

It's not so easy: researching the complexity of emergent participant roles and awareness in asynchronous networked learning discussions

Maarten De Laat^{*†} & V. Lally[‡]

^{*}e-Learning Research Centre, University of Southampton, Southampton, UK

[†]Centre for ICT in Education, IVLOS, University of Utrecht, Utrecht, The Netherlands

[‡]School of Education, University of Sheffield, Sheffield, UK

Abstract

In this paper, we explore some of the complexities of emergent role development and group awareness among participants in an asynchronous Networked Learning discussion in a higher education context. We used content analysis to provide participant profiles for learning and tutoring processes within a group of collaborating professionals. Using these we selected three distinct student participants with whom we then conducted critical event recall. Our findings suggest how distinct roles emerge, and how they effect the group dynamics. They show the importance of group process awareness, and how this may be used and developed by participants. Some implications for pedagogical and software design are discussed.

Keywords

asynchronous discussion, collaborative learning, content analysis, critical event recall, CSCL, networked learning, online communities

Introduction

Discussion between participants is a central feature of Networked Learning (NL). 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 *et al.* 2003, p. 1). During NL participants are stimulated to interact and collaborate with each other to fulfil and coordinate their learning needs. In research terms,

much is still unclear about the most effective forms of 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 (2004) 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 *et al.* 2003; Wasson *et al.* 2003). The need for more empirical research to provide an evidence base for this emerging conceptual framework is clear. We think it is important that this research is focused on the central processes of NL, that is, learning and tutoring. We

Accepted: 17 March 2004

Correspondence: Maarten de Laat, e-Learning Research Centre, University of Southampton, Highfield, Campus, Southampton SO17 1BJ, UK; and Centre for ICT in Education, IVLOS, University of Utrecht, Heidelberglaan 8, 3584 CS Utrecht, The Netherlands.
E-mail: m.delaat@soton.ac.uk

believe that these understandings will contribute to the development of better pedagogical frameworks and software that more effectively support learning and tutoring by design.

This study is a continuation of our investigation into learning and tutoring processes occurring in an online-community of professionals engaged in a Master's Programme in e-learning (see, De Laat & Lally 2003, for a more detailed description). Previously we focused, informed by constructivist and socio-cultural perspectives, on content analysis (CA) of learning and tutoring behaviour, in combination with the use of critical event recall (CER) to probe the university tutor's account of his management and facilitation of the processes involved. In this paper, we focus on the students' behaviour, using the same research method, in order to provide a more holistic and complimentary description of this particular NL community. In particular, we are interested in understanding and analysing the development of emergent roles, tasks and strategies as the NL collaborators shape their collective endeavour through an online discussion. This work is guided by our previous argument: that both the university tutor and the learners contribute fully to the organisation and regulation of their learning event. 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. But during the learning tasks the tutor operates more as a 'guide on the side', moderating, stimulating and learning by taking part as a co-participant in the online discussions.

Effective participation in NL requires the development of appropriate communication, coordination and regulation skills. At the same time, we must be cognizant that other aspects of individual human agency, such as motivation, identity and social presence and awareness, are significant variables in any educational context, and affect the possibility of meaningful and balanced online discussions. Constructive group interaction and dynamics also involve positive interdependence (group belonging and the awareness that each member's effort is important for the group success; see Johnson & Johnson 1999), and individual accountability (each participant's contribution is valued and balanced in the collaborative learning process, see Slavin 1995). It is clear that in an educational

setting the development of these complimentary and necessary dynamics cannot be left to chance. Awareness of key role behaviours and strategies is important for the tutor to manage and sustain healthy group dynamics. Participating in NL is also demanding for the learner, requiring the development of awareness of her role in the instructional process (Reiser 2001) and, in more advanced educational contexts, to take over some of the managerial responsibilities for the development of the discussion (Pilkington & Walker 2003). In this study, we focus specifically on the question of how the learner co-participants develop this role awareness in asynchronous NL, how they deploy it to assist in the management of the discussion, and how they perceive the behaviour of the other participants as they work together.

Using CA and CER interviews with the learner co-participants (see below), we attempt to provide relatively rich descriptions of how NL processes are coordinated and regulated among them. 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 that captures the process and organisation of collaborative interaction and its contribution to learning is needed:

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. In the title of this paper, we suggest that this is in no way an 'easy' task; NL is a complex domain of educational endeavour, for researchers and participants.

Methods and sample

The participants featuring in this study were undertaking a Master's Programme in e-learning. This MEd programme is based upon the establishment of a 'research learning community' among the participants and the university tutor. It is fully virtual; there is no scheduled face-to-face contact in the two years of the part-time programme. In this community activities are undertaken around five 'workshops' over a two-year period. The programme is hosted in the virtual learn-

ing environment WebCT. The students are mainly mid-career professionals, many of whom have post-graduate experience of higher education, are themselves professionally engaged with teaching responsibilities, and are often charged with developing e-learning within their own organisation. Our analysis is based upon collaborative project work conducted by seven students and one tutor in the first workshop of this programme (approximately 10 weeks' duration).

Content analysis

The central purpose of CA is to generalise and abstract from the complexity of the original messages in order to look for evidence of learning and tutoring activities. In order to probe collaborative NL (learning and tutoring) we 'coded' the contributions using two coding schemas. The first coding schema, developed by Veldhuis-Diermanse (2002), was used to investigate the learning activities in the group. This schema includes four main categories: cognitive activities used to process the learning content and to attain learning goals; metacognitive knowledge and metacognitive skills used to regulate the cognitive activities; affective activities, used to cope with feelings occurring during learning, and miscellaneous activities. We decided to exclude miscellaneous category in our analysis since we are interested in the evidence of learning activities. To focus on tutoring activities in the group, we used another coding schema (Anderson *et al.* 2000). This schema includes three main sub-categories: design and organisation, facilitation of discourse and direct instruction. Our intention here was to attempt to reveal the ways in which the parti-

cipants were facilitating and regulating each other's learning, while undertaking the workshop project task.

In order to make the CA task manageable, we sampled the message data from the workshop (approximately 1000 messages were posted during the task). We divided the 10-week period into three sections: beginning, middle and end. From each period, we took a 10-day message sample to form our data set. In each sample we analysed messages in selected threads rather than sampling across threads. This was important to enable us to follow and code the development of learning and tutoring within an ongoing discussion rather than across unrelated messages. This resulted in a selection of 160 messages. Codes were assigned to parts of messages based on semantic features such as ideas, argument chains and topics of discussion (Chi 1997). Capturing these activities using strict syntactic rules was not possible because of the elaborate nature of much of the discussion. We chose to use NVIVO software to help us to partially automate this process: to highlight segments of the text with coding that we claim represents a particular learning or tutoring activity. In effect, these coded segments were our units of meaning. NVIVO was also used to conduct searches of the coded data, in order to produce summary tables (see Table 1, below). We used the following procedure to determine intercoder reliability. Firstly, for each coded message, we checked to see if the codes assigned by the two coders referred to the same parts of the message (i.e. the same units of meaning). Secondly, we checked to see if the two coders had assigned the same codes to each unit. Based on a 10% sample of all the messages coded by the two researchers, a Cohen's kappa of 0.86 was established.

Table 1. Units of meaning coded for learning and tutoring processes in the three phase samples for workshop one (Brian* was the designated university tutor in this group)

	Bill	Katie	Brian*	Pauline	Andrea	Felicity	Charles	Margaret	Total
Beginning phase sample (57 messages)									
Learning processes	0	5	6	2	25	9	18	7	72
Tutoring processes	3	4	18	7	9	3	13	3	60
Middle phase sample (70 messages)									
Learning processes	7	1	0	8	9	11	19	21	76
Tutoring processes	5	4	5	6	31	5	7	9	72
End phase sample (33 messages)									
Learning processes	6	0	3	1	9	4	4	5	32
Tutoring processes	7	0	18	2	10	4	3	1	45

Critical event recall interviews

CA has provided us with evidence of learning and tutoring process patterns that were occurring in this group during the workshop task. To understand these patterns further, we used the summary results of the CA as a stimulus for CER interviews with the participants. This was done to gain feedback from them about their own understandings of the patterns that emerged, and to help us to understand the context in which these patterns were emerging. The CER interviews enable the articulation of many previously unexpressed aspects of learning and help to contextualise and elucidate individual behaviour, based on personal motives and perceptions in relation to the task and the other participants. Therefore, we pursued those situational and contextual aspects of NL that were identified by participants during these recall interviews. The interview layout contains two parts. The first part is based on stimulated recall of the learning event (CER). During the second half of the session the opportunity for *post hoc* reflections is provided, with additional follow-up questions to help probe and understand the group processes. We have adopted two approaches guiding the CER interviews. Firstly, the participant is presented with a summary table of individual learning and tutoring results for all phases of the discussion (see Table 1). Secondly, the full text of the workshop discussions, available in WebCT, was used to recall learning events. The results of the recall then provide the base for the *post hoc* reflections interview. The selection of the participants for the recall interviews was based on the patterns represented in Table 1. The recall interviews (with an average time of 75 min) were transcribed and analysed by the researchers together.

Results

Content analysis

Table 1 provides a summary, for each participant, of the units of meaning coded for learning and tutoring processes in the three message samples of workshop one. We have reported in detail on our analysis of these results in previous work (De Laat & Lally 2003). However, it is helpful to summarise here that Brian, the university tutor, had a strategy of being present in the beginning and the end of workshops because he was concerned to provide an appropriate structure for

the learning process and the group dynamics in the beginning. At the end he was there to provide feedback on what was done, and give additional facilitation. In the middle phase he gave the 'floor' to the participants. Throughout he was still following the discussion, very much in the background, and ready to facilitate when needed. He made contributions whenever he felt necessary. He was supporting, moderating and comforting both individual participants as well as the group. In this paper, we will focus on three students in the group: Bill, Andrea and Charles. Each showed a distinct learning and tutoring profile, as evidenced in Table 1. We summarise these profiles as a prelude to each of the CER analyses (see below).

Critical event recall

In this section, we focus on the emerging roles, strategies, task activities (learning) and awareness as they emerge among the participants during the collaborative work in the group.

Bill's CER

Bill was the member of this group who appeared, from the CA data, to have the lowest contribution profile in the beginning phase of the workshop. He slowly increased his level of contribution to both learning and tutoring processes within the group (Table 1). Bill commented on his early feelings about the workshop (which was the first of five in the two-year programme):

I had a number of concerns about whether I could handle it. I thought my colleagues might know more than me. I was looking and listening, and taking tentative steps, and asking myself: "Am I on par with my colleagues?" I had to go through two huge learning curves: using the technology, and using the technology for learning.

However, towards the middle phase of the workshop task Bill's sense of himself in the group was changing (see also Table 1):

I had become much more confident with WebCT and the group members. I started to see them as peers. I felt more comfortable at engaging.

With this confidence came a developing awareness of the group's task, his role in that, and a clear perception of what needed to be done:

I think I'm a completer/finisher [Bill had previously explained that he was knowledgeable about group roles and tasks]. I was keen for the debate to get on.

At this point Bill recalled feeling:

We needed to get sorted out and get on to deliver.

As the group moved on into the concluding phase of their 10-week workshop task, Bill had developed a strong sense of the dynamics of the group and the urgency of the task to be completed:

Towards the last 10 days it was hectic....we were making very good progress. I felt I needed some clarity on some issues.

Bill recalled that this need to get things completed became stronger in him, and combined with some frustration at the situation in the group at this point:

I felt frustrated because I thought we had agreed certain things,...yet people were still saying: ‘‘Why are we doing this [referring to specific sub-tasks in the work]?’’ I set out what the contents page [of the project] would be. I wasn’t organising it all, but felt a need for some people to be organised.

At the same time Bill recalls developing a stronger sense that in order to move on, and despite his frustration and need to complete, further discussion was required in the group:

I needed to facilitate discussion, and knock ideas around.

He had a clear sense of the source of support for his acquisition of this new role:

I was picking up this facilitation approach from Brian [the university tutor], but also from Andrea [another student in the group], she was very good at facilitating, and from Charles [another student]. Their pattern of message construction was more group-focused, and involving the group. I was thinking about it from my own perspective...Brian, Andrea and Charles struck me as collaborators, and are very comfortable with that.’

Bill was also showing an increasing awareness of other participants:

Brian [the university tutor] was very laid back as an individual. He was into asking questions. On reflection that’s a really good way to get people to open up, and think. Andrea struck me as someone who had a lot to offer: facilitation, pushing things forward, very focused, task focused, and people focused. Margaret, too, was a good team player, and someone who wanted to support the group all the way through.

Andrea’s CER

The CA analysis for Andrea suggests a very different participation profile to Bill. She was the most prolific contributor to the group discussion. Her messages were concerned with learning (i.e. the group’s task and her own learning) and with tutoring (i.e. facilitation of group processes). Table 1 shows that as the workshop progressed Andrea made most of the tutoring contributions to the group. Yet she was a self-effacing group member:

I was very much surprised at my cognitive contributions. If you had asked me I would have put them much lower. At the time I didn’t think I knew what I was doing. I was very much in new territory. I was surprised that I had made the biggest contributions overall to learning at this point. [but] During the workshop I was conscious that I was putting up a lot of messages.

She showed a rapidly developing awareness of the characteristics, contributions and needs of others in the group, and recalled:

I was constantly checking.
Charles offered a lot of technical assistance.
Pauline needed time to think.
Katie was struggling to find a voice online, and was struggling with the technology and family responsibilities.
I was aware that we were pulling it together with Bill’s help.

Andrea was also very conscious of her own learning and online behaviour:

At first I wasn’t sure where I was going, then I became comfortable and sat back.
I learned to just ‘‘go with the flow’’ and trust the group, and I learned this from watching the group process, to let it happen and go along. I think we learned to work together and listen to each other, and take ideas from each other. Each contributed in different ways.
I was aware that I was online more than others.

Andrea’s skill at managing her own needs was sophisticated and sensitive. In one instance, she was trying to bring in her own interests in the task into a conversation with Charles:

I felt that Charles hadn’t heard what I was interested in; I decided not to pursue this, but waited until the review period [to raise it]. I couldn’t have put it across constructively at the time.

I understood that Charles was a real ideas person, and I was beginning to appreciate him.

Charles' CER

The CA profile for Charles (see Table 1) suggested a student who was more focused on the learning issues and tasks than on group processes. His learning contributions were the second highest in the group in the early sample phase. At this point he was also facilitating group processes significantly. However, Charles' facilitation had reduced considerably by the middle phase. By the end phase of the task period he had a low contribution profile in the group.

Charles was apprehensive at the beginning, but keen to have his ideas taken up by the group:

At the very beginning of the project I was apprehensive about how it might take off. I was quite pleased that my proposal about the intranet resources was taken up. It received a positive reaction from the rest of the group. Now we had something on the table. I enjoyed this workshop enormously.

He was hesitant, but had a sense that his own suggestions and expertise had contributed to the progress of his group. However Charles was also conscious of the academic abilities of other members in the group, and what this brought to the task:

I was very conscious of people who were closer to the academic world than I was; people who had a lot more to say and contribute, to lead as the project moved on. I remember, particularly, Andrea, who was throwing in the Belbin concept, and so on. This was exactly the right thing at exactly the right time.

Charles was also adjusting his own sense of himself, a practitioner, so that he could also undertake what he perceived as more 'academic' tasks being undertaken in the workshop:

I really had to re-invent myself as a learner, if you like, for all the project, but particularly in the early stages.

He showed a very strong task focus throughout the workshop:

I wanted the process in workshop one to create the solution to the problem I was having in my work.

Discussion and conclusions

In this short paper, we have attempted to explore some of the complexities of emergent role development and group awareness among participants in an asynchronous Networked Learning discussion in a higher education context. In order to undertake this, we used CA to provide participant profiles for individual learning and tutoring processes within a group of seven collaborating professionals and a university tutor. Using these profiles, we selected three distinct student participants with whom we then conducted CER using the summary CA tables and full message transcripts as recall stimuli. Looking at the overall patterns first, the units of meaning coded using the learning schema relate to task-focused activity within the group. This is the largest category in all three-phase samples of the workshop, with a peak (76 units of meaning) in the middle phase. The units of meaning coded using the tutoring schema relate to those processes that support the group's work, including facilitation, organisation and the provision of additional information and ideas. This category also peaks in the middle phase of activity, but is never higher than task-focused activity.

The CA analysis enabled the tentative identification of distinct and emergent individual roles among these participants. The three students we selected were: Bill – the task-focused completer/finisher; Andrea – the group-focused facilitator, and Charles – the task-focused ideas contributor. Although the task framework, timescale and general pedagogical design of the workshop (collaborative task followed by peer review and group reflection) were provided in advance by the MEd team, these roles emerged during the activity. During our analysis of the subsequent CER interviews with these students we focused on general, individual and group remarks regarding learning and tutoring processes, and possibilities for change and innovation within the pedagogical design.

All three students commenced by expressing some uncertainty about themselves and their role in the group collaboration. Bill was slow to become involved in the group, but he watched group processes carefully. He was initially concerned with his own need to complete the task, but developed an increasing awareness that this could be enhanced by a more careful management of group processes. This was a skill he watched others using, especially Andrea. She

watched the group very carefully from the beginning, bringing her deeper understanding of group processes to bear on her observations. This quickly led her to develop a clear understanding of the needs and behaviours of the other group members. She used this to facilitate her own learning goals, sometimes in sophisticated and indirect ways, as well as the goals of the group. Charles was very driven by his own professional agenda. This led him to bring ideas and focus to the group, but also to overlook the contributions of others as he strove to solve his own (external) professional problem. Andrea saw this, and tried to integrate Charles more effectively within the group, its needs and processes. However, Charles eventually withdrew and contributed little at the end of the task. In these emerging role behaviours we can see evidence of positive interdependency, individual accountability, and a varied awareness of the need for management.

We suggest that these analyses have added to our understanding of tutoring and learning processes by professionals in a learning community within an online Master's Programme. They show, for example, how roles and strategies emerge amongst the participants, and how these may be very beneficial for the group dynamics. They show the importance of group process awareness, and how this may be used and developed by participants. Through this approach, we contend that it may be possible to gain deeper insights into how professionals collaborate to develop their own practice, and into the complexity of the interactions between individual and group processes during these collaborations. This in turn, may inform pedagogical and software design to better support the emergence and development of these roles. This is one of the directions of our continuing work, and on which we hope to report in future papers.

References

- Anderson T., Rourke L., Garrison D.R. & Archer W. (2000) Assessing Teaching Presence in a Computer Conference Context. Retrieved 27/3/01, 2001, from the World Wide Web: <http://www.atl.ualberta.ca/cmc/publications.html>
- Banks S., Goodyear P., Hodgson V. & McConnell D. (2003) Introduction to the special issue on Advances in Research on Networked Learning. *Instructional Science* 3, 1–6.
- Beuschel W. (2003) From face-to-face to virtual space. In *Designing for Change in Networked Learning. Proceedings of the International Conference on Computer Support for Collaborative Learning 2003* (eds B. Wason, S. Ludvigsen & U. Hoppe), pp. 229–238. Kluwer, Dordrecht.
- Chi M.T.H. (1997) Quantifying qualitative analyses of verbal data: a practical guide. *Journal of the Learning Sciences* 6, 271–313.
- De Laat M. & Lally V. (2003) Complexity, theory and praxis: researching collaborative learning and tutoring processes in a networked learning community. *Instructional Science* 31, 7–39.
- Hakkinen P., Jarvela S. & Makitalo K. (2003) Sharing perspectives in virtual interaction: review of methods of analysis. In *Designing for Change in Networked Learning. Proceedings of the International Conference on Computer Support for Collaborative Learning 2003* (eds B. Wason, S. Ludvigsen & U. Hoppe), pp. 395–404. Kluwer, Dordrecht.
- Johnson D.W. & Johnson R.T. (1999) *Learning Together and Alone: Cooperative, Competitive and Individualistic Learning*. Allyn and Bacon, Boston.
- Pilkington R.M. & Walker S.A. (2003) Facilitating debate in networked learning: reflecting on online synchronous discussion in higher education. *Instructional Science* 31, 41–63.
- Reiser R.A. (2001) A history of instructional design and technology: part II: a history of instructional design. *Educational Technology Research and Development* 49, 57–67.
- Slavin R. (1995) *Cooperative Learning: Theory, Research and Practice*. Allyn & Bacon, Boston.
- Stahl G. (2004) Building collaborative knowing: elements of a social theory of learning. In *What We Know About CSCL. And Implementing It in Higher Education* (eds J.-W. Stijbos, P. Kirschner & R. Martens), pp. 53–89. Kluwer Academic Publishers, Dordrecht.
- Veldhuis-Diermanse A.E. (2002) CSCLearning? Participation, Learning Activities and Knowledge Construction in Computer-Supported Collaborative Learning in Higher Education. Unpublished PhD thesis, University of Wageningen, Wageningen.
- Wasson B., Ludvigsen S. & Hoppe U. (2003) Designing for change in networked learning environments. In *Designing for Change in Networked Learning. Proceedings of the International Conference on Computer Support for Collaborative Learning 2003* (eds B. Wason, S. Ludvigsen & U. Hoppe), pp. xvii–xx. Kluwer, Dordrecht.

Copyright of Journal of Computer Assisted Learning is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.