

# Teaching online in Networked Learning Communities: A multi-method approach

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**Abstract.** The aim of this paper is to study the online tutoring styles of two teachers who each tutor a networked learning community (NLC), within the same workshop. The study is undertaking empirical work using a multi-method approach in order to triangulate and contextualize our findings and enrich our understanding of the teacher's involvement in these NLC's. We apply social network analysis (SNA) to visualise the social structure of the NLC, content analysis (CA) to identify learning and teaching processes, critical event recall (CER) to gather the teacher's personal experiences and intentions. This paper reports some of the current findings of our work and discusses future prospects. This study is part of a continuing international study that is investigating networked collaborative learning as a way to develop a rich descriptive body of evidence of tutoring and learning processes in e-learning.

**Keywords:** networked learning, online tutoring, multi-method, triangulation, computer-mediated-communication

## INTRODUCTION

The aim of this paper is to study the nature of online tutoring within a networked learning community (NLC). By NL we mean the use of Internet-based information and communication technologies to promote collaborative and co-operative connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources, so that participants can extend and develop their understanding and capabilities in ways that are important to them, and over which they have significant control (Banks, Goodyear, Hodgson, & McConnell, 2003, p1). The notion of communities (Lave & Wenger, 1991) has changed the way we experience teaching and learning in education. The teacher no longer is in full control and learners are actively taking responsibility and start to coordinate and regulate their own (collaborative) learning (De Laat & Lally, 2004). While, in educational practice, there still is a strong (and much needed) focus on the teacher, researchers are pointing out the changing teacher-student relationship (Mazzolini & Maddison, 2003; McConnell, 1999; Rimmershaw, 1999; Vonderwell, 2003). The teacher becomes more and more a 'guide on the side', which implies that students are stimulated to take active control over their own and collaborative learning processes. This allows them to fulfil their particular learning intentions and needs (Gustafson, Hodgson, Mann, & Olsen, 2004), and coordinate their

learning by agreeing on rules and deadlines (Vonderwell, 2003). It allows students to actively schedule their activities and assign roles within the group, instead of just exploring the content in order to finish their learning task (Hammond & Wiriyapinit, 2004; Strijbos, Martens, Jochems, & Broers, 2004). As such, every member of this community may be seen as both learner and tutor. Of course, the designated tutor continues to have a *status apart*, being responsible for the overall coordination of the workshop and its educational goals. This changing relationship emphasises the need to articulate new pedagogies, to require teachers to design and facilitate this more student-oriented approach to learning. In this paper we focus on the teacher's involvement in the NLC's. However, in future papers we will broaden our analysis of online tutoring and learning towards all the participants within the NLC's. In this study it is our aim to explore the teacher's online behaviour and how they cope with this changing relationship and the tutoring styles they have developed.

In order to provide a more holistic and complimentary description of their engagement in the NLC's, we used a multi-method research approach and we study a beginning and an experienced teacher to contrast their teaching styles. In research terms, much is still unclear about the most effective forms of networked learning (NL). For example, there is a need for research and development of new understandings that will provide guidance on the design and moderation of NL. Stahl (2003) takes this point further by explicitly arguing for a more appropriate conceptual framework and analytic perspective to guide this work. At present, he suggests, we are witnessing an emerging conceptualisation where concepts borrowed from other theories and philosophies are being adapted, but as yet we still lack a sufficiently powerful theoretical base to guide our research and our praxis. This is increasingly acknowledged as a concern among researchers in the field, and was clearly expressed during the CSCL 2003 conference in Bergen (Beuschel, 2003; Hakkinen, Jarvela, & Makitalo, 2003; Stahl, 2003; Wasson, Ludvigsen, & Hoppe, 2003). The need for more empirical research to provide an evidence base for this emerging conceptual framework is clear. Hakkinen et al. (2003) suggested a multi-method approach that is process-oriented and takes into account different contextual aspects of NL. They argue that research is needed that captures the process and organisation of collaborative interaction and its contribution to learning:

‘Methods should be developed not only for capturing processes and outcomes of learning, but also experienced effects and individual interpretations of participation in CSCL settings.’  
(Hakkinen et al., 2003, p. 402).

The aim of this kind of research is to provide a more complete picture of NL processes and to contribute to more profound analysis of virtual interaction. We think it is important that this research is focused on the central processes of NL, that is: learning and teaching. We believe that these understandings will contribute to the development of better pedagogical frameworks and software that more effectively support learning and tutoring by design. We have developed a multi-method research framework to study NL processes by making use of social network analysis (SNA) to find out ‘who is talking to whom’, content analysis (CA) through coding teaching and learning activities as a way to find out ‘what they are talking about’, and critical event recall interviews (CER) to find out ‘why they are talking in such a way’.

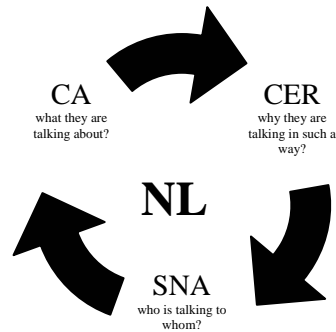


Figure 1. Multi-method research framework for studying networked learning

These three methods are used to triangulate and contextualise our findings and to stay close or connected to the first hand experiences of the participants themselves (De Laat, Lally, & Lipponen, 2004), and to continue the much needed theory-praxis conversation (De Laat & Lally, 2003) in which we critically engage in the development of both theory and design of learning practices.

## METHOD

Both the teachers and students are taking part in an online master's programme (Med) in e-learning, hosted at the University of Sheffield. The MEd is an advanced part-time programme designed to provide participants with opportunities to engage with theory and praxis of collaborative networked tutoring and learning. The programme is based upon the establishment of a 'learning community' among the participants and tutors. In this community activities are undertaken around five workshops over a two-year period. The programme is hosted in the electronic learning environment WebCT. In the course participants become engaged in collaborative learning and tutoring processes as they support each other and the group as a whole in a range of structured activities.

The analysis is based upon collaborative project work conducted by two NLC's. We included two NLC's in this study to contrast an experienced teacher with a beginning teacher as a way to describe and understand possible differences in teaching styles. NLC1 with the experienced teacher consists of 7 students. NLC2, with the starting teaching consist of 9 students. We divided the 10-week period into three sections: beginning, middle and end. This allowed us to take a timeline analysis approach. From each period we took a 10-day sample to form our data set.

We used the UCINET software package to create the socio-graphs of the NLC in each phase. This SNA was based on case-by-case matrices reflecting the exchange of messages amongst the group in the threaded discussion forum. For the CA we used two coding schemes to produce case summaries the learning and tutoring processes (see for a description of the coding procedure and inter-rater reliability information, De Laat & Lally, 2003& 2004). The CER interviews with the teachers were based on both the case summaries produced by the coding as a way to interpret these findings and selected messages identified by the teacher as being critical or outstanding during this 10-week period.

## FINDINGS

First we will present the findings of NLC 1 (group with the experienced teacher). We start with the results of the SNA by presenting interaction patterns, as a way to find out how interactive the community members were. Overall we notice that within this NLC the participants, including the teacher, are acting as one group over the entire period (see figure 2 to 4). In the beginning there is only one participant that is not engaging, but this changes in the middle and end phase of their collaboration. Everybody is involved in the communication and there are no sub-groups or cliques being formed. The teacher has in the beginning

phase (figure 2) a somewhat central position, although this is not a dominant one. Together with DG and AI they are the most connected and central participants in this phase.

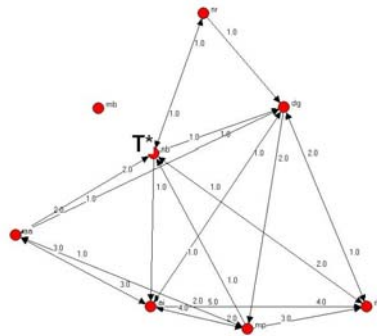


Figure 2. NLC 1, interaction patterns of beginning phase. \*T marks the position of the teacher.

This dynamic has somewhat changed in the middle phase where the teacher has moved more towards the side (periphery), while MP (who was more peripheral in the beginning) moved to the centre of the NLC, making actively contributions to the groups task. DG is also still quite active and AI has moved more to the side as well.

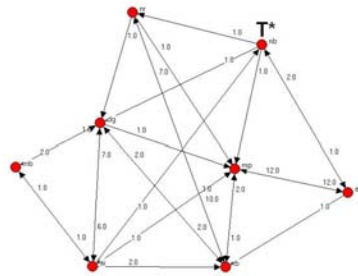


Figure 3. NLC 1, interaction patterns of middle phase. \*T marks the position of the teacher.

In this last phase of their 10-week collaboration, the group structure has changed again. There appears to be less connections between all the participants, and all the communication seems to be focused around AI (and AA) to some extent. The teacher is still making contributions to the conversation from the sidelines.

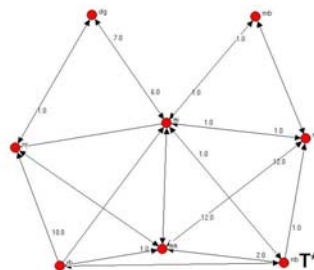


Figure 4. NLC 1, interaction patterns of end phase. \*T marks the position of the teacher.

Now that we know more about the interactions patterns of this NLC, we can start to look at their teaching and learning activities (see table 1). This table reflects the tutoring and learning activities that all the participants were engaged in while writing their messages to the group. The changing teacher-student relationship (as mentioned before) is quite visible, since we now can see that all the participants, including the teacher are covering both learning and tutoring statements. The teacher’s style is to act as a learner, which might suggest he is trying to participate in this community on an equal basis. The teacher’s involvement reduces somewhat in the middle and ending phase (as was supported by the SNA findings). This is most noticeable in the middle phase where the group is making a large number of contributions to their collaborative task. It is interesting to see that MP makes a large contribution to both tutoring and learning in the beginning, even though in the SNA pattern (see figure 2) he did not appear as a central person. This might mean that he wrote large messages touching on a number of issues at once. DG seems to be more focussed on learning processes throughout the 10-week period, while AI is involved in both.

NLC 1	T*	RB	MP	DG	AI	AA	NR	MB	Total
<b>Beginning</b>									
Learning	24	14	25	20	33	16	8	0	140
Tutoring	27	19	25	6	35	21	4	0	137
<b>Middle</b>									
Learning	9	58	64	31	48	41	45	12	308
Tutoring	18	26	25	6	16	16	27	8	142
<b>End</b>									
Learning	13	12	34	6	56	45	8	10	184
Tutoring	11	9	9	3	22	27	5	5	91

Table 1. NLC 1 Case summaries of learning and tutoring processes for each of the phases. \*T stands for teacher

Based on this information we held a CER interview with the teacher to reflect on his tutoring style.

“My teaching style is to let the group to be emergent in their learning and let them seek their own rhythms and ways of working and learning together. But at the same time being present in the workshop by giving subtle advice or hints in a certain direction or just keeping a close watch at the groups movements without interfering but being ready to so whenever I felt necessary”.

“I put in an advanced organizer in the spirit of Ausubel by giving them two headings. 1 is to organise the process and 1 is to identify a project. However, the group did not really bother with the process at this stage, they were only interested in the content. But I was trying to pre organise it a bit. I might have been to early basically. But my concern was to flag up these two issues or concerns I had”.

“They had lots of good and interesting ideas. But I was aware of the increasing complexity of their project. And I wanted to sound a note of caution by saying, keep it do-able. But in a gentle way, that’s also why I added those smiles in my message.

I was trying to manage the situation. Especially because I knew that later on in their group work they were going to face this issue on process”.

He saw himself as modest moderator within this group.

“I felt very comfortable throughout this workshop because of my experience. I knew the kind of mental framework that I was going to go through, I knew the kind of pitfalls they might go down and I knew the rabbit holes that might appear as well”.

“I was making this sort of architectural framework through my messages, that was either going to be directive or taken up or points that I can point back to and say, now I have made this framework and over there you see that door, or window, or arch or whatever that can be supportive once they realize these points themselves”.

He felt, because of previous experiences, that he has a deep knowledge of the dynamics around this workshop and that he kind of knows what the groups will go through and what to expect as a result of that.

“Obviously no group is the same and there are differences and problems but to have a general understanding and a mental framework helps me to create some scaffolding and knowing how they operate in and around that helps me to pull them back if necessary. Sometimes they don’t need it and they are fine on their own”.

“I feel I have an internal architecture for this workshop and it does not always have to be or become an external one, but I feel comfortable with it”.

This CER interview illustrates how the teacher felt during this workshop and explains his intention to act moderately (avoiding a central position) and let the learning emerge by supporting the group but also by acting as a learning and not being to directive in his tutoring style.

In the second NLC (with the starting teacher) we see some similarities in the teacher appearance in the socio-graphs (figure 5 to 7). This teacher also remains peripherally active, however at the end there is no involvement anymore. In the beginning period the teacher is most active and reduces her involvement ever since. The NLC overall in the beginning seems to be directed by three central participants and as a whole is not operating as one group. This is indicated by the star shape (see figure 5). This changes later on where the shape becomes more like a circle suggesting a more equal participation of all the members.

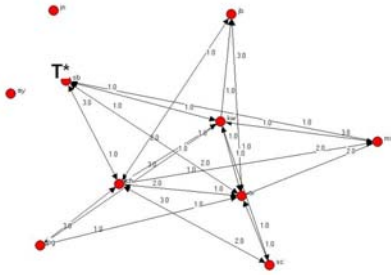


Figure 5. NLC 2, interaction patterns of beginning phase. \*T marks the position of the teacher.

Also in the middle phase the teacher still seems to be rather on the side of the of the overall interaction. This is indicated by the limited connections with the participants in this NLC. Most of the group activity is on the right side of this figure, ‘disconnected’ from the teacher’s direct engagement. AR and KW are still the central participants, CH has moved more towards the side.

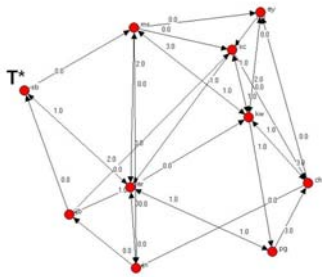


Figure 6. NLC 2, interaction patterns of middle phase. \*T marks the position of the teacher.

At the end phase the teacher has made no active contribution to the NLC. AR and CH together with AY are the most active members and KW made a marginal contribution in this stage.

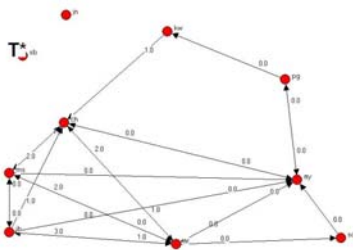


Figure 7. NLC 2, interaction patterns of end phase. \*T marks the position of the teacher.

The coding summaries in table 2 suggests a mixed (learning and tutoring) involvement from the teacher, and it seems that both AR (tutoring=33) and CH (tutoring=25) are regulating and coordinating most of the discussion. During the middle phase the teacher involved has reduced but the style has not changed, still an equal balance between learning and tutoring activities. MS started to contribute quite extensive in this phase, but did not appear as a very central member in the SNA pattern (see figure 6). KW interestingly shows almost the opposite, making relatively low learning and tutoring contributions, but still takes a central position in the SNA pattern (see figure 6). At the end phase the teacher made no active contribution to the NLC discussion.

NCL 2	T*	SC	CH	MS	PG	AR	JN	KW	JB	AY	Total
<b>Beginning</b>											
Learning	12	30	24	25	17	33	7	9	0	0	157
Tutoring	16	12	25	14	4	33	5	9	0	0	118
<b>Middle</b>											
Learning	5	12	2	66	3	43	10	18	15	4	178
Tutoring	4	12	5	48	5	40	6	14	12	4	150
<b>End</b>											
Learning	0	1	21	26	4	39	17	1	0	20	129
Tutoring	0	6	16	17	4	19	14	4	0	10	90

Table 2. NLC 2 Case summaries of learning and tutoring processes for each of the phases. \*T stands for teacher

During the CER we asked the teacher about the tutoring style and engagement in this NLC. She started by saying that once she reflected on the messages and when she went through them again, that she realized that she had more impact on the group than she initially had thought.

“my feeling of the students of this workshop has stemmed from the fact that this is my first time as a tutor and even though I know a lot about e-learning I found it a challenging experience and unnerving at many times. And I am now [during the 3<sup>rd</sup> workshop] getting near the stage of feeling comfortable about it, because now I am beginning to get the evidence and the feedback that some of the contributions that I have made have been worthwhile and I am seeing some student achievement there, despite my occasional short comings or my perceived short comings”.

“One of the students was very dominant and had a very strong online presence and had very combating and critical tone in his messages towards me and gave me at one stage a major crisis. This made me realize that I had to be there at a certain stage but I wasn’t, and I over reacted to that especially when I realized that it wasn’t such an issue for the other students. It was just coming from him”.

The teacher reflects on the lessons learned from this experience.

“I allowed him to dominate me as the tutor, and although the tutor and the students are on an equal basis. There is a point where the tutor has to assert certain things and I see now that I did not clarify the expectation they should have of me early on. But I will certainly do that the next time”.

“I felt overwhelmed by the complexity of the postings, raising so many issues that, well if I have to reply to all of that, it is going to take me so many hours and I don’t have the time. I am affright that my strategy in was that I did not respond because I felt I don’t know what to do. I was wondering about my role, when it is learned led and emergent learning, well how does the tutor facilitate that and moving it on, because there are to many issues there to address all of them. So at times I did not respond because I felt I did not have the skills and the know how to do that”.

She realizes now that...

“It is partly self believe and partly the identity of how I communicate. The path I found was to comment in a gentle and constructive way and to touch on some issues rather than all of them and make a summarising remark to the other issues. It feels like a kind of balancing act.

## DISCUSSION

This study indicates that online tutoring is a rich and delicate undertaking, where the teacher is balancing between uncertainty and experienced knowledge of what will happen. It requires a lot trust and sensitivity not to interfere with the activities of the learner immediately and it seems to help to build in (throughout the contributions) a kind of subtle support framework for the group, that they can pick up from or being referred to later on. This is an important finding with respect to pedagogical models on online tutoring. More research in to what successful support frameworks can be is desired, as a way to develop richer pedagogies and design principles to guide e-learning practices. This multi-method research approach is a successful way to try to conduct a detailed analysis of the processes the participants are engaged in during the networked learning and offers explanations from multiple angels to help making sound interpretations of this phenomenon. People’s intentions seem to changes over time and they seem to be multi-dimensional. Studying networked learning practices we cannot pin this down to a single variable approach, we need to accept its complexity and take multiple perspectives into account to have a more informed and critical conversation with networked learning theories which are applied in the field, and as a consequence develop design principles for both theory and praxis.

In future papers we will report on the tutoring and learning activities and their intentions of the students of both these NLC’s

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