprehension. But in an instructed class, cultural information sometimes was excluded in a learning task because of the limited time; and it was supposed to be acquired by students themselves. In the CALL listening class at the University of Hull, the teacher explained the cultural background before students started listening exercises and offered students further reading materials.

Practicality

Practicality refers to ‘how easy it is for the teacher and student to implement a CALL task within the particular constraints of a class or language programme’ (ibid: 57). Constraints include the availability of resources, both hardware and software, to support the CALL activities. An instructed listening class was unlikely to be short of hardware and software because the resources were arranged by the teacher for a specific class session. But the practicality of a task was affected by technology failure. The teacher in the University of Hull always prepared an extra copy of listening material on a tape in case of technology failure.

7.4.2.2. The self-access approach

The self-access CALL programmes were designed for students’ use without the direct supervision and arrangement by the teacher. Therefore, the tasks in the self-access CALL programmes needed to be diversified in subjects and language levels. In this study of the self-access use of CALL listening programmes at the University of Newcastle, I selected two examples respectively from both the self-developed programmes and commercial language software packages used in the Self-access Language Centre.

Language learning potential

Although students did tasks in self-access CALL programmes on their own, the interaction among students, teachers and computers was still important for successful and effective learning activities. The interaction between the computer and the students was direct. Students did the exercises on the computers. They used the online ‘help’ function of a programme for instruction on how to use a programme and for explanations of the listening skills, background information and relevant vocabulary

and grammar rules involved. Students also asked for feedback on their exercises. Most of the listening programmes gave scores or percentages correct in students' answers. Some programmes (College English and Clarity) gave suggestions about other resources for students to choose. The interactive relationships between teachers and students, and between students and students were indirect. Some programmes (College English and Clarity) offered an email function so that students sent their questions to the teacher or other students by email, and even created an online discussion forum so that the teacher and the students logged on to have an online discussion.

The self-developed BBC News Programmes of the University of Newcastle included tutorial tasks and contextualised tasks, both of which focused on training listening skills. After listening to a text, students finished exercises, such as gap filling, cloze and questions and answers. Then they checked their scores for their exercises. But the feedback was inadequate because it did not explain *why* the answers were wrong and how to correct them. If students had any enquiries, they had to send an email to the teacher.

College English consisted of sections with different training foci. At the beginning of every section, the purposes were clarified. There were usually two or three tasks in one section generally including gap filling, or multiple choices. At the end of the task, students got scores and checked text transcripts. They also used the 'help' function to get vocabulary and grammar relevant to the tasks. One of the advantages of College English was that it created a visual environment which encouraged students' participation in listening activities. But the interaction with the teacher and other students was still limited to email communication.

Learner fit

In order to meet the different linguistic abilities and non-linguistic characteristics of

students, it was important for a CALL programme in self-access use to contain tasks at various language levels and in various types.

BBC News Programmes consisted of tasks at three levels: fundamental level, preliminary level and higher level. The lower level tasks were usually tutorial tasks such as sentence correction and questions and answers which focused on training basic listening skills. The higher level tasks were normally contextualised tasks like gap filling, which had a higher requirement of vocabulary and grammar. All these tasks were easy to use. Students simply chose tasks from a suitable level. They asked for answers whenever necessary.

The overall structure of College English was more complex than the BBC News Programme. The tasks varied in level and form (such as tutorial tasks, contextualised tasks and simulated tasks that aimed at training communication skills). However, College English was not easy to navigate and did not allow students to control the task. For example, students were not able to navigate around the whole programme. They had to start from the beginning of a task and work their way through it. As Teacher A recalled:

If you get a learning system that didn't allow trying, you are not given a self-access (way of learning)...So in that way, C.E. is very frustrating. That's the feedback we have got from the students. The navigation of C.E. is very difficult to follow.

Although College English had a well-structured system and diversified tasks, the navigation problem demotivated students.

Meaning focus

Despite the design bugs in its operation system, College English offered students with

well-designed tasks which had a clear training target. For example, the following example was extracted from a listening section.

Unit 1: Getting in touch

Section 6: Phone Etiquette	30 minutes
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- LISTENING 3** - listen for specific information
 - transcode information from a listening text to a form (L)
- STUDY SKILLS 1** - being aware of and using correct register

Listening Task A – type a message in reply to one received.	
Listening Task B – click to select the best message of four.	

The listening tasks A and B were in line with the aims of this section: to train students' listening skills to (1) listen for specific information; (2) transcode information from a listening text to a form.

The structure of the tasks of the BBC News Programme was not as complex as those of College English, but the tasks directed the learner's attention to using listening skills to understand the meaning of the language that was required to accomplish the exercises.

Authenticity

The listening tasks of the BBC News Programme taught the skills necessary to accomplish listening activities in a real life situation. The content of the programmes was updated daily which helped students to understand the latest news stories on TV or radio, or conversations about the news. The tasks of College English were set in visual contexts which simulated the real situations, such as phone conversation, banking and class discussion. These contexts helped students get familiar to what happened in the

real life.

Positive impact

In self-access CALL programmes, there was no direct and immediate communication with the teacher and other students, the students had to manage their own learning activities.

The students were motivated in the self-access learning because they controlled what to learn. However, not every student knew how to learn. They did not have adequate learning techniques. These students needed explanations of learning techniques before they used the tasks. Unfortunately, some of the programmes did not offer the introduction of learning techniques. For example, there were no explanations of learning strategies in the BBC News Programme. On this point, College English explained what learning skills were covered in each section, but there was no detailed explanations of how to use these learning skills.

Practicality

Because there was no time pressure from the teacher about time when doing listening tasks, the students who were not good at self-management easily got distracted. One of the important ways to keep students' attention was the duration of a listening task. If the task was too long, students easily got bored. If it was too short, it was hard to get students involved in the learning contexts. Each task of the BBC News Programmes was about five to ten minutes, which was convenient for students to use in their class break. The sessions of using College English were normally 30 to 50 minutes which was similar to the length of a normal class session. However, as mentioned earlier, if students stopped in the middle of a task, they did not continue from where they stopped and they had to start again from the beginning. This design bug wasted students' time

and diverted their attention.

Apart from the content of the programmes, the arrangement of the hardware also affected students' attention. For example, the students at the University of Newcastle reported that sometimes they got distracted by the noise in the Self-Access Centre. The Centre tried to locate some separated booths, but the cost was rather high.

7.4.2.3. The semi-instructed approach

The CALL programmes in the semi-instructed classes served as a supplement to the main curriculum. Therefore, the CALL tasks chosen by the teacher were extra exercises in line with the aims of the main curriculum. Although the tasks in a class session were chosen by the teacher, students normally did the tasks at their own pace with the teacher's supervision and support in the class.

Language learning potential

Four programmes were used in the CALL class to train students' listening skills at the University of Sheffield: Text-Builder, Academic English Language Exercises, Wida Story Board and College English. The listening tasks in the first three programmes were mostly contextualised tasks which asked students to fill in the missing letters of words or missing words in sentences. If the student got stuck during the exercises, they used the 'help' function of the programme by clicking the 'show letter' or 'show word' buttons. At the end of an exercise, students asked to see their scores or to show how many questions they had done correctly. If the bar went green, it meant the student got the correct answer the first time. The teacher walked around to see if they had got green bars, which meant they were doing well. If somebody had got a lot of yellow bars, the teacher knew this student needed more attention. Students also printed the text, the vocabulary list and grammar rules. Although the interactive relationship

between the computer and the students was active in these three programmes, there were no tasks which encouraged interaction between the teacher and students or among students themselves. College English suggested class activities but these were hardly used because students in the class were supposed to work on their own and the teacher did not interrupt students' learning activities unless they asked the teacher for help.

Learner fit

The listening tasks in the three programmes: Text-Builder, Academic English Language Exercises, Wida Story Board were varied in form and difficulty. Students used the built-in dictionary to check vocabulary, or used the 'help' function to check grammar rules. Students also consulted the teacher if they had any questions. Direct help from the teacher made difference in use of College English. As mentioned in 7.4.2.2, students met technical and linguistic problems when using College English. In a semi-instructed class, however the teacher solved these problems immediately.

There was also a concern that the tasks used in the class sessions were chosen by the teacher. It was hardly suitable for every student in the class. Therefore, it was necessary for the teacher to pay more attention to the students with lower language proficiency and introduce other resources to those who had better language knowledge.

Meaning focus

The contextualised tasks in the three programmes: Text-Builder, Academic English Language Exercises, Wida Story Board focused not only on listening skills but also on vocabulary and grammar rules. For example, Text-Builder had three types of task. The C-Text, which hid the second half of the word, tended to be grammar exercises. The

X-Text, which hid the first half of the word, was more vocabulary focused. Total-Deletion, in which a whole word, an entire phrase or sentence was missing required advanced listening skills. The purpose of these tasks was to train listening skills as well as to improve the knowledge of vocabulary and grammar rules. However, such tasks might divert students' attention from listening skills to vocabulary and grammar, unless the teacher explained the listening skills needed before students started the tasks to make them aware of using these skills.

Authenticity

From the tasks the students practised their listening skills which helped them understand everyday conversation or academic lectures. However, because there was the lack of interactive learning activities such as role plays and discussion in the semi-instructed class, the authenticity of the tasks was somewhat decreased.

Positive impact

The students in the semi-instructed class had a chance to enjoy the flexibility of controlling their learning activities. They also had direct and immediate communication with the teacher and other students. Such communication activated the learning atmosphere. And also the teacher's supervision on the class gave students pressure as well as support for accomplishing the exercises. The advantage of the teacher's direct support was obvious when students did tasks in College English. The programme had limitations in terms of its structure and technology (i.e. students had to complete a long registration procedure and the supporting technology was unstable), but the teacher gave an immediate response to the problems that students had in class.

Practicality

Because students varied in their language abilities and technological proficiency, some students in a class found the tasks rather difficult. In order to help those students, the teacher introduced the subjects at the beginning of the class, and then showed students how to do the exercises if they had not used the software before. The 'help' function of the programmes also gave students tips to solve linguistic problems in the tasks. Even if the students did not find answers from the programmes, they turned to the teacher for explanation which was the distinct advantage of the semi-instructed class.

7.4.3. Third stage analysis: learning activities in a CALL class

The materials and tasks used in a CALL programme are not enough to guarantee successful learning outcomes. Engagement in learning is also a crucial factor because 'students are often doing something very different from what [language teacher] assumes they are doing' (Hosenfeld, 1976: 123). In this respect, the learning activities relevant to different CALL programmes are also important aspects for evaluation.

7.4.3.1 Language learning potential

In the instructed CALL listening class the learning activities were classified into two types: the student-controlled learning activities on the computer and teacher-instructed learning activities without computers. The first learning activities involved interaction between computers and students. But the nature of the interaction was decided by the teacher. For example, when Teacher A gave the CALL listening class at the University of Hull, she asked the students to do listening activities on the computers. In this case, the computer-student interaction simply involved listening to audio tapes or watching videos on the computer. Comparatively speaking, the student-student and teacher-student interaction which were found mostly in the teacher-instructed learning

activities without computers such as class discussion and role play, were much stronger.

Students' acquisition of target language knowledge was also through the two types of learning activities. The students were exposed to the target language knowledge in the learning activities on the computer, and acquired the knowledge through practice with non-computer-assisted learning activities. However, the effectiveness of the learning activities was affected by the motivation and individual differences of students such as their learning styles, learning strategies and language proficiency in one class.

The students controlled their learning activities in the self-access approach. The interactive relationship between computers and students was strong. Students not only did tasks on computers but also required help and feedback from the computer. Students needed to have good self-management skills in order to achieve good learning outcomes. Otherwise, teachers needed to give advice on how to make the best use of a programme.

The learning activities in the semi-instructed class were under the supervision of the teacher, but in the control of the students. The interactions among students, teachers and computers were direct and immediate. Teacher A at the University of Sheffield observed students' learning activities in semi-instructed CALL listening classes and reported that his students enjoyed doing tasks on the computer. They also enjoyed the discussion with other students and the teacher because the interactive activities kept them motivated and helped their understanding.

7.4.3.1 Learner fit

It was a thorny issue to evaluate whether a learning activity was suitable for individual students because every student was different as regards learning style, language

proficiency and technological proficiency.

It was acknowledged that it was difficult to design a learning activity equally suitable for every single student in the class. In the computer-assisted listening class at the University of Hull, students found that although the materials or tasks might not be suitable for every student in the class, the instruction from the teacher made up for the lack of personalisation of class activities. Students invited the teacher to join their discussion. They asked for explanations or suggestions about their problems in exercises. Through this face-to-face interaction, the teacher knew about individual student's difficulties in their learning and gave them immediate and appropriate feedback.

Compared with the learning activities in the instructed approach, those in the self-access approach were easy to personalise but insufficient as regards interactivity with the teacher and other students. In this approach, students had the flexibility to choosing materials and tasks according to their language levels. They were also able to arrange the appropriate times and places to study. In this sense, the self-access method of learning to a large extent took care of individual students' needs. However, such flexibility also caused confusion to those students who did not have advanced language knowledge or self-study skills. For example, Student 3 at the University of Newcastle reported that she did not know what she needed to improve in listening skills and did not find suitable exercises for herself. Therefore, in the self-access approach, the teacher still played an important role in helping students plan appropriate learning activities.

The learning activities in the semi-instructed approach were controlled by the students. Although the teacher decided what topics and tasks the students worked on in a class session, the students controlled the learning process. The teacher played a supportive role in the class, which helped to make the learning activities suitable to individual

students by answering questions, solving both linguistic and technological problems and suggesting learning strategies and resources for learning.

7.4.3.2 Meaning focus

Chapelle (2001) suggests that reasons for studying the meaning focus of learning activities was that research indicated constructing linguistic meaning helped language learning. With respect to the listening learning activity, meaning focus refers to learners interactively practise listening skills and that learners' attention is directed to the purpose of the tasks.

In the instructed listening class, the interaction in class was active. The students' interactions with the teacher and other students helped them understand the listening tasks. For example, the teacher introduced the topic of listening tasks and explained the relevant grammar and vocabulary, so that students did not be distracted by unfamiliar sentence structures and unknown words, or be confused by the specific cultural background information in listening activities.

The listening activities in the self-access approach did not show much direct interaction between the student and the teacher or among students. The student had to consult a dictionary and use the 'help' function of a programme to check unknown words or grammar rules. The lack of cultural information also affected students' comprehension and distracted them from the purpose of a listening task.

The semi-instructed CALL listening class created an atmosphere for students to interact with the teacher and other students. But the interaction between the teacher and the student only happened when students asked for help. The teacher then gave necessary background information for them to complete the tasks.

7.4.3.3 Authenticity

The study of authenticity of a learning activity seeks evidence that the student's performance on a CALL task corresponds to what they are expected to experience outside the classroom.

In the instructed CALL listening class in the University of Hull, the students listened to authentic materials on the computer, but there were no communicative activities such as making choices or decisions and sequences of proposal, agreement and supporting reasons. Rather the class activities involved such as discussion and role play stimulated the communication in the classes.

The authenticity of the learning activities in the self-access approach in the University of Newcastle depended greatly on the design of a CALL programme. The more a programme encouraged students' communicative abilities in tasks, the more authentic the programme was. For example, College English used interactive online characters to lead students' learning process. The virtual students and virtual tutors played a role in establishing a learning environment in which the students studied and developed the skills that they required in a congenial collaborative atmosphere. The virtual characters served as facilitators of learning, encouraging and praising, as well as giving hints and advice. The virtual tutor also encouraged personal involvement and skill development through experimentation and participation.

The authenticity of the learning activities in the semi-instructed CALL class at the University of Sheffield was similar to that in both instructed and self-access approaches. The authenticity of a CALL programme still played a decisive role in improving students' communicative ability but the interaction with other students and the teacher helped to increase the opportunity of communication.

7.4.3.4 Positive impact

The impact study of a CALL learning activity has two aims: (1) to investigate whether students acquired more language knowledge and learning; (2) to investigate whether students had a good experience of using technology.

It was difficult to decide whether the learning activities in one of the three approaches led to more positive results in learning. The students in the three universities claimed that their listening abilities had improved after training. The evidence came from their scores in the post-tests held by the university or IELTS (International English Language Testing System).

It was interesting to notice that some students (S2 and S3) in the University of Hull claimed that there was little difference between using computers and tape recorders. This was because usually the teacher would upload the listening material to the Merlin and students practised the listening tasks (similar to Real One Player) under the teacher's instruction. It was more like listening to a tape because there was no visual effect. On a contrary, the students in the University of Newcastle and the University of Sheffield found computers were superior to tape recorders in developing listening skills because of the visual effect and variety in materials and they enjoyed the flexibility and immediate feedbacks the computer had offered. Such different opinions of students on CALL programmes were mainly due to the different ways in which the computers were used. Particularly in an instructed listening class, teachers decided how to make use of computers in the class. Therefore, students might not be able to navigate the programme on their own or get the immediate the feedback from computers.

7.4.3.5 Practicality

This criterion in evaluating a learning activity required evidence of whether there was sufficient hardware, software and personal resources for the learner to successfully accomplish learning activities.

Although the three universities in my study employed different approaches to using CALL programmes in training students listening skills, they all provided students with adequate hardware and software. There were teachers accessible to students which supported productive learning activities.

7.5 Conclusion

This chapter evaluated CALL listening programmes used in the three universities. There were three stages of analysis: commercial CALL programmes or self-developed listening programmes, tasks and learning activities. Six criteria had been developed for analysis. They were: language learning potential, learner fit, meaning focus, authenticity, positive impact and practicality.

The first stage of evaluating focused on CALL listening software packages and programmes. There were self-developed programmes such as BBC News Programmes at the University of Newcastle and Text-Deletion of the University of Sheffield; and commercial programmes such as Melissi Digital Classroom of the University of Hull, College English of both the University of Newcastle and the University of Sheffield. Each of these programmes was adapted to the specific learning environments and had distinct characteristics.

The listening tasks in these programmes were varied across the three universities. Even the same type of task was used differently because the learning environments were

different. For example, the CALL task in the instructed class was a part of the whole class activity. The tasks in the self-access approach were varied in types and linguistic levels to make them suitable for different students to choose from. Moreover, the tasks had a 'help' function to give students tips on relevant vocabulary, grammar rules and cultural background information, and provided students with feedback. The CALL task in semi-instructed listening class in the University of Sheffield was in line with the main curriculum which gave students extra exercises. The tasks also needed to be versatile to meet the needs of individual students in the same class.

The learning activities presented distinct features in the three approaches. The learning activity in instructed listening classes in the University of Hull was under the instruction of the teacher. Students had chances to communicate with the teacher and other students face-to-face, but they did not have flexibility in choosing times, places and tasks. The learning activities in the self-access approach in the University of Newcastle were controlled by students. They chose materials and tasks, but there was no direct interaction with teachers and students. Sometimes students needed instruction from the teacher on learning strategies and choice of materials to make their learning activities more effective. The learning activities in the semi-instructed class in the University of Sheffield combined the features of both self-access and instructed approaches. The students controlled their learning process as well as had the instructions of the teacher.

In conclusion, a CALL listening programme encouraged an interactive relationship among computers, teachers and students which increased students' language ability as well as communicative ability.

Chapter Eight

Conclusions and Implications

8.0 Introduction

The main findings of the research are summarised in this chapter. The aim is to review the major points of interest in the previous chapters, to give a brief outline of the problems identified in researching and practising CALL listening and speaking in higher education in the UK, and also to provide some insights on possible solutions. The limitations of the present study and implications for research and practice are also considered.

8.1 Summary of the Main Findings

The main question of the current research is: what is the impact of computer technology on the learning and teaching of English listening and speaking as a foreign language? The study has examined the impact of the use of computer technology on language skill training from three aspects: teaching modules where various approaches have been adapted to use computers for training listening and speaking skills; learning processes, in particular the learning strategies used; and CALL courseware and tasks.

Accordingly, the main research question was divided into three smaller sub-questions:

1. how do teachers design and implement courses within the different approaches?
2. how do different approaches to applying computer technology affect students' listening and speaking as regards to learning strategies?
3. what are the criteria and methods used to evaluate CALL courseware and tasks?

A broad survey isolated three different application approaches in the UK higher education. One university was selected for independent study that exemplified each application.

8.1.1 The impact of computer technology in teaching listening skills in higher education in the UK

The computer-assisted language courses in the Language Centre at the University of Hull were instructed by the teacher. The computer technology was fully integrated into class teaching. The English Learning Centre at the University of Sheffield used both commercial language courseware and self-developed programmes in the listening/pronunciation courses. The courses concerned were semi-instructed, in that the students did the exercises at their own pace with a teacher around to give technical and linguistic support. In the Self-Access Language Centre at the University of Newcastle Upon Tyne, students could access both commercial language courseware and self-developed programmes to practise listening skills. No on-site teacher support was available.

In all these modules, the impact of computer technology on the choice of material, the way of implementing curricula, the roles played by computers and the roles played by teachers were various depending on the approach used.

8.1.1.1. The impact on the choice of course material

In the teacher-instructed CALL class, the interactive activities between teachers and students, students and students, and computers and students were direct and immediate. Compared with the traditional language classroom, the multimedia classroom extended the teacher's choice of material resources from textbooks and tape recordings to videos, audio recordings, CD ROM and Internet materials. There were several

factors which affected a teacher's choice of the course material, such as availability, authenticity, being up to date and liveliness; what concerned the teacher most was whether the material was relevant to the focuses and aims of the syllabus. The biggest challenge for the instructed CALL class was to choose materials which met the diverse needs of every student in the same class because students' English proficiency was varied, and their learning habits were also different.

The nature of self-access CALL gave students flexibility in managing their learning activities. They chose the materials, times and places to study. Exercises set by students were more effective, purposeful and individualised than those set by teachers. However, the effectiveness of students' learning was often affected by the materials provided by computers. First of all, materials needed to be updated often, as did the accompanying tasks. Second, a variety of materials needed to be available in order to meet the needs of individual students, which included both academic lectures and daily conversation. As for academic lectures, it would be better if the selected materials covered a wide range of subjects. Third, the students were able to easily personalise materials and tasks. Personalisation here referred to the fact that students selected tasks in line with their needs, interests and attitudes. However, personalisation of learning activities with self-access materials required good self-management and self-instruction skills on the part of the students; otherwise, teachers' suggestions and guidance were necessary. Last but not least, self-access materials also needed to encourage interactivity between computers and students. Although interaction happened often between students and computers, mostly owing to technological limitations related to hardware and software, it was not easy to achieve computer-student interaction.

Because the nature of the semi-instructed approach resembled both instructed and self-access approaches, the choice of materials combined the features of both approaches. On the one hand, one of the important criteria for a teacher to choose course materials was to meet the specific foci of an individual class. On the other hand,

the teacher also needed to consider the diversity of materials so that the students at various language proficiency levels were able to choose what suited them.

8.1.1.2 The impact on the way to implement the syllabus

In an instructed listening class, the class activities very much depended on how the teacher designed and implemented the syllabus. There were two issues of concern. One was how to make most use of the computer technology; the other was how to motivate students in the teacher-instructed class to participate in class activities.

Compared with the instructed listening class, a common way to deliver a task in the self-access approach was to leave it to be stored on the computers and let students help themselves. Students chose the times, places and tasks. However, there were problems in such an open way of learning, such as how to encourage less motivated students and self-disciplined students to do tasks, how to give feedback to students which was able to answer every individual's questions, how to motivate students who do not often use computers in learning, and how to help students choose suitable tasks.

The semi-instructed approach resembled the self-access approach in the way that students still controlled their learning process. They chose tasks and controlled the learning speed. The semi-instructed approach also resembled the instructed approach. The teacher was often present in the classroom, composed the general arrangement of the topics and tasks that students worked on, and helped students with both linguistic and technical problems. However, one challenge of semi-instructed approach was how to keep an adequate record of students' progress in one class because students' language and computer proficiency vary.

8.1.1.3 The impact on the roles played by computers and teachers

In the different ways of use CALL tasks, the roles played by the computer and the

teacher in the three approaches were also different.

Generally speaking, computers played the role(s) of tool/tutor in all three approaches. As a tool, a computer supported both teachers and students with their teaching, learning and communication. As a tutor, a computer was a temporary substitute for a teacher, evaluating the student's exercise and responding to it.

In the instructed approach, the computer enhanced both teaching and learning activities. In the role of a tool for teaching, the computer did not necessarily provide any language material, but rather empowered teachers to design materials and manage the class. For example, the multimedia assisted the teacher with convenient and simple tools to employ various resources in teaching listening, such as videos, audio recordings, graphics and CD ROMs. In the role of a tool for learning, the computer provided students with a multimedia environment which made learning interesting and dynamic. But in the instructed approach, the computers' ability to facilitate learning and teaching was subject to how the teacher integrated computers into the overall design of the syllabus.

In self-access CALL, a computer was assumed to play the role of tutor. But a successful implementation of the role of tutor required first, a stable condition of technology; second, detailed feedback that a student got from a computer; and last, a variety of choices of learning tasks. When the present computer technology failed to meet expectations, there was still the need for teachers in the self-access CALL.

The role that a computer played in the semi-instructed CALL was a combination of tutor role and tool role. But compared with the self-access use of CALL programmes, the semi-instructed approach eased certain constraints of the tutor role, such as technical problems and detailed feedback because there was a direct communication between teachers and students. At the same time, a computer was also used as a tool to facilitate learning activities. But it was the students rather than teachers who decided

how computers helped in learning.

As for the role of a teacher, in the instructed CALL listening class, a teacher designed the curriculum, chose the material, organised the class activities, evaluated and commented on students' class performance. In the self-access CALL, a teacher was a facilitator to run training sessions on how to make the best use of computer technology before students started computer-assisted language tasks. When students were doing tasks, a teacher was available to solve both technical and linguistic problems. Moreover, feedback from a teacher on students' practice and progress was necessary, particularly when the computer failed to give the specific explanation that students asked for. In semi-instructed CALL, a teacher was an organiser of learning activities, explaining task aims, demonstrating technology and highlighting useful learning strategies. Moreover, a teacher was also a facilitator to help students with both linguistic and technological problems.

8.1.2 The impact of computer technology in listening learning strategies in the three approaches

Learning activities in different learning contexts were distinguished, which reflected on learners' use of learning strategies. As explained in Section 2.2.3, there are two categories of listening learning strategies: to improve students' performance and to comprehend the message. Each category included several learning strategies. In the computer-assisted learning context, the use of learning strategies was affected by how computer technology was integrated into learning activities. Some learning strategies were more important in one approach than others. For example, the strategies of self-management and planning learning were more urgent in the self-access approach than the teacher-instructed approach, because in self-access CALL, students were in charge of their own learning activities. Moreover, some learning strategies were more effective than others in a particular learning context. For example, the strategy of cooperating with others was more direct and immediate in the instructed and

semi-instructed approaches than in the self-access approach, where students often studied independently and only had indirect interaction with teachers and fellow students.

More specifically, the learning strategies used in an instructed computer-assisted class were affected by the design of the curriculum, listening materials chosen by teachers, and teachers' explanation of how to use specific learning strategies. The instruction from teachers put pressure on students, which was particularly helpful to those who were not good at self-management. The teacher's instruction also helped to improve students' concentration. However, the problems challenging the use of the learning strategies in this approach were how to improve interaction among teachers, students and computers and how to make most use of CALL tasks in order to enhance students' enthusiasm in this relatively new way of learning.

In self-access approach, students took the responsibility for managing their learning activities. Students' ability of study independently was varied. Advance language students were more aware of and confident in managing and planning their study than those at the beginning levels. It was necessary to give pre-training to students about learning strategies: how to manage and plan their learning activities; how to understand the effects of culture on learning, how to choose appropriate learning materials, and how to best use the online resources. Therefore, the communication between students and teachers needed to be strengthened by setting up an online community to encourage students' communication, discussion and mutual help. It was also important to provide students with a comfortable learning environment and facilities which improved their concentration.

In semi-instructed CALL, students were able to communicate with the teacher and classmates face to face. The interaction between the student and the teacher needed to be encouraged by introducing pair-work in exercises, class activities such as discussion and role play; and by more involvement of teachers. In the semi-instructed approach,

the pressure resulting from teachers' supervision and flexibility in learning was two important factors which influenced learning efficiency and concentration.

Generally speaking, learning strategies used in the three approaches were affected by the learning context, overall design of the syllabus, teaching methods and individual student's learning styles and their language and technological abilities. But all in all, there were three key issues which affected the use of learning strategies. First, the degree of interaction between teachers, students and computers; second, teachers' assistance in learning activities (to help students arrange and plan learning; to give pre-training to students on both technology and the use of resources); and last, the availability of cultural background information. In self-access CALL, the online resources of cultural background needed to be available to students, while in the instructed and semi-instructed CALL, apart from the online resources, the teachers also introduced the cultural background to help students' listening comprehension.

8.1.3 The impact of computer technology in courseware and tasks

The evaluation of a CALL listening programme presented different levels of inquiry. Section 3.5.3 highlighted three levels of evaluation: the first level of analysis was the courseware used for training listening skills. The second level of analysis referred to tasks and activities chosen, designed and used by teachers. The third level of evaluation was directed at the learners' performance during CALL listening activities and its outcomes, in particular, learners' interactive activities in the three learning environments, namely instructed, self-access and semi-instructed. As listed in Section 3.5.2, six criteria were introduced to evaluate CALL listening activities proposed by Chapelle (2001), namely *language learning potential*, *learner fit*, *meaning focus*, *authenticity*, *positive impact* and *practicality*.

The first stage of analysis was to examine the CALL listening courseware and programmes used in the three universities. There were self-developed programmes

such as the BBC News Programmes at the University of Newcastle and Text-Deletion at the University of Sheffield. There was also commercial language courseware, such as Melissi Digital Classroom at the University of Hull, and College English at both the University of Newcastle and the University of Sheffield. Each of the courseware modules or suites was adapted to the specific learning environments and had distinct characteristics.

The second stage of analysis involved examining the listening tasks. Generally speaking, a successful task was interactive and focused not only on language proficiency but also on improving students' learning strategies and their understanding of cultural background. However, even the same type of tasks was used differently, because the learning environment was different. For example, tasks in the self-access approach covered a range of types and linguistic levels to provide students with an adequate range of choice. Moreover, each task needed to have a 'help' function to give students tips on relevant vocabulary, grammar rules and cultural background information, and to provide students with feedback. In the instructed CALL class, the tasks needed to be in line with the curriculum. But it was difficult to design tasks suitable for individual students in the same class. One solution to this dilemma was to increase interactive learning activities, so that students were able to have more chances to discuss with teachers and classmates. CALL tasks in a semi-instructed listening class were normally supplements to the main curriculum, giving students extra or extended practice. Moreover, the tasks also needed to be versatile to meet the needs of individual students in the class.

The last analysis involved the learning activities themselves. The learning activity in an instructed listening class was under the instruction of the teacher. Students had chances to communicate with the teacher and other students, but were not able to choose tasks. On the other hand, the learning activities in the self-access approach were controlled by students. They had flexibility to choose materials and tasks, but there was no direct interaction with teachers and other students. Sometimes students

needed instruction from the teacher about learning strategies and choice of materials to make their learning activities effective. The learning activities in the semi-instructed class combined the features of both self-access and instructed approaches. Students controlled their learning process as well as being taught by the teacher.

8.2 Problems in Researching CALL Listening and Speaking in Higher Education in the UK

After three year's research, I have identified a range of theoretical and practical problems of researching CALL listening and speaking practice in higher education in the UK. This section examines these problems in terms of conceptualisation of CALL, CALL practice and research methods with a specific perspective on language acquisition. The purpose is to identify the gaps in CALL theories, to improve our understanding of CALL practice, and ultimately to find the better way of applying computer technology in learning contexts.

8.2.1 Problems in conceptualising CALL listening and speaking

Despite the increasing interest in studying CALL listening and speaking in recent years¹, the effectiveness of CALL applications has also been questioned. Skepticism mostly concerns how to make appropriate use of the computer technology in listening and speaking instruction and how to integrate CALL materials into different learning contexts, such as instructed classes and self-access centres of various types. The skepticism is largely due to a gap between CALL concepts and practice, or more specifically, a lack of guidelines or standards for the present generation of CALL materials...CALL authors have no reliable conceptual framework, or yardstick by which to measure their work (Levy, 1997: 4; Smith, 1988: 5; Last, 1989: 35).

¹ For example, in one of the leading CALL journals, *Language Learning and Technology*, four out of five papers on listening and all of the seven papers on speaking have been published since 2000.

In order to make up the gap between CALL theories and practice, researchers and CALL teachers have been seeking a general solution to conceptualising CALL. However, the attempt to set up a sound theoretical framework for CALL listening and speaking practice has encountered difficulties. Special attention needs to be paid to the following four problems.

8.2.1.1 One needs be cautious about drawing theories from other disciplines

Given that CALL listening and speaking is a relatively new and interdisciplinary research field, it is no surprise that CALL researchers have borrowed established theories from a number of other fields and disciplines. This cross-disciplinary research has a number of acknowledged advantages of the development of CALL in general. For example, it helps to further the understanding of CALL activities. However, there is always the danger that the theories drawn from other disciplines cannot show clear links and can only give partial explanations for CALL. As Chapelle notes:

The uncritical statement that another area may be relevant for the study of CALL threatens to make the search for research paradigms a wild goose chase. What is needed to appropriately draw from other disciplines is a clear notion of exactly what they have to offer to the development, use, and evaluation of CALL.

(Chapelle 1999: 108)

Theories from other disciplines have had a valuable influence on CALL including listening and speaking, but many of these disciplines are relatively new in themselves such as educational technology (i.e. study of speech recognition, multimedia and video conferencing) and sociocultural theory² and their influence on CALL is not yet clear. Bearing in mind the complexity of interrelated theories, CALL researchers have to be

² Researchers have used ethnographic methods to investigate the sociocultural and classroom contexts in which second language acquisition occurs (Watson-Gegeo, 1988).

cautious and selective when using theories from other disciplines to explain CALL activities.

8.2.1.2 Theories from other disciplines need to be applied to CALL listening and speaking research appropriately

Even if relevant theories from other fields and disciplines are chosen to help our understanding and interpretation of CALL, there is still a problem of adaptation—how to apply those theories to CALL listening and speaking study appropriately. As Nunan comments in the case of language teaching:

It (language teaching) has suffered from the misapplication and misinterpretation of theory and research from other disciplines.... This has led to a number of undesirable outcomes. Instead of a cautious programme of research and development, the profession has been characterized by a series of fads and fashions.

(Nunan 1988: 174)

As for CALL listening and speaking, the application of theories from other disciplines such as psycholinguistics, communication theory, interactionist theory and second language acquisition need to be in line with practice. For example, interactionist theory provides a number of hypotheses to explain, design and evaluate CALL listening and oral activities (Jeon-Ellis, 2005). However, more study is needed to investigate the research questions that the theories suggest in a CALL environment (Chapelle, 1999). In order to develop an appropriate way to apply theories from other disciplines to the CALL research agenda, it is necessary to undertake empirical studies driven by research questions. The evidence gathered from the empirical study of CALL would give researchers a deep insight into CALL activities and help them to detect the problems of a research programme, which in turn would help in conceptualising CALL

activities. The importance of empirical study can be explicated in researching CALL from the SLA perspective.

8.2.1.3 Theories from SLA have serious implications for CALL listening and speaking research, but there is a need for empirical studies

The SLA literature contains work representing a variety of objectives and approaches for investigating the process of second language acquisition and development. In particular, several theories of SLA have reliable research methodologies available to properly frame hypotheses and evaluate the result of CALL listening and speaking practice. The implication of SLA theories to CALL listening and speaking has been addressed in the CALL literature by a number of researchers (Hoven, 1999; Jiang & Ramsay, 2005; Jones, 2004). The theories of SLA that have been used in CALL study include interaction hypotheses, communicative language theory, and instructional design. However, the very abundance of SLA theories has brought problems to conceptualisation of CALL. As Burston points out:

The failure to provide a firm research base for CALL certainly has not come about for any lack of Second Language Acquisition (SLA) theory to follow. On the contrary, the problem with respect to language learning theory stems from the superabundance of theories to choose from and, concomitantly, no well-defined, generally accepted theoretical basis for SLA.

(Burston, 1996: 31)

Burston further explains the reason for this problem:

The heart of the problem is the monumental chasm which exists between those in linguistics (psycho-socio-applied, as the case may be) concerned with theory construction, on the one hand, and those involved on the chalk face of language

teaching in the classroom (at whatever educational level).

(ibid.)

The main point of his statement is that there is a gap between the theoretical framework of SLA and the CALL practice. One of the effective ways to bridge the gap is 'a perspective on CALL which provides appropriate empirical research methods for investigating the critical questions about how CALL can be used to improve instructed SLA' (Chapelle, 1997: 21). Chapelle (1997) further explains that the empirical research methods for instructed SLA have evolved from the L2 classroom research of the 1980s which investigated classroom processes largely through documentation and analysis of the language used by participants in the classroom (Allwright, 1988; Allwright & Bailey, 1991; Chaudron, 1988; Day, 1986; Van Lier, 1988). As a result, discourse analysis has become a mainstay as a means for teachers and researchers to investigate L2 classrooms (Chapelle, 1997: 21). As explained in Section 4.5.1, methods such as user-behaviour tracking and Think Aloud are also practical means to study learning behaviours and evaluate a computer learning system.

8.2.1.4 Research topics need to be expanded

A glance at the CALL listening and speaking literature in the recent decades suggests that there are in general, five main research focuses: on theories, on learners, on learning tasks, on technology and on research methods.

There are three concerns in generating CALL research topics for listening and speaking. First, the interdisciplinary research on CALL makes the research topics diversified, but only those which are in line with current CALL applications can provide useful guidance for practice. Therefore, when selecting the research topics, the researcher needs to consider the significance of research topics to the development of CALL practice. The second concern is that there is a need for more study on the

research methods themselves. The research methods used in current CALL studies are similar to those in SLA research, including observation, interviews and questionnaires. But these methods could also be problematic in studying CALL practice; for example, they are not ideal when it comes to observing students' learning activities on computers, collecting data on distance learning activities, or collecting and evaluating data on new types of learning via email and mobile technologies. A third concern is particularly about the study of CALL speaking study. A glance through relevant literature since 2000 shows very little reference has been made to the role of computer technology in oral language development. For example, an analysis of the titles of all of the articles that appeared in one of the leading CALL journals, *ReCALL*, between 2000 and 2004 reveals that the word "oral" appeared only twice. More frequently, references tend to deal with written communication forms such as tandem learning via email, discussion forums or text-based chat-rooms. Moreover, most of the studies on voice communication involve pronunciation instruction rather than speech skills. In fact, the technology available such as voice-chat, video-conferencing and web camera makes it possible to conduct more complicated training on oral conversation. As a result, more studies are needed to explore computer-assisted speech training on the conversational level.

8.2.2 Problems in practising CALL listening and speaking

The three commonly recognised language learning contexts were, as stated above, self-access, instructed and semi-instructed learning. In these learning contexts, the ways to apply CALL programmes, the design of syllabi, the instruction methods and learning activities were varied. CALL practice in each of the learning contexts had its limitations.

8.2.2.1 Self-access CALL listening

There were several common misunderstandings about self-access CALL.

First, the self-access programme was assumed to be self-instructed. It was true that some students who had good skills in self-management and self-instruction achieved their learning purposes, but many did not. There was still a need for teachers who answered questions, provided technical support and gave feedback and suggestions.

Second, 'self-access' was assumed to be a concept equivalent to 'autonomy'. When students studied without teachers, they were assumed to be autonomous learners. The concept of autonomy, however, was not that simple.

According to the theory of adult education, the autonomous learner is capable of managing, monitoring and evaluating his or her own learning; and this capacity for self-regulation enables the learner to transcend the barriers that pedagogy often erects between learning and living.

(Barnes, 1976: 30)

In reality, the presence of autonomy in learning was not guaranteed, because no single student was a fully autonomous learner. A student who displayed autonomy in one area might not be autonomous in another (Little, 1991).

Last but not least, self-access study was assumed to be less interactive because students studied on their own. Self-access study was an independent and to some extent, an individualised form of study, but it was unlikely to compensate for the necessity of interaction. In self-access study, interaction happened more often between students and computers.

A self-access CALL programme emphasised the interaction between students and computers. Students had more control over their learning progress. They interrupted the interaction by asking for help or requesting a repetition or requesting a subtitle, or

skipping to the next activity. As Chapelle states:

The computer programme created the opportunities for modified interaction by offering modified input to the learner upon demand. The data documented that the learner actually engaged in modified interactions and received the modified input, thereby constructing potentially beneficial interaction.

(Chapelle, 2001: 59)

There were three critical issues affecting the quality of student-computer interaction. First, technological advances. A sound condition of technology available was necessary for a productive learning activity. Besides, state-of-the-art technology expanded interactive activities. For example, there was a new research tendency to create a Visual Language Tutor (VLT), a piece of language learning software that contains an agent (an animated 3D-figure) that you talked to, and that talked back to you (Beskow, 2003; Granström, 2004). Second, detailed feedback. A computer gave sufficient help, tips and feedback when a student requested it. Third, a variety of choices of learning tasks which individualised a practice according to a student's needs.

However, such technology was unlikely to obviate the need for teachers in a self-access CALL programme. It was necessary and important for teachers to run the programme and give support to students because the system needed to be maintained; programmes needed to be updated regularly; and students needed help when they required it.

8.2.2.2 Instructed CALL listening

In this context, computer activities were integrated into the lesson as a whole. A number of authors stressed the importance of carefully integrating CALL work into the

curriculum (Hardisty and Windeatt, 1989; Garrett, 1991). Teachers played an important role in successful integration by choosing course material, designing and implementing pedagogy.

It was also not easy for the teacher to achieve successful integration. For example, as a course designer, a teacher needed to choose materials that suited all students. As a technical supporter, a teacher needed to keep up with fast-developing technology. And as a knowledge resource, a teacher needed to meet every student's needs and gave students feedback.

8.2.2.3 Semi-instructed CALL listening

In the semi-instructed approach, teacher-student, student-student and student-computer interactive activities were flexible and open-ended. Although a teacher's presence helped learning in many ways, it was difficult to take care of every single student especially in a class with a large number of students.

8.2.3 Problems in research methods

8.2.3.1 The choice of research methods was constrained by accessibility to the sample

One of the difficulties in carrying out research in CALL listening and speaking was gaining access to programmes and students. First of all, it was not easy to locate appropriate computer-assisted language learning programmes. An important constraint on the use of CALL programmes in subjects and classes was the amount and range of CALL resources available to students and teachers (Lam, 2000; Strudler, et al., 1995; Warschauer, 2002). Many language centres in the UK universities and other educational institutions just installed CALL programmes on their computers in the language lab, but had limited integration with regular class teaching. Such limited use

of CALL programmes was mainly due to teachers' interest, time, effort and technical capability. As some of the teachers whom I interviewed reported that they had rigid curricula which left them with no time to integrate CALL. They already struggled to find enough time to complete the required agenda each year. There never seemed to be enough time to incorporate CALL activities.

The difficulty was emphasised by the size of sample. It was difficult to find a large size of sample students to implement a sound quantitative survey in the current study. Especially when a CALL programme was a supplement to the major curriculum in the language centre, it was up to the students as to whether they were willing to do extra practice in their spare time. Student's motivation was usually affected by the availability of the facilities and their course schedules.

8.2.3.2 Research methods borrowed from other disciplines need to be adapted to a CALL context

Computer technology has created a new dynamic field for research. In order to investigate the various topics of CALL including the features of learning activities, appropriate teaching methods, ways of designing and delivering CALL materials, and peripheral features of CALL with other disciplines such as sociology, culture, psychology and second language acquisition, well-established research methods such as questionnaires, interviews and observation have been introduced to this relatively new research field. However, the methods chosen must be appropriate to the setting and the technology under study (Egbert et al, 1999).

8.3 Significance of the Current Research

8.3.1 Three approaches of using computer technology in teaching and learning listening skills have been identified and explored

One of the findings of the current research is to define three approaches—instructed, self-access and semi-instructed of CALL listening application in higher education in the UK. It has also identified the problems. By studying the three approaches, I have been able to draw up a framework for analysis and apply it to examine the impact of computers on teaching and learning listening in terms of teaching methods, learning strategies and CALL programmes.

Another finding of this research is that the interactive relationship in the three approaches has been summarised in Figure 5.1, Figure 5.5 and Figure 5.6. The interaction in the CALL listening class is influenced by the four elements, namely, the choice of teaching materials, the way of designing and presenting learning tasks, the roles played by computers and the role played by teachers. The thesis examines the four elements in the three approaches in order to offer a better understanding of CALL listening instruction.

8.3.2 The current study offers an empirical example for both theoretical research and practice

The case studies in the three UK universities offer examples of how to integrate computer technology into listening and speaking curricula. The empirical study will help to understand the theories (i.e. interactionist theory, learning strategies) which underpin the practice and also help to identify the gap between theories and practice.

8.3.3 The current study offers a review on CALL listening and speaking practice

Chapter 3 has comprised a review of CALL theories and practice. It identified the current major research focuses of CALL and major CALL theories. It also discussed the strength and limitation of CALL application methods, in particular, those related to listening and speaking, and examined the evaluation criteria and methods of CALL programmes so that practice related to the use of computer technology can be

evidence-based.

8.3.4 In-depth interview as a research method has been adjusted to a CALL research context

The in-depth interview as a research method is not new in researching social science, but it is not commonly used in the research agenda of CALL. The current research adapts the method of in-depth interview into the CALL research. It also examines the advantages and disadvantages of applying this method. Therefore, it provides an example of using in-depth interview to investigate CALL practice.

8.4 Limitations of the Current Research

8.4.1 Size of the sample

The size of the sample poses a constraint to this study. The fact that the findings are only based on the data collected from in-depth interviews suggests a limitation in the scope of the study. It should be noted that the present study involves a small sample, which has made it inappropriate to generalise the results. However, this research can provide some new insights as it includes the perspectives of both teachers and students from three universities.

8.4.2 Limitation of research methods

Another constraint on the present research is research methods. The difficulties of collecting data are explained in Chapter Four. The limited accessibility to the sample students and programmes excludes the possibility of using quantitative research methods like questionnaires, though it was possible to use a written evaluation report from one of the universities as secondary data, and follow-up interviews improved the consistence of data.

8.4.3 Lack of in-depth study on speaking

It has to be stressed that due to the limited practice of using CALL programmes in speaking training, it has not proved possible to undertake an in-depth investigation into the impact of computer technology on speaking. Among the three universities, the teacher at the University of Hull suggested that students made use of the speaking training facilities in the Mellisi Programmes, but due to the failure of technology, none of the sample students in this research actually used the speaking tasks. The sample students in the University of Newcastle rarely used speaking programmes due to the design of the programmes (i.e. lack of feedback), the cluster learning environment and technical problems (failure of sending sound files). Only two of the sample students in the University of Sheffield used computers to practise pronunciation. In such circumstance, it was difficult to get sufficient data to investigate the impact of the computer technology on speaking skills.

8.5 Implications for Future Research and Practice

The present study is broad in scope, which leaves room for more in-depth research to be done in a number of areas. Some appear as an extension of the implications presented above, while others relate to issues that would overtax the framework of the present study but might be relevant for the field addressed by this study. Some of the issues that might be pursued by researchers are suggested below.

8.5.1 The need for further research on CALL theories

Computer-assisted language learning is a relatively new way of learning. The theoretical study of CALL needs to pay a closely attention to the latest developments in computer technology, CALL programmes and application approaches. Theories from other disciplines provide multiple perspectives on CALL practices, but those theories should be filtered and carefully localised before they can be adopted to CALL research.

8.5.2 The need to increase interactivity in CALL practice

The interaction among teacher, students and computers needs to be improved in CALL practice. To be specific, the ways to improve interaction include, first, giving students sufficient feedback both from teachers and computers; second, helping students to solve both linguistic and technological problems; third, giving students pre-training in both technology and the content of CALL programmes; and last, to increase interactive learning activities like group discussion, either online or face-to-face.

8.5.3 The awareness of the gap between CALL programme design and practice

In the current research, it has become clear that there is a gap between CALL programme design and practice, particularly in terms of commercial programmes. This is mainly due to the lack of understanding of the needs of students and teachers. For example, College English has a number of design flaws such as a lengthy registration procedure, inflexibility in navigating the whole programme, and no 'print' function. These design bugs have made this programme difficult to use and unpopular among students. Therefore, it is necessary that CALL programme designers understand the needs of CALL teachers and students so that the programmes can be more practical oriented.

8.5.4 Creating appropriate ways to make best use of the speech technology available

The combination of various media and techniques has always existed, but most CALL-based teaching and learning has tended to focus on non-oral activities such as software or Web-based reading, writing, or gap-filling type activities. Felix (2001: 47) lists 'lack of speaking practice' first on the students' list of disadvantages of using Web-based programmes for language, along with 'distraction', 'no interaction with peers', 'inadequate feedback', and 'absence of a teacher'. Even if computer technology

has been applied to speech instruction, speech recognition software lends itself mainly to drill-type activities (Barr, et al, 2005).

In order to make best use of what technology has offered, it is important for teachers and software developers to search for appropriate ways to integrate technology into the existing pedagogies for instructing oral ability. As Goodfellow, Jeffreys, Miles, and Shirra note, 'we have to plan for it (videoconferencing) and adapt our teaching and learning methodologies accordingly. In that way, we will be able to enhance, rather than merely repackage, the educational service we offer' (1996: 16).

8.5.5 Research methods need to be refined in order to get more and better training data

In order to get more and better training data on CALL listening and speaking practice, traditional quantitative and qualitative methods such as questionnaires and interviews need to be refined to adapt to the relatively new research context. The research methods relevant to the use of technology, such as email and online chat, offer researchers flexibility of time and place. But special attention needs to be paid to the stability of technology, and the validity of the data collected from synchronous and asynchronous communication.

8.5.6 Topics for future research on CALL listening and speaking

Teaching and learning listening and speaking skills by computers are still relatively new research areas. The potential research topics in these areas are: first, study about the adaptation of traditional research methods and the use of technology-related methods is needed in order to establish appropriate research methods for future research.

Second, study on listening and speaking practice in the distance learning environment.

The present study focuses on campus-based teaching and learning activities. As the distance learning is an important part of the CALL practice, it is necessary to examine the impact of computer technology on teaching and learning listening and speaking skills in the distance learning environment.

Last, the methods and criteria for evaluating CALL listening and speaking programmes. Since there are more and more CALL programmes available, new methods and criteria are needed for evaluation. The criteria will also give guidance to the CALL programme designers and CALL teachers who are interested in developing their own CALL tasks.

8.5.7 Recommendations for CALL teachers

In spite of the fact that it is not one of the purposes of current research to give recommendations for CALL teachers, I would like to point out some of the issues which are worthwhile knowing for them, based on the results of this study.

8.5.7.1 CALL material needs to be updated, authentic and diverse

The study material is an important part of CALL programmes. Although students from three universities experienced different ways of using computer technology to improve their listening skills, a common feedback from the students has been that they are expecting the materials used in CALL programmes to be updated, authentic and diverse. It is down to the study material to reflect what is happening in the real life, and it has to have various contents and levels so that the students can choose tasks in line with their knowledge of the language and their interests and needs.

8.5.7.2 Teachers need to easily accessible by students

Teachers play an important role in the CALL class, no matter how much computer

technology is implemented into the curriculum. Although students can get feedback and on-line help from computers, the answers given by computers are usually not specific and not sufficient to explain every single mistake. In this sense, it is necessary to have qualified staff available for solving any technical and language issue that might arise.

8.5.7.3 Pre-training to students on CALL programmes is necessary

It is usually assumed that CALL material can be made available to students without tutor-supported training sessions. However, not every student has a sufficient level of computer literacy and competence in handling software programmes. It is therefore necessary to give students sufficient training in using the technology, together with an understanding of the content and structure of the courseware, and to suggest ways how to use the material. The reasons for this are, first of all, the fact that some students come from countries which are not as computer-literate as others. It may take them a long time to get used to a new way of learning, where the learning processes is assisted by computers. Secondly, because of different education systems and mentalities, some students like to be told by their teachers what to do in and after class. Therefore, they feel uncomfortable and lost if they have to make decisions about their study. Thirdly, it will help students to plan their study if they understand the contents and overall structures of the materials they will use. And the last, but not least, teachers can give suggestions on how to efficiently use courseware and leave students the options of choosing what is best for them.

8.5.7.4 Interactive activities need to be enhanced in CALL programmes

Interaction among students, teachers and computers in computer-assisted listening activities relies on the materials in use, the syllabus, and the roles played by computers and teachers.

In the instructed CALL listening class, interactive activities between teachers and students, students and students, and computers and students are direct and immediate. Teachers need to consider what kinds of class activities are appropriate in order to enhance the active participation of students in class. Class activities like discussion and role play can stimulate students' interest in learning and encourage class interaction. In the self-access approach, students are supposed to work on computers without the presence of teachers. Although there is a direct interaction between students and computers, the role of a computer cannot be simply generalised as a substitute teacher. It is also important that teachers consider various needs of students when they choose material, deliver tasks and support students both in language and technology. In the semi-instructed approach, the interactive activities between teacher-student, student-student and student-computer are flexible and open-ended. However, teacher-student interaction is not easy. As a course designer, a teacher needs to choose the material which suits all students and keep assessing students' progress in practice; as a technical supporter, a teacher needs to keep up with a fast-developing technology; and as a knowledge resource, a teacher needs to meet the needs of every student.

8.6 Final Remarks

In conclusion, this investigation addressed the impact of computer technology on teaching and learning English listening and speaking skills as a second language in higher education, with a specific attention to listening. The study identified and classified three major approaches of using CALL listening programmes in language centres in three UK universities. The findings of this study have implication for the use and evaluation CALL listening programmes in various learning contexts. This study also contributes to the understanding of how different research strategies are adopted in order to explore new and evolving research areas such as CALL programme use from a pedagogical perspective.

Problems in researching elearning in terms of theories, practice and research methods

research are also identified. The solutions to the problems will almost certainly require changes in technology, in attitudes, in approach, and in practice among teachers and students. This change will not be an easy process. However, if we are committed to finding solutions from the reality, from practice, from empirical study with teachers and students, and then working for ways of achieving them efficiently, computers can finally achieve their proper place and potential in education.

Appendix 1

E-mail Questionnaire for the Preliminary Study

1. Does your university provide opportunities for

- (a) Listening
- (b) Speaking
- (c) Speaking and listening

via networked computers?

Then, describe briefly how this works?

2. Do you have records or data collected on the effect of computer networks on teaching or learning speaking and/or listening?

If possible, I would like to have further contact with you. Please send me the addresses of other key people in your institution.

Appendix 2

Post Questionnaire for the Preliminary Study

Dear Sir or Madam,

I sent out a mini-questionnaire at the end of October by email and received replies from 30 universities. They were from: South Bank University, University of Central England, University of Sussex, University of Ulster, London Metropolitan University, University of Bath, University of Leeds, University of Bangor Wales, University of Manchester, University of Loughborough, University of Warwick, University of Edinburgh, University of Southampton, University of Salford, Oxford Brookes University, Coventry University, SOAS, UMIST, Reading University, Nottingham Trent University, University of London, Anglia Polytechnic University, University of Exeter, University of Hertfordshire, Queen Margaret University College, University of Surrey, University of Glamorgan, University of Roehampton, University of Kingston and University of Hull.

The information you kindly provided turns out very helpful to the piloting work of my potential research. Based on this response, I have structured another more formal small questionnaire to seek for further detailed information. It really would be appreciated if you could answer the following five questions in detail so that I could have a clearer picture of your programmes.

You can be absolutely sure that the information you provide will be treated as confidential.

1. How do you use networked computers to assist in teaching listening and/or speaking? Could you describe your practice in more detailed ways?
2. What are the commercial programmes used in your universities to teach listening and/or speaking via computer networks?

3. What are the programmes developed by yourselves and used in your universities to teach listening and/or speaking via computer networks?
4. What are your plans for the future development and use of programmes?
5. What are the papers published on teaching listening and/or speaking via computer network by staff or students in your university?

Appendix 3

Questionnaire on 'Strategies for Learning English with the Help of a Computer'

This questionnaire is for the research project based at the University of York, looking at how international university students learn to listen and speak English in the language lab. I would be very grateful if you would complete the questionnaire. I have made it as short as possible (only 21 questions), so it should not take MORE THAN 10 MINUTES to complete it. Your personal information is just for research purposes and will not be sent anywhere else.

Name:.....

Email:

Date:

1). Age: 18-21 []; 22-25 []; 26 + []

2). Gender: Female []; Male []

3). Nationality:.....

4). What are your native languages?.....

5). How long have you been in the U.K.?.....

6). What level are you studying at?

university undergraduate university graduate

7) What academic course are you studying?.....

8). How long have you been studying English?.....

less than one year

1 to 3 years

more than 3 years

9). Do you consider yourself in general to be...

a. gifted language learner

b. above average language learner

c. average language learner

d. poor language learner

10) Have you used a computer to learn listening and speaking in a foreign language before?

Yes No

If YES, what kind of courses did you have?

computer-assisted listening/speaking taught courses

self-access with the practice on the computer with teachers' help

self-access with the practice on the computer without teachers' help

11) Do you like using computers in learning listening and speaking?

Yes No

12) Do you feel competent at using a computer to learn listening and speaking?

Yes No

13) You had to describe your knowledge of English now, which of these statements

would be most appropriate?

	Basic Knowledge	Working Knowledge	Fluent
Listening			
Speaking			

14) What kind of listening/speaking classes do you have now? (Please tick all that apply)

	Computer-assisted taught class	Open self-access computer programme	Non-computer-assisted taught class
Listening			
Speaking			

15) When studying a foreign language on the computer, do you think it is useful if...(please tick one reply)

a. the teacher indicates exactly what to do and controls your activity as much as possible.

b. the teacher indicates in detail some activities but lets you organize independently a good part of the work.

c. you organize your study completely independently.

16) The following questions are concerned with your listening practice in the computer-assisted class. (Please tick the reply.)

If you tick 'disagree', please write down the reasons.

	Agree	Disagree	Reasons for the disagreement
I can easily concentrate on practice during the class.			
My listening class is well arranged, so I can easily understand the aim of practice.			
I have enough chances to practice in class.			
The practice on the computer is similar to the day-to-day situation.			
I can control the progress of the practice.			
I am developing cultural background knowledge through practice with the computer programme			
I can easily get hints or answers to the exercise questions from the computers			
I can evaluate my practice during or after			

a task.			
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17) The following questions are concerned with your speaking practice in the computer-assisted class. (Please tick the reply.)

If you tick 'disagree', please write down the reasons.

	Agree	Disagree	Reasons for the disagreement
The practice in the lab is natural and realistic.			
I feel relaxed when doing speaking practice on the computer.			
Normally, the speaking practice is interesting and encouraging.			
I have enough chances to practice on the computer			

My practice is corrected during or after practice.			
I evaluate my practice after the task.			
I am improving my cultural background knowledge through the practice.			

18) Which aspects of the course are the most enjoyable? Put 1 against what is the most enjoyable, 2 against the next most enjoyable, and so on down to 5, for the least enjoyable.

<i>How enjoyable are the following?</i>	1	2	3	4	5
the structure of the module					
the instruction from the teachers					
the participation by the learners (i.e. you)					
your control of the learning progress					
the software used in class					

19) When you are doing practice on the computer, are you often distracted, or bored by the practice? If YES, please state the reasons.

20) Which is the aspect of the computer-assisted listening and speaking learning you consider most useful? And why?

(a) listening

(b) speaking

21) Do you use computer to practice listening or speaking after class? If YES, what software have you used?

i. listening

(b) speaking

22) What are your suggestions for improving the computer-assisted listening and speaking courses?

23) Do you have any other comments about your language learning experiences with the computer that you would like to tell me?

Appendix 4

Outline Interview Schedule

1. Compared with your learning experiences without the computer, what are the advantages and disadvantages of the computer-assisted listening courses?
2. Compared with your learning experiences without the computer, what are the advantages and disadvantages of the computer-assisted and speaking courses?
3. What difficulties do you find in listening exercises on a computer? What are your difficulties? Please cite one or two examples.
4. What difficulties do you find in speaking exercises on a computer? What are your difficulties? Please cite one or two examples.
5. Some people say they feel shy or embarrassed expressing themselves in the foreign language in the classroom. Have you ever felt this way in the lab? Can you explain?

If you HAVE experienced some of these feelings, what did you do to overcome them?

6. Do you find computer-assisted learning ENCOURAGES or DISCOURAGES your use of English after class? Please explain.
7. Do you think it is important that tutors should teach you strategies to overcome difficulties?

8. What is your suggestion for your computer-assisted listening classes?
9. What is your suggestion for your computer-assisted speaking classes?
10. Do you have any other comments about your language learning experiences that you would like to tell me that relate to the topic of the research?

Appendix 5

Interview on Teaching Methods

1. How long have you taught computer-assisted listening classes in the lab?

How long have you taught computer-assisted speaking classes in the lab?

2. Have you taught listening in the classroom?

Have you taught speaking in the classroom?

3. What do you think are the advantages and disadvantages of computer-assisted listening teaching?

4. What do you think are the advantages and disadvantages of computer-assisted speaking teaching?

5. Do you agree that the computer frees you from course 'chores'?

6. How far does it constrain your ability to teach the class as you would wish? Why?

7. How do you design your listening and speaking curriculum?

8. What kind of materials do you use in your teaching in the lab?

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9. How do you carry out the exercises in the lab?

 10. From your experience, what is the influence of the computer on students' learning (or more specifically, learning strategies) in the lab? Have you noticed any special cases in your class?

 11. What do you consider the noticeable differences that the students encounter in the lab and in the classroom, such as their work methods, interaction or collaboration patterns and concentration?

 12. What are your comments on the software in use?

Appendix 6

Summarisation of Interview Data

Responden -ts	1	2	3
Q1	<p>Advantages:</p> <ul style="list-style-type: none"> ● The most important thing for the computer learning is that we (students) can choose the topics we like, speed, situation and time. ● I can learn how to listen and the listening strategies through the computer-assisted learning and have improved my understanding in real life. <p>Disadvantages:</p> <ul style="list-style-type: none"> ● We cannot communicate with the computer. 	<p>Advantages:</p> <ul style="list-style-type: none"> ● Using computer to practice listening is more convenient. ● It is interesting to use College English. <p>Disadvantages:</p> <ul style="list-style-type: none"> ● I have to follow the process designed. If I cannot understand a section, I cannot reverse it and have to follow the procedure. 	<p>Advantages:</p> <ul style="list-style-type: none"> ● It's good for learning listening. It's more natural. ● I can choose the content, so the way of learning is positive. <p>Disadvantages:</p> <ul style="list-style-type: none"> ● It's impossible to learn listening by myself with computers. I need the instruction from the teachers.
Q2	<p>Advantage:</p> <ul style="list-style-type: none"> ● The computer learning programme is vivid. 	<p>Advantages:</p> <ul style="list-style-type: none"> ● Pronunciation is very useful. I can listen to a 	N/A

	<p>And use the similar situation as what happens in the real life.</p> <p>Disadvantage:</p> <ul style="list-style-type: none"> ● I don't know how to pronounce from the computer. I only can hear the sound, but how to pronounce it. ● In the traditional class, the teacher can show the student how to use the tongue, but computer cannot. For example, the Chinese students always confuse /n/ and /l/, /v/ and /w/. 	<p>correct pronunciation or a word, and then record my voice and compare it to the (sample).</p> <p>Disadvantages:</p> <ul style="list-style-type: none"> ● I find it (CALL) is quite boring. ● I cannot be concentrated for long time. 	
Q3 and Q4	<ul style="list-style-type: none"> ● I feel speaking is a little bit difficult. Although the computer can record my pronunciation, but I don't know how to improve it and which 	<ul style="list-style-type: none"> ● I don't have any technological difficulties. To be honest, I don't like using computer. I am that kind of person who is out-of-date. 	<ul style="list-style-type: none"> ● I don't have many difficulties in computer learning.

	<p>way (to pronounce) is correct.</p> <ul style="list-style-type: none">● I don't receive enough feedback from the computer. I need feedback of my performance, or how can I know if my listening and speaking has been improved● Sometimes the operation of most software is not very effective, if we click some button, we have to wait for a short time to access. Sometimes, if we are bored of the topic, we have to finish and cannot skip.'● I am computer science major student. I love the computer so much. But I am easily distracted when using computer. I think listening practice is the best part of the		
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	<p>software, because the situation is real and the speakers are the native English speakers. But as for speaking, can you imagine how to speak with a computer? But the computer can teach us how to pronounce, and useful daily phrases.</p>		
Q5	<ul style="list-style-type: none"> ● When using computer in learning, I feel more relaxed. But I prefer to talk to people. This is a technological issue that how to humanise computer programme. 	<ul style="list-style-type: none"> ● It's the same to me. I think I am not reserved. I always feel free to talk what I am thinking about. 	<ul style="list-style-type: none"> ● Sure, speaking to computers is much easier than to teachers. I feel more relaxed.
Q6	<ul style="list-style-type: none"> ● It encourages me to use English after class. 	<ul style="list-style-type: none"> ● I don't feel the difference. 	<ul style="list-style-type: none"> ● What I learned on the computer (for listening and speaking) is also useful in normal life.
Q7	<ul style="list-style-type: none"> ● Although computer is useful, but we still need teachers to find out the problems and 	<ul style="list-style-type: none"> ● I believe the technology can never replace a real person. 	N/A

	<p>difficulties in learning.</p> <ul style="list-style-type: none"> ● If at the beginning of each session, the teacher can clarify the strategies will be used in the class, I will pay more attention to these strategies. 		
Q8 and Q9	<ul style="list-style-type: none"> ● The listening class is ok. We can learn a lot of things from the listening class. ● I am wondering if a company can invent global software to learn speaking on line. The software can be divided into different parts. And it will allow a lot of people learning together. It is like an online classroom. 	<ul style="list-style-type: none"> ● The computer programme can give us more ideas of how to speak English in a real way. ● If at the beginning of each class, the programme can give us some highlights about the strategies which will be practiced, it will be very helpful. 	<ul style="list-style-type: none"> ● The content of the programmes needs to be enriched.
Q10	<ul style="list-style-type: none"> ● College English adds the function to print the useful word and expression. 	N/A	<ul style="list-style-type: none"> ● It is visualised learning. ● More similar to the normal life.

Responden -ts	4	5	6
Q1	<p>Advantages:</p> <ul style="list-style-type: none"> ● Computer programme is very educational, interesting and handy. ● I can control the learning pace. ● I can choose time to study. Unlike attending lecture, sometimes I have to force myself sitting in the classroom, listening to the teachers. But with the computer, I can choose time to study especially when I have the right mood to study ● Good availability <p>Disadvantages:</p> <ul style="list-style-type: none"> ● Not all the students can afford a computer and the learning software. 	<p>Advantages:</p> <ul style="list-style-type: none"> ● There are more subjects to choose ● There are tips to help students in listening exercise. It's handy and quick. I don't need to look into dictionary. But I don't use it often, for it's not good for listening. ● It's easier to understand and less confusing because I can see the speakers. ● The exercise is very vivid because it's visual <p>Disadvantages:</p> <ul style="list-style-type: none"> ● I am easily distracted because no one can tell what I am doing on the computer. It's not for the lazy people. 	<p>Advantages:</p> <p>Learning listening with multi-media computer is better than tape, TV or other means because I can control the listening process.</p> <ul style="list-style-type: none"> ● It's more vivid because it's visual. ● I can see the speakers. <p>Disadvantages:</p> <ul style="list-style-type: none"> ● Not all the listening material in the computer has the texts for reference, such as the CE, only the introduction parts have the texts. And the Advance English from BBC doesn't have texts.

	<ul style="list-style-type: none"> ● Cannot get enough help from the computer. ● Content doesn't suit all the students. 	<ul style="list-style-type: none"> ● If there is no teacher to control the process of the class, sometimes I tend to play again and again what I cannot understand. It's very time-consuming. 	
Q2.	<p>Advantages:</p> <ul style="list-style-type: none"> ● The pronunciation programme is fascinating. When I worked with my pal, we both can record our voice. It's the first time I listened to my voice through recorder, and I know how I speak. I spot the incorrect bits of my pronunciation, and improved it. ● It's easy to identify your own speaking problems through multimedia. <p>Disadvantages:</p>	N/A	<ul style="list-style-type: none"> ● I just learned speaking through English Town. There is a technological problem. But I can learn speaking at home in China. I felt more relaxed. ● But if I practice speaking in the language lab, I am afraid to interrupt other students in the lab, so I prefer to study at home.

	<ul style="list-style-type: none"> ● The topic should become more interesting and easier to talk about 		
Q3 and Q4	<ul style="list-style-type: none"> ● I cannot stay in front of computer too long. I feel uncomfortable. It is a machine, and I will get bored. But practicing speaking with the computer is a great fun. 	N/A	<ul style="list-style-type: none"> ● Technological problems. ● There is no feedback from the computer. Teachers can give us the feedback of our exercises, but computer cannot.
Q5	<ul style="list-style-type: none"> ● No. computer is a machine. It won't ask any questions, and always be patient. My privacy is guaranteed. 	<ul style="list-style-type: none"> ● No, not at all. It's much easier to practice with computers. Even if I make mistake, nobody will notice it. I feel more relaxed to do the exercise. 	<ul style="list-style-type: none"> ● I feel more relaxed because I don't need to face others when practicing.
Q6	<ul style="list-style-type: none"> ● Computer-assisted learning encourages me to use English after class. The more I practice, the more confidence I have to 	<ul style="list-style-type: none"> ● After I use computer to learn listening and speaking, I can see the progress of my English, which encourages me to use 	<ul style="list-style-type: none"> ● To learn listening and speaking with computers is very effective, but to learn writing and reading.

	<p>use English out of classroom.</p> <ul style="list-style-type: none"> ● I have learned how to speak, and how to listen. So I am confident to understand others and to be understood. 	<p>English after class. I feel more confident.</p> <ul style="list-style-type: none"> ● The software uses English native speakers 	
Q7	<ul style="list-style-type: none"> ● Teachers should give guidance, instruction how to operate a computer programme, especially to the students who seldom or never use computer. ● It is the teacher that designs the curriculum, so the teacher is important. ● It's the age of technology. The computer-assisted learning should be encouraged. But computer is only a tool or supplement to both English teachers and learners. 	<ul style="list-style-type: none"> ● Teachers are very important in CALL course. Computers are tools to learning. We need teachers to give organise the course, give instruction how to practice, how to operated the computer, how to use tips in the programme. 	<ul style="list-style-type: none"> ● I don't know the background information of the listening exercise. If the teacher doesn't give us the background information, I can't understand the content.

Q8 and Q9	<ul style="list-style-type: none"> ● The computer-assisted learning is a great fun. We need more lessons. ● The content of the listening practice should be more interesting, more real-life oriented. 	<ul style="list-style-type: none"> ● The programmes should be more individualized, targeting at the students from different countries, and designing exercise according to the need of students from various countries. ● Even more useful in listening and speaking rather than reading and writing because I can read newspaper, magazines that are more interesting and various. As for writing, how can computer judge my writing apart from spelling and grammar? ● As for listening and speaking programme, the visual and sound effects are great. The content is interesting. ● It's very effective in 	
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		learning listening and speaking with computers.	
Q10	<ul style="list-style-type: none"> ● College English is great. 	<ul style="list-style-type: none"> ● Hope to have more speaking exercise via computers ● The access to each exercise is too slow. It is annoying me to have to listen to a conversation about the future exercise each time. The last comments are a bit ridiculous. Cohesions are sometimes hard to find. ● Computers cannot replace teachers in learning. ● Programme should be more individualized. 	<ul style="list-style-type: none"> ● To give us some listening strategies before starting an exercise. ● To overcome technological problems.

Appendix 7

Categorisation of Interview Data

Respondents	1	2	3
Attitudes towards learning activities	<ul style="list-style-type: none"> ● The most important thing for the computer learning is that we (students) can choose the topics we like, speed, situation and time. ● I can learn how to listen and the listening strategies through the computer-assisted learning and have improved my understanding in real life. ● The computer learning programme is vivid. ● We cannot communicate with the computer ● Computers cannot show the student how to use the tongue ● I don't receive enough 	<ul style="list-style-type: none"> ● Using computer to practice listening is more convenient. ● It is interesting to use College English. ● Pronunciation is very useful. I can listen to a correct pronunciation or a word, and then record my voice and compare it to the (sample). ● I have to follow the process designed. If I cannot understand a section, I cannot reverse it and have to follow the procedure. ● I find it (CALL) is quite boring. I cannot be concentrated for long time. ● I don't have any 	<ul style="list-style-type: none"> ● It's good for learning listening. It's more natural. ● I can choose the content, so the way of learning is positive. ● It's impossible to learn listening by myself with computers. I need the instruction from the teachers. ● Sure, speaking to computers is much easier than to teachers. I feel more relaxed.

	<p>feedback from the computer.</p> <ul style="list-style-type: none"> ● When using computer in learning, I feel more relaxed. ● It encourages me to use English after class. 	<p>technological difficulties. To be honest, I don't like using computer. I am that kind of person who is out-of-date.</p>	
Curriculum design	<ul style="list-style-type: none"> ● Listening practice is the best part of the software, because the situation is real and the speakers are the native English speakers. But as for speaking, can you imagine how to speak with a computer? But the computer can teach us how to pronounce, and useful daily phrases. ● Although computer is useful, but we still need teachers to find out the problems and difficulties in learning. ● If at the beginning of each session, the teacher can clarify the strategies will be used 	<ul style="list-style-type: none"> ● I believe the technology can never replace a real person. ● If at the beginning of each class, the programme can give us some highlights about the strategies which will be practiced, it will be very helpful. 	N/A

	in the class, I will pay more attention to these strategies.		
Course-ware design	<ul style="list-style-type: none"> ● The listening class is ok. We can learn a lot of things from the listening class. ● Sometimes the operation of most software is not very effective, if we click some button, we have to wait for a short time to access. Sometimes, if we are bored of the topic, we have to finish and cannot skip. ● I am wondering if a company can invent global software to learn speaking on line. The software can be divided into different parts. And it will allow a lot of people learning together. It is like an online classroom. ● College English adds the function to print the 	N/A	<ul style="list-style-type: none"> ● The content of the programmes needs to be enriched.

	useful word and expression.		
Respondents	4	5	6
Attitudes towards learning activities	<ul style="list-style-type: none"> ● Computer programme is very educational, interesting, and handy ● I can control the learning pace. ● I can choose time to study. Unlike attending lecture, sometimes I have to force myself sitting in the classroom, listening to the teachers. But with the computer, I can choose time to study especially when I have the right mood to study. ● Good availability. ● The pronunciation programme is fascinating. ● It's easy to identify your own speaking problems through 	<ul style="list-style-type: none"> ● There are more subjects to choose ● There are tips to help students in listening exercise. It's handy and quick. I don't need to look into dictionary. But I don't use it often, for it's not good for listening. ● It's easier to understand and less confusing because I can see the speakers. ● The exercise is very vivid because it's visual ● It's much easier to practice with computers. Even if I make mistake, nobody will notice it. I feel more relaxed to 	<ul style="list-style-type: none"> ● Learning listening with multi-media computer is better than tape, TV or other means because I can control the listening process. ● It's more vivid because it's visual. ● I can see the speakers. ● Technological problems. ● I feel more relaxed. because I don't need to face others when practicing.

	<p>multimedia.</p> <ul style="list-style-type: none"> ● I cannot stay in front of computer too long. I feel uncomfortable. It is a machine, and I will get bored. But practicing speaking with the computer is a great fun. ● Computer-assisted learning encourages me to use English after class. The more I practice, the more confidence I have to use English out of classroom. ● I have learned how to speak, and how to listen. So I am confident to understand others and to be understood. 	do the exercise.	
Curriculum design	<ul style="list-style-type: none"> ● Teachers should give guidance, instruction how to operate a computer programme, especially to the students who seldom 	<ul style="list-style-type: none"> ● I am easily distracted because no one can tell what I am doing on the computer. It's not for the lazy people. 	<ul style="list-style-type: none"> ● There is no feedback from the computer. Teachers can give us the feedback of our exercises, but computer cannot.

	<p>or never use computer.</p> <ul style="list-style-type: none"> ● It is the teacher that designs the curriculum, so the teacher is important. ● It's the age of technology. The computer-assisted learning should be encouraged. But computer is only a tool or supplement to both English teachers and learners. 	<ul style="list-style-type: none"> ● If there is no teacher to control the process of the class, sometimes I tend to play again and again what I cannot understand. It's very time-consuming. ● Teachers are very important in CALL course. Computers are tools to learning. We need teachers to give organise the course, give instruction how to practice, how to operated the computer, how to use tips in the programme. ● Hope to have more speaking exercise via computers. ● Computers cannot replace teachers in learning. 	<ul style="list-style-type: none"> ● I don't know the background information of the listening exercise. If the teacher doesn't give us the background information, I can't understand the content. ● To give us some listening strategies before starting an exercise.
Course-ware	<ul style="list-style-type: none"> ● The topic should become more 	<ul style="list-style-type: none"> ● The programmes should be more 	<ul style="list-style-type: none"> ● Not all the listening material in the

<p>design</p>	<p>interesting and easier to talk about.</p> <ul style="list-style-type: none"> ● The computer-assisted learning is a great fun. We need more lessons. ● The content of the listening practice should be more interesting, more real-life oriented. 	<p>individualized, targeting at the students from different countries, and designing exercise according to the need of students from various countries.</p> <ul style="list-style-type: none"> ● The access to each exercise is too slow. It is annoying me to have to listen to a conversation about the future exercise each time. The last comments are a bit ridiculous. Cohesions are sometimes hard to find. ● Programme should be more individualized. 	<p>computer has the texts for reference, such as the CE, only the introduction parts have the texts. And the Advance English from BBC doesn't have texts.</p> <ul style="list-style-type: none"> ● To overcome technological problems.
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Appendix 8

The Analysis of the Second Student Interview

	Continuance of using CALL programmes	Results from using the CALL programmes
Wen Wufa (S3) (the University of Hull)	No. I am busy with my study. I don't have enough time.	I took IELTS test twice. My listening test results were improved from 5.0 to 6.5 after the programme because I didn't have much chance to talk to the local when I got here. But Bridge also helped a little bit.
Liu Miao (S2) (the University of Hull)	No, because I have more opportunities to talk to other foreign students, so there is no need to practise listening with computers. I also don't have enough time to practice.	A little bit. I can clearly understand what people say. Yes. Before I took the programme, my Listening test of IELTS was 5.0, the second test was 6.0. But there was no change in speaking, still 5.5. Maybe I was too nervous.
Adsiji (S1) (the University of Newcastle)	No. I don't have time. When I first used it, I just wanted to see what it was like.	Yes, of course, really. When I entered the programme, I did listening and speaking. I found I could speak more fluently and understood people better. By the end of the programme, I took listening and speaking exams. The exams were held by

		<p>university. My listening was 57 and speaking 67, much improved. I got a certificate which meant I am able to take and understand lectures, to write dissertation. If the score is under 50, which means you still need to improve listening and speaking.</p>
<p>Liu Yingmei (S2) (the University of Newcastle)</p>	<p>No.</p>	<p>The first IELTS speaking test was 5 and listening test was 6.5. The second IELTS speaking test was 6 and listening 6.5. But the difference is the earlier listening IELTS much relied on the IELTS courses that I attended. But this time, because I had a part-time job in the summer vocation, I didn't do anything with the language course. I attended IELTS without any preparation.</p>
<p>Dong Chao (S5) (the University of Sheffield)</p>	<p>No, I don't have enough time to practise my English specially.</p>	<p>Yes, I just got 5.5 in Listening and 5 in Speaking (IELTS) before I took the course, but when I finish the language course, I got 6 in listening and 7 in Speaking.</p>

Appendix 9**Background Information on Sample Students****The University of Hull**

	S1	S2	S3	S4
Nationality	Chinese	Chinese	Chinese	Chinese
Age	22-25	22-25	22-25	22-25
Gender	M	M	M	F
First language	Mandarin Chinese	Mandarin Chinese	Mandarin Chinese	Mandarin Chinese
Years of stay in the U.K. (years)	2	1	2	2
Courses	Language	Language, then BS in Electronic Engineering	Language, then MBA	Language, then MBA
Years of learning English (years)	5+	5+	5+	5+
Experience of CALL	Yes	Yes	Yes	Yes
Preference of CALL	Positive	Positive	Positive	Positive
Ways of using CALL	Instructed	Instructed	Instructed	Instructed
English proficiency	Working knowledge	Working knowledge in	Working knowledge in	Working knowledge in

		Listening, and basic knowledge in Speaking	Listening, and basic knowledge in Speaking	Listening, and basic knowledge in Speaking
Evidence of improvement by using CALL	N/A	N/A	IELTS Listening: Before 5.0(with preparation) After: 6.0 (without preparation) Speaking: Before: 5.5 After: 5.5	IELTS Listening: Before 5.0(with preparation) After: 6.5

The University of Newcastle Upon Tyne

	S1	S2	S3	S4
Nationality	Nigerian	Chinese (Beijing)	Indian	Swedish
Age	26+	26+	22-25	26+
Gender	M	F	M	F
First language	Yewa, English	Chinese	Sourashtra	Hungarian
Years of stay in the U.K. (years)	3	1.5	2	1.5
Courses	M.A. in Architecture	Language student (1 st interview) MBA (2 nd	PhD in Microelectronics	PhD in Mathematics

		interview)		
Years of learning English (years)	2	5+	5+	5+
Experience of CALL	No	Yes	No	No
Preference of CALL	Positive	Positive	Positive	Positive
Ways of using CALL	Self-access	Self-access	Self-access	Self-access
English proficiency	Basic knowledge	Fluent	Fluent	Working Knowledge
Evidence of improvement by using CALL	I took listening and speaking exam. The exam was held by university. My listening was 57 and speaking 67, much improved. I got a certificate which meant I am able to take and understand lectures, to write dissertation. If the score is under 50,	IELTS Listening: Before 6.5 (with preparation) After: 6.5 (without preparation) Speaking: Before: 5 After: 6		Better understanding

	which means you still need to improve listening and speaking.			
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The University of Sheffield

	S1 (Liu Bing)	S2 (Ma LiYing)	S3 (Shanta)	S4 (Luo Fei)
Nationality	Chinese	Chinese (Tai Wan)	Libyan	Chinese
Age	26+	26+	26+	26+
Gender	F	F	M	F
First language	Mandarin Chinese	Mandarin Chinese	Arabic	Mandarin Chinese
Years of stay in the U.K. (years)	6 months	8 months	3 Months	1/2
Courses	M.A in Leisure Management	Pre-MBA	PhD	M.A in Environmental Design of Buildings
Years of learning English (years)	5+	5+	3+	5+
Experience of CALL	Yes	Yes	Yes	Yes
Preference of CALL	Positive	Negative	Positive	Positive
Ways of using CALL	Semi-instructed	Semi-instructed	Semi-instructed	Semi-instructed
English proficiency	Working knowledge in both listening		Working knowledge in both listening	Working knowledge in listening and

	and speaking		and speaking	basic knowledge in speaking
Evidence of improvement by using CALL			Working knowledge in both listening and speaking	N/A

	S5 (Dong Chao)	S6 (Wu Chunying)	S7 (Naasha)
Nationality	Chinese	Chinese	Russian
Age	22-25	22-25	18-21
Gender	M	F	F
First language	Mandarin Chinese	Mandarin Chinese	Russian
Years of stay in the U.K. (years)	8 months	1/2	3 weeks
courses	M.A. in Information (1st interview) PhD in Computer Science (2nd Interview)	Language	Language
Years of learning English (years)	5+	5+	3+
Experience of CALL	Yes	Yes	No
Preference of CALL	Positive	Negative	Positive
Ways of using CALL	Semi-instructed	Semi-instructed	Semi-instructed
English proficiency	Working knowledge in	Working knowledge in	Fluent in both listening and

	both listening and speaking	both listening and speaking	speaking
Evidence of improvement by using CALL	IELTS Listening Before 5.5 After 6 Speaking Before 5 After 7	N/A	N/A

Appendix 10

Website References

Websites of Journals

- www.ict4lt.org
Information and Communications Technology for Language Teachers
- <http://llt.msu.edu>
Language Learning Technology Journal
- www.eurocall.org
ReCALL (EUROCALL)
- www.calico.org
CALICO Journal
- www.becta.org.uk
British Information and Communication Technology Association
- www.cambridge.org/elt
Cambridge University Press
- www.vancestevens.com/esl_home.htm
A Web Resource for CALL Lab Managers and for Teachers and Learners of Languages Online, prepared by Vance Stevens
- www.athel.com/on.html

Athelstan Newsletter. Athelstan, La Jolla, California, USA.

- <http://www.iallt.org>.

The IALLT Journal: published by IALLT, International Association for Language Learning Technology:

- <http://www.clec.ritsumeai.ac.jp/english/callejonline>

and the archives of *ON-CALL* are available at:

<http://www.cltr.uq.edu.au/oncall/home.html>

ON-CALL: Australian Journal of Computers and Language Education, published by the University of Queensland, Australia. In January 1999 *ON-CALL* journal became available only on-line and in May 1999 merged with *CALL-EJ On-line* (Japan Association for Language Teaching).

- The Internet TESL Journal

<http://iteslj.org/>

ITESLJ is an electronic journal on Teaching English as a Foreign Language in Japan. There are any on-line articles with practical suggestions.

Personal Websites

- www.gse.uci.edu/markw/

Mark Warschauer's personal website

- www.public.iastate.edu/~carolc/

Carol A. Chapelle's personal website

- <http://www.cslu.ogi.edu/learnss/link.htm>

Tim Johns CALL page

CALL software publishers and distributors

- www.camsoftpartners.co.uk
- Wida Software: Publishers and distributors, Ealing, London W5, UK.
- World of Reading: Distributors, Atlanta, Georgia, USA.
- www.speech.kth.se/still The Speech Technology in Language Learning Workshop
- www.cse.ogi.edu/CSLU
- The Virtual CALL Library (The University of Sussex Language Centre)

Courseware

- www.english-at-home.com
- www.melissi.co.uk

There are two comprehensive **databases** that list a range of software titles, publishers and distributors:

- **C&IT Centre CALL database:** <http://www.lang.ltsn.ac.uk/cit/swdb.html>. This database is currently undergoing extensive revision. The C&IT Centre is part of the LTSN Subject Centre for Languages, Linguistics and Area Studies: <http://www.lang.ltsn.ac.uk>.
- **BECTA Educational Software Database:** <http://besd.becta.org.uk>

Appendix 11

In addition to the reference of books on Second Language Learning and Computer-Assisted Language Learning (CALL), the following journals provide good instructions to CALL research.

Literature References

Second language Acquisition

- *Applied Linguistics*
- *Applied Psychological Measurement*
- *Austrian Journal of Linguistics*
- *The Canadian Modern Language Review*

The Canadian Modern Language Review publishes peer-reviewed articles on all aspects of language learning and teaching – linguistics, language skills, curriculum, program design, psychology, methodology. Article topics range from ESL, to French immersion, to international languages, to native languages. The journal's quarterly issues include reviews of relevant books and software, along with research-based articles dealing with second language teaching in the "Focus on the Classroom" section.

- *Educational Researcher*
- *English Teaching Professional*
- *ELT Journal*

The *ELT Journal* is a quarterly publication by OUP, for all those involved in the field of teaching English as a second or foreign language. It seeks to bridge the gap between the everyday practical concerns of ELT professionals and related disciplines such as education, linguistics, psychology, *ELT Journal* aims to provide a medium for informed discussion of the principles and practice which determine the ways in which

the English language is taught and learnt around the world. It also provides a forum for the exchange of information among members of the profession worldwide.

- *Foreign Language Annals*

Edited by Emily Spinelli, *Foreign Language Annals* is the official journal of the American Council on the Teaching of Foreign Languages. Dedicated to the advancement of foreign language teaching and learning, the journal seeks to serve the professional interests of classroom instructors, researchers, and administrators concerned with the teaching of foreign languages at all levels of instruction. *Foreign Language Annals* is a refereed journal published four times per year. Preference is given to articles that report educational research or experimentation, that describe innovative and successful practice and methods, and/or that are relevant to the concerns and issues of the profession.

- *Educational Technology Research & Development*

ETR&D is published four times per year by the Association for Educational Communications and Technology. It is the scholarly journal for the field focusing entirely on research and development in educational technology. Research Section features well-documented articles on the practical aspects of research as well as applied theory in educational practice. Development Section publishes articles concerned with the design and development of learning systems and educational technology applications.

- *Journal of English for Academic Purposes*

The *Journal of English for Academic Purposes* provides a forum for dissemination of information and views which enables practitioners of and researchers in EAP to keep current with developments in their field and to contribute to its continued updating. *JEAP* publishes articles, book reviews, conference reports, and academic exchanges in the linguistic, sociolinguistic and psycholinguistic description of English as it occurs in the contexts of academic study and scholarly exchange itself. A wide range of

linguistic, applied linguistic and educational topics may be treated from the perspective of English for academic purposes; these include: classroom language, teaching methodology, teacher education, assessment of language, needs analysis; materials development and evaluation, discourse analysis, acquisition studies in EAP contexts, research writing and speaking at all academic levels.

- *International Journal of Bilingual Education and Bilingualism*
- *International Journal of Bilingualism*

International Journal of Bilingualism is published by Kingston Press, which is for an international forum for the dissemination of original research on the linguistic, psychological, neurological, and social issues which emerge from language contact. While stressing interdisciplinary links, the focus of the Journal is on the language behaviour of the bi- and multi-lingual individual.

- *Language Awareness*
- *Language, Culture and Curriculum*
- *Language Learning*
- *Language Teaching Research*

Language Teaching Research publishes articles related to research in the fields of second and foreign language teaching. The research may be of qualitative or quantitative orientation.

- *Linguistics*

Journal of Linguistics is published by the Linguistics Association of Great Britain concerned with all branches of theoretical linguistics, including syntax, morphology, phonology, phonetics, semantics, pragmatics and historical, sociological, computational, psychological and applied aspects of language and linguistic theory. The journal also provides a survey of recent publications in the field with review articles on major works marking important theoretical advances, and about twenty book reviews and shorter notices in each issue.

- *Modern Language Journal*

Modern Language Journal is a refereed publication devoted to questions and concerns about the learning and teaching of foreign and second languages; publishes articles, research studies, editorials, reports, book reviews, and professional news and announcements pertaining to modern languages, including TESL.

- *Review of Educational Research*

Review of Educational Research (RER) publishes critical, integrative reviews of research literature bearing on education. Such reviews should include conceptualizations, interpretations, and syntheses of literature and scholarly work in a field. *RER* encourages the submission of research relevant to education from any discipline, such as reviews of research in psychology, sociology, history, philosophy, political science, economics, computer science, statistics, anthropology, and biology, provided that the review bears on educational issues.

- *Studies in Second Language Acquisition*

- *Studies in Language Learning*

CALL

- *Athelstan Newsletter*

This publication is about to be phased out and replaced by an on-line newsletter.

- *TELL Digest.*

There are a number of useful links at this site, including a CALL Bibliography.

- *CAELL Journal*

(ISSN 1049-9059) is published four times per year by the International Society for Technology in Education (ISTE, University of Oregon)

- *CALICO Journal*

The CALICO Journal is devoted to the dissemination of information concerning the application of technology to language teaching and language learning. It is the primary means of print information distributed by the Computer Assisted Language Instruction Consortium (CALICO). The CALICO Journal is a fully refereed journal and publishes articles, research studies, reports, software reviews, and professional news and announcements.

- *CALL Review*

(formerly *MUESLI News*), Journal of the IATEFL Computer SIG.

- *Computer Assisted Language Learning*

Computer Assisted Language Learning is an international, peer-reviewed journal which leads the field in its total dedication to all matters associated with the use of computers in language learning (L1 and L2). It provides a forum to discuss the discoveries in the field and to exchange experience and information about existing techniques. The scope of the Journal is intentionally wide-ranging and embraces a multitude of disciplines.

- *Computers and the Humanities*

Computers and the Humanities was established in 1966 to report on significant new research concerning the application of computer methods to humanities scholarship. Regular issues, special sections and special issues are devoted to reporting relevant computer-assisted work in a broad range of fields, including all the traditional humanities and arts disciplines as well as linguistics, media and hypertext theory and other related fields. In addition, *Chum* publishes work which presents theorized methodologies and applications relevant to the creation and use of digital texts and text corpora, hypertext, databases, images, sound, video, and multimedia. It also provides a forum for discussing standards, resource management, and crucial legal and institutional concerns for the creation, management, and use of digital resources, as well as their effective integration into scholarly teaching and research.

- *Computational Linguistics*

Computational Linguistics published by the MIT Press for the Association for Computational Linguistics is the publication devoted exclusively to the design and analysis of natural language processing systems. From this unique quarterly, university and industry linguists, computational linguists, artificial intelligence investigators, cognitive scientists, speech specialists and philosophers get information about computational aspects of research on language, linguistics and the psychology of language processing and performance.

- *Journal of Educational Computing Research*

Designed to convey the latest in research reports and critical analyses to both theorists and practitioners, the Journal addresses four primary areas of concern:

1. The outcome effects of educational computing applications, featuring findings from a variety of disciplinary perspectives which include the social, behavioural, and physical sciences;
2. The design and development of innovative computer hardware and software for use in educational environments;
3. The interpretation and implications of research in educational computing fields;
4. The theoretical and historical foundations of computer-based education.

- *Harvard Educational Review*

- *The IALLT Journal:*

The LALLT Journal is published by IALLT, International Association for Language Learning Technology

- *Language Learning & Technology*

Language Learning & Technology is sponsored and funded by the University of Hawai'i National Foreign Language Resource Center (NFLRC) and the Michigan State University Center for Language Education And Research (CLEAR). The focus of the

publication is not technology per se, but rather issues related to language learning and language teaching, and how they are affected or enhanced by the use of technologies.

- *Machine-Mediated Research*
- *Programmed Learning and Educational Technology*
- *ReCALL*
The journal of EUROCALL, published by Cambridge University Press
- *System*
- *TESOL Quarterly* (Teachers of English to Speakers of Other Languages)
- *TELL&CALL*

The journal of CALL-Austria contains articles in German and English.

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