Computers, Learners and Teachers:

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There are three main components in the computer-assisted language learning (CALL) classroom: the learner, the teacher, and the computer. While they are complementary to each other, each component has its own characteristics and stories of roles they play and how these roles have changed in the CALL classroom. For the integration of CALL into a specific language teaching environment, it is critical to look at the ways in which these components work as a team and how they contribute to the implementation of CALL activities. This paper presents a conceptual model of these elements and examines their interrelationship with a special focus on the teacher. Looking at teachers’ roles in the CALL classroom, it explores teacher development with discussions on teachers’ views on the future of CALL and competencies in CALL. The results of a study on what teachers think about the future of CALL suggest that there is general agreement on a viable future for CALL. Some recommendations are made to improve the teamwork in the CALL classroom.

I. INTRODUCTION

Over the past two decades, computer-assisted language learning

* An earlier version of this article was presented by invitation at the 1st International Annual Conference of TEFL-CHINA, Tonghua, China, in August 2002. This revised version retains some of the flavour of its origins as a spoken text.
(CALL) has generated enormous interest among researchers and practitioners with the potential of computers in learning and teaching second/foreign languages. Various kinds of approaches to CALL development and use have been attempted by language teachers, including English as a second/foreign language (ESL/ EFL) teachers. While they have expanded their views of CALL through a number of research studies on the effectiveness of CALL, they have tried to investigate specific ways that CALL provides better learning and facilitates the learning process.

In terms of research activities, the links between CALL and second language classroom research have been reinforced (Chapelle, 1996, 1997; Conrad, 1996). In this respect, Doughty (1987) emphasizes the importance of classroom data in CALL contexts, and Johnson (1991) proposes to expand CALL research to social interactional environments of the classroom. Empirical research into CALL classroom practice would help researchers understand the environmental aspects of CALL activities, particularly the elements of the CALL classroom.

This paper discusses three main components of the CALL classroom and their teamwork. It presents a conceptual model of those components and examines their interrelationship with a special focus on the teacher. Related to teacher development, teachers’ views on the future of CALL and competencies in CALL are discussed and recommendations are made to improve the teamwork in the CALL classroom.

II. COMPONENTS OF CALL

Let us start with the components of the CALL classroom. In describing three main factors in CALL, Ahmad, Corbett, Rodgers and Sussex (1985) discuss ‘the learner’, ‘the language’ and ‘the computer’ whereas Farrington (cited in Levy, 1997) lists ‘the
class', 'the teacher' and 'the computer'. Ahmad et al.'s model looks at the roles of the learner, the language and the computer and their interrelationships. Because it leaves out one important component in the classroom, the teacher, however, it seems to be more suitable for self-access learning situations. On the other hand, Farrington's model focuses on the role of the teacher and suggests that the class should be considered as one of the three main factors, which interact with the computer. In this model, however, the learner is not described in the conception of CALL. While both models of CALL show the interactions among those main factors, they seem to be inappropriate to reflect the actual components of the CALL classroom. For this reason, I have specifically and closely looked at the language classroom itself and reviewed three main components of the CALL classroom: 'the learner', 'the teacher' and the computer. Figure 1 shows a simple model of these elements and their interactions in the CALL classroom where a target language is taught.

![Diagram of three main components in CALL classroom](image)

**Figure 1.** A model of the three main components in the CALL classroom (Son, 2000)

1. **The computer**

   The computer can play diverse roles such as a tutor, tool or tutor (Taylor, 1980) in language education. Any computer equipment, including the keyboard, the screen, the printer and the disk drive, is called hardware. The computer instructions,
programs, and codes that enable the computer system to work are called software. Within the scope of computer programs, software with an instructional purpose is known as courseware (Lathrop & Goodson, 1983; Jonassen, 1988). In respect of CALL materials, therefore, the most obvious category of CALL software can be courseware or computer-based lesson materials (Lian, 1991).

Advances in computer technology have given CALL users a variety of options for choosing hardware and software. In order to place CALL in context, it is necessary for the teacher to choose software programs appropriate for their teaching situations. In the selection of the software programs, system requirements for running the programs should be checked in advance. In the case of computer-mediated communication (CMC), which can be considered as an expansion of CALL activities, on-line tools on each side should be identified and arranged for the communication. This implies that computer hardware and software always have to come together to make CALL work.

2. The learner

It is the learner who can best perceive how CALL works for his/her learning. Jamieson and Chapelle (1988) discuss five learner variables that should be taken into account in the assessment of CALL effectiveness: age, background, ability, cognitive style and affect. Because these characteristics of learners can affect learning processes in CALL, teachers need to know the learners well and respond to the learners' needs and attitudes toward CALL properly.

In the implementation of CALL lessons, the learner's familiarity with the computer should also be identified so that meaningful activities can be given to the learner. Considering that there will be more and more learners who are comfortable with using the computer and show positive attitudes toward
computer-based activities, teachers are requested to familiarize themselves with the computer and take on the responsibility for their own professional development in CALL environments.

3. The teacher

Unlike the computer and the learner, the teacher is usually considered to be slow in changing and upgrading himself/herself. Implicitly or explicitly, however, the teacher is now being asked to be familiar with new technology and teaching methodology using CALL applications, and also to be involved in the use of computer materials in their teaching contexts. A starting point for fulfilling this requirement could be to find appropriate roles and possible tasks for the teacher in CALL environments. This suggests that language teachers need to identify their roles and respond to new issues and demands on teachers.

The roles of the teacher commonly found in the language classroom are tutor, guide or facilitator. In addition to these roles, the teacher in CALL needs to act as a CALL observer, designer, implementer, evaluator or manager. CALL observers observe recent CALL activities, identify the types of CALL materials and build basic skills to deal with CALL. Teachers who are directly involved in the design, implementation or evaluation of CALL can be called CALL developers on the basis of the idea of categorising CALL software development in three modules which I refer to as design, implementation, and evaluation. CALL designers create their own computer applications by practising and utilising programming languages or authoring tools with instructional design approaches: CALL implementers use CALL software which matches with students or teachers' needs in the classroom and develop teaching methods for CALL practice: and CALL evaluators make comments on CALL materials, approaches or courses with evaluation criteria. When teachers supervise the overall use of CALL, they become
CALL managers who guide other teachers to the world of CALL, facilitate CALL in self-access or classroom settings, and manage CALL resources for learning and teaching purposes (Son, 1997, 2000).

It is up to the teachers’ choice whether they become a CALL observer, designer, implementer, evaluator or manager. Depending on their teaching situations, teachers can simply utilise the computer as a supplement or tool to their work. As Warschauer (1996) notes, those who employ computer technology in the service of sound pedagogy would find ways to enrich their instructional programs.

In terms of research emphases on the three components of the CALL classroom, a large amount of energy has been devoted to the development of CALL software and studies of the learner and the interaction between the learner and the computer (Chapelle, 1996; Conrad, 1996). Although the teacher is vital to the operation of CALL in the classroom, very little attention has been paid to studying the teacher. This is evidenced by the relatively small proportion of CALL studies on the teacher in an exclusively CALL-focused journal. A survey of the articles published in the CALICO Journal, starting with the second issue of 1986 through January 2002, shows that only 7% of all articles in the journal have a distinct teacher focus. This result indicates that there is a great need for more research on the teacher.

III. TEACHER DEVELOPMENT

Now, I would like to talk about teachers’ professional development that is necessary for good teamwork. I will particularly look at two things related to CALL teacher development: (1) teachers’ views on the future of CALL; and (2) teachers’ competencies in CALL.
Firstly, let us ask, "What do teachers think about the future of CALL?" The view that CALL would be more effective, interactive, and would undergo rapid development with more technological innovations, was frequently stated by teachers in response to that question asked in a CMC study I conducted in 2001 and reported in 2002 (Son, 2002). I will draw upon some of the results of the study here.

A group of 24 ESL, 1 French and 1 Japanese in-service teachers (17 native speakers of English, 3 native speakers of Chinese, 3 native speakers of Japanese, 2 native speakers of Korean and 1 native speaker of Turkish) were involved in the study that examined an on-line discussion group established for a CALL course in the Master of Applied Linguistics program at the University of Southern Queensland. The discussion group was created to hold discussions using text messages as a medium for communication. The on-line structure of the discussion group allowed participants to post messages, primarily focused on issues arising from the course content, for everyone to read and for other readers to post replies, and for these messages to be accessed at the convenience of the participants. The participants were asked to post their answers to open-ended questions/tasks given in the Study Book of the CALL course to the on-line discussion group. The question about their views on the future of CALL was one of the selected questions.

The findings indicate that the teachers generally think the future of CALL will be positive and bright. This view was supported by notions that instructional design theory is advancing, there is an increasing understanding of learning, current computer technology and financial investments are providing means for better education research, and due to the benefits of CALL for students, more teachers are realizing its pedagogical potential. Furthermore, as a variety of quality CALL
materials become more accessible and materials appropriate for specific situations become more available, then the future of CALL will be bright. Several teachers mentioned that distance education and flexibility of learning would improve or that CALL would even become the main form of foreign language instruction. Reasons for the increase in distance education included the greater accessibility to software, the need for isolated students to have access to native speakers and information direct from the target language country, the increased availability of CALL programs like having a teacher present whenever the student needs one, and the need for mass language education. The opinion was held that students would also choose to study at their own pace selecting their own pathway through learning, and what students learn will no longer be dictated by the teacher.

A frequently occurring issue that arose in teachers' discussions on the future of CALL was whether CALL would eventually replace teachers, or whether computers and CALL would remain a tool for language teachers. Only two teachers suggested that CALL might in fact replace teachers one day, at least in most levels of language learning as there would not be enough teachers to meet the demand for language learning. On the other hand, six teachers strongly believed that CALL would not make teachers obsolete, despite the possibility of teachers adopting different roles, as CALL becomes a supplement to classroom teaching. Reasons to support this view included 'language is interactive and has feeling', students will need friendly advice and guidance from teachers, and there is a role for schools in providing the social development of students. Some teachers stressed the importance of CALL being a useful tool in language learning, however not an end itself.

The teachers also touched on other aspects of the development of CALL, such as programs becoming more user-friendly and the
quality of software and relevance of material becoming more tailored to the standards of students. It was suggested that improvements in computer-assisted learning would guide the development of CALL, where pocket-size CALL programs would become popular; computers and associated equipment would become more common; and CALL technology would become as useful as common household appliances. These advances in CALL would allow students to use the target language in an increasingly natural environment.

While the majority of the teachers had positive aspects to discuss, such as CALL becoming students' ‘personal coach’, being a powerful learning enhancer, and its potential to be a well-established method of language teaching, other teachers had more conservative views, looking at a long road to effective CALL implementation. One teacher suggested that learners might be able to participate in a classroom-type environment through virtual reality, however people would still seek out traditional learning environments as real human contact will be missing from learning solely through a computer. Another teacher similarly suggested that there is a lack of affective features with computers. There was a suggestion that the future of CALL would not be bright as developing countries would be left behind as they struggle to develop education facilities, and that CALL would remain a luxury and not feature heavily for the majority of second language learners for sometime.

Despite these seemingly contrasting views, teachers highlighted factors which they believed might determine the future of CALL. Cost was one frequently mentioned factor. It was described in terms of the expense of purchasing computers, developing and implementing appropriate software, cost of Internet connections, and a willingness of educational bodies to pay for such technology. The ability of software designers to create stimulating, authentic and pedagogically appropriate
learning packages', and 'the degree to which applications can become truly interactive and intelligent' would determine the future of CALL. Similar views influencing the potential of CALL were expressed: the production of challenging and innovative activities and advances made to programs. A number of teachers highlighted that the methodology and use of CALL by educators would influence the future of CALL.

The progression of CALL implementation, according to the teachers, might result in an increase in student motivation, yield more educational outcomes, have a positive effect on individual learning goals, and would assist students with thinking strategies. While one teacher thought that progress in CALL might decrease student communication with others, another teacher suggested that there might be more efficient communication between teachers and students as there would be no limit of time and space, while another postulated that classrooms would be more individualized, organized and efficient. There would be immediate feedback and students would feel a strong ownership of work performed on their computers. One teacher believed that the price of computers and CALL technology would be affordable for all and another hypothesized that students would be taking an electronic device to school rather than textbooks.

Overall, the teachers had a positive view on the future of CALL, suggesting that rapid development of appropriate software as well as overall advances in computer technologies would promote and enhance language learning and teaching. Despite minor differences and justifications for personal opinions, the teachers all agreed on a viable future for CALL. It would be interesting to investigate this topic further with other groups of teachers in different contexts.

Secondly, let us look at the issue of CALL competencies the language teacher should have. This issue is related to the
question: "What do teachers need to know to be competent teachers in the CALL classroom?" To feel comfortable in the CALL classroom, the teacher is required to have general computer skills including basic word processing, file management and e-mail and Web skills. In addition to these general computer skills, the teacher needs to have observation, programming, implementation, evaluation or management skills to play the roles of the CALL teacher discussed earlier. To develop these skills, practical experience should be encouraged and guided by not only teacher educators but also teachers themselves. In this regard, teacher training for CALL needs to provide opportunities for teachers to obtain necessary skills for the use of CALL materials in the classroom and help teachers' CALL competencies grow through exploring CALL theory and practice and enhancing teachers' roles in the classroom.

Teachers need to be active CALL users and have the purposes of using CALL. Teachers can overcome difficulties with computer use by being aware of current technological developments and familiarising themselves with the various roles they can play in the CALL classroom. To meet this expectation, however, teacher-related factors such as time, workload, technical support and teacher education should be taken into account. There is no doubt that the success of CALL in the classroom is affected by these teacher-related factors. It is hoped that constructive discussions on the teacher-related factors can stimulate a deeper insight into the roles of the teacher in the CALL classroom and make the involvement of teachers in CALL easier, so as to take advantage of using CALL applications and resources in effective and efficient ways.
IV. RECOMMENDATIONS

For the integration of CALL into a specific language teaching environment, it is critical to look at the ways in which the components of the classroom work as a team and how they contribute to the implementation of CALL activities that enhance language learning. The teamwork requires cooperative efforts of each component working to achieve goals. In the CALL classroom, the teamwork is mainly led by the teacher who carries out numerous tasks. For the effective use of CALL in the classroom, in other words, the teacher needs to take a leading role in the teamwork and encourage other players in the team to do their best. In doing so, the teacher needs to:

- explore current development and use of CALL
- choose appropriate hardware and software
- learn how to use the computer system confidently
- organise access to computers
- pre-test CALL materials with computers available
- make CALL lesson plans
- prepare suitable instructions, questions or tasks
- guide or train students
- monitor progress
- facilitate interaction
- evaluate CALL materials and activities; and
- develop CALL competencies personally and professionally.

These tasks can be put into action with a lot of preparation, practice, commitment and efforts. While creating CALL environments, teachers should look at how students learn and use their target language. Whenever they think about their teaching in the CALL classroom, they should also ask themselves: “How can I improve the teamwork in this classroom?” Their attempts to answer the question must be of value for a better understanding of the CALL classroom teaching and more possibilities of
reaching the goals of language learning and teaching

References


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Applicable level: college education
Key words: computer, teamwork, CALL

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