Problems in Researching Dialogue in E-learning in Higher Education

What is 'dialogue'? In Greek, the prefix 'dia-' means 'through' or 'via' while 'logos' means both 'speech/talk' and 'logic'. In this sense, 'dialogue' is an interaction of logic, an interaction between logical schemata expressed through and founded on human speech. It suggests a multi-channel interaction in which verbal and non-verbal exchange of information can be enhanced.

An interactive learning environment has several claimed advantages in language acquisition. For example, it enhances communication which guarantees the kind of clarification needed to make input and output comprehensible (Long, 1983). Besides, an interactive learning environment also fosters learners' motivation. When learners are involved in an activity, they could be described as highly motivated. Their minds and bodies are involved in the activities; their concentration is deep; and time passes quickly.

A number of studies (Chapelle, 2003) have suggested that computer technology has indeed expanded interaction in language acquisition. In an e-learning environment, 'interaction' refers to communication between computers and students, between teachers and students, and between students and students. For example, students control the learning progress; they can receive help and feedback from computers or teachers. Moreover, the Internet and computer-mediated communication technology, either synchronous or asynchronous, free learners from the constraint of space so that they can work together.

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 interaction and to what extent interaction can be enhanced. In general, problems occur in the following three research areas.

- The necessity and significance of using computer technology in language acquisition. Is it necessary and possible to apply computer technology in language learning, and, in particular, listening and speaking in an English-speaking environment? What is the significance of interaction in CALL tasks?

- Research content. How can interaction be enhanced in various computer-assisted learning environments? What are the common misunderstandings in designing computer-assisted language learning tasks?

- Research methods. What are the most useful approaches to studying interaction in e-learning? What are the difficulties of applying these approaches?

1. Necessity and Significance of Using Computer technology in Language Acquisition

The discussion—whether or not the computer should be used for language teaching and how the computer can best be used in language teaching—has been going on throughout the 1980s and the 1990s. As we are in the 21st century, computer technology is so tied to our everyday use of language that learning language through computers has become a fact of life. The specific nature of computer technology, such as the large volume and wide range of information available on line, its open accessibility, its fast processing speed and its interactive nature, has important implications for language acquisition.

However, a specific facet of computer-assisted language learning has been questioned by CALL teachers. Is it necessary and possible to learn and teach listening and speaking skills with computers, particularly in an English-speaking environment?

The necessity of teaching and learning listening and speaking skills with computer technology in an English-speaking environment has been long debated among language teachers and CALL researchers. It is believed that out-of-class communication with native speakers is the best way to improve a learner's language skills, such as listening and speaking in an English-speaking country such as the U.K. However, what students need is not only a chance to talk with native speakers but also communication skills, language knowledge, cultural background knowledge and confidence to have a conversation. Therefore, listening and speaking classes aim at improving students' communicative competence, helping them understand the culture in which a language sits, and enhancing their confidence to communicate with native speakers. Computer technology to a large extent can reinforce the functions of listening and speaking classes.

Moreover, most students attending listening and speaking classes are beginners or intermediate learners. Their limited knowledge of the English language cannot help them to hold a conversation in English. I came across a case when carrying out a study in U.K. universities on 'what is the impact of computer technology on learning and teaching English listening and speaking as a foreign language?' One Chinese student whom I interviewed said, 'I think talking to the native speakers is the best way to learn speaking. But when I talk to a native speaker, it is not easy. They speak very quickly, really quickly. Sometimes, if I cannot understand, they will lose their patience. I am not good at listening and speaking. I don't like keeping saying 'sorry' and 'pardon'. Every time that happens, I end up with stopping talking to native speakers.'

There is also cultural difference which affects learners' communication with native speakers. For example, every year a lot of students from Asia, especially China, study

English in U.K. universities. Students from Asian countries generally have a close community. An example of this comes from quoting a Chinese student, '7 out of 11 of my study group are Chinese. We live together, eat together, and go out together. We hardly know any local people. When I go home, I have no chance to speak English because all my housemates are Chinese. We tried to speak English in my house at the beginning, but 2 or 3 days later, we gave up. To all of us, English is not the mother tongue. Sometimes, we all speak in wrong ways.' Therefore, listening and speaking classes can provide students with cultural background knowledge to help enhance their communication skills.

Since listening and speaking classes are useful to develop students' communication skills, how can computer technology help in listening and speaking classes? One way is that computer technology creates a simulated e-learning environment which can help students become familiar with various speech contexts and build up their communicative competence. For example, Student A had a comment on her computer-assisted speaking class, 'It encourages me. After practice, I want to speak in the real life. I feel my pronunciation is better than before. I feel more confident. … I get more ideas of how to express my feelings. I want to experience (these expressions) in the real life.'

But what features distinguish computer technology from traditional facilities such as a tape recorder? Warschauer generalized what computer technology can bring to language learning as, '*appropriate use of new technologies allows for a more thorough integration of language, content, and culture than ever before and provides students with unprecedented opportunities for autonomous learning*' (2000: 316). This is because computers are a handy tool for teachers to create courseware that can be visual or/and aural. The multimedia potential also helps students' understanding. As student B said, 'it is easier to understand and less confusing because I can see the speakers. The sound effect of computers is also better than that of tape recorders'. Besides, students can work at their own pace and have more control over their learning. Student C thought highly of the flexibility in learning that a computer provides, 'With a computer, I can choose time to study especially when I have the right mood to study… Learning listening with multi-media computer is better than with tape, TV or other means because it is more convenient to control the listening process.'

If it is necessary to teach and learn listening and speaking skills by using computers in an English-speaking environment, then the question of possibility arises of teaching and learning *speaking* with a computer. The argument is that since a computer is a machine, it is difficult and ineffective to practise speaking with a computer. Speaking is a communicative skill. The best way to improve speaking is to talk to another person, either native speakers or teachers and classmates in class. The main point of this argument is the lack of interaction in a computer-assisted speaking task. More specifically, the interaction here refers to the communication between students and

teachers, students and students and students and computers.

Teachers still play an important role in a computer-assisted language class. It is the teacher who designs learning tasks, gives technical and language support, and evaluates students' work. Student D emphasized this importance: 'It's impossible to learn listening by myself with computers. I need the instruction from the teacher. … 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'.

The interactive work between students can stimulate their interest in learning on computers. Student D said, '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 improve 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.'

The most difficult interaction is between students and computers. Every student whom I have interviewed mentioned that there was lack of communication between them and computers. To be more specific, communication basically means that students can receive tips and help during practising, and can get feedback on their work after practice. A complex student-computer interactive activity such as talking to a computer requires advanced technology, both of hardware and of software.

However, the lack of student-computer interaction can be compensated by enhancing student-teacher and student-student interaction, which relies on how to design a curriculum with the advanced technology available. The following section discusses three approaches of CALL application.

2.   The problems of enhancing interaction in various application approaches

In order to study the impact of computer technology on learning and teaching English listening and speaking, I carried out a national survey as a preliminary study by sending out 111 e-mail questionnaires to over 75 U.K. universities, which were on the contact list of BALEAP (British Association of Lectures in English for Academic Purposes). The purpose of the questionnaire survey was to find out whether some universities in the U.K. had computer-assisted listening and speaking programmes and what was the current state of their development. Although the practice varied in form and degree, there were three major approaches of CALL application. First, CALL material was used in a self-access way. Second, CALL material was used in a semi-instructed class with teachers' help. The last, CALL material was integrated into class teaching which was under teachers' instruction. Each approach has specific methods to employ computer technology in language teaching, but problems arise in enhancing interactive learning activities.

2.1 Self-access approach

In the self-access approach, students are supposed to work on computers without the presence of teachers. The main advantage of the self-access CALL programme is that it gives students flexibility in managing their learning activities. They can choose the materials, time and place to study. The practice set by students is likely to be more effective, purposeful and individualized than those by teachers. However, there are common misunderstandings about self-access CALL programmes.

First, the self-access programme is assumed to be self-instructed. It is true that some students who have good skills in 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).

Second, 'self-access' is assumed to be an equal concept of 'autonomy'. When students study without teachers, 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 no single student is a fully autonomous learner. A student who displays autonomy in one area may not be autonomous in another (Little, 1991).

Last but not least, self-access study is assumed to be less interactive because students study on their own. Self-access study is an independent and to some extent, an individualised form of study, but it is unlikely to compensate for the necessity of interaction. In self-access study, interaction happens more often between students and computers.

A self-access CALL programme emphasizes the interaction between students and computers. Students have more control over their learning progress. They 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 three critical issues affecting the quality of the student-computer interaction. (1) Technology advancement. A stable condition of technology available is the guarantee of a productive learning activity. Besides, state-of-the-art technology has expanded interactive activities. For example, there is 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 can talk to, and that talks back to you (Beskow, 2003; Granström & House, 2003; Karlsson, Faulkner & Salvi, 2003; Wik, 2004; Granström, 2004). (2) Detailed feedback. A computer can give sufficient help, tips and feedback when a student requests. (3) A variety of choices of learning tasks which can individualize a practice according to a student's needs.

However, such technology is unlikely to obviate the need for teachers from a self-access CALL programme. It is necessary and important for teachers to run the programme and give support to students because the system needs to be maintained; programmes need to be updated regularly; and students need help when they require it. Although the interaction between students and teachers in the self-access approach is not direct and timely, for example, by e-mail, it is throughout a study process. First of all, training given by teachers on how to make most use of computer technology is necessary before students start a computer-aided language programme. Second, teachers are available to solve both the technical and language problems students meet. Third, the programme is designed, maintained and upgraded by teachers in order to meet students' needs. Lastly, feedback from teachers on students' practice and progress is necessary, particularly when computers fail to give the specific explanation that students require.

Compared to a self-access approach, teacher-student interaction is more direct in a semi-instructed approach.

2.2. Semi-instructed approach

Another approach is to use CALL material in a semi-instructed class. Although present in the class, teachers do not tightly control the practice activities. Students have flexibility to work at their own pace, and have direct communication with teachers and classmates.

A semi-instructed learning environment encourages the interaction among students. A teacher commented on the interactive activities: 'It (computer-assisted learning) is a kind of dry way of study. It can be a little bit boring if it lasts too long. If there are a lot of students talking, mixing and interrupting, it will be an exciting lesson…'

Because of the presence of teachers in class, students have a chance to communicate face-to-face with teachers. The acknowledged roles of teachers in class are to answer questions and to give language and technical support when required. However, does communication between teachers and students only occur when students initiate? Or

as a teacher 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 a teacher gets involved in a semi-instructed learning activity, students commented.

- 'We need teachers to organize the course, give instruction how to practice, how to operated 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.'
- '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.'

Thereby, students expect interaction with teacher throughout a learning process. First of all, students expect teachers as organizers of learning activities, explaining task aims, demonstrating technology and highlighting useful learning strategies. Second, students expect teachers as technical supporters who they will turn to help when problems arise during practice. Lastly, students see teachers as knowledge resources who offer them background knowledge, give feedback to their practice and explain their mistakes.

However, teacher-student interaction is not easy. For example, as a course designer, how can a teacher choose material which suits all students? How can a teacher keep the balance of students' progress in practice? As a technical supporter, how can a teacher keep up with fast developing technology? As a knowledge resource, how can a teacher meet every student's needs? What kind of feedback will a teacher give to students?

In the semi-instructed approach, teacher-student, student-student and student-computer interactive activities are flexible and open-ended, of which much depends on a student's choice. Although a teacher's presence helps learning in many ways, it is difficult to take care of every single student especially in a class with a large number of students, which the instructed approach of using computers in learning tries to compensate for.

2.3 Instructed CALL programmes

This approach involves using CALL material as a part of course materials in a teacher-instructed class. For example, I studied a case of an integrated use of computers in a listening class. The teacher used commercial software to create her

own course material, downloading videos or audio materials onto computers in a digital lab. In class, students first were asked to watch a video or listen to a text with headsets on computers. Then the teacher would pass around exercise sheets. Students would finish the exercise according to what they watched or heard. At the end of a class, the teacher would give the answer and then students would have a free discussion about what they heard.

Interaction activities in such a learning environment depend on how a teacher chooses course material, designs and carries out pedagogy, but the advantage of computer technology hasn't always been fully presented. 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 doesn't strike us an effective or an imaginative use of a powerful technology*' (Green and Meara, 1995: 98). A student benefits from the multimedia which combines different visual and aural information such as texts, speeches, drawings, photographs, music, animations and videos. Therefore, to a large extent, a teacher's choice of courseware and material and the ways to make full use of the advantages of computer technology decides the interactive activities.

It is worth noticing that when I interviewed students on course material in computer-assisted listening and speaking classes, there are conflicting expectations between teachers and students. For example, in respect to the content of course material, students expect a balance of academic lectures and daily dialogues because the majority of students who study language courses in U.K. universities aim to improve their communication skills as well as their understanding of academic lectures. However, English courses in Language Centres seem to pay more attention to preparing students for IELTS and academic lectures. Students also expect a variety of tasks, class activities and teachers' guidance and participation in class activities.

The three approaches to applying computer technology in language teaching have been confronted by difficulties in enhancing interaction between computers and students, between teachers and students and between students and students. However, problems not only exist in application approaches but also in choosing and applying research methods.

3. Problems of Carrying Out Research

3.1. Problems of getting access to target students and programmes

A big difficulty in carrying out research in e-learning is gaining access to programmes and students. First of all, it is not easy to locate appropriate computer-assisted language teaching programmes. For example in my pilot study, I selected five universities for further contact according to the result of an earlier feasibility study.

However, when I contacted the persons in charge of the 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 finished the course and were dismissed. More often, the language centres of the universities had just installed language tasks on the computers in the language lab. There was little or no integration with regular class teaching. 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, and what the result of their practice was.

Even if there were ongoing CALL programmes in a language centre, they were only carried out on a small scale, and depended on teachers' interest, time, effort and technical capability.

Besides, teachers in the language centres had to consider not overloading their students by participating in my survey because the students were already busy with their study. If my survey was to take a long time, it would disturb their normal study schedule. Moreover, although teachers informed the students of my study beforehand, I still found that most of the students were not well prepared for a survey. I had to ask them to be serious with the questionnaire and interviews, and be patient to finish them.

The difficulty was emphasized by a small sample size because in most cases a CALL programme was only a supplementary task to the major curriculum in the language centre. It was up to the students whether they were willing to do extra practice in their spare time. Usually there were not a large number of students attending a CALL programme.

Whether researchers can find a good size of sample students and proper CALL programmes also affects their choice of research methods.

3.2.   Problems of choosing and applying research methods

It is not easy to choose research methods in an e-learning context. The pilot study of my research gives a good insight into the difficulties.

My survey was carried out in the English Teaching Centre at a U.K. university. It was investigating the impact of computer technology on learning and teaching listening and speaking as a foreign language. According to the curricula, the centre applied computer technology to listening and pronunciation pedagogy. The listening task was an integrated activity. Students listened to a conversation through computers, and then completed gap-filling exercises. So they was also practice in grammar and vocabulary. As far as speaking tasks were concerned, the centre had installed a software package

to train students' pronunciation. Each part of this programme focused respectively on phonetic symbols, pronunciation of words and phrases and then tone and inflection. Basically, students listened to words, phrases or sentences from a computer through a headphone and then imitated the pronunciation into a speaker. Then the computer would automatically compare the two sounds and give immediate feedback on whether the students' pronunciation was correct or not. But this kind of feedback had its limitations in that there was no suggestion about what was wrong or what might be done to correct the mispronunciation.

Additionally, the Language Centre employed a complete language learning commercial software package, College English, as supplementary practice material in the semi-instructed CALL class. Students could do listening, writing and reading tasks on computers with the tutor around to give instruction and support.

When starting the pilot study, I had considered various research methods in the relatively new research area of e-learning, which included traditional methods such as interview, questionnaire and observation; and the specific methods such as on-line chatting and e-mail. However, each method had constraints which affected the possibility of fully achieving the aim of the study.

3.2.1. Questionnaire

The questionnaire is a very popular research technique to carry out a survey.
It is not only efficient in both time and cost, but also standardizes the questions and simplifies the data analysis. The possibility of respondent anonymity may lead to more candid and honest responses. However, the survey result revealed three problems of applying questionnaires in an e-learning context.

(1) The number of students available was not sufficient for a reliable quantitative survey. Due to the difficulties in finding sample students, the number of the students available for the questionnaire survey was rather small. In my survey, there were 20 to 30 students finally available. No significant conclusion can be drawn from such a small sample.

(2) Learning via computers is a new way of learning. When using a computer as a tool to practise English, students hardly pay a second thought to the rationale behind the approach. Therefore, students' answers are easily misled if they don't realize the purposes of questions in a questionnaire.

(3) The students' English knowledge decides, to some extent, how they understand and answer the questions. Some students overrated their English capability. One student claimed in his answer that his English was fluent; but during the interview, I was disappointed to find that he hardly expressed himself clearly in English.

3.2.2. Interviews

The interview is another commonly used approach in qualitative research. It is often used in conjunction with questionnaires, as it probes the responses given in questionnaires in more depth. There are particular interview-associated problems related to researching computer-assisted language courses in U.K. universities. For instance, students' language knowledge affects interview results. If students do not have advanced knowledge of the English language, in particular, of spoken English, it is difficult to carry out an interview.

Moreover, students normally attend more than one language programme. The duration of programmes also varies, some lasting one year, others 3 or 6 months. Some programmes use commercial courseware with multimedia while others are developed by teachers. Some programmes are integrated into normal pedagogy with teachers' instruction while others are self-access, installed into universities' network. Such complexity is likely to result in inaccurate data because an interviewee may answer questions based on different programmes he/she attends. Therefore, it is necessary to make it clear what kinds of programmes he/she attends.

3.2.3 Observation

Observation is used as a research technique when data on actual practices are required. But I found it is rather difficult to apply observation in studying e-learning activities because as other learning activities, much of the information in e-learning activities cannot be observed because it is cerebral and non-behaviouristic, especially when observing students' learning strategies by using computers. Moreover, if e-learning activities happen on line, it is difficult to carry out observation without the presence of students.

3.2.4 Other methods

Research methods specific to an e-learning context such as on-line chatting and e-mail are alternatives to the classic traditional methods, but there are problems in accessibility and depth. For example, e-mails have been used instead of phone for long-distance interviewing as a means of collecting for research purposes, but it is not easy to access sample's e-mails because of privacy and confidentiality. If one of the sample population refuses to provide e-mails, the balance of data will be affected.

On-line chatting is also considered by e-learning researchers because it is flexible in terms of time and place. However, the words used in on-line chatting tend to be

simple and abbreviated, which may cause misunderstanding and unspecific information. It is also time-consuming to type long sentences. The stability of technology and speed of the Internet may also affect the quality of data.

As in any other research context, none of the research methods are perfect for researching e-learning. The traditional methods such as questionnaire and interview are reliable to apply, but there are problems of finding a well-established CALL programme and gaining access. Methods such as on-line chatting and e-mail provide alternative choices and flexibility of time and place, but there are still problems of validity and accessibility. They also require a stable condition of technology, both in hardware and software. Although none of the research methods are perfect, a combination of methods can compensate each other's shortcomings and enhance the validity of the data.

4. Conclusion

The deeper I study interactive teaching and learning activities in an e-learning environment, the more questions emerge regarding the necessity and value of research, appropriate research methods, the process of carrying out research, and ways to enhance interaction in an e-learning environment.

Since I started researching computer-assisted learning and teaching activities, I have repeatedly been questioned on the necessity and value of using computer technology to teach English, particularly listening and speaking in an English-speaking country. One possible answer to this doubt lies in how to implement computer technology in pedagogy. It is important to recognise that a language class can offer students not only the knowledge of language skills but also confidence, communication and social skills. Computer technology, when appropriately implemented, can help reshape both the content and processes of language education and serve several of the functions of language classes.

When investigating how to apply computer technology in language learning, I have found that in general, there are three major approaches in designing a curriculum in an e-learning environment: a self-access approach, a semi-instructed approach and an instructed approach. Each approach has a different way of both organising learning and delivering course material. But problems also occur in how to enhance interactive learning activities with all three approaches. In the self-access approach, interaction mostly happens between computers and learners. For instance, the computer gives help, tips and feedback when the student requires it. However, the teacher still plays an important role of supporting learning, maintaining and updating the system in a self-access programme. In the semi-instructed approach, teacher-student, student-student and student-computer interactive activities are flexible and open-ended, and give the student considerable choice. But it is difficult to take care of

every single student especially in a class with a large number of students. An instructed approach involves 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 determines interactive activities. But teachers and students can have conflicting expectations about appropriate choices of course materials.

Problems also occur in the process of carrying out research in the U.K. at least. It is not easy to gain access to a suitable computer-assisted language learning programme. Secondly, there is no perfect research method for studying e-learning. The classic traditional methods such as questionnaire, interview and observation are confounded by specific features of an e-learning environment, such as complex learning programmes and interaction between students and computers. The research methods relevant to the use of technology, such as e-mail and on-line chatting, offer researchers flexibility of time and place, but they do require stable technology, and there can also be serious problems with the validity of the data.

In conclusion, then, the solutions to the problems that I have identified in researching e-learning in higher education in the U.K. 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 to these problems in e-learning, and then working for ways of achieving them efficiently, computers can finally achieve their proper place and potential in language education.

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