The Difficulties and Challenges of Teachers’ Integrating Computer Assisted Instruction into Teaching

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ABSTRACT

This project aims to investigate and discuss the effect of teachers’ integrating computer-assisted instruction (CAI) and multimedia into teaching. Due to the thriving development of internet technology, in recent years more and more teachers have tried to apply the internet technology to teaching in order to stimulate a richer English environment. In English teachers’ teaching environment, teachers obtain different kinds of dynamic teaching materials. All these materials are quick, cheap, and available from internet. The electronic network system provides opportunities for “real world teaching and learning”.

However, how to use instructional technology to practice English teaching successfully and efficiently is not an easy task. The instructors should understand the development of CALL, the trends of instructional technology, and principles applied in technology. In the study, during the process of teaching in the computer-assisted environment, the teacher encountered numerous difficulties and challenges from students’ presentation, and assignments. The findings of problems are (1) inefficient computer facilities, (2) administrators’ ignorance, (3) teachers’ belief and teaching styles, (4) teachers’ computer competence, (5) teachers’ burden, (6) Students’ computer competence, and (7) the government support. The challenges that teachers face and solutions to the problem are to (1) fulfill facilities, (2) build up innovative teaching ideas, (3) improve computer competence, (4) participate in conferences, seminars, and teaching practice, (5) reduce teachers’ work load, (6) do self evaluation, (7) and ask the government for help. Finally students’ self evaluation and teachers’ rubric of Web Quests are presented to teachers’ improvements for the future.

INTRODUCTION

With the change of times and rapid development in technology, computer assisted language learning has become a trend in recent years. Multiple multimedia has connected the new technology education. Internet has opened a main language channel for teachers and students. Many students use the internet resources to exchange ideas with their peers. Technology makes students obtain individual instruction designed to meet their specific needs (Alessi & Trollip 1985; Yeh, 2002). Teachers are supposed to catch up with the new trend to enhance students learning.

Recently, teachers’ teaching task is growing more and more different from that of the traditional teaching. Teachers are not only instructors but also assistants to students’ learning. Now teachers should try to inspire students’ potentials, and give them chance of creative and critical thinking. The role of instructors in this modern environment of CALL has become active, creative and innovative. Han Yu (768 – 824), a famous Chinese scholar and teacher, stated that the teacher, what is called, is the one who transmits correct principles, teaches skills, and explains perplexity in his essay. These duties are also true for today’s teachers. As instructional technology progresses, today’s teachers should utilize state-of-the-art technology to carry out their duty to instruct skills in an effective and efficient way.
Facing the coming of e-generation and significant change of current language teaching and learning environment, teachers should adjust their teaching to meeting the need of society, be equipped with knowledge and skills of the computer technology. Every teacher should have e-learning perception, computer technology training and then the teacher will face new challenges to adopt new appropriate instructional strategies and to facilitate student’s learning. It is teachers’ duty of how to put CAI into practice that can bear the fruit of teaching and learning. Therefore, how to apply computer assisted instruction into educational technology efficiently and effectively is English language teachers’ main task (Wei, 2005).

LITERATURE REVIEW

The Brief History of Computer Assisted Language Learning

In recent years, computers have become so widespread in schools and homes that their uses have to be re-examined. According to Warschauer (1998), the development of CALL is divided into three main phases, behaviorist CALL, communicative CALL, and integrative CALL.

Behaviorist CALL was the first phase of computer assisted language learning implemented in the 1960 and 1970s. Its feature was repetitions language drills including mechanic drills and integrative drills, which seemed like drill and practice method under principle of stimulus response formation. The programs of this phase were based on then main behaviorist theories of learning. Drill and practice courseware was based on the model of computer as tutor (Taylor, 1980). A number of CALL tutoring systems were developed in the era of the mainframe and the best-known tutorial system PLATO. The PLATO ran and on its own special hardware, including vocabulary drills, brief grammar explanations and drills, and translation tests at various intervals (Rogers, 1985).

Communicative CALL based on the communicative teaching approaches promoted communicative competence and real communication. It appeared and became outstanding in the 1970s and early 1980s (Underwood, 1984). The first model communicative CALL was used as a tutor, who gave students more choices, control and integration. Besides using computer as a tutor, computer should play the roles of a stimulus and a tool (Taylor, 1980). The former role adopted communicative activities to encourage learners. And the latter role enabled students to understand and use the language through word processing, spelling and grammar checking desktop publishing programs (Warschauer, 1998).

Integrative CALL emerged in the late 1980s and early 1990s based on multimedia computers and the Internet was aimed to integrate the four skills (listening, speaking, writing and reading) as well as technology in the language learning process (Warschauer & Healey, 1998). For language students, they could involve themselves in their learning in a more authentic learning environment by interesting all language skills. Now, the rapidly developing internet further equips computers with features to facilitate worldwide communication and to access to wide sources of real time materials. It is thus not surprising the EFL will have to get on the stage of CALL in the future development.

Multimedia in the CALL Classroom

According to the Gayeski (1993), Multimedia as a class of computer-driven interactive communication systems which create, store, transmit, and retrieve textual, graphic, and auditory networks of information. Roblyer (2003) also stated the multimedia conveys the notion of a system in which various media are integrated into a single delivery system under computer control.
Today’s multimedia is integrated into the CALL classroom. Multimedia allows a variety of media such as texts, graphics, sound, animations, videos, and creates various integrative language environments. The students can obtain the multimedia resources and navigate their own path simply by pointing and clicking the mouse.

The Significance and Trends of Instructional Technology

Instructional technology has been defined as "applying scientific knowledge about human learning to the practical tasks of teaching and learning" (Albion, 2001). Technology is certainly a part of the landscape of society many people conclude that technology logically should also play a key role in education. Jonassen (2000) stated that the purpose of the educational technology is the effective achievement of measurable learning objectives. Educational technology is especially important because teachers are eager to help students reach high-level, worthwhile objectives, in the context of limited time and resources. Along with technology and systematical design, teachers can make the instruction more individualized, valid, accessible and economical (Wang, 2000). Hiltz’s research (1995) concluded that computer assisted learning can make the internet curriculum more interesting, lively, flexible, and effective.

According to Roblyer (2003), instructional technology revolves around three areas of study: (a) instructional design, (b) instructional media, and (c) instructional computing. So instructors are to design CALL lessons and seek appropriate media based on students need. Furthermore, instructors are supposed to evaluate whether or not the instructional materials are suitable for. Then computer assisted instruction (CAI) is an efficient way to solve the instruction problems. Ely (1995) identified eight trends in educational technology as follows:

| Computers are prevailing in schools and higher education institutions. Actually every student in a formal education setting has access to a computer. |
| Access to television resources in the school is almost universal. |
| Educational technology is increasingly available in the home and community setting. |
| There is a new insistence that teachers must become technologically literate. |
| Networking is one of the fastest-growing applications of technology in education. |
| Advocacy for the use of educational technology has increased among policy groups. |
| New delivery systems for educational applications have grown in geometric proportions. |
| Educational technology is perceived as a major vehicle in the movement toward education reform. |

Several studies showed the need to integrate technology into the learning process, the need for adequate teacher-training and preparation time, and the need to use online technologies to bring the world into the classroom and the classroom into the world (Abramson & Brown, 1997).

The Principles and Factors are Applied in Technology

The common rationale for using technology is based on two major points. According to Miller (2001) societal inevitability theory, technology is everywhere. And researches have been shown that using the computer is efficient on education. People use technology because technology can do certain necessary or desirable tasks more efficiently or effectively than people. The principles and factors of education for applying technology into education are as follows:

| Motivation | (1) Attract students’ attention |
| (2) Enhance the perception control of students |
| (3) Encourage students to participate in activities |
The special function of teaching

(1) Help students to find problems and solutions
(2) To trace the students performance of learning
(3) Help students to connect and get information and educational resources

Help new teaching strategies

(1) Cooperative learning
(2) Shared intelligence and distributed intelligence
(3) The solution to problem

Enhance teachers’ productivity

(1) Deal with heavy burden
(2) Save time to do many designs of curriculum

(Applying computer technology makes teachers have rich productivity, teaching effect, and change students learning styles, which can make the relationship of interaction and connection between teachers and students closely. So more and more educational researchers emphasize the issue of integrating technology into teaching.

THE STUDY

The aim of this project was to give students the opportunities to enhance their English abilities, and develop communicative skills. The project focused on producing multimedia materials and using power point to introduce traditional, special cultures in Taiwan, and had to integrate computer technology into the training of English listening and speaking skills through movies, videos, and CD ROMS.

During the speaking and listening course in CALL environment, the teacher set up E-learning campus. Students had to post their assignments, watching other groups’ report to give their opinions and to correct each other’s assignment, using e-mail, bulletin board and chat room to exchange to obtain much more resource. Several items were noticed:
1. Four or five students formed a group in cooperative learning.
2. The teacher gave the students a specific topic “A trip to a historic attraction and scenic place”, playing the CD Rom to motivate learning.
3. The teacher explained to students how to search resources, connect related web-site, and showed students to do procedure according to the task assigned.
4. Each member in the group was responsible for his own work then group discussed the assignment together and brain stormed with each other to integrate their opinions to solve their difficulties.
5. After discussing, each group took a picture and video, modified the scripts and added music effect to prepare for their performance.
6. The students visited travelers, interviewed the employers of the stores, collected information and recorded the viewpoints.
7. Each week the group students posted their report and the group revised the report each other on the e-learning campus.
8. The group students’ presented their product by video and power point.
9. The teacher and students examined together related items, including introduction, contents, pictures, recommendation, summary of the topic; besides, key words and phrases were necessarily presented.

The group had to describe the difficulties and challenges they faced when they took part in their activities. Finally the performers of each group presented three or four questions to ask other teams. On the other hand, the other groups would ask performance some questions to understand the difficulties and the result of presentation. The teacher gave students suggestions and offered self and group evaluation sheet to students to record their activity and rubric of Web Quests to the teacher to assessment the project.

It is hoped that instructional technology will be improved and more efficient and convenient to foster CAI in language learning environment in the future.
During the process of teaching in class, the challenge encountered was the teacher had to direct students what to do and how to solve the problem when students took part in the activities. Technique difficulties caused several problems such as how to film and made them interrupt their task, and edit. The other challenge was to revise each other’s assignment on the internet. Another problem was that some students were distracted easily and surfed the internet, played the game. The teacher did not control easily in class. Students did not cooperate with others in the team. And they often complained their work assigned in the group was not fair.

DIFFICULTIES OF APPLYING COMPUTER ASSISTED INSTRUCTION TO TEACHING

Applying the computer technology in English class is so complicated and important that we don’t ignore it, but nowadays using CAI strategies is still not pervasive. Several difficulties and challenges need to be solved; several conditions have room to be desired. The researcher analyzes as follows:

The Facilities of the School and Classroom
The computer was not always stable, teaching software was insufficient, the computer classroom was difficult to use, and the administrator and the programmer had no enough time to aid teachers in time. And mechanics were necessaries to maintain and remedy computers.

Related Administrators’ Emphasis
The school lacked human resources. The budget about maintaining computers was shortage and equipment of the computers was limited so the computer was not necessarily a friendly user. The biggest problem was lack of the principle’s and the administrator’s sufficient support. So teaching practice in CALL was not easy to set into action.

Teachers’ Teaching Beliefs and Styles
Teachers’ attitude and beliefs play an important part. Whether teachers decide to apply computer technology depends on their beliefs. Based on their beliefs that technology can enrich the current curriculum, the teachers can make every effort to integrate computer technology into English class. If teachers would like to make teaching methods creative, innovative and lively then teachers’ teaching techniques would be designed, planned, innovated, and evaluated. So the teachers’ attitude and beliefs influence teaching and learning effect of the students (Fang, 1996).

Teachers’ Computer Competence
Teachers’ computer competences affect teaching effects. In the course of the process of teaching, teachers act as facilitators, designers, guides and assistants (Warschauer, 1998). So teachers’ technology competence should be enhanced. If the teachers are lack of competence, such as computer multimedia contents presented, systematic teaching models applied, and multimedia sources utilized, it is impossible for the teachers to integrate technology into teaching efficiently (Wei, 2005).

Teachers’ Heavy Burden
The teacher posted important information on the bulletin board and reminded the students’ assignments and test scores. The teacher always spent much time to deal with the computer shutdowns and contacted mechanics and programmers to repair the computer right away. More importantly, the
teacher designed curriculums and revised teaching materials to satisfy students’ need. So in the course, the teacher played multiple roles (Warschauer, 1998).

Another problem was that some students were so lazy that they relied on others instead of being responsible for their own work; these students wanted a free ride. Classroom management problem was not easy for the teacher to control students’ noise like chatting on web-site, playing games, or doing their private matters in class (Wang, 2000).

Students’ Computer Competence
The teacher always found that a lot of information students collected was copied, and posted. Some were not arranged; some were finished by others. Still other information was plentiful but useless because they seemed to have no abilities of organization, data collection, and operation of computer. To raise learning effect, enhancing students’ computer competence was urgent (Chien, 2004).

THE SOLUTION TO THE PROBLEMS OF APPLYING COMPUTER ASSISTED INSTRUCTION TO TEACHING

From the above-mentioned problems the researcher tried to present some suggestions below:

Computer Facilities and Administrators’ Emphasis
Adequate computer facilities can facilitate teachers to use computer techniques and increase the opportunities of teachers’ applying technology to teaching. Besides, school administrators’ support, the government subsidy, and professors’ help are indispensable to carry out the innovative, creative technology teaching.

Build up Teachers’ Concept and Teaching Beliefs
To catch up the trend of modern technology and meet social need, teachers should adjust their pace to hold enthusiastic, continuous learning attitude. To face the challenges and difficulties of technology in education, teachers should take advantage of multiple multimedia instructions, and increase communicative activities to enhance effect of teaching and learning. As long as teachers are willing to attempt to do it they will gain a lot of appropriate strategies of technology teaching. Teachers’ patience and perseverance are necessary; through such perseverance they can be able to elicit students’ potential ability in this computer instructional method.

Improve Teachers’ and Students’ Computer Competence
When technology is applied to classroom instruction, teachers have to be familiar with the operation of the computer. Teachers with the same abilities and interests gather together for teacher-development groups to design curriculum, arrange teaching materials, and discuss related problems then share their experiences to reach their expectations and goals. So teachers should have abilities of using computers. In order to push technology teaching, students should be also familiar with the skills of using computers, such as basic computer literacy, data processing, English and Chinese input, and the use of software.

Reduce Teachers’ Workload
To reduce teachers’ burden and to enhance the effects of teaching, teachers should train students as group leaders to aid them in their courses. In addition, teachers should have contact with the computer
programmer close and then teachers with programmer and group leaders could maintain the operation and management of computer together such as e-learning campus, bulletin and discussion board, on-line test, and chat room (Wang, 2000).

Do Self Evaluation

Gay & Airassian (2000) emphasized when the teacher adopted an innovative technology teaching, the teacher should have reflective thinking, and see whether the strategy was helpful to students and whether the new method in teaching was much better to students. Teachers had to do continuously based on the result, and then they could make some improvement (Lin, 2000). Teachers needed to be facilitators, organizers and evaluators; they could control the pace of teaching activities (Warschauer & Healey, 1998).

In the age of integrating technology into teaching, the teachers’ task is both difficult and challengeable, so teachers must take participate in related seminars, conferences activities and practical lessons to seek for professional members to solve difficult problems. Regular evaluations, strategies revised at any time are necessary for teachers to find the most appropriate and efficient methods to help students reach the best learning outcomes.

CONCLUSION

This process of applying new technology in English teaching is a challenge every English teacher will have to face. Applying computer assisted language learning to teaching has become a new trend to the advanced countries in the current world. Meanwhile, information technology and multimedia teaching will be a direction that the government advocates in our educational policy. Whether there is integration between technology and English teaching efficiently and successfully depends on the teachers’ efforts and professional abilities. More importantly, the government and education authorities concerned should put emphasis on the need of information technology in schools, fostering the coordination of policy and resources. Although the integration of technology into English is difficult and complicated, it is suggested that teachers can build up confidence, and consult with the professional teachers to continue innovation. It is hoped that the difficulties the teacher has faced in the study can serve as the future reference for improving language learning strategies in college English teachers.

REFERENCES


