

Teaching through technology-enhanced environments in higher education: Moderating for effective computer conferencing

Maria Zenios
CSALT
Lancaster University

The emergence of the 'knowledge based society' places extra pressure on university teachers to develop students' knowledge and skills. Although focus has shifted from teaching to student centred-based learning it is still useful to investigate university teachers' approaches to teaching through networked technologies. Previous research indicates that the success of the online activity is influenced by the person who organises and facilitates the discussion (Berge & Collins, 2000). The role of the leader or 'moderator' in motivating the participants, channelling the discussion and deliberately handling difficult situations is crucial. The recognition that the moderator's work makes a great difference to the success of computer conferencing creates a pressing need to research new approaches to teaching online. Located on the socio-cultural framework, this study suggests that the moderator's role is crucial in sustaining conferences through the structuring of the learning resources inherent in the conferences.

Keywords: online teaching, moderation, computer conferencing, situated learning

Introduction

The sociocultural framework of human development proposed by Lave and Wenger (1991) starts with the assumption that engagement in social practices is a central process by which humans understand the world. The term 'community of practice' implies participation in a system through which learners share understandings concerning what they are involved with and what that means in their lives and for their communities (Lave & Wenger, 1991). Issues of negotiation of meaning, reflection over practice and identity are pertinent to this account of situated learning. An important element for increasing participation is the 'transparency' of the organisation of practice, the resources and the artifacts used in the process. The notion of transparency refers to the ability of the participants to make sense of everything that is engaged in the process (Wenger, 1998).

Within a community of practice, the participants' access to learning resources is closely linked with the role of the 'master'. The role of the 'master' is placed in structuring the learning resources of the community rather than transmitting knowledge (Lave & Wenger, 1991). Similarly, the learner within the community of practice is not required to model the performance of the master, but rather engage in the processes of the community. In that sense, the 'master's' role is placed in enhancing learners' participation in such a way that development can be achieved. The effectiveness of masters within a community of practice is not dependent on their ability to instruct students with their own conceptual representations. Rather, it depends on their ability to manage effectively students' participation into the community. Any authoritative behaviour from the part of the 'master' interferes with the participants' engagement with the processes of the community and, subsequently, it may interrupt learning. Lave and Wenger (1991) see a decentered view of master-apprentice relations where mastery is the organisation of the community of practice of which the master is part:

The master as the locus of authority (in several senses) is, after all, as much a product of the conventional, centered theory of learning as is the individual learner. Similarly, a decentered view of the master as pedagogue moves the focus of analysis away from teaching and onto the intricate structuring of a community's learning resources. (Lave & Wenger, 1991, p.94)

Research on computer conferencing moderation suggests that the moderator should act as a facilitator of learning rather than an authoritative teacher transmitting knowledge. Mason and Bacsich (1998) suggest

effectively handling questions and responses as well as providing resources, learning materials and supportive media. They suggest that online discussions should be structured as other parts of the course to include paced activities, exercises and set tasks: however, they argue that in practice it is very difficult to establish educationally valuable discussions (Mason & Bacsich, 1998). Enhancing the social cohesion of the group can play a big part in the creation of a successful educational environment and this can be achieved through the establishment of a climate of rapport and co-operation among participants (Mason & Bacsich, 1998; Wilson & Whitelock, 1998). It has been suggested that the moderators need to employ social, leadership and interpersonal communication skills in order to be competent in working with people online in a creative and supportive way (McConnell, 1994; Haughey & Anderson, 1998). Gilly Salmon in her influential book on e-moderating introduces 'weaving' as a key skill for creative rearrangement and connection of important themes discussed by participants (Salmon, 2000, p.155). Goodyear et al. (2001) provide a useful framework for roles and associated competences for online teaching for networked technologies.

This paper extends research about the perceptions of teachers using this medium and the strategies they employ in teaching through computer conferencing to avoid problems encountered by students. It provides a framework of educational techniques proposed by moderators of asynchronous computer conferences and argues that their role is placed in enhancing learners' participation through making transparent the resources used in the process of computer conferencing in order to enable student-teachers to become full members of the activity and to develop an identity.

Methods

The study used qualitative forms of data analysis in order to engage in interpretation of the phenomena allowing carrying out thorough checking of the descriptions produced and eliminating complexity through in-depth analysis. The problem under investigation focuses on the approaches and experiences of the university teachers engaged in the processes of computer conference moderating. The study focuses on the OU PGCE, which is the largest pre-service teacher training programme in Europe and it is provided from the UK Open University – a distance learning institution that has been a model in providing open learning programmes and utilising CMC technologies. Eight university teachers acting as conference moderators have been interviewed. The interviews with the moderators were conducted face-to-face and they lasted from thirty minutes to one hour and 15 minutes. The questions to the moderators covered a wide range of themes including visualisation of conference participants and rooms, asynchronicity, and ways of enhancing participation and techniques for resolving problematic situations. I sought, in particular, the interviewees' opinions on the qualities and skills of successful moderators and I encouraged them to reflect on their own moderation and discuss the particularities of their own conference rooms. The interview data, along with the computer conferencing messages exchanged, provided a rich pool of information for the study of computer conference moderating. Data were collected from five PGCE computer-conferences and was triangulated with data collected from 41 students.

Strategies for online teaching

The two aspects of the online teaching process concern a) the building of a sense of a community and b) the promotion of students' involvement in reflective discussion. Table 1 outlines the strategies used by computer-conference moderators in order to build a sense of a community within a computer conferencing network, in particular, at the beginning of the activity.

There is evidence that there was a link between establishing aims and moderating successful computer conferences. The moderators have used the setting up of the tone of the computer conferences observed in this case study as a strategy aiming to build a sense of a community. The term 'tone' refers to the general character of the online event and to the atmosphere within the computer-conference, which are shown through the manner of expression in the messages sent. The moderators' 'welcome' message, which was the first electronic contact with the students, established the tone of the computer-conference. The setting of the tone is important in terms of allowing access to the students. Access to the wide range of the on-going activity and the learning resources of the computer conferences enables the participants to move from peripheral participation to more legitimate forms of participation in the community of practice. Being directly involved in the scope of activities and sustaining relations with the people that participate in the computer conferences enables engagement to emerge as a source of identity. In that sense, access is

key to understanding and learning; any problems that obstruct access interfere with learning. Problems of power are sometimes interconnected to problems of access and need to be dealt through effective management of communication among participants.

Table 1: Strategies for building a sense of an online community

Strategy	Representative quote
Clarifying the aims of the conference	Mainly it's my job to make them think about their scientific knowledge, although that's the minor of the two really. [...] my major point in professional development of the teachers is to get them to share their own expertise but get them to reflect then on how that is different in the different schools, because people are coming in different ways and how then that relates back to the course materials they would have read.
Setting up the tone	I'd like to set up an ethos that's welcoming, that's warm, that values contributions but it is also critical, analytical, questioning. So to get the students to feel that it's OK, to say I disagree with that but as long as they give a reason and so that isn't a disagreement, is an intellectual debate. And I think it's really an important for teachers, to engage in that sort of discourse so that they create hopefully that sort of discourse into the classroom.
Establishing the netiquette	The other thing I think is making clear the ground rules in which people operate. So, that would be at the beginning of the outset [...] about asking questions, being collaborative, always introducing a topic clearly, so all those things I think are also important, and modelling them yourself.
Knowing students	Getting to know the students first, getting to know what interests they have and so that you can, if possible draw on that, but most especially so that the whole group knows what the knowledge is and interests and skills that the whole of the group is bringing.

Similar to all social settings, the moderators identified a need for establishing codes of conduct within computer conferences. The introduction of 'netiquette' as a set of established rules for the behaviour of the participants in the conference, and to the issues of establishing a sense of collaborative community online, has been even more crucial within the electronic environments because of the absence of visual cues and non-verbal exchanges. A set of ground rules clarifying the rules of operating within the computer conferences were introduced as a means to establish the netiquette: a) providing a precise title for each message, b) informing the computer-conference about their interests, c) keeping the discussion focused on professional issues, thus sending personal messages to personal mail boxes and d) sharing resources within the appropriate sub-conference room. Although all moderators introduced the 'netiquette' at the beginning of the computer conferences, problems appeared when users did not follow the ground rules. Within the computer conferences observed, the problems were related to certain features of computer-mediated communication: i) the openness of the CMC environment and ii) the textual nature of CMC.

There is evidence that knowing students helped all the participants, including moderators, to build a sense of a community within the computer conferences. Knowing the students that participated in the computer conferences allowed the moderators to draw on their interests and expertise in order to enable them to participate more actively and to contribute to the ongoing discussion. Within the case study, this problem was solved through the use of the 'resume' function and through students introducing themselves. The resume allows the computer-conference participants to circulate a short biography online. This information can be easily accessible when one is connected to the network simply by double clicking on the name of the sender at the top of each message. There is evidence that students used the resume feature as a way to introduce themselves and find out about the other participants in the conferences. In fact, within the Science and the English conferences students' introductions were encouraged at the beginning of the computer conferences. Later, when the computer conferences had progressed the moderators used the following strategy; they grouped all students' introductions in a different sub-conference, which they called 'Introductions'. The effectiveness of the 'Introductions' space was enhanced by its logo that depicted faces. This strategy allowed students to retrieve and read the messages whenever they wished to recall the details of the people they were talking to. As a technique for structuring the discussions has been the organisation of the conference environment in such a way that it is made up of a main conference and a number of sub-conferences. The sub-conferences can be set up in order to provide an 'area' where specific subject discussions may happen. This helps students conceptualise the 'space' of a conferencing system and find their way around its facilities.

Table 2 provides a set of strategies used by the moderators in order to engage students in reflective discussion. The first six strategies indicate moderators' intention to promote students' higher order-learning as they can be linked to Ohlsson's taxonomy of epistemic activities: describing, explaining, predicting, arguing, critiquing, explicating (i.e. engage in discourse to seek clearer understanding of a concept) and defining (Ohlsson, 1995, p.51). Within the conferences, a number of tasks, ranging from general to more precise, being related with developing competences of professional teaching were set by the moderators. Students, for example, were asked to describe and explain episodes from teaching practice, predict situations when planning a lesson and critique ideas especially in response to the papers initiated by guest speakers. On a few occasions students showed a higher level of abstract thinking, which was evident within reflective shared messages in which they explored concepts and formulated personal theories of teaching (Zenios et al., 2004).

Table 2: Strategies for promoting student involvement in reflective discussion

Strategy	Representative quote
Creating a culture of enquiry	One of the things that I've thought about a lot, is how to create a culture within the computer-conference that is an enquiring culture [...] It's the use of questions rather than statements to provoke discussion and debate. And one of the things that underlines that is my view, my philosophy of education which is that students should above all learn to be critical and inquiring and to pose problems and questions, to ask philosophical questions or practical questions.
Keeping the discussion focused	I think probably the ICT in Science was the most successful and that was because it was something that was formally set up, that they had to do something.
Motivating students	I pose questions that are related to students' interests and needs E.g. I sent a message asking questions about the teaching of phonics and then we had a reflective discussion within the 'On-Line Seminars' room.
Encouraging students to contribute to the discussions	I tend to send personal emails to students asking them to share their experiences with the rest of the team, discuss aspects of teaching practice, describe a successful lesson.
Initiating new discussions when there is silence	I think that you also have to be quite inventive to move on the computer-conference when it has become stagnant.
Initiating discussions on important themes and creating separate areas for	One is inviting them within an environment to explore things and making space for that. So, e.g. in the English computer-conference one of the areas that English students have lots of problems with teaching poetry, they find it quite a challenge, is often something that they're not too confident about. English teachers often love poetry. So, one of the first things I do is to set up a poetry computer-conference.
Inviting guest speakers	I introduced a speaker from 'X' University, an expert on the use of IT in science lessons and provided a paper as an attachment.
Dragging successful discussions on separate areas	While you've got a really good debate going on it's quite useful to drag it into another area so that people not forget about it and they can come back to it.
Limiting the asynchronicity of computer conferencing (delaying response time)	I opened a conference to general discussion ten days after [provision of materials] when most people have had a chance to look at the paper.
Being aware of the time-frame of computer conferencing	If I was planning a computer-conference on a subject I would say to the students: 'This will last for a month'. And in my head I'm thinking if it was a face-to-face thing it would be an afternoon. [...] Similarly] a five minutes silence in a seminar I think it's probably a five days silence in the English computer-conference.

The last three strategies (see Table 2) involve some organisational activities relating to the special character of computer conferencing. The asynchronicity of computer conferencing, for example, was limited by asking participants to wait for a certain time before responding to the questions posed aiming to reduce the impact of those participants who dominate the discussion and encourage those who are reluctant to contribute. Appreciating that time has a different dimension in the online environment than the conventional classroom has implications for the success of the online discussions.

A useful strategy for stimulating the discussion has been to invite guests who submitted papers in the computer conference and participated into the discussions that followed. The papers initiated discussions

which engaged students throughout the conferences' life span (see Table 3). There is also evidence that student teachers linked this discussion to their teaching practice.

Table 3: Initiating discussions

Computer-conference	Space	Discussion theme	Contributors*	Messages sent (total)	Messages sent by the moderator	Duration
Science A	IT in Science	Use of ICT in Science lessons	18	31	2	8 months
Science B	ICT in Science	Use of ICT in Science lessons	27	40	6	5 months
English	English Comix	Use of Comix in English lessons	8	23	4	5 months

Note. *The term 'contributors' refers to the senders of messages, because in reality many more people participated in the discussions as readers.

The views presented above underpin the fact that the computer conference moderators saw learning as a decision making process that reflected the personal and motivational issues that participants experienced. In that sense, the moderators did not see learning to be concerned with the transmission of knowledge and the development of some skills, they rather aimed towards developing certain qualities such as reflective practice and learner autonomy (see Zenios et al., 2004). Students were invited to take an active role to these procedures with growing responsibility within the community as well as an increasing identity as developing teachers. The structuring of the learning resources of the conferences coming from course materials, a range of professionals participating, placement schools, knowledge, experiences and skills of participants is seen as a key process in facilitating powerful and effective learning procedures.

Conclusion

This study brings forward teachers' views and approaches to online teaching. Their role is seen as a facilitative one, specifically understood in structuring the discussions and managing participation to allow participants to shape their learning curriculum based on their needs and interests as developing teachers. Thus it provided facilities that supported engagement, exploration of concepts and ideas and reflection on teaching practice. Students constituted the learning resources of the online community through their membership as the ideas exchanged, the knowledge shared and the mental activity involved in computer conferencing came from them. In this respect, this view underpins the need to take an indirect approach in educational design in higher education, in terms of recognising teachers' inability to rigidly design and control student learning activity (Goodyear, 2002). In thinking about teaching online we need to appreciate the extent to which moderators can influence the character and the processes of computer conferences. In the same spirit, the framework introduced here has implications for the composition of learning communities suggesting that computer conferences can be designed as having characteristics conducive to the emergence of an online community and then being made available to active participants engaging them into the creative process of developing learning communities.

References

- Berge, Z.L. and Collins, M.P. (2000). Perceptions of e-moderators about their roles and functions in moderating electronic mailing lists. *Distance Education*, 21(1), 81–100.
- Goodyear, P., Salmon, G., Spector, M., Steeples, C. and Tickner, S. (2001). Competences for online teaching: a special report. *Educational Technology Research and Development*, 49(1), 65–72.
- Goodyear, P. (2002). The Psychological foundations for networked learning. In C. Steeples, & C. Jones, (Eds.), *Networked Learning: Perspectives and Issues*. London: Springer.
- Haughey M. & Anderson, T. (1998). *Networked Learning. The Pedagogy of the Interne*. Canada: Cheneliere/ McGraw-Hill.
- Lave J. & Wenger E. (1991). *Situated Learning, Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.

- Mason R. & Bacsich, P. (1998). Embedding computer conferencing into university teaching. *Computers and Education*, 30 (3–4), 249–258.
- McConnell, D. (1994). *Implementing Computer-Supported Co-operative Learning*. London: Kogan Page.
- Ohlsson, S. (1995). Learning to do and learning to understand. In P. Reimann and H. Spada (Eds.), *Learning in humans and machines: towards an interdisciplinary learning science*. New York: Pergamon.
- Salmon, G. (2000). *E-moderating: the key to teaching and learning online*. London: Kogan Page
- Wenger, E. (1998). *Communities of Practice: learning meaning and identity*. Cambridge: Cambridge University Press.
- Wilson, T. & Whitelock, D. (1998). What are the perceived benefits of participating in a computer-mediated communication (CMC) environment for distance learning computer science students? *Computers and Education*, 30 (3–4), 259–269.
- Zenios, M., Banks, F. & Moon, B. (2004). Stimulating professional development through CMC: a case study of networked learning and initial teacher education. In P. Goodyear, S. Banks, V. Hodgson and D. McConnell (Eds.). *Advances in research on networked learning*. MA: Kluwer.

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Author contact details

Maria Zenios, Department of Educational Research, County South, Lancaster University, Lancaster LA1 4YD, UK. Email: m.zenios@lancaster.ac.uk.

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