The Historical Evolvement of Computer-assisted Language Teaching and its Positive and Negative Effects

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Abstract

With the development of computer and network technologies, computer-assisted language teaching and learning have been changing from the presentation of single text materials and response model to the integration of outside classroom education media combining text, graphics, images, sound, animation and network communication (CMC) technology. As an auxiliary tool of foreign language teaching, the computer plays its huge potential and promotes the completion of all kinds of language learning tasks. However, high cost and lack of technical support bringing the negative effects to the foreign language teaching is also cannot be ignored. Therefore, in the study of the historical evolvement of the CALL, to fully understand the positive and negative effects from the foreign language teaching will help make the positive effect of foreign language teaching maximized, and avoid misuse and abuse of the CALL.

Key words: Computer-assisted language learning; positive and negative effects; Multimedia; virtual world

I. Introduction

Briefly speaking, the Computer-assisted language learning (CALL) is that computers are used in language teaching and learning. In other words, the CALL is a learning technology of using computers to educate students and an ordinary tool used for explaining, training and testing in language teaching. It widely covers the application of information and communication technologies in foreign language teaching and learning, which is evolved from traditional mechanical computer-assisted language teaching in 1960s, modern virtual learning environment, web-based distance learning, corpus and word retrieval, interactive whiteboard, network communication (CMC), virtual language learning and mobile-assisted language learning (MALL) (Schmid, 2009; Lamy & Hampel, 2007; Shield Kukulska-Hulme, 2008). The former Computer-Assisted Instruction (CAI) and Computer-Assisted Language Instruction (CALI) both are in certain degree something related to the mode of teacher-centered, have already lost their position in foreign language teaching and have been replaced by CALL in 1980s. In modern foreign language teaching, CALL shows clearly the teaching idea of student-centered, and pays much more attention to students’ learning, not teachers’ instruction in teaching. It is an important tool that can assist language teachers to promote language learning process of students. Meanwhile, teachers can use it to consolidate what students have learned in classroom or use it as a kind of remedial tool to assist those

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students who have special needs. In general, the main purpose of using CALL in language teaching is to improve language learning abilities of students by means of computers. This paper explores the positive and negative effects of CALL through analyzing the evolvement of it for the purpose of improving the efficiency of foreign language teaching and learning achievements of students.

II. The Historical Evolvement of CALL

2.1 CALL Based on Structuralism Theory

The development of CALL courses which experienced 30 years from 1950s to 1980s are mostly composed of mechanical language training materials, and the true embodiment of Grammar Translation Method and Audio Visual Teaching Method in the field of Applied Linguistics. During the course of practical teaching, computers present stimulus learning materials and students give their responses to them. Firstly, contents presented in language teaching and responses given to them are both achieved by means of texts. And then computers analyze contents that students input and give feedbacks to students. Finally, remedial feedbacks will be given to students’ errors by hierarchical scanning. Although the foreign language teaching based on the course mode is refused to use by most teachers, it is still there. And the growing improvement of computer technologies makes CALL more possible choices. At the beginning of 1960s, integrated courses (also called multimedia courses) began to appear. But at that moment, foreign language teaching chiefly belonged to audio visual teaching by using textbooks, tapes and film soft wares, among which emergence of language labs is viewed as an important symbol of this stage. Certainly, from 1970s to 1980s, standardized microcomputers can not make sound and do not have the ability to generate images. Therefore, foreign language teaching so-called multimedia at that time is in the stage of imperfection, which is single, mechanical and stereotyped. It is certain that in some extent it restricts the effect of foreign language teaching.

2.2 CALL Based on the Theory of Communicative Interaction

It has experienced 10 years from 1980s to 1990s. It is a concrete reflection of communicative teaching theories and cognitive theories, takes up an important position in foreign language teaching from 1980s to 1990s (Underwood, 1984). The Communicative Teaching Method focuses more on appropriate application and meanings of languages, but not emphasizes language forms. That is to say, it pays much attention to teaching grammars implicitly, rather than teaching grammars explicitly. At the meantime, the Communicative Teaching Method also takes into account students’ language output of creativity and flexibility. The close combination of the Communicative Teaching Method and computer technologies has promoted the wide application of computers in the field of foreign language teaching and ultimately has made the development of foreign language learning software industry. Teaching soft wares of CALL at the stage continuously provide various meaningful skill trainings for foreign language learners, not use mechanical sentence pattern practices and grammar drills. For example, they can provide simultaneous reading, text reconstruction, contextual training and various language games for language learners, but at the stage computers still play an auxiliary role in foreign language teaching.
2.3 CALL Based on Technology Integration

It begins from 1990s including the rise of multimedia and Internet in 1990s. The stage tries to criticize the Communicative Teaching Method and provides the direction and the coherence of technologies in task and project teaching by integrating the language skills teaching. At the same time, it is a stage that combines multimedia technologies (such as text, graphics, images, sound and animation) and CMC. Surely, the CALL at the stage can be regarded as the transformation from the application model by using computer for mechanical training and guidance to the development of educational media beyond the classroom. And the beginning of 1990s, the emergence of multimedia computers provides important technical support for foreign language teaching, is a major breakthrough in multimedia aided teaching to maturity because this technology can integrate texts, images, sounds and videos into the same equipment, and finally combine the four skills of listening, speaking, reading and writing together in foreign language teaching (Davies, 2011), among which one of the most typical examples is the CD-ROM and DVD teaching materials for multimedia computers since the middle of the 1990s, and they are still widely used in foreign language teaching today. However, with the rapid development of Internet technology, web-based multimedia CALL courses have gradually replaced the traditional multimedia technology.

III. Positive Effects of CALL

3.1 It is Helpful for Improving Foreign Language Communication Ability of Students

Gündüz (2005) claims that the most important advantage of the rapid development of CALL is that software developers and language teachers no longer believe that the use of computers in language classes is the main purpose of grammar practices. Therefore, the use of computers for communicative teaching activities has been further expanded. Some vocabulary training softwares make use of pictures, sounds, videos and playback to make vocabulary teaching more situational. A more complex computer error correction program can provide students with real help when they receive feedback and guide them to further practice or to the next stage of learning. Those students who need extra language learning helps use these exercises to improve their level of foreign language learning, so they get extra help in the regular learning and narrow the learning difference with other students.

3.2 It is Good for Promoting Foreign Language Learning Efficiency

Computer-assisted instruction will be more efficient because computer-assisted instruction is beneficial to stimulate students' learning interest and motivation. The past language teaching is mainly that teachers teach students hard in the classroom, and students learn something passively; classroom teaching aids is a blackboard, a piece of chalk, at the best, a tape recorder and video teaching tapes, which resulted in the lack of teaching interaction. With the help of CALL, teachers can use the computer to present sounds or silent pictures, videos and written texts, so that students feel more realistic and easy to understand. Through simulation and other related technologies, we can use the computer to present abstract things in a more concrete and easily understandable way.
3.3 It Promotes Foreign Language Learning in a Personalized Way

One of the main problems in foreign language teaching and learning is that the learning interest of the students is uneven and the level of foreign language is not the same. Meanwhile, students’ learning speed and learning styles are different, and CALL is to meet the teaching and learning needs, helps students develop their own autonomous learning ability, and creates a personalized learning environment for them. The teacher in teaching aiming at students’ different learning levels and learning needs use a computer to provide different levels of learning materials and different learning methods guidance for them, so that every student can learn at their own pace; students become the center of learning and the main body to make their learning more independent and active, and to promote the improvement of the learning achievement. The teacher becomes a powerful leader or facilitator in teaching activities and has more time and energy to focus on solving difficult problems in teaching.

3.4 It Makes Foreign Language Learning Interesting

CALL is an important stimulus factor in foreign language or second language learning. In modern foreign language teaching and learning, computer technologies can provide a lot of interesting games and communicative activities, reduce the students’ foreign language learning pressure and anxiety, and provide repetitive learning activities according to learning needs. A variety of games and communicative activities provided by a computer can stimulate students' learning motivation, strengthen their language skills, affect their learning attitude, cultivate their self-learning strategies and establish their self-confidence to learn a foreign language well.

3.5 It Makes Teaching Resources Shared

In CALL, all kinds of teaching resources can be stored for a long time for teachers and students to use. The biggest difference between a computer and a teacher is that the computer never gets tired. It can do the same thing without complaint for a long time. Moreover, the computer can store teaching resources for a long time, which is almost impossible in traditional language teaching. In addition, in CALL students can choose learning resources and contents whenever and wherever they want. And in the traditional teaching, the students must go to a fixed classroom in the prescribed time, and passively accept the teacher's teaching. With the combination of the network and the language lab, students can use relevant learning materials wherever they are. If the PC is connected to the school's learning network, they can even learn at home.

3.6 It Promotes Foreign Language Teaching in an Interactive Way

The computer can promote the interaction between students and teachers. When the computer technology is combined with the Internet, it can open up a channel for students to obtain a large number of human experiences, guide students into the “global community”. In this way, students can not only broaden their horizons, enrich their thinking and experience, but also enable them to learn to live in the real world. Random access to web pages in foreign language learning will break the traditional model of single linear flow. By sending e-mails and joining newsgroups, students can communicate online with people they have never met, and interact with their teachers or classmates as well (Warschauer, 2000). This makes those timid or inhibitory students greatly benefit from the learning environment supported by
personalized technologies, and the students who study hard can learn at their own pace and make great progress in learning.

3.7 It Makes Learning Difficulties Become Easy

Pronunciation and writing are difficult points in foreign language teaching. The writing process is another aspect of the computer that can exert its great value. Some computer programs can help students to construct and summarize the main ideas before writing. Nowadays, most digital processors have the function of checking spelling mistakes, help students who have weak spelling find spelling errors and identify the correct spelling from the optional items provided by the computer. In the past time, after writing assignments have been distributed, students must first write a draft, and then re-input or copy the contents. This writing is not only time consuming, but also cannot be stored for subsequent revision. But with the advent of the computer, the students will be able to use the word processing program to write, and correct various errors in the writing with having no need to input or print their final draft. They can also edit and process their compositions before they hand them over to the teacher, and then under the guidance of the teacher, they can make various corrections or changes. In addition, CALL is also an important means of pronunciation teaching and training. Now most software programs have sound recording and playback functions. Students can discover their pronunciation problems through comparison between their sound recordings and the standard pronunciation and correct them in time, and these soft programs help students deal with pronunciation difficulties.

IV. Negative Effects of CALL

4.1 High Education Cost Makes Education Unfair

Although the price of computers has declined, but its purchase and maintenance costs are still high for the majority of people. Besides, with the rapid updating of computers, replacing the older version with the latest version will cost a lot of money, which many people cannot afford. Similarly, this is true for all the schools because in most cases they cannot afford to pay for the replacement of computers. Some scholars believe that CALL increases the cost of education and hurts the fairness of education. When computers become the basic needs of students, low budget schools and families with low incomes often cannot afford to buy a computer for economic reasons. Therefore, for those poor schools and poor students, this is a manifestation of unfair education.

4.2 Resources Targeted are not Coincident and Time-consuming for Use

The computer can not make teachers’ teaching progress well, and soft wares are not designed and operated completely for teachers’ teaching as well. Therefore, teachers must learn to adjust, improve and make up for the shortcomings of these soft wares. Compared with the traditional way that teachers deal with textbooks, teachers need to spend more time and energy in the process of understanding and mastering the way of using CALL software because teachers carry out their teaching tasks in the classroom with the CALL, instead of simply browsing it in the computer screens. Teachers must have a sense of comfort in the use of CALL in a computer language lab and the purpose of using CALL is to make the most of it. In addition, it is also important to choose teaching and learning software programs that are
suitable for students' learning level. If these teaching and learning softwares are not suitable for students' learning level, the related teaching activities will be blocked, and the foreign language teaching and learning will be uncertain.

4.3 Teaching is Inflexible and Lacks Human Touch

After all, the computer is a machine; it can only be designed to complete the work in accordance with the procedures. Computers are very complex and powerful, but they still can not replace teachers. Because the computer can not fully identify the natural language, it can not meaningfully and friendly communicate with users, but it can only give responses to the specific orders or programs made in advance. Therefore, many CALL courses can not meet the individual needs of users. However, the learning characteristics of foreign language or second language learners are different, and the situation is different. Moreover, all kinds of learning are always dynamically changing. In addition, due to the limitations of computer artificial intelligence, computer technologies can not solve the unexpected problems students encountered in learning, and teachers can give timely responses or replies for those unexpected problems students encountered in learning.

4.4 Technology Updates Fast and Teachers Lack of Training

Both teachers and students need to be trained in computer applications. It is a big challenge for teachers and students to accept a new technology because many people may not be interested in computers and the internet. They may prefer to use the traditional classroom teaching methods because the use of CALL for foreign language teaching requires them to learn a lot of new knowledge about the computer and the network in addition to language itself. For students, it takes a lot of time and energy to learn basic skills of using computers before they start to use CALL to learn a foreign language. Many teachers do not have enough technical knowledge of computers and the Internet, and the new CALL courses and softwares are developed continuously, which makes them cope with them powerlessly.

4.5 It Requires High Techniques and the Breakdown is Hard to Deal with

Due to technical barriers, the computer can not solve many unexpected accidents. In the process of foreign language teaching, teachers often encounter technical barriers, such as viruses, network connections, and system failures caused by improper operation of students. Although the computer does not often appear these problems, but once those problems appear, we are facing the technical problems such as troubleshooting. Especially in the process of teaching, if the computer fails, teachers may be in an embarrassing situation and even waste of time. If there is a fault in the study period of students' autonomy may lead to loss of data and practice works, so students have to start doing these exercises from the beginning, so it is a great challenge for those students who lack knowledge of computer technologies.

4.6 It Lacks of Interpersonal Communication and Multi-level Interaction is Difficult to Realize

The use of CALL means that students have more time in individual learning state, which is clearly not conducive to the cultivation of normal communication between teachers and students. And it is one of the teaching goals to strengthen the multilateral interaction between teachers and students in the language classroom. In other words, the use of CALL can be a good human-computer interaction, but if we are a little careless, it is hard for us to achieve the
teaching objective of interpersonal communication in teaching. There is only a theoretical possibility in the process of using CALL to carry out teaching activities in pairs because many students use mother tongue to discuss related strategies and show their ideas in the actual teaching for convenience. In addition, not all the teaching activities are suitable for using computers. For example, computers can not solve unexpected events and language ambiguities, carry out open-ended dialogues and give feedbacks to some open-ended problems and so on.

V. Conclusions
To explore the past and look forward to the future, interest of using computers in foreign language teaching and learning is still growing. In addition to its powerful simulation function, the computer also shows great potential in foreign language teaching and learning. Looking back the evolution of the development process of CALL, that we discuss the positive and negative effects of CALL on foreign language teaching and learning will help to promote the proper and correct use of CALL in foreign language teaching, to avoid the misuse and abuse of it, so as to promote foreign language teaching and learning effectively.

References