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## *Teacher development in e-learning environments*

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### **Abstract**

With the advance of information and communication technology (ICT) and the growth of interest in the use of the Internet for education, teachers are now working in new online environments. In line with this situation, there is great need for teacher development in the integration of ICT into teaching and learning activities and in the design, implementation and evaluation of e-learning. In productive and practical ways, computer-mediated communication (CMC) can help teachers build and apply their knowledge, collaborate in their learning with fellow teachers, and reflect on their classroom practice. This chapter addresses the issue of how the features of CMC foster teacher development in terms of communication, collaboration and reflection. Examples are taken from CMC activities employed for a computer-assisted language learning (CALL) course in a postgraduate program. It is suggested that teacher development can be effectively promoted by CMC with interactive communication, professional collaboration and critical reflection in situated contexts.

### **Introduction**

Teacher quality has a great impact on student achievement (Albion, 2003; Darling-Hammond, 2000; Pratt, Lai & Munro, 2001). An Australian government report recognises that “education of the highest quality requires teachers of the highest quality” (Department of Education, Science and Training, 2000, p. 1). In improving the quality of teachers, professional development has been identified as a key factor (Pratt, Lai & Munro, 2001). It plays a significant role in

ensuring that teachers are able to enhance student learning in their teaching situations.

The Internet, particularly the World Wide Web, provides teachers with a rich and varied teaching environment. Along with a huge increase in schools accessing the Internet, there is a growing recognition that teachers need to be well equipped to meet the challenges of the new online environment. Those challenges are placing pressures on teachers, including the need to develop new skills and strategies required in the use of information and communication technology (ICT) for their teaching. Now, more than ever, teachers are requested to not only know about ICT but also use it for their professional development (Lai, 2001).

The integration of ICT into teaching and learning activities has been recognised by Australian government reports as a key component in teacher professional development (Pearson, 2003). For example, Education Queensland's (2002) professional standards for teachers include teaching and learning strategies that integrate ICT to enhance student learning. The standards are described in the following statements:

- Determine students' learning needs in relation to the use of available information and communication technologies;
- Select learning strategies and resources based on the use of information and communication technologies to cater for students' learning needs and styles;
- Create learning experiences in which students actively use information and communication technologies to organise, research, interpret, analyse, communicate and represent knowledge;
- Evaluate the effectiveness of teaching and learning approaches based on the use of information and communication technologies;
- Use information and communication technology tools to access and manage information on student learning. (Education Queensland, 2002, p. 6)

With the advance of ICT and the growth of interest in e-learning, many institutions are currently offering various online courses that utilise a range of computer-mediated communication (CMC) tools (Trewern & Lai, 2001). These online courses attract students with great flexibility in study time and places. Postgraduate programs offered by universities have particularly been a form of formal professional development for teachers (Albion, 2003), whereas online pro-

fessional networks or communities have begun to be recognised as a form of informal professional development for teachers (Trewern & Lai, 2001).

This paper explores the importance and role of teacher development and examines how features of CMC influence activities for teacher development and foster communication, collaboration and reflection in online environments. Example practices are taken from an applied linguistics postgraduate course entitled computer-assisted language learning (CALL) offered at a university in Australia. Students who enrol in the course are English as a second/foreign language (ESL/EFL) or language other than English (LOTE) in-service teachers. The course is thus designed to introduce language teachers to the field of CALL by providing them with insights into key aspects of CALL and a basic knowledge of the practical uses of computer technology in language education.

## **Communication**

While changing the way of interpersonal communication, CMC is linking individuals and educational institutions with their counterparts in other locations. A number of researchers have looked at various aspects of CMC such as academic writing in computer conferencing (Durham, 1990), flaming behaviour (Lea, O'Shea, Fung & Spears, 1992), intercultural communication (Ma, 1996), interactions in conventional university courses (Light, Colbourn & Light, 1997; Light & Light, 1999; Light, Nesbitt, Light & Burns, 2000; Warren & Rada, 1998), online chat and group-work (Pilkington, Bennett & Vaughan, 2000), tutor group in distance education (Weller, 2000), distance students' online behaviour (Wilson & Whitelock, 1997, 1998), and teacher education (Ahern & El-Hindi, 2000; Schlagal, Trathen & Blanton, 1996; Trentin, 1997). As noted in these studies, CMC is utilised in a wide range of educational settings in the form of e-mail, text chatting, voice chatting, video conferencing, electronic discussion groups or Web-based bulletin boards (Son, 2002).

The aforementioned CALL course strongly encourages teachers to participate in various kinds of online communication activities. An online discussion group established for the course, in particular, allows teachers to post their own answers to pre-selected questions/tasks given in their Study Book and to feel free to make comments on fellow teachers' answers. Son (2002) reports that, apart from tasks given as course requirements, topics brought up and discussed actively by participants themselves in the discussion group included the printing press, the quality of teachers, information technology (IT) skills and language learners, keyboard skills, and writing on the computer. For instance, one of the most interactive dis-

cussions was initiated by a teacher's interest and opinion on writing assignments on the computer. Through postings to the discussion group, other teachers described their habits and preferences in using word processing programs and expressed their views on the use of computers in the second language classroom.

While giving an idea of what types of interactions can be anticipated in text-based synchronous communication, on the other hand, the following example log demonstrates interactive discussions and exchange of opinions occurred in a text chat meeting for the CALL course.

...

<N> My problem as a teacher is that its a devil of a job even getting a class into our computer lab at the moment.

<N> Time constraints both is preparation (for the teacher) and then lab use really restrict this kind of activity for my students

<S> agreed—I sometimes wonder whether the learning curve is worth it

<J-B> Yes, that is one of the biggest problems the language teacher has.

<S> we all need more time and bigger salaries...

<N> I have noticed that more and more students are more confident and competent with using computers these days though

<N> I know my school realises that we do have to increase computer numbers and continue to upgrade etc

<S> the trouble is schools often buy computers and no-one can take care of them

<N> We have a computer guru who is terrific

<S> you are really lucky—without a guru, you can have a lot of problems.

<S> I'm a Macintosh guru but haven't got the faintest idea about windows

<N> I tend to use the computer more for word processing with my EAP students

<S> how many students in a class

<N> 12-14

<Ae> I would like to flag that for me despite the advances of the internet I still find it frustratingly slow, ie loading sites etc,

Anonymous33 has joined the chat room.

<Ae> isn't it also like this for students?

<S> yes, surfing is a myth....

<S> I love the term the world wide wait.

<Ae> excellent!

...

It is certain that the widespread use of CMC raises the significance of effective communication skills (Warschauer, 2001). As shown in the examples above, CMC activities offer an interactive learning environment that can foster the acquisition of communicative skills.

## **Collaboration**

The quality of teachers can be enhanced when teachers engage professionally in collaborative learning (Albion, 2003; Pratt, Lai & Munro, 2001). CMC has great potential to foster collaboration connected to the real world. The following postings to the discussion group for the CALL course show that a teacher's answer to a question could generate other teachers' responses to the answer accompanied by follow-up interactions and allow them to collaborate in building and applying knowledge.

Q: What benefits do you see in using electronic mail in second language teaching?

> One of the greatest benefits, in my opinion, is access to native speakers in a relaxed environment. There is no pressure for participants in the email exchange to respond immediately. They have time to read, reflect and then reply.

This kind of activity also allows for increased cross-cultural awareness, when using authentic language and socio-cultural references.

I also think student motivation to study the L2 and learn more about the target culture increases, as students engage in purposeful, communicative language activities. They are really communicating with someone from the target culture and being understood.

On the negative side, it is easy for students to opt out of the learning activity if they feel their language skills are not good enough, or they lack confidence.

K

>> Hello K,

I agree with your statement that "They have time to read, reflect and then reply." when using e-mail for CALL. Would you also agree that the lack of pressure to respond enables students to edit and to make sure there are no mistakes?

Another point that I thought would be necessary is that teachers should prepare students adequately enough in order for them to be sensitive to cultural and social differences when dealing with the target country.

I know for a fact that an e-mail activity that was left too open-ended by the teacher, or if an any-subject was allowed it could turn negative. Here in 00, males should not interact with females even in e-mail, and discussion about some current events that are on every student's mind could lead to more misunderstandings.

My question is this: Will students be prepared enough to use authentic language and proper socio-cultural references? A lack of education and respect for the target countries differences could be beyond the ability of the students and could lead to problems.

I'm really not so negative, but these are some considerations that teachers have to be aware of and guidance from a CALL instructor is once again crucial.

P

>>> Hello P,

I recall speculating about such complexities of communicating in an intercultural setting in a previous posting (#1.3.4, 27 Mar). The non-native speaker requires not only the linguistic and sociolinguistic knowledge of the target language, but also knowledge of the culture and the cultural rules which impact greatly on the choice of content and the process of communicative interaction which is meaningful in particular contexts.

I agree with the need for cultural awareness and guidance on the part of a CALL instructor. It's a rather daunting task as this presents a huge challenge to address the many differences in learners' interpretations, perceptions, definitions of linguistic forms, as well as the need to consider native speakers' different value judgements and perceptions of "appropriate formality, intensity, directness, register, politeness, taboo and different pragmatic ground rules"(Thomas, 1983; Olshtain and Blum-Kulka, 1985; Odlin, 1989 in Hudson, Detmer & Brown, 1992, p.6), within a CALL environment.

Regards,

S

Teacher development programs need to encourage teachers to engage in collaborative knowledge building (Albion, 2003). As illustrated above, this engagement in collaborative learning can be well supported by CMC activities such as asynchronous online discussions.

## Reflection

Reflective practice encourages teachers to engage in a process of critical reflection on their own teaching and learning experiences. In a review of language teacher education, Crandall (2000) notes, “Long ignored, teacher inquiry and reflection are now viewed as important to the development of language teaching theory and appropriate language teacher education” (p. 40).

In the language teacher education literature (e.g., Kullman, 1998; Richards, 1998; Roberts, 1998), Dewey’s (1910, 1933) ideas on reflective thinking and Schön’s (1983, 1987) views of knowing-in-action, reflection-on-action and reflection-in-action have been much discussed in relation to the origins of reflective practice. Based on Dewey’s notion of reflection, Bartlett (1990) suggests a cycle for the process of reflective teaching containing five elements of mapping, informing, contesting, appraising, and acting. Wallace (1991), on the other hand, adapts Schön’s concept of reflective practitioners and proposes a reflective mode of professional education/development which highlights “the continuing process of reflection on ‘received knowledge’ and ‘experiential knowledge’ in the context of professional action (practice)” (p. 56). While pointing out that the focus of the discussions of teacher reflectivity has been given to “the definitions of reflection, the processes of reflection, and, most recently, the investigation of evidence of reflection” (p. 584), Stanley (1998) also proposes a framework for reflective teaching practice in terms of five phases: engaging with reflection; thinking reflectively; using reflection; sustaining reflection; and practicing reflection. In a discussion on the implementation of reflective practice in adult ESL settings, additionally, Florez (2001) summarizes that benefits of reflective practice include flexibility, practicality, professionalism, and sustainability.

Tsui, Wu & Sengupta (1996) describes a computer network called *TeleNex* and asserts that the network provides a platform for teachers to share their reflections with their peers as autonomous professionals. In a study of mentor training in Hungary, Kullman (1998) emphasises that mentors need to help student teachers develop reflective practice. Through an investigation of reflective practice of three experienced EFL teachers in Korea, Farrell (1999) sees the formation of teacher development groups as a good way of promoting reflective practice for

teachers and makes five suggestions for future ESL/EFL teacher development groups: (1) join a group of ESL/EFL teachers; (2) build in some ground rules; (3) make provisions for three different kinds of time (time-individual, time-development, and time-frame); (4) provide external input; and (5) provide for a low affective state (pp. 167-170). For a discussion of evidence of reflection, Liou (2001) describes reflective practice of 22 pre-service teachers in Taiwan. Similarly to Farrell's study, she consulted Ho and Richards' (1993) categorisation of descriptive and critical reflection in the analysis of the data collected from 40 written reports and found that her student teachers talked about topics mainly related to teaching, could do more critical reflection than descriptive reflection in observation reports and practice teaching reports, but did not show substantial development of critical reflection over a six-week period.

In online environments, CMC is increasingly considered as a means of providing opportunities for teachers to discuss and facilitate reflective practice (Johnson & Brine, 2000; Kamhi-Stein, 2000; Motteram & Teague, 2000; Nunan, 1999; Son, 2002; Wolcott, 1995). The text below exemplifies three teachers' reflections shown in postings to the discussion group for the CALL course.

(A) My use of the computer in the classroom: I have taken a piece-meal approach, with a view to gradually building up my repertoire of activities. I have worked with Year 8 students on basic word-processing skills such as cutting and pasting into a word document from an Internet site. I have used the Internet with all ages but especially with Year 11s and 12s. I have devised language various activities based on its use, including reading and listening practice. Sometimes we just use it for fun—e.g. look up the latest film reviews or details of French TV soapies. There are some good language learning sites too, even some that correspond with our textbooks. We have some CD-ROMS that include games, vocabulary activities, simple conversation practice, but we don't have enough site licences for them, and we've had a few technical problems too. I'm not well-informed about the software that's available. I mostly rely on recommendations from other teachers. It's not usually possible to buy software on inspection, which puts me off buying. I don't like to buy without having had a chance to evaluate the product. I've started trying to network with other teachers, mainly through a language teacher association, to find out what the best quality materials are for languages learning.

(B) To be honest, I'm not very proud of my uses of computers for language learning to date. Prior to commencing my studies at USQ, I taught myself



how to make a web-site and developed one to use with my courses. But studies have kept me from updating it and developing the features that I really was hoping to include, such as interactive games and study activities. I downloaded Hot Potatoes software last year and tried to make some exercises, but didn't have time to finish any yet. Consequently, my site is the worst of the worst, primarily posting some tips and class notes for students with very little interactivity. In my defence, however, I have used email and web assignments with my students and will likely be increasing these. In addition, my site has links to interactive learning sites. My students seem to use my website to learn more about me and to communicate with me, but not necessarily for study purposes. I hope this class will give me skills that will help me make it more effective and interesting to increase student use of it. I want to use computers to increase student communication through authentic English, including teacher-student, student-student, and student-world!

(C) I have a variety of experience with computer technology, both personal and professional. I am very ready to take the plunge into further exploring computer use for student learning. In my daily life, I have used and continue to access word processing, e-mail, the WWW and CD-ROM programs on a very regular (often daily) basis. In teaching I use the computer in many ways; record keeping, power point presentations (mainly to colleagues in in-service), and e-mail (both my previous and present schools are working toward using electronic communication over other means). I have also trialled some software programs—mainly Reading, writing and spelling programs for native English speaking children and some drill and practice Math software. As indicated above, I have been very fortunate to work in 'computer literate' environments where a large portion of the budget has been allocated to making computers accessible to both teachers and students. This has included (and continues to) 'in-house' professional development using school-based staff paid for their computing expertise and experience. This course is the perfect opportunity for me to increase my knowledge of what is 'out there' while providing an incentive for my time spent 'playing' and 'exploring'!

These example postings show the teachers' reflection of the ways in which they have used the computer and/or hope to be involved with computers in language teaching. Like this, asynchronous discussion forums can be designed as learning activities to maximise reflection. Delayed-time communication deepens reflec-

tion by giving teachers time to think, reflect and then respond to others' views or comments.

## **Online community**

The Internet opens up opportunities not only for situated and collaborative learning but also for building online learning communities (Lai, 2001). Professionally oriented networks can create knowledge-rich communities of practice (Blunt, 2001). Trewern and Lai (2001) indicate, "Groups of teachers can get together and make use of communications technologies to access teaching resources, source new ideas, use communications technologies to share ideas or innovative teaching practices, and reflect on aspects of classroom practice" (p. 45). Online communities can provide teachers with opportunities for ongoing learning in professional manners.

In this respect, it is worth noting that an online association called the Asia-Pacific Association for Computer-Assisted Language Learning (APACALL: <http://www.apacall.org/>) was established for CALL researchers and practitioners who are willing to investigate, share information, discuss, cooperate and collaborate with fellow professionals. It acts as a clearinghouse for language professionals who are interested in investigating, sharing information, discussing, cooperating and collaborating with fellow professionals working with CALL. The association acknowledges the opportunity for use of information and communication technologies in learning, teaching and research. The introduction of this online association to the world of CALL has been welcomed by many language professionals (e.g., Colpaert, 2002).

APACALL aims to provide a mechanism for information exchange on CALL; highlight the importance and value of accessibility and professional engagement with CALL for teachers, students, researchers and other interested professionals; and promote and support research and good practice in CALL. It endeavours to contribute to the discussion of the impact of CALL on language learning/teaching and development of authentic cross-cultural communications; promote language teacher development in CALL; encourage online activities for CALL practice; promote research and research findings on CALL; facilitate the use of CALL for language program accessibility and flexibility, ongoing language maintenance and cross-cultural exchange; and promote the study of computer-assisted second language acquisition, particularly in the Asia-Pacific region.

Its free membership is open to anyone who is interested in CALL. All members are given opportunities for communication, collaboration and reflection

through professional development activities (e.g., interactive discussions, mainly through the APACALL E-list; collaborative projects such as the publication of an APACALL Book Series; online meetings with instant messengers; academic conferences; etc.). With encouragement and ongoing self-discovery, the members themselves find ways of working in the online community and take advantage of CMC-based activities for their own personal and professional development.

## **Practice**

Given the nature of the Internet, e-learning is flexible, interactive and dynamic. Teacher development activities in online environments should be flexible, interactive and dynamic enough to allow teachers to achieve a high degree of personal and professional development. They should be based on interactive communication, professional collaboration and critical reflection in situated contexts.

It is an important task for teachers to develop their competencies in e-learning. CMC plays an important role in e-learning practices and makes a significant contribution to online teacher development. In using CMC tools for the implementation of e-learning, teachers need to:

- explore current development and use of CMC;
- choose appropriate CMC tools;
- learn how to use the tools confidently;
- test and evaluate the tools critically; and
- use the tools in ways that maximize learning.

Online teaching practices will allow teachers to engage in the tasks listed above. Through a practical approach to the use of CMC, teachers will be able to make use of all the tools available to them in order to achieve their developmental goals. Best e-learning practices will likely be put into action by best e-teachers utilising CMC tools effectively and efficiently.

## **Conclusion**

Teachers need to take responsibility for their own professional development. Influenced by the revolution in ICT, e-learning environments demand teachers to be aware of ways of using ICT to improve student learning. Recent online

education supports developmental and innovative approaches to professional practice through communication, collaboration and reflection that can enhance teacher development. CMC can help teachers improve their knowledge and collaborate in their learning with fellow teachers. Through such practical experience in online interactions, teachers develop their ability to use CMC tools and communicate with other teachers for their professional development. Importantly, a range of CMC tools are available to teachers, waiting to be explored and used for learning and teaching.

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