Computer-assisted elementary Chinese learning for American students

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Abstract: Despite hopes and claims about benefits of computer-assisted language learning, few studies have documented actual cases about how American students learn elementary Chinese in a computer-equipped classroom. This paper deals with how to use computer as an educational tool to develop American students' Chinese language skills. The theoretical perspective is Interaction Theory; the three types of which, Negotiation of meaning, obtaining modified input and attending to linguistic form, offer the guidance in Computer-assisted learning. By means of observations, this study tries to answer three questions: (1) What is the best way to make use of computers? (2) How can teachers initiate the students to apply computers? (3) What's the relationship between the teacher and the students in a computer-equipped classroom?

Key words: computer-assisted; Chinese; learning

1. Introduction

Computers are part of the current thinking about schooling. Lindenau (1984, p. 119) argues that we are all in the midst of a microelectronic revolution, and pointed out that ignoring the arrival of such revolutions carried negative effects: "A blackboard-and-textbook system of education in the age of microelectronics will inevitably promote detrimental and far-reaching consequences". Today, more and more teachers become proficient at applying the computer to solve problems, and infusing the computer into the curriculum to enhance learning and understanding. This paper intends to discuss how to use computer as an educational tool to develop American students' Chinese communicative skills.

2. Literature review

Since the first computers emerged in schools in the 1950s and 1960s, much has changed. From the beginning, computers were tools. They are tools to help students and teachers perform tasks faster and more efficiently. Olsen (1980, p. 344) reports that there are distinct perceptions about the advantages of using computer assisted language learning: "users agree that the computer enables the student to learn more in a shorter time than is usual in a regular course". Dunkel (1987, p. 250) argues that there could be a potential waste of resources if pedagogy does not take advantage of new technological tools. Educational computing was given a boost between 1960 and 1975, because proponents believed that computers could revolutionize education the same way that computers revolutionized business. As the 1970s came to a close, though, it became apparent that would not be the case. The introduction of microcomputers in schools in 1977 initiated a change in attitude. Microcomputers brought computer power directly into the classroom. Ragsdale (1992, p. 683) reviews the research on classroom use of computers. He draws a distinction between using computer tools and applying them. Application, in his view,

means using computers to discover relationships一to use them to see things in new ways. Schank & Cleary (1995, p. 74) emphasize on learning by doing. They criticize: "we create courses of instruction that tell students about the theory of the task without concentrating on the doing of the task. It's not easy to see how to apply apprenticeship to mass education. So in its place, we lecture". It's known that in the past, learners were generally seen as containers, needing to be filled with factual information. Teachers were dispensers of information, and memorization was equated with learning. According to Warschauer & Meskill (2000, p. 303), the key to successful use of technology in language teaching lies not in hardware or software but in "humaware", that is to say, our human capacity as teachers to plan, design, and implement effective educational activity. Forcier & Descy (2005, p. 17) state that with an explosion of information and widespread, immediate access to it, today's students are faced, like never before, with the need to develop problem-solving skills. Computer-equipped classroom offers situations that the student will encounter in real life and allows the student to demonstrate his competence in completing various tasks. Recent publications in applied linguistics report the necessary study on language used on the internet. Crystal (2001, p. 5) said, "The electronic medium … present us with a channel which facilitates and constrains our ability to communicate in ways that are fundamentally different from those in other semiotic situations." Kasper (2002, p. 129) points out that because technology is now viewed as both a necessary component of, and a means to, achieving literacy, it must become an integral part of language courses, and computers ought to be used as a tool to promote linguistic skills and knowledge construction. Chapella (2005, p. 743) concludes that Computer-assisted Language Learning has moved from the margins into the mainstream and that there exists the need to conceptualize and investigate technology-based pedagogy in a way that can inform practice.

In recent years there has been a growing interest in computer-assisted Chinese language learning and teaching. Zhang (1998, p. 51) discusses and reviews the history of Computer-assisted language learning and some CALL programs for Chinese language teaching. Dew (1996, p. 15) further addresses the theoretical and pedagogical aspects of using computers in learning Chinese. Once a rare find, sites linking learners to information on the Chinese language learning are now too numerous to list including Da's webpage (1999), Yeo's webpage (1997; 1999) and Jun Wang's webpage (2005) etc. The problem is not in the finding but in filtering through the large quantity of the information. Ihde & JIAN (2003, p. 38) report the reluctance of some students to web materials. They attribute some of the students' negative attitudes to unenthusiastic teacher support and failure to integrate the materials into a larger learning environment. Their findings suggest that teachers and developers need to do more to prepare students for technology use, particularly with languages like Chinese, which have special technical challenges.

3. Interaction theory

Interaction theory is valuable for language development. Ellis (1999, p. 3) distinguishes the interaction that is used to refer to the interpersonal activity that arises during face-to-face communication with which can also refer to the intra-personal activity involved in mental processing. Both types of interaction can take place in Computer-Assisted Language Learning (CALL) tasks as the computer is used for a medium of communication or as a means of providing meaningful linguistic input. However, the computer can also act as the partner with which the learner interacts. Chapelle (2005, p. 750) presents three types of interactions based on Ellis' (1999) discussion of interaction.

Interactionists emphasize on the sequences of negotiation of meaning, obtaining modified input and attending to linguistic form.

Negotiation of meaning the sequences are as follows: the first turn shown acts as the trigger that initiates the sequence by introducing a word that the second participant does not know. The second move is an indicator that draws attention to the problem, lack of the knowledge of the unknown word. The response explains the meaning, and the reaction acknowledges the explanation.

Obtaining modified input In CALL, the problem is not to decide whether to simplify or elaborate the input, but rather to explore any means available to help the learner to comprehend the input.

Attending to linguistic form This idea is developed from the perspective of "intra-person" interaction, that is, within the learner's mind. Hegelheimer and Chapelle (2000) suggest that the evidence that the learner has attended to the linguistic form comes from sequences such as the following:

the computer displays $\longrightarrow$ the student acts $\longrightarrow$ the computer displays

The theoretical perspectives in the three types of interactions offer some guidance for studying learning processes in CALL.

4. The aim of this study

Despite hopes and claims about benefits of computer technology in language learning, few studies have documented actual cases about how American students learn elementary Chinese in a computer-equipped classroom. Considering the above review, this study tries to answer three questions:

(1) What is the best way to make use of computers?

(2) How can teachers initiate the students to apply computers?

(3) What's the relationship between the teacher and the students in a computer-equipped classroom?

5. Methodology

5.1 Research design

Questionnaire, personal interview, and observation procedures were used in this exploratory case study of 14 American Students who studied elementary Chinese in a computer-equipped classroom. The data were gathered from multiple sources. Observation of representative activities and examinations of relevant documents provided an additional check on the validity of the subjects' responses.

5.2 Participants

The participants were 14 American students of Eau Claire College (six males and eight females), with their ages ranging from 18 to 64, who were enrolled in a 4-credit Chinese course. From Monday to Thursday, they have 1 hour learning class for Chinese. That is, 4 hours per week. The whole semester lasts 14 weeks (56 hours). At the outset, all were assessed as being beginning Chinese learners. They completed a language background questionnaire, which identified some extraneous variable, as well as the learners' difficulties they met and strategies they often used in learning a foreign language.

5.3 The instructor

The instructor was a native Chinese speaker, who could speak English as well. Equipped with the experience of ESL teaching and linguistic knowledge, the instructor knew how to deal with the learners' problems and difficulties and how to motivate the learners. The instructor is the energy source (the flame) providing the

motivation (heat) for learning. The ideal model should be that the teacher directs the learning, applies motivation (the heat), and is a guide rather than a dictator.

5.4 The classroom settings

The classroom is equipped with computers, with text dependent multimedia software (Elementary Chinese for Overseas), Chinese word processors, Chinese-English and English-Chinese online dictionary and Internet. The chairs are movable for the learners to get together easily.

5.5 Observations of the classroom activities

Learn and practice Pinyin and the tones. It took 4 weeks to learn and practice Pinyin and the tones. Pinyin is the easiest way for Americans to approach to Chinese language. The learners learned them from the teacher and practiced them on computers through the multimedia software. They could see the way of the pronunciation and do exercises online. It proves that under some conditions the Computer-medium communication tasks can prompt the type of negotiation of meaning. The learners felt it easy to pronounce Chinese with the help of Pinyin. During these 4 weeks, the learners not only grasped the Pinyin but also were able to speak some Chinese sentences. Then the course went on to the second stage.

Learn how to write Chinese characters. Form the 5th week; the learners began to learn how to write Chinese characters. This is the most difficult time for the learners. The stroke is completely different from alphabets. Fortunately, the learners could learn and remember the order of the strokes with the help of the software, which shows the order of the stroke with smart calligraphy writing. The problem is that the learners always read the characters by means of Pinyin, since the textbook marks the Pinyin for every character. Without Pinyin, they couldn't pronounce the characters. To solve this problem, the teacher guided the learners into the third period.

Make use of word processors to type Chinese. Typing Chinese on a computer is different from typing English. When one types English, one uses the keyboard to type what he wants to compose. Inputting Chinese characters requires one to choose from various input methods. One of the most popular and easiest methods is using Pinyin. Using the Pinyin input method to type Chinese enhances the learners' capability in mastering Pinyin, recognizing and memorizing characters and in learning the words, for they need to know the pronunciation of words and identify the correct characters among a list of homophones to make a correct selection. The typing activities are as follows:

(1) The teacher read words, sentences and dialogue related to the text and the learners typed them out. This activity could also improve the learners' listening comprehension;

(2) On the next period of class, the learners should read them out without the help of Pinyin；

(3) The teacher designed a paragraph or a dialogue related to the text the learners had learnt for the learners to read and then type them out.

In this period, the learners experienced the negotiation of meaning, obtaining modified input and attending to linguistic form. Positive results were reached when learners were able to obtain modified input to help them provide access to meanings of the characters through hypermedia. The use of hypermedia annotations may also be interpreted from the perspective of "intra-person" interaction. This could be measured in terms of the fluency as well as accuracy.

Having mastering the typing skills, students could enter the 4th stage.

E-mail: student-student and student-teacher communication in online environment, collaborative communication takes place primarily through reading and writing with the help of the online dictionary. Collaborative online communication provides the learners with an audience with whom reading and writing

become the means to exchange information and build knowledge. It also helps them develop a sense of audience in writing, and encourages them to spend more time on reading and writing tasks, which included student-teacher, teacher-student, and student-student communications by e-mail in Chinese.

Roles for the instructor/teacher and the learners the computer-equipped classroom Chinese learning fosters diverse and changing roles for both the learners and the teacher. The learners have taken on multiple roles through their participation in different activities. Their changing roles have awarded them greater responsibility for their own learning. The computer-equipped classroom offers the students the opportunity to learn by doing and the opportunity to become part of a diverse community of learners who work together to construct language knowledge.

The instructor's role has also changed She has become both a knowledge sharer and an expert in the course. The teacher structured the activities, guided the students in carrying them out, and facilitated the learning process. Rather than creating knowledge for students in a teacher-centered model, here the teacher joined students as they discussed and worked through reading, encouraging them to discover and expand language knowledge through their own efforts and providing them with constructive feedback throughout the process.

Assessing students' capability in language skills Students' progress in learning Chinese depends on their performance on separate assessments in listening, speaking, reading and writing. Within the 14 weeks, the students were given 4 tests which included the 4 language skills, such as listening and answering to questions, recording what they spoke on certain topic, reading and making multiple choices and dictating what the teacher spoke and typing out sentences or a paragraph read aloud by the teacher. Each of the tests lasted 60 minutes.

The results of the tests were encouraging. Table 1 shows the results:

Table 1 The results of the texts

	Mean	Median	Std. Deviation	Interquartile Range
Test 1	89.57	93.50	11.93	9.50
Test 2	90.07	90.50	8.08	12.25
Test 3	91.86	93.50	7.47	14.00
Test 4	92.89	94.75	6.66	8.13

It proved that most students mastered the skills of typing Chinese and they got benefits from the computer-equipped classroom teaching. After 56 hours' elementary Chinese learning in a computer-equipped classroom, the students succeeded in reaching the following aims:

(1) master Chinese phonetics, Pinyin;

(2) be able to understand, recognize and apply 300 Chinese characters correctly;

(3) communicate in Chinese in required situation;

(4) understand simple daily Chinese conversations;

(5) be able to type Chinese by means of Pinyin;

(6) have the fundamental proficiency necessary to proceed to higher levels of Chinese study.

6. Conclusion

Incorporating computers into Chinese learning and teaching can provide many important benefits to American students. The computer enables the students to learn more language knowledge and skills in a shorter time than is usual in a regular course; on the other hand, students have high motivations in the classroom.

Available technologies can greatly enhance students' capability in problem solving by means of learning by doing and at the same time can afford students increased opportunities for self-directed learning. It improves both student-teacher and student-student interaction with the change of the teacher's role and the students' role. However, to be most effective, computer-equipped classroom learning should be used to support well-planned curricular and should involve careful designed activities that provide students with meaningful educational experiences. On the other hand, this teaching approach of Computer-assisted Elementary Chinese Learning for American Students still needs more experiments and more statistics information to prove its effectiveness.

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