

Essential Elements for Effective Use of CALL at the University Level*

Hisako YAMAUCHI, Ichiro TAKENAKA, Mariko ODA

Abstract:

Most Japanese universities and colleges, regardless of their size or specialized fields, provide computer rooms or CALL rooms for students' use today. With the advance of IT, many different kinds of English materials have been developed for self-study or classroom study, making full use of the functions of the latest computers. The materials available through the Internet can be used as important information in any study. The focus of English education, however, has been gradually turning to pedagogical features. In order to maximize the effectiveness of study done in a CALL room, there are several essential elements to be considered before making full use of all the functions of computers. Such factors include the selection of suitable materials, integration of courses using CALL into an English curriculum, provision of a well-planned course syllabus. Old-fashioned pedagogical reflections are still necessary for improving the effectiveness of the study in high-tech rooms in language education even at the university level.

Key Words: CALL, materials, curriculum, syllabus, effectiveness

1. Introduction

Most Japanese universities and colleges, regardless of their size or specialized fields, provide computer rooms or CALL rooms for students' use today. An increasing number of college English teachers have been teaching English using CAI software developed by themselves, or commercially available in the market, and other resources available through the Internet. Some teachers arrange their students to exchange e-mail messages with students in other countries for promoting students' intercultural understanding and communication abilities in English. Creating homepages in English and making presentation using software such as "MS power point" are some examples aimed for self-expression with functions provided for advanced computers.

Since 1988, when the CAI system using the LAN was completed at Kurume Institute of Technology, the authors have been using computers in English education. For example, Yamauchi, Tokunaga, Izaki and Yoshizumi

(1996), and Oda, Oda, Arai, and Yamauchi (2000) developed several English CAI materials for students, and the materials are actually still in use in an ESP course called "Technical English". (Appendix 1 shows a list of CAI materials developed by Yamauchi and her colleagues.) The types of CAI materials changed with the advance of computer technology. Early computers could only treat texts, but the latest computers can treat sound, pictures and movies to supplement texts. Therefore, the CAI materials we developed have evolved from text only materials for vocabulary building and grammar to multimedia materials to practice listening comprehension and pronunciation. (Appendix 2 shows the changes of electronic environment at Kurume Institute of Technology.) Yamauchi (1999b, 2000) used e-mail exchange and research projects through the Internet in her English classes. Yamauchi, Takenaka, and Nakano (2002) are currently engaging in the development of a new software for checking vocabulary level for research purposes.

Today, many kinds of CALL materials similar to ours

* 環境共生工学科
平成14年9月30日受理

are commercially available or available through the Internet. It is not necessary for English teachers to develop materials on their own if they can invest some capital. If a teacher spends some time looking through the Internet, he/she is sure to find some suitable materials available free. The era of creating materials with newly developed authorizing tools, or the era of the trial of new functions of computers in education has ended. Now we are in the new era of discussing the effectiveness of the study in a CALL room: pedagogy of computer assisted English education.

In this paper, studying in a CALL room is discussed in terms of its effectiveness comparing the various types of CAI materials we have developed.

2. English or computer skills

In the first stage of introducing computer technology in education, English teachers were shown various functions and sample study materials using them. Materials for: studying vocabulary, grammar, reading comprehension, rapid reading, listening comprehension; writing with the aid of machine translation software; chatting on an e-bulletin board or through e-mail exchange; researching using the Internet; and studying in virtual classrooms, were some examples. Many experiments were done to create better materials and to discover more effective ways for making use of full functions of computer rooms. In other words, with the advance of technology, English teachers were requested to learn how to use new technologies, how to create new study materials, and how to teach students new computer skills. It used to be very difficult for English teachers without good knowledge of computers to use computer rooms. Especially for older English teachers, it was next to impossible to master professional computer skills to utilize all the functions of computers.

With the introduction of Windows computers, however, almost anyone without a professional knowledge of computer can use a computer. At the same time, computer literacy education has started at colleges and universities. Students can study how to use computers to make documents, send e-mail messages, have chats with someone on the other side of the network, get some latest information through the Internet, and create their own homepages by

signing up in a course called "Computer Literacy". For some students, such a course is among the required courses. Today, most of primary and secondary schools have computer rooms, and students have chance to receive computer literacy education even before entering college. Simultaneously, more materials have become commercially available or available on the Web. Recent changes in computer related environment have led to changes in English education assisted by computer. English teachers do not have to teach computer skills to their students anymore. It is not always necessary for teachers to develop materials by themselves. We are in the second stage of English education with IT: English teachers can select materials available for English education. Moreover, they do not have to teach computer skills. English teachers using computer rooms can concentrate on selecting more effective materials, and on discovering more effective pedagogical strategies to use in a CALL room.

3. Effective materials

In this second stage of IT in education, materials used in CALL rooms should be chosen in the light of their effectiveness. There are a couple of points that teachers have to keep in mind when they select materials. The selected CALL materials should suit: (1) the purpose of the course, (2) the level of the students, and (3) the interests of the students. Therefore, the materials that teachers select would not have to necessarily be the latest multimedia courseware if the primary purpose is for improving writing, reading or vocabulary building skills. Authentic materials available through the Internet would not always fit the level of your students. English teachers using CALL rooms should not worry about having to utilize all the functions of the latest facilities.

For example, Fig. 1 shows a frame of our CAI materials for vocabulary building of English for Science and Technology¹. This primitive type of courseware with texts still works better than similar materials that include sound along with texts. For listening comprehension, materials should deal with sound (and pictures if possible) along with texts. Fig. 2 is a frame of our CAI material for listening comprehension. It does not necessarily mean that movies are better than pictures for this kind of listening

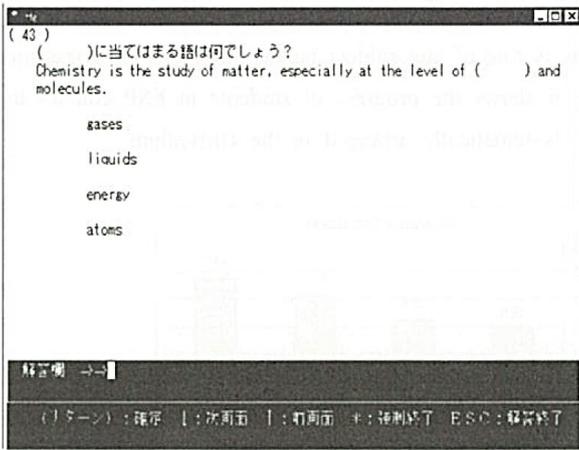


Fig. 1 Frame of a CAI material for vocabulary building

materials². If a teacher wants his students to dictate some passages, it is difficult to prove that computerized dictation materials are more effective than tape-recorded materials. For the practice of pronunciation, movies showing mouth movements, as in Fig. 3, are more effective than sound or picture³.

Authentic materials through the Internet, as in Fig. 4, are very good materials for students only after some preparatory studies⁴. Fig. 5 is a frame of the vocabulary checking software⁵. This software is not for language study, but for teachers, researchers or students who are interested in checking the level of vocabulary in a given text.

A CALL room is not a place to show what computers can do in English education, but it is a room to activate students' learning so that they can improve their

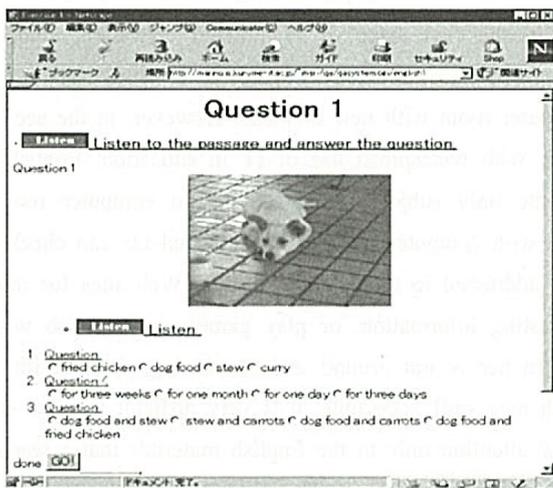


Fig. 2 Frame of a CAI material for listening comprehension

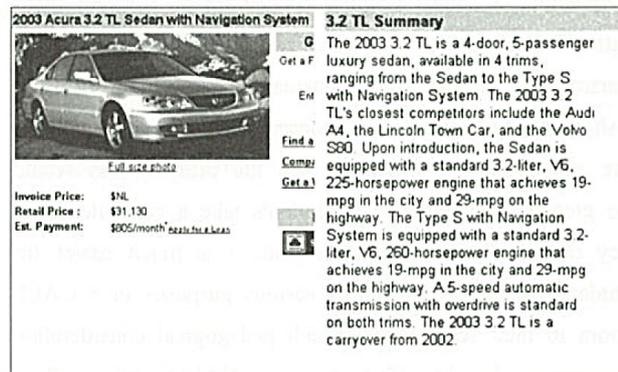


Fig. 4 An example of an authentic material from the Internet



Fig. 3 A frame of the CAI material for pronunciation practice

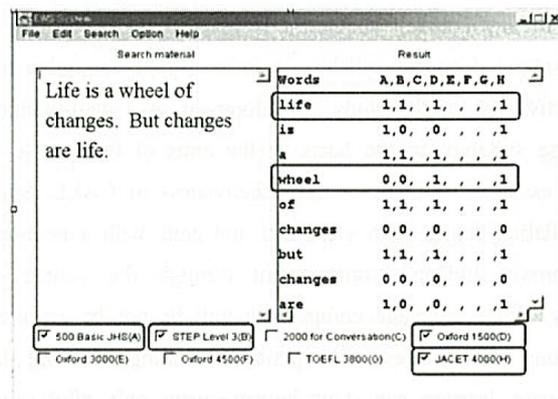


Fig. 5 A frame of the software checking the level of vocabulary

language abilities. Therefore, selecting appropriate materials is a very important task of a teacher.

4. Integration of a CALL course into an English curriculum

One of the drawbacks of the first stage of English education assisted by computer was that any English course using a computer room was independent of other English courses. There were no systematic connections between the study in a CALL room and that in other ordinary English classes. If the course done in a CALL room is a part of an English curriculum with a certain function, the effectiveness of the study done in a CALL room would increase. The reason is that the study done in a CALL room can compensate for shortcomings of the lessons difficult to carry out in other rooms. This systematic arrangement of English courses in college curriculum is the area still lacking in college English education in Japan. (Appendix 3 shows English curriculum at Kurume Institute of Technology. The CAI course is integrated in the curriculum.) Besides the systematic arrangement of English courses, if the entire programs of the major courses are systematically arranged, then the effectiveness would be greater. For example, if students take a computer literacy course in their freshman year, it is much easier for students to study English of various purposes in a CALL room in their second year. Such pedagogical consideration is required for the effective use of CALL at the college level.

5. Well-planned course syllabus

In any course, whether it is assisted by IT or not, a well-planned course syllabus is necessary to maximize the effectiveness of the study. Development of a well-planned course syllabus on the basis of the aims of the course is also essential to increase the effectiveness of CALL. Such a syllabus begins with a pre-test and ends with a post-test to prove students' improvement through the course of study. Since language competence will be not be acquired without a long, tiresome, repetitious training of using the language, learners can show improvements only after some uninteresting repetition of similar studies. If the course is arranged in the order that gradually moves up from the

easier, beginner's level of study to a more advanced level, students can make progress toward the end of the course. This is true of any subject taught in traditional classrooms. Fig. 6 shows the progress of students in ESP courses that are systematically arranged in the curriculum⁶.

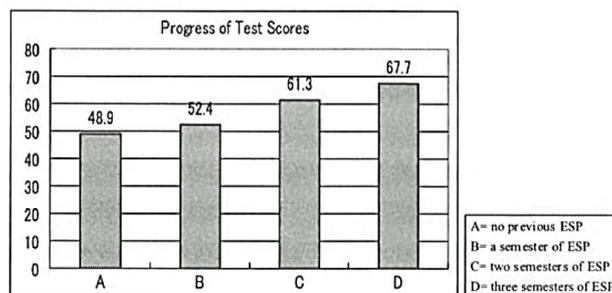


Fig. 6 Progress of test scores

In the first stage of IT utilized education, students were happy just to study English in a newly established computer room with new methods. However, in the second stage, with widespread use of IT in education, English is not the only subject students study in computer rooms. Now with computer literacy courses, students can check e-mail addressed to them, go into some Web sites for more interesting information, or play games on the Web when the teacher is not around and monitoring them. With so much nice stuff accessible, it is very difficult to draw students' attention only to the English materials that a teacher assigns them to work on. This leads to a decline in the effectiveness of the study in a CALL room. If you let your students work as they wish, they do what they want, not what you want them to do. Something needs to compel students to constantly engage in the tasks that a teacher assigns. This could be done by a test of some kind to check their study, by a report of time students spend on the work, or the teacher's constant supervision of their behavior. This leads to my next point: Assessment.

6. Assessment

For the effective use of CALL, assessment of the students' work is one of the most important factors. By human nature, with the exception of some students who are super excellent and highly-motivated to study English, it is difficult for students to devote themselves in studying

at every class without any compulsory pressure upon them. Unfortunately, it is true that assessment motivates students. If the materials used in a CALL room are quiz type materials, it is very easy to give tests after some exercises are done by individual students on their own. Fig. 7 compares the progress of the students' work in a CALL course in 1996, 1998 and 2002. Students made good progress in 1996. However, the students in 1998 found many uses of computers in a CALL room, and they were not eager to concentrate on the CAI materials. So their improvement became slower although their mean score in the beginning of the course was very high. This made a change of the course syllabus. The author could raise the students' progress level to the same level as 1996 by reintroducing paper tests and handout materials in the study in a CALL room. Every class hour, students work on the tasks assigned by the handout first, and then their work is assessed by computers, or vice versa. Students have no choice but to pay attention to their assignment because they are tested later in the class. Old-fashioned paper tests sometimes work better than tests by computers, and teachers do not have to hesitate using traditional style of testing in an ultra-modern classroom⁷.

If the study in the CALL room is e-mail exchange

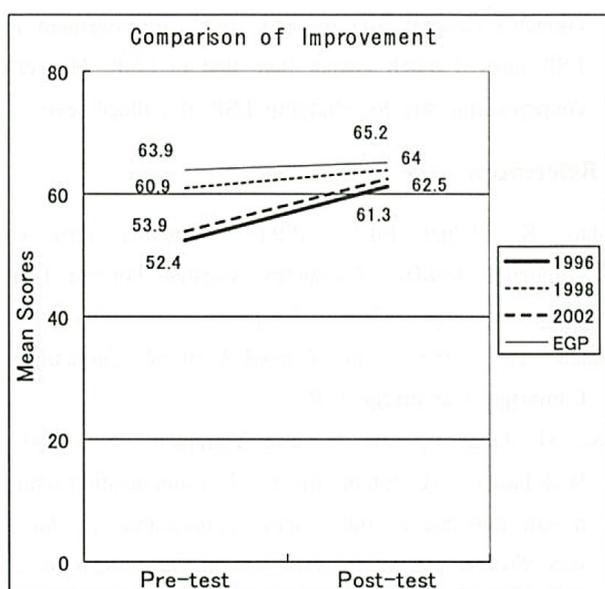


Fig. 7 Comparison of improvement between pre-and post tests

with someone outside of the country, then the assessment of students' accomplishment gets difficult because e-mail exchange depends a large part on their partners. Assessment of a homepage that a student created, or a paper of some special individual project using the Internet, is also difficult to evaluate. It is often the case that it is too difficult to calculate the students' efforts, the time they spend, and other abilities that they have beside English (such as computer skills and sense of creation they innately hold) together with their accomplishment in the study of English, and to express them in scores.

7. Roles of teachers

For teachers of English using CALL, the most annoying question posed by themselves is "What are the pedagogical roles of teachers in a CALL room?" They seem to find no necessity of the presence of English teachers in a CALL room. Computers give students materials to work on, electronic dictionaries are available when they want to consult it. In some materials, if students click the words or phrases they do not understand, hints or a translation or further explanations will appear on the screen. There is no urgent need of the teachers' help for learners to continue their assignments. Moreover, English teachers are quite useless when it comes to problems of the CALL system. Some teachers claim that the roles of teachers in a CALL room are no longer the roles of instructing English. They are not leaders of the study any longer. Instead, teachers are advisors for students who inform them which keys to press in order to draw necessary information. Teachers are supervisors to monitor which students are not doing the assignment and scold them.

In the second stage of computer assisted education, more pedagogical demands are placed upon teachers. This means that teachers have to find a way to maximize the effectiveness of the study in a CALL room. Thus teachers will be requested to create materials more suitable for their students, or select the best fit materials for them, if not as creators. Teachers are required to plan a better syllabus to make students more progress in a CALL room. The roles as an advisor, a supervisor, and an enforcer of study are still important.

8. Conclusion

The trial and error of CALL in the first stage was to examine what the new technologies could do in education. We are, however, in the second stage of English education assisted by IT, and the focus has changed to pedagogical features of CALL. Introduction of courses such as "computer literacy" in the college curriculum have led English teachers to concentrate on content-based instruction. Teachers are responsible for presenting suitable materials for individual students to work on in a CALL room. If students feel some improvements through the study with computers by themselves, the study in a CALL room gives them satisfaction and encouragement. By making a CALL course an integrated part in an English curriculum, and also in the curriculum of the whole major programs, the work done in a CALL room will be organically related to other courses of study. Such systematic instruction will increase the effectiveness of CALL. The effectiveness of English education in this IT age does not depend on how much new technologies are used in education, but how wisely they are used. Don't we depend too much on technologies and forget pedagogy in English education? In this light, old-fashioned methods of teaching, with pen, paper, textbook, and with perhaps a tape-recorder, are also useful if they are appropriately distributed in a CALL course. The combination of computer assessment and traditional paper tests is also enforcing students to concentrate on the study with computers. In this sense, teachers' roles in a CALL room have not greatly changed. Students still need human teachers to encourage and lead them in their improvement of English competence. Students need, not computers, but human teachers, to share the moment of joy and satisfaction of improvement in English abilities through the work in a CALL room.

* This paper is based of the presentation read at 2002 KAMALL International Conference, on October 3, 2002, at Seoul Education Training Institute.

Notes:

1 Yamauchi, H., Tokunaga, K., Izaki, H. and Yoshizumi, T. (1996). Systematic curriculum of

English for science and technology and computer assisted instruction. *Engineering Education*, 44, No.2, 36-43. Authors developed the total of 10 CAI software for vocabulary building.

2 Yamauchi, H. and Oda, M. (1998). WWWjo de jitsugen suru onsei wo tomonau CAI yo kogyo eigo kyozaï no kaihatu. [Development of CAI materials using WWW]. *Proceedings of the Technology and Industrial Education Conference*. 457-460.

3 Oda, M., Oda, S., Arai, K. and Yamauchi, H. (2000). Web-based CAI systems of /r/-/l/ pronunciation using mouth movements and voices. *Transactions of Japanese Society for Information Systems in Education*. 3, 443-454. Students' improvement in pronunciation was statistically proved. The spectrographs of students pronunciation also illustrated their improvement.

4 <http://autos.yahoo.com>.

5 Yamauchi, H., Takenaka, I. and Nakano, K. (2002). "The development of on-line software checking vocabulary level." Paper presented at the 37th RELC International Seminar.

6 Yamauchi, H., Tokunaga, K., Izaki, H. and Yoshizumi, T. (1996).

7 Yamauchi, H. (2002). ESP Materials for False Beginners. *Research and Practice in ESP*. JACET Kyushu-Okinawa Chapter SIG on ESP. 6-21. Improvement in ESP showed much greater than that in EGP. This encourages students for studying ESP at college level.

References:

Kitao, K. (Chief Ed.). (1993). *Computer riyô no gaigokugo kyoiku*. [Computer Assisted Foreign Language Education]. Tokyo: Eichosha.

Nunan, D. (1988). *The Learner-Centred Curriculum*. Cambridge: Cambridge U.P.

Oda, M., Oda, S., Arai, K. and Yamauchi, H. (2000). Web-based CAI systems of /r/-/l/ pronunciation using mouth movements and voices. *Transactions of Japanese Society for Information Systems in Education*. 3, 443-454.

Teeler, D. (2001). *How to Use the Internet in ELT*. Japanese translation by Watanabe, M. Pearson Education Japan.

- Van Lier, L. (2000) "The geeks must be crazy: the ecological and educational validity of technology-rich environments". *Handbook of the Fourth Conference on Foreign Language Education and Technology*. 55.
- Warschauer, M. and Kern, R. (Ed.). *Network-based Language Teaching: Concepts and Practice*. Cambridge: Cambridge U.P.
- Warschauer, M., Shetzer, H. and Meloni, C. (2001). *Internet for English Teaching*. Japanese translation by Furuya, C. et al. Pearson Education Japan.
- Yamauchi, H. (1999a). Use of e-mail in English education (1) — educational purpose and achievement. *Bulletin of Kurume Institute of Technology*, 23, 131-141.
- Yamauchi, H. (1999b). Making ESP a mainstream component of college English curriculum. *Proceedings of the 12th World Congress of Applied Linguistics*. 113.
- Yamauchi, H. (2000). Use of e-mail in English education (2) — practice and problems. *Bulletin of Kurume Institute of Technology*, 24, 51-58.
- Yamauchi, H. (2002). ESP Materials for False Beginners. *Research and Practice in ESP*. JACET Kyushu-Okinawa Chapter SIG on ESP. 6-21.
- Yamauchi, H. and Oda, M. (1998). WWWjo de jitsugen suru onsei wo tomonau CAI yo kogyo eigo kyozaai no kaihatsu. [Development of CAI materials using WWW]. *Proceedings of the Technology and Industrial Education Conference*. 457-460.
- Yamauchi, H., Tokunaga, K., Izaki, H. and Yoshizumi, T. (1996). Systematic curriculum of English for science and technology and computer assisted instruction. *Engineering Education*, 44, No.2, 36-43.
- Yamauchi, H., Takenaka, I. and Nakano, K. (2002). "The development of on-line software checking vocabulary level." Paper presented at the 37th RELC International Seminar.

Appendix 1. List of CAI materials developed by Kurume Institute of Technology

	Name of software	No. of courses	No. of questions	Completion year	Authors
1	Vikki's Basic English--- Vocabulary (1)	6	700	1988	Yamauchi Yoshizumi
2	Vikki's Basic English--- Vocabulary (2)	6	600	1989	Yamauchi Yoshizumi
3	Vikki's Basic English--- Grammar (1)	10	650	1990	Yamauchi Yoshizumi
4	Vikki's Basic English--- Grammar (2)	9	600	1992	Yamauchi Yoshizumi
5	Basic Technical English (1)	5	561	1990	Tokunaga Yoshizumi
6	Test of Technical Communication---Level 4	5	319	1992	Tokunaga Yoshizumi
7	Vikki's Basic English--- English for Science and Technology	5	500	1994	Yamauchi Yoshizumi
8	Basic Technical English (2)	5	287	1994	Tokunaga Yoshizumi
9	Technical English on WWW	10	700	1998	Yamauchi Oda
10	Pronunciation Practice on WWW	4	50	2000	Yamauchi Oda
11	Vocabulary Level Checking Software			2001/2002	Yamauchi Takenaka Kawaramoto Nakano

Appendix 2. Electronic environment and CAI materials

	Electronic environment	Computers, Language, Functions Type of CAI materials
1988~1995	Completion of the LAN Development of CAI materials Use of CAI materials	FMR-60, FMR-70 F-Basic Text format only Vocabulary, Grammar
1993~1997	Windows Integration of CAI courses into English curriculum CAI	Windows, Windows NT Basic for Windows Sound and text Listening comprehension
1996~	Multimedia type materials	WWW, CGI Perl Sound, pictures, movies, text Pronunciation practice materials Vocabulary level checking

Appendix 3. English curriculum at Kurume Institute of Technology

courses	year	required or elective	features
Basic Technical English	1	required	small sized, 2 levels
Technical English	2	required	CAI
Advanced Technical English	3,4	elective	
English Reading	1	required	
Intermediate English Reading	2	required	small sized, 2 levels
Advanced English Reading	3,4	elective	
Oral English	1	elective	small sized
Intermediate English Reading	2	elective	small sized
Advanced Oral English	3,4	elective	small sized