

Online Learning Communities for Teachers' Continuous Professional Development: case study of an eTwinning Learning Event

Brian Holmes, Julie-Ann Sime

Centre for Studies in Advanced Learning Technology (CSALT), University of Lancaster,
b.holmes@lancaster.ac.uk, j.sime@lancaster.ac.uk

Abstract

Whereas a reasonable body of research now exists on the use of networked learning and learning communities in higher education, especially in post-graduate studies, less is known about their use in other sectors of education, such as continuous vocational education and training. This research focuses on an example of the use of online learning communities for teachers' professional development – eTwinning Learning Events. It looks at how the online community supports the development of teachers' competence and practice in online collaboration, how social aspects contribute to this discourse and the impact of facilitation, guidance and orchestration.

Action research was used to follow and influence the development of a Learning Event (LE) entitled 'Exploiting Web 2.0: eTwinning and Collaboration' first held in April 2010. Applying the Community of Inquiry (CoI) framework (Garrison, Anderson, & Archer, 2000) we examined the interrelated dimensions of cognitive presence, social presence and teaching presence. The analysis suggested that skills were developed in the use of the web 2.0 tools, however there was less impact on teaching competence and practice, social interaction was important but seen as second place to the cognitive activities and the burgeoning community failed to fully develop.

The event was rerun in the autumn and an analysis of the data collected through a participant questionnaire, interviews and the coding of the messages in the discussion forums suggested that the changes applied had had a positive impact on the learning, the social interaction and the contribution of the tutors. Cognitive presence had been reinforced through practical experience and a final reflection activity, with evidence of critical thinking emerging in the participants' discourse. A Staff room for informal knowledge sharing had engendered a good social presence and a community had emerged that thrived for as long as it served the purpose of learning. The teaching presence had been ensured through additional tutoring at key points, to provide feedback and encourage reflection, and the gradual emergence of mutual support from peers.

The results of the research will contribute to our understanding of how the cognitive, social and teaching aspects of an online learning community are interrelated and combine to offer a valuable learning experience in support of professional development.

Keywords

Online learning community; Community of Inquiry; teachers' professional development; eTwinning

Introduction

The use of social computing has exploded in the last decade. The technological advances offered by Web 2.0 have been accompanied by a social revolution in the way information is shared, knowledge is generated and innovation takes place. 'For the first time in history, the human mind is a direct productive force, not just a decisive element of the production system' (Castells, 2000, p.31). Initially the reserve of innovators and early adopters, patterns of use are now changing. 'New user groups are emerging that are not made up of the typical ICT early adopters: more and more women and older people are starting to use social computing applications' (Pascu, 2008, p.ix). These groups are using social computing to collaborate online, to participate in new networks and to establish relationships. Whereas learning is usually not an explicit

motive, research suggests that it often takes place, as online communities offer novel ways of learning, in different social contexts and with flexible learning trajectories (Ala-Mutka, 2008).

Online communities are increasingly being used in formal education to augment collaboration between students, and between students and tutors, in networked learning (McConnell, 2006; Luppicini, 2007). Research suggests that such networked learning helps to create autonomous learners, better suited for the challenges of a modern society (Goodyear, 2002) and with the key competences needed for lifelong learning (Ala-Mutka, 2008).

Whereas a reasonable body of research now exists on the use of networked learning and learning communities in higher education, especially in post-graduate studies, less is known about their use in other sectors of education, such as continuous vocational education and training. In the area of teachers' professional development, learning communities are seen as offering valuable opportunities for authentic and personalised learning (Duncan-Howell, 2010), informal exchange of good practice and peer learning (Avalos, 2011). Moreover, rather than separating the formal knowledge and theory for teaching from the practical knowledge gained from applying ideas in action, learning communities can help teachers to take a more systemic view through critical inquiry with peers (Cochran-Smith & Lytle, 1999; Vescio, Ross, & Adams, 2008). In other words, they offer the longer-term, reflection in practice, meta-cognitive learning that is associated with effective teachers' professional development (Boyle, While, & Boyle, 2004) and teacher change (Guskey, 2002).

This research focuses on one particular example of the use of online learning communities for teachers' professional development – eTwinning Learning Events. These are short-duration, informal learning opportunities for groups of teachers working on a particular theme, supported by a domain expert. Learning Events are offered under the auspices of the eTwinning initiative¹, funded by the EU's Lifelong Learning Programme². eTwinning is effectively a 'Community for schools in Europe' (eTwinning, 2010, p.3), supporting teachers to work together in joint pedagogical projects, share resources and develop their professional competence.

This research looks at how the online community supports the development of teachers' competence in online collaboration and how social aspects contribute to this discourse. These two aspects are inextricably linked, as a) collaboration helps to foster closer ties in relationships, engendering trust, building social capital and creating bonds that sustain beyond individual encounters (Nahapiet & Ghoshal, 1998; Daniel, Schwier, & McCalla, 2003); b) socialising provides the glue that bonds individuals together in a community (Seddon & Postlethwaite, 2007), affording closer collaboration and deeper learning (Kreijns, Kirschner, & Jochems, 2003).

Moreover, this research looks at the impact of facilitation, guidance and orchestration (Dillenbourg, 2008). In particular, how they influence critical thinking and meta-cognition – essential for deep and meaningful understanding (Garrison, Anderson, & Archer, 2001), knowledge development (Garrison, 1991) and the improvement of professional practice (Eraut, 1994).

Action Research was used to observe, reflect, plan and act (Koshy, 2010) in two cycles of a Learning Event (LE) entitled 'Exploiting Web 2.0: eTwinning and Collaboration', held in April and October-November 2010. An ethnographic approach was followed for data collection, with mixed methods of observation, online surveys, interviews and forum message coding. Qualitative data was analysed using in vivo coding and the coding schemes proposed by the Community of Inquiry framework.

Theoretical framework

The Community of Inquiry (CoI) framework offers a holistic approach to analysing the use of computer-mediated communication for educational purposes (Garrison, et al., 2000). The model, originally devised for higher education, has 'been adopted and adapted by hundreds of scholars working throughout the world' (Garrison, Anderson, & Archer, 2010, p.5), cited in more than 1000 scholarly papers (Google Scholar as of August 2011) and validated in a number of studies (Garrison & Arbaugh, 2007; Arbaugh, et al., 2008). It consists of three overlapping elements at the core of the educational experience: cognitive presence, social presence and teaching presence. Cognitive presence is defined as 'the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained

¹ www.etwinning.net

² http://ec.europa.eu/education/lifelong-learning-programme/doc78_en.htm

communication' (Garrison & Arbaugh, 2007, p.89) and is seen as vital to critical thinking and meta-cognition (Akyol & Garrison, 2011). Social presence is defined as 'the ability of participants in the Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as "real people."' (Garrison & Arbaugh, 2007, p.89) and has been shown to contribute to the success of the educational experience. Teaching presence relates to the design of the educational setting and the facilitation offered during the process. Whereas the former is often the remit of the teacher or tutor, the latter may be shared with the participants as they collaborate and offer each other mutual support.

The strength of the CoI framework lies in the way in which it portrays the elements of cognition, social interaction, tutoring and facilitation as being interrelated and mutually dependent. Whereas most of the research conducted thus far using this framework has focused on one particular presence 'rather than on the nature of the relationship between the types of presence' (Garrison & Arbaugh, 2007, p.167) and mainly with the use of quantitative data analysis, the research presented in this paper addresses all three elements in equal measure and applies both quantitative and qualitative approaches to a case study of adult education.

The first learning event

Data was collected from the first LE through a final online questionnaire and analysed manually using the CoI framework as a theoretical lens. The response rate was high, with 82% of the 156 teachers offering their opinion. The analysis revealed a high level of satisfaction with the event. The feeling of connectedness had been higher than elsewhere in eTwinning, with profile pages helping to increase immediacy and intimacy (Gunawardena & Zittle, 1997) between participants. There was evidence that the teachers started to see the benefits of collaboration, with several commenting on the advantages of combining individual learning with group reflection and sense-making (Stahl, 2003). They increased their awareness of the potential offered by Web 2.0 tools for collaboration and had initial exposure to issues of online group dynamics, reciprocation and the role of moderators. However, participants' attention was focused on the cognitive activities and there was little time for the socio-emotional issues that can encourage collaboration and foster a community (Kreijns, et al., 2003; Volet & Wosnitza, 2004; Zenios & Holmes, 2010). Whereas they had learned about Web 2.0 tools, few participants expressed confidence in their ability to manage online groups of students and more personal experience was needed before the teachers would be comfortable in changing their own teaching practice (Cochran-Smith & Lytle, 1999); 'I wish I had more time to experiment more with the tools and communicate and collaborate in online groups' (anonymous, final questionnaire).

The results were discussed with both the LE tutor and the organisers of the LE activities, in order to agree changes that might enhance critical-thinking and competence development, increase socialisation and foster the community in the second LE. The cognitive presence could be reinforced by including explicit time for the teachers to try out the tools in their school and by adding a final activity for sharing stories and reflection amongst peers (see Figure 1). Collaboration and critical thinking could be fostered through an increased teaching presence, with the tutor and myself orchestrating activities at key points (Dillenbourg, 2008) and encouraging mutual-support. Social presence could be strengthened through the creation of a permanent, specific space for informal discussion in small groups - a virtual Staff room.

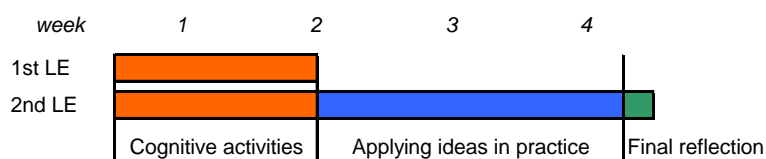


Figure 1 : Timing of the 2nd LE compared with the 1st

The second learning event

The final questionnaire (used after the first LE) was modified and repeated after the second LE. Again the response rate was high, with replies from 58% of the 142 teachers. Further data was collected via interviews of selected participants and from the messages in the discussions forums. The coding schemes of the CoI framework were used to analyse the latter, from the point of view of cognitive presence (Garrison, et al., 2001),

social presence (Rourke, Anderson, Garrison, & Archer, 2001) and teaching presence (Anderson, Rourke, Garrison, & Archer, 2001). The results from the three sources were compared and analysed in order to reach conclusions as to the effect of the changes implemented.

Analysis of the results suggested that the changes made to the event had had a positive effect on the cognitive presence. Participants' comments in the final questionnaire and interviews indicated that those who had been able to apply what they had learned in their teaching practice had benefited significantly from the experience. Several participants suggested that they felt more confident and competent about the use of Web 2.0 tools in their teaching practice and for online collaboration with pupils, as the following comments illustrate:

Now, I feel more confident and quite well prepared for working with Web 2.0 tools in my everyday life and especially in my professional life. (Anonymous, final questionnaire)

I was able to apply what I learned in the classroom and my pupils are very excited and they want to learn more. (Roberta, female primary school teacher from Rumania)

In the final reflection activity, the participants had been asked to give an example of what they had done, what impact it had on their teaching practice and what recommendations they would pass to their colleagues. This proved to be beneficial for critical thinking and meta-cognition. The CoI framework associates critical thinking with two of the four phases of critical inquiry, Integration and Resolution, as summarised in Table 1. Most of the messages coded at these levels were in the final reflection activity.

Phases of critical inquiry	Description	Example indicators	Socio-cognitive processes
Triggering event	Initial phase, issues and problems emerge	Sense of puzzlement	Asking questions
Exploration	Linking private thoughts to real world, as ideas are explored	Leaps to conclusions	Adds to established points but does not systematically defend/justify/develop addition
Integration	Constructing meaning, moving between reflection and discourse	Connecting ideas, synthesis	Integrating information from various sources—textbook, articles, personal experience
Resolution	Direct or vicarious action as solutions are implemented and assessed	Testing solutions	Evaluating results

Table 1 : Phases of critical inquiry for cognitive presence (Garrison, et al., 2001)

The progression from lower levels of cognition to higher levels was evident in the coded messages for most participants with little or no previous experience of online collaboration. Figure 2 illustrates a typical example, with all posted messages against time for Edita, a female teacher of English and history from the Czech Republic. It reflects a move towards critical-thinking in the latter stages of the LE. The following comment from Edita illustrates the benefits that she saw of practicing, sharing with peers and reflecting.

What I think is most important for me is collaboration online which we practised a lot and sharing our ideas which might be useful in our future teaching. Meeting other teachers ... was very nice and fulfilling. It was very interesting to know how teachers from other countries work, their ideas about projects, used tools and experience. (Edita, female teacher of English and History, Czech Republic)

For more experienced participants, the progression was less pronounced as they demonstrated critical thinking at earlier stages of the LE, when sharing and reflecting on their previous experience with their colleagues. Nevertheless, the trend was still towards increased critical thinking over time.

The analysis also suggested that the intervention of the tutors at key points had a positive impact on the discourse. Figure 3 shows the number of messages posted each day in the Staff room over time. It shows that the messages posted by the participants closely followed those posted by the tutors - except for the later stages of the LE, when the teaching presence was largely assured by the participants themselves supporting each other.

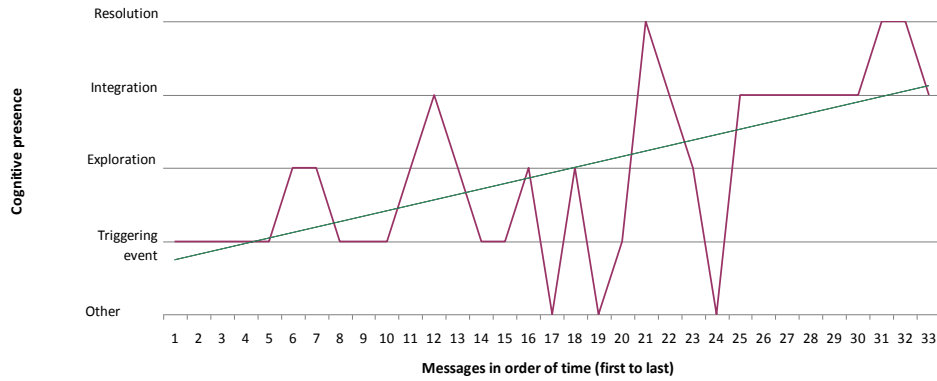


Figure 2 : Results of coding cognitive presence for the participant Edita

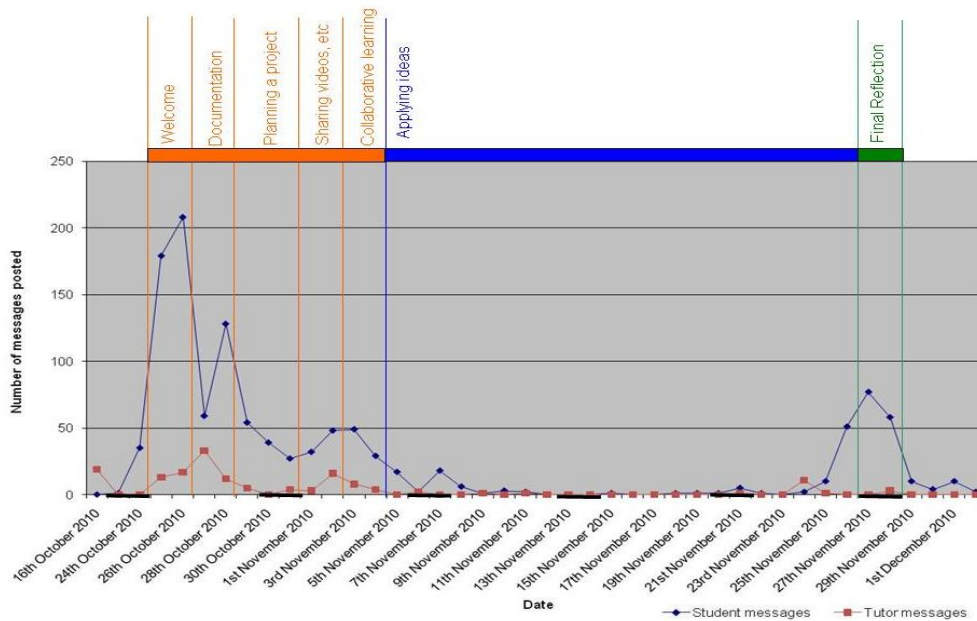


Figure 3 : Number of messages posted each day in the Staff room over time

The Staff room was seen as a stable place for reflection, for sharing emotions and for checking on the team’s progress. As such, it engendered a better understanding of team work and helped people to build their self-confidence:

I think that the Staff room was a good idea, intended as a really useful tool for the different groups, as a meeting point for members, where they could discuss topics, share proposals and take decisions in team. (Annalisa, female teacher of German, from Italy)

If I'm not mistaken, it was used for sharing our feelings and reflections on what we've done. So it was useful - at least for those of us who had doubts about what they were doing or wanted to tell us what they'd achieved. (Beata, female teacher of English, from Poland)

Participants indicated that there was a community feeling in the Staff room and that it helped to foster social interaction which they perceived as beneficial to their learning. These relationships became stronger over time:

The relationship changed everyday and every hour. (Roberta, female primary school teacher from Rumania)

I believe that in some groups closer contacts were built as the course unfolded. It seems to me that people became more open and eager to help when they got hold of how things worked in such events. (Beata, female teacher of English, from Poland)

Nevertheless, as Figure 3 illustrates, most interaction was focused on the learning activities and there were very few messages posted during the period allotted for practice. Similarly, interaction died off quickly once the final reflection activity was complete.

Applying the CoI framework, through the coding of forum messages, was straightforward for cognitive presence, revealing interesting insights into the change in critical thinking over time. Less so for social presence, where the indicators proposed (Rourke, et al., 2001) needed to be interpreted in the context of the social affordances (Kreijns, Kirschner, & Jochems, 2002) offered by web 2.0 environments, with their automated support for threaded discussions, replying and profiling. Similarly for teaching presence, where it was felt that the indicators proposed (Anderson, et al., 2001) suggested instruction and 'teacher as subject expert', rather than being more neutral with a stance that equally embraces peer learning and 'tutor as facilitator'.

Conclusions

Critical thinking is associated with constructing meaning and is a central tenet of adult education (Garrison, 1991). It is essential for the development of the skills, experience, aptitude and attitude associated with competence (EU, 2004) and it is important for professionals to 'maintain a critical and evaluative stance attitude towards practice, so that they seek to improve it and do not lapse into complacency' (Eraut, 1994, p.204). Changes to the teaching presence introduced into the second LE had a positive impact on cognitive presence and competence development. Firstly in the design of the educational experience, the period allowed for trying out ideas in the participants' teaching practice and the final reflection activity were instrumental in providing the opportunity and environment for valuable reflection-in-action (Schön, 1987), shared understanding and personal interpretation (Stahl, 2003). Secondly in terms of guidance and support, the timely interventions of the tutors, providing feedback, encouraging reflection and stimulating debate helping to focus the discourse, engendering critical thinking and meta-cognition. Moreover, teaching presence from the participants was encouraged by the strategy adopted by the tutors of recognising the stages of development of the group, intervening more at the start and gradually backing-off as mutual support emerged (Salmon, 2000; Hlapanis & Dimitracopoulou, 2007).

Social interaction proved essential for effective collaboration and was the 'glue' that held the community together (Seddon & Postlethwaite, 2007). The Staff room afforded informal social contact, reinforcing the social presence and helping to ensure that the cognitive activities were balanced by informal activities that addressed the socio-emotional aspects (Kreijns, et al., 2003; Abedin, Daneshgar, & D'Ambra, 2011). The longer duration of the LE provided more time for relationships to form, ties to strengthen and the necessary trust to develop for the community to evolve (McConnell, 2006). The openness within the community encouraged the teachers to talk about their practice, share their ideas and participate in critical reflection (Duncan-Howell, 2010). Nevertheless, the community was ephemeral and was only active for as long as it benefited purposeful learning. Indeed, the longer duration may have benefited more the development of cognitive presence and critical thinking than the development of a community per se (Akyol, Vaughan, & Garrison, 2009).

Approximately 40% of the teachers who started the event were able to try out what they were learning in their teaching practice. Of the others, several mentioned lack of time, lack of opportunity or lack of ability for not being able to practice. Adding this practical dimension to the LE requires a commitment from those involved and it should not be taken for granted. Cultural differences and language skills can play a part, with some participants indicating that they were not used to reflecting, summarising and expressing themselves in front of their peers; 'Not here in Rumania. It's not natural for me'. Indeed, participants used to learning in more conventional ways may face 'digital dissonance' (Lim, So, & Tan, 2010) if they cannot embrace the empowerment offered by such participative ways of learning. Moreover, collaboration should not be taken for granted and when it does not work successfully, it can lead to frustration and even resentment, as one participant argued 'Well in the forum there is merely discussion and I understand that cooperation is a step further and collaboration even further, and I did not enjoy not being able to collaborate in my own group'. Online collaboration can yield positive benefits, however it can also introduce new power relationships and challenges

to personal expression, identity and creative difference that can undermine the learning experience if not handled carefully (Bayne, 2005; Hodgson & Reynolds, 2005; Ferreday & Hodgson, 2009).

In conclusion, one can argue that the CoI framework, with indicators interpreted in the context of web 2.0 environments, offered an effective lens with which to analyse the online community from a holistic perspective. It helped us to introduce changes to the LE which, on the basis of the analysis, had a positive impact on the learning, the social interaction and the contribution of the tutors. Cognitive presence was reinforced with evidence of critical thinking in the participants discourse based upon practical experience. The Staff room engendered a good social presence and the community thrived for as long as it served the purpose of learning. The teaching presence was ensured through appropriate tutoring and the emergence of mutual support from peers. Nevertheless, we must not see such changes as being universally applicable to any online community. Indeed, an online community itself must not be seen as a panacea for effective learning (Riel & Polin, 2004). Rather this research contributes to our understanding of how cognitive, social and teaching aspects are interrelated and may combine to offer a valuable learning experience in support of professional development.

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