電腦科技與網路學習在語言學習實施上的考量與建議

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摘 要

　　現今很多教師普遍將電腦科技運用於語言教學，但是如何將其運用得更為有效率，乃是教師所關切的。此項研究主要在探討使用電腦上網學習，有哪些因素可以列入考量，並提供一些教學上的建議。再者，本研究也將探討使用電腦輔助學習的同學，慣常使用的學習策略，以及一些常見的學習行為。資料蒐集主要來自於訪談。參與者乃大專院校學生。研究發現將電腦運用於教學上，有些因素可能需要加以考量，例如學習態度、學習方式、教材的選取、教師時間上的掌控、以及學校與科技支援等。因此教師可以採取不同的教學方法與技巧，使教學更具多元化，以達較佳的學習成效。

關鍵字：電腦輔助學習、語言教學、學習策略、學習行為。

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The Implementation of Technology and Online Learning: Considerations and Suggestions in Language Learning

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Abstract

Nowadays many language teachers are using technology to complement their classroom instructions. The main concern is how to make computer education work more effectively. This study aims to explore factors to be considered in implementing computer education. In addition, students' learning strategies and learning behavior were also explored through the use of computers. Implications of using computer-assisted teaching will also be suggested. Data were collected through interviews. The study used descriptive analysis approach. Factors such as learning attitude, learning style, the choice of the materials, school and technical support and time management might affect computer education and online learning. Teachers can vary their teaching approach and adopt appropriate instructional skills in order to make teaching and learning more diverse and possibly more effective.

Keywords: Computer education, language teaching, learning strategy and learning behavior

Introduction

Computer technology has been widely used in education for some considerable time now, with the use of websites having the potential to improve language learning accessibility. The benefit of distance learning is also an approach that enhances diverse teaching methods. Compared with traditional lectures, the students' knowledge base can be expanded when surfing online for information, which can in turn develop their cognitive competence. Web-based learning allows students to learn languages in a suitable environment, which has the ability to broaden their overall view. In addition, online learning courseware can offer students the development of new approaches to obtaining information (Pennington, 1989). Today's computer technology has now been accepted as a new teaching aide; therefore it requires a new pedagogy. Some researchers have explored the effect of using technology integrated with language teaching. The advantages that Web courses have brought to language learning have made multi-dimensional teaching practical. However, some considerations need to be considered in order to make the implementation of computer education more effective.

A. Web-based teaching approach

Web-based instruction differs from traditional classroom instruction. Khan (1997) gives Web-based instruction a definition that Web-based teaching is a media-based program, which makes it convenient for learners to access resources and offers a meaningful learning environment where learners can develop their learning skills. Computer assisted language learning (CALL) includes a change in language teaching consisting of three knowledge sources, such as computer skills, a design for CALL, and English teaching (Liu, 1999)

Seufert (2003) described five dimensions for the implementation of E-learning in German-speaking countries including a stable functionality (technology), using resources effectively (strategy and management), new learning and teaching culture (culture), infrastructure, good organizational management and the development of media

and new learning background.

Reushle (2010) thought that online settings could offer a friendly environment that would maintain learning situations including interactive learning communities. Abdul and Hashim (2004) mentioned that E-learning will become a tendency for future learning, especially in distance learning, with the Internet or Web-based usage becoming increasingly teaching and learning trends. However, Wall (2004) claimed that there had been an important finding that blended learning (e.g., face to face classroom learning in conjunction with online learning), were more likely to succeed when compared to exclusive E-learning programmes. Teachers can try different teaching approaches, aside from classroom activities or lectures, and utilize technology education as a complementary teaching aid.

B. Theory of language teaching

Concerning the first teaching framework, Laurillard (1993) claimed that the first teaching model concerned with traditional teaching "learning through acquisition" focused more on lecture, broadcast and put notes on the Internet. The second model "learning through discussion" usually involved personal interaction, but he mentioned that computer-mediated communication could duplicate this to a certain degree. The third model "learning through discovery" can be practiced through computer-aided reproduction in the lab. The fourth model "learning through guided discovery" can benefit all including other models. It has been used by pedagogues for a considerable time and supports the concept of "resource-based learning." Laurillard' (1996) conversational theory placed emphasis on the necessity of meaningful and productive feedback; thus, students had to reflect on their learning when working with study material. As Garrison and Kanuka (2004) mentioned, blended learning can be an effective way to facilitate the learning process. A combination of technology together with the class lectures can make teaching more productive to meet students' needs.

C. Purpose of the study

More language teachers are using technology to complement their classroom lessons. But some students might not be interested in this new teaching approach of total emersion. Computer teaching has some areas that need to be considered in order for it to work better. This study explored the factors to be considered and offered suggestions for computer education. In addition, the study wanted to find out what learning strategies and learning behavior the students used through the use of their computers.

D. Research questions

1. Are there any factors that might affect the use of computer education?
2. What are their learning strategies in computer education?
3. Are there any particular benefits or disadvantages in learning behaviors when using online learning?
4. Are there any suggestions related to computer education?

Literature Review

There are some factors which might affect the acceptance of using computer programs including learning attitude, learning style, learning culture, and language proficiency. In Huang's (2001) study, most girl students had extensive computer experience and showed more active attitudes than boy students did. The result showed that girls paid more attention to Web-based English courses than did the boys. This might be a factor influencing their learning process. Asian students tend to use a passive learning strategy embedded in their culture that has an effect on the implementation of E-learning, whilst pointing out that the marketing of the technology should inform people that it is easy to use and has distinct advantages (Toh, 2003). Schonwald (2003) claimed that in a virtual classroom, students' learning attitude had to change in order for them to become active learners; however, students might not be too happy about this. Therefore, dealing with resistance can be an important factor for the implementation of E-

learning (Brake, 2000).

Hines (2012) in his study mentioned that technology-enriched classrooms revealed remarkable learning results such as positive attitudes and more interest in their learning materials. He claimed that CALL has a helpful outcome on learning accomplishment. Aydin (2007) also found that EFL learners have positive attitudes towards the Internet. They feel excited about getting information on the Internet as they think it is important for improving cultural exchange and because it makes their life simple. Yamauchi (2009) discussed how technology could help students promote motivation and help teachers provide ways to meet learners' needs. She found that weblogs and online materials incorporated into activities made them feel ease at using computers and found creative ways to express their thoughts.

Diaz and Cartnal (1999) in their study claimed that online students' learning styles differ from classroom learning with one preferring independent learning, and the latter preferring dependent learning and collaboration. Sanders and Morrison-Shetlar (2001) showed those who were under the age of twenty held a more positive attitude as opposed to those who were closer to twenty-three. Thus, age can be a factor influencing the use of Internet for language learning.

Bhati et al., (2010) examined different factors which might have an impact on the implementation of computers as a pedagogical tool. They found that some factors were involved such as cost value, personnel perceptions and institution planned programs for the implementation of the technology. Park et al., (2009) in their study also investigated EFL teachers' perceptions when using CALL and factors that might affect their use of computers in class. The results showed that teachers have a positive attitude toward using technology and think that using the computer can improve their teaching diversity. Lu et al., (2008) in her article aimed to discover the role that the teacher should have in using the computer as a teaching approach and the effects that could help develop learners' with listening and speaking skills. It was found that teachers' role was of multiple aspects including those of organizer, planner and evaluator. These roles have a great influence on learners' language proficiency progress.

Huang's (2001) study found that students whose language proficiency was high

showed a high interest in a Web-based English course. But those who were not willing to participate in the course had changed their attitudes and took part in the activities. In addition, their reading comprehension in obtaining information also needed to be taken into consideration when their levels of proficiency were low. Moreover, some training topics, such as leadership skills, may not be suitable for E-learning because they need more human contact (Toh, 2003). Furthermore, Levy (1997) pointed out that if we overuse the technology, we may focus on too much reading and writing instead of listening comprehension and speaking fluency, and in particular speaking may be neglected. In this sense, adopting a different teaching approach may make learning more productive and increase the volume of information conveyed and knowledge gained.

METHOD

A. Participants

Forty Taiwan college student participants were interviewed on their opinions concerning computer-assisted education. They were sophomore and junior college students, majoring in English. There were 32 females and eight males who participated in this study with an average age of 20.2 years. They had all experienced using online learning in the classroom.

B. Procedure

There were 15 questions which were used to better understand their learning strategy and learning behavior, as well as factors that might affect their use of computer education. The interview questions were used in this research suggested by the study of Buch and Sena (2001), and were adapted to it accordingly. The pilot study was also conducted for data analysis in order to confirm the preliminary results of the study. Each interview took approximately 30 minutes.

C. Data analysis

The study used descriptive analysis. Interviews were conducted for the use of

computer education and online learning because the purpose of qualitative research was to "engage in research that probes for deeper understanding rather than examining surface features" (Johnson, 1995, p. 4). Therefore, a qualitative research was conducted in this study in order to discover the participants' learning strategies and any factors that might affect their on-line learning efficiency. As the participants can express their point of view, the analysis can help understand the participants' perspectives on a particular point. Data were analyzed based on the students' responses and categorized their similarities or differences accordingly. Observation will be also used to complement data analysis.

Findings and Discussion

Interview questions are discussed as follows.

In answering question 1: "Do you like to learn English using computer technology?" Most participants (30 out of 40) said that they liked to use computer technology. One participant said "When I had my friend calling online, I would automatically have an online talk." However, a few respondents emphasized that interpersonal relationships can't be substituted for computers and that they preferred to have direct interaction with teachers. Four participants replied that they prefer to ask questions face to face.

In answering question 2: "Does your learning attitude affect your use of computer learning?" Most students (32 out of 40) had a positive attitude towards technology teaching. Only a few respondents (6 out of 40) said that they were passive learners and did not like to do exercises online. Similarly, Sanders and Morrison-Shetlar (2001) found that most students held a positive attitude towards the use of web-enhanced teaching. In Huang's (2001) study, most students had a positive attitude toward using computers for language learning. They thought lessons were more interesting and lively than in conventional classrooms. Therefore, understanding students' attitude toward computers is very important. Teachers can change their lesson plans to meet students' needs.

In answering question 3 "Does your learning style affect your preference for using computer education?" Participants' responses varied. Most participants (30 out of 40) agreed that the learning style affected their use of computer education. Similar responses were as follows. One respondent stated, "I'm dependent, so I prefer the teacher's lecture." Another respondent stated, "I'm independent and an active learner. I like to surf online and practice lessons whenever I want." Learning style is an important factor in language learning. Students can interact with their peers and the teacher in class, and with the addition of new technology they can have more virtual classroom activities, which in turn create a broader online information and education community. Some teachers might consider their class lessons to be relatively the same as online classes. Thus, teachers should be aware of individual differences and adopt different teaching approaches accordingly.

In answering question 4: "Do you think the use of computer can help you develop your speaking skills?" In interviews, some respondents (7 out of 40) thought that speaking skills couldn't be fully improved through CALL. Some teachers may think that student's speaking ability might be difficult to improve through the use of a computer. However, with speech recognition technologies, computers and the Web can function to help language learners (Chen, 2001). The technique and the content of the speech need software designs to be simple and have more functions to make it more user-friendly.

In answering question 5: "Are there any factors that might affect your use of the computer?" In addition to some factors mentioned above, other factors that the participants commonly mentioned are as follows.

(1) The choice of the materials: Most participants (23 out of 40) said if the material is difficult, they might lose learning interest. In interviews one participant said, "If the material is too boring, I'm not motivated to learn." Their learning motivation would be low and this in turn affects students' learning results. Thus, teachers need to offer appropriate materials based on the students' level and design their Web courses accordingly.

(2) Technical and school support: If the computer systems had technical difficul-

ties such as a slow downloading speed or if a computer crashed, the course would be interrupted and students would complain about technical problems. One respondent's response was typical, "If it takes me a long time to use the Internet or if the computer crashes, I don't really feel like learning." In addition, infrastructure limitations and lack of school support makes implementation difficult to achieve.

(3) Time management: Some participants (15 out 40) agreed that it was important to consider how to control the class, especially in a computer lab. One respondent said, "My eyes feel sore after surfing online for too long." Time management is essential in order for the class to move smoothly. (Huang, 2001) In order to produce more effective learning results, teachers must also consider time allocation. Teachers can assign a Web course and also offer students activities to practice the lessons with a scheduled break to avoid causing distraction and tiredness.

(4) Language proficiency: Ten participants thought that the participant's language ability can be a factor affecting their use of computer education. One participant said, "If I have too many difficult words, I don't feel like reading through." Some students might not understand the content well and they just copy and paste directly from the Internet for an assignment. Teachers need to understand the students' level to provide the correct supplemental materials, so that struggling with difficult resources can be avoided.

(5) Economic situations: Two participants said that it might be possible that some students might not have computers at home due to financial problems. One interviewee replied that he did not have a computer at home so he was unable to finish assignments at home. This complication can be found during computer implementation.

In answering question 6: "What difficulties have you met in the use of computers?" Most participants (28 out of 40) said they encountered some difficulties, including computer breakdown, or difficulty finding the materials they wanted. Thus, basic computer training is essential before taking a Web-based course. In interviews, one participant said, "If learners do not have a good command of fundamental computer skills, they might have problems with online activities such as using the software." Another participant said, "I'm not familiar with using the software and downloading the

material."

In answering question 7: "Does your learning motivation affect your use of computers?" Most of the interviewees (27 out of 40) thought that motivation was a factor affecting the use of computers. They said that they needed to have learning motivation in order to practice lessons online. For instance, when they found the materials difficult to understand, or if the subject matter was not considered useful for their future career, they might not be motivated. Thus, as mentioned before, providing interesting materials, rewards or offering game activities can help to make learning more enjoyable in such a way as to stimulate their learning motivation.

In answering question 8: "Do you think the surrounding learning environment can be a factor affecting your use of computers?" Some respondents (13 out of 40) said that when they were involved with other interests, they might automatically click on other websites such as Yahoo or chatting with classmates for fun instead of doing the assigned work. Thus, class management is important when providing a Web-based English course. Like Huang's (2001) study, elementary school students may not be able to control their loud voices, especially in a language lab. Therefore, when a Web-based English course is implemented in a computer lab, teachers have to pay more attention to classroom management.

In answering question 9: "What are your learning strategies for using computers online?" Do students have different learning strategies when working online?

In this study, students' learning strategies of using computers might differ, including obtaining information online, discussing materials online and opening different websites for learning. Examples of some common learning strategies the participants used are described as follows.

(1) Obtain information online: One participant said, "It's fast to search for information on line." Another participant said, "I don't need to go to the library. Using a computer saves me a lot of time."

(2)Socialize with friends: One participant said, "I make foreign friends and speak English with them." Another participant responded, "I use Facebook and MSN to socialize with friends."

(3) Discuss materials on line: One participant said, "I use Facebook to discuss questions with friends." Another participant responded, "I use Google and form group discussion to finish the assignment. We work together and write online."

(4) Record on line: One participant said, "I can record my voice and practice speaking skills." Another participant replied, "When recording, I can check my pronunciation problems."

(5) Send messages on line: One participant said, "I send emails to teachers and hand in my assignment through my computer." Another participant responded, "I send information to my friends through emails".

(6) Choose materials freely: One participant said, "I am free to choose materials and learn them from websites." Other participants' responses are as follows: "I watch movies online to practice listening through websites." "I download software so that I can listen to English songs."

(7) Open different sites simultaneously: Some participants' learning strategies are as follows: "I open different sites and read different websites at the same time." "I sometimes open a small site to watch movies while doing my homework." "I use English websites so that I can get immersed in the English learning environment In this way I can only read English."

In answering question 10: "Are there any particular benefits or disadvantages in learning behaviors when using online learning?"

(1) Physical factors: In interviews, some respondents said that it would be tiring to read material on the computer. One participant said, "I practice TOEIC online, but I prefer to practice with printed materials because my short-sightedness has gotten worse." Another participant said, "I can't make a mark like I did on textbooks.

(2) Independent learning: One participant said, "No classmates are around me. I have to be independent to learn." Another participant responded, "I can learn lessons online at home. If I make mistakes, no one can correct it immediately."

(3) Choose time availability: Some participants' responses are as follows:

"I can always practice lessons if only I have time." "I became an active learner. I can find free time to learn". "I find materials I like and practice." "I learn what I want

and can arrange the time when I want to finish my assignment. I can watch TV first and practice online later." "I feel comfortable and relaxed. I can eat while learning. There are no time limits."

(4) Repetition of practice: Most participants like to practice lessons repeatedly. Similar responses are like, "I can practice lessons on line several times." "I practice many times until I feel alright."

(5) Carry USB flash drivers: One participant said, "I can surf the learning materials online and I don't need to carry books all the time." Another participant said, "I can download materials to my USB flash drive. It's convenient."

(6) Rely on websites to search for information: "I use online dictionary to check vocabulary, but my ability to spell become weaker." "Checking information through computers is fast."

Suggestions related to computer education

The primary research questions have been discussed above. In this section, suggestions related to computer education will be further explored. Abdul and Hashim (2004) gave some recommendations, which can be applied in order to implement computer education successfully, such as teaching and learning methods online, curricula, teachers' training, infrastructure and school facilities. Toh (2003) also stated that the changing role of online learning had to be communicated efficiently; therefore, students will be less reluctant to accept it. In this study, implications of using computer-assisted education are suggested as follows.

A. Instruction preparation

Some teachers might think that classroom instruction may work the same as online teaching; however, Diaz and Cartnal (1999) and Grasha (1996) challenged these views. Liou (1999) mentioned that creating a useful Internet learning environment was essential. Teachers need sufficient preparation in designing computer education since the teaching approach may not be the same as in a conventional classroom.

Govindasamy (2002) claimed that most pedagogical principles, which are suitable to traditional classroom delivery methods, can also be related to E-learning, but these pedagogical principles should be extensive to support the rapid changes of technology. Additionally, pedagogical principles need to be included in the language measurement system where each characteristic is accompanied by clear guidelines in order to provide better teaching.

An effective language instruction includes different elements such as designing syllabus, selecting materials, the teacher's assessment and evaluation (Garrett, 2006). One interviewee said, "If I miss one class, I can practice the lesson online." As Driscoll (1999) mentioned, since Web-based instruction was different from traditional instruction, it required different abilities. For instance, verbal and nonverbal skills should be included and teachers should provide discussion on different websites. Teachers need to know how to use Internet teaching throughout the course.

B. The changing roles of teachers

Computers have changed the role of the conventional teacher. Similar to Huang's (2001) study, it was found that the relationship between the teacher and their students had changed. One participant said, "Because of interaction, I can talk to teachers more often through e-mail." The classroom was no longer simply dominated by the teacher, but instead the teacher was like a guide. In other words, teachers need to assist students' learning and be able to help them form different online communities for social context.

C. Technical support

There are some applications that make technology teaching work better including both technical and school support. Implementation will be based on budget, infrastructure and human resources, such as experience and attitude (Abdul and Hashim, 2004). The Ministry of Education and schools need to offer support so that computer teaching can move forward more smoothly. Information management systems need to be well organized for the convenience of the user. One participant said, "If it takes too long, I

feel frustrated." In addition, the new learning environment should be well equipped to avoid inevitable problems, such as computer technical issues and slow Internet connections.

D. Evaluation and assessment in computer education

The evaluation of computer education should include researchers, teachers and courseware developers (Liou, 1999). The evaluation can involve different types of investigation and assessment (Chapelle, 2001) as follows. The first stage of examination was based on whether the software was interactive. In addition, the examination focused on whether the activity offered the chance to correct the discourse for negotiation. Moreover, the examination evaluated learners' performance and results that should be examined. Teachers need to collect their work while checking for any adjustments in student performance or interaction. One participant said, "I received the assignment and had to finish the assignment on time in order to get grades." There are wider activities including writing learning journals on blogs, which can also be used as an assessment for developing language skills.

E. Courseware design:

Stevens (1989) puts it that the principles of the development of computer assisted language learning courseware are that courseware should be "intrinsically motivating, truly interactive, and eclectically selected" (31-41). Schrum (1998) stated that some challenges concern designing online learning such as additional time for delivering the course and establishing an online community. One participant said, "I like to learn vocabulary through animated pictures. I get a deeper impression from those pictured words." Activities can include collaborative learning and create social discourse in Web-based learning.

F. Computer assisted language learning (CALL) curriculum

Creating a supportive learning environment was necessary where students could develop their language skills and improve their communicative competence through a

well-designed online course. Liou (2001) offered good suggestions concerning CALL curriculum including planning the course carefully, providing updated materials, and making the course interesting and enjoyable. One participant said, "I like to watch a DVD and listen to their talk." Teachers can provide more lively and interesting topics to update the curriculum, thus making learning more fun.

Conclusion

Online learning has brought language teaching into a different dimension. Since the teaching and learning methods may differ from conventional teaching, their view of learning may involve learning culture, basic computer training, materials about E-learning, and a new learning environment toward different learning backgrounds. Factors such as the choice of the materials, technical support and time management might affect computer implementation. Learning attitude is also an important factor in language learning. Asian students tend to use a passive learning strategy, which is an important factor that influences E-learning implementation (Toh, 2003). In addition, learning style is also one of the factors. Some students who are independent might like to learn materials online. But for those who are passive or dependent learners, they might prefer traditional teaching, which is teacher-focused rather than student-centered. They are encouraged to practice online and give credits as rewards. In Web-based learning, students have to change their passive role and actively participate to become reflective learners in their learning process.

Teachers need to be aware of factors influencing their implementation of computer language learning in order to employ it more effectively. Teachers can vary their teaching approach and adopt appropriate instructional skills. Students' learning strategies and learning behavior of using computers might differ. Some learning strategies the participants usually used include obtaining information online, discussing materials with peers online, and cooperative group learning online. In addition, the participants might have different learning behaviors, such as practicing lessons online repeatedly, carrying USB flash drives around, or accessing different websites (Face Book, movies)

while doing homework at the same time. They like to choose their free time and learn the materials they want through websites.

The study had some limitations. This research was limited to college student's interviews. The participants are English majors; therefore, they only have a few male students in class. More study can include more male participants to see whether it has similar results in terms of gender roles. Future research will also be extended to interviewing language teachers to better understand specific problems of implementing computer technology in language teaching.

A. Implications for language teaching

In the first stage of implementing computer education or E-learning, teachers need to offer their students a comprehensive guide so that they can apply an appropriate learning strategy and receive benefits from learning (Toh, 2003). Providing collaborative learning can develop their cognitive skills and create social discourse. When teachers use computers as an alternative approach, language learning becomes more broadened and can enrich a wider scope of learning context. Teachers need to be well prepared and reflect on their teaching methods to make it more effective. They should be aware that not all students have the tendency to use technology to replace conventional teaching. In traditional teaching, students can have direct contact with teachers and receive immediate feedback. In this regard, face to face discussion seems more advantageous. Using computer learning may create a distance somehow. Thus, increasing students' learning motivation is important to make the transition from a dependent role to an autonomous one. When offering online learning materials, teachers can give students credits in order to encourage them to finish the assignment on time.

The combination of classroom lectures and computer learning can be a good way to nurture a learning environment. A variety of teaching approaches, including activities with computer support, can make language learning more fun. Chapelle (1999) claims that today's challenge for teachers is to help learners learn English because language learners spend more time using computers. In addition, English continues to be the primary language for many computer-based activities. Thus, providing interesting

materials in addition to specific Web course designs, can offer a better learning environment and at the same time create a more enjoyable atmosphere. With the help of the school, technical support, and an appropriate learning situation, computer technology can be a very helpful supplement in making teaching and learning more diverse and possibly more effective.

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Appendix

Some of the interview questions

1. Do you like to learn English using computer technology more than traditional classroom learning? Why or why not?
2. Does your learning attitude affect your use of computer learning?
3. Does your learning style affect your preference for using computer education?
4. Do you think the use of computer can help you develop your speaking skills? If so, please explain.
5. Are there any factors that might affect your use of computer?
6. What difficulties have you met in the use of computers?
7. Does your learning motivation affect your use of computer? Please explain.
8. Do you think the surrounding learning environment can be a factor affecting your use of computer?
9. What are your learning strategies compared to traditional teaching?
10. Are there any particular benefits or disadvantages in learning behaviors when using online learning?