

# Negotiating a New Culture of Doing Learning? A Study of Interaction in a Web Learning Environment with Special Focus on Teacher Approaches

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*The article examines aspects of interaction, learning and teacher approach in an international, web-supported learning project, which was organised between three universities as part of their programmes in teacher education. The study focuses on interpretative resources which may contribute to how students perceive teacher interventions and presence in web-based learning activity. The roles and actions of teachers and students in a web-learning environment are not merely interpreted on the basis of intentional verbalised moves. The negotiation of the presence and role of participants is also guided by a variety of visual and linguistic cues on the web as well as the discourses around the learning activities. From a research methodological point of view, the article emphasizes the importance of data-driven research paradigms and a wide scope of data-collection in mapping the complex context in which the participants act. As for pedagogical implications, it seems that developing successful pedagogies is not a matter of developing particular kinds of designs for learning environments, new task types or interaction patterns alone. What is important is to involve teachers and students alike in assessing the collaborative processes of learning, aware of the complexity of meaning-making in web-supported study.*

## Introduction

This article examines interpretative resources which may contribute to how students perceive teacher interventions and presence in web-based learning projects. The study wishes to shed light on the nature of the negotiation of meaning in web-supported teaching and learning contexts in higher education. The research interest arises from our observations on the complex dynamics of teaching and learning situations when connected with web-based activities. The research approach is primarily data-driven and follows the lines of discourse studies. The approach assumes that the ways in which language is produced and interpreted are shaped by the resources that participants have available to them

and which they apply through their social experience (cf. van Dijk, 1997: 1 – 37). The study is located in higher education in the context of an international web-supported teacher-education project and focuses especially on mentoring. The data include written and spoken records of interaction throughout the course.

The importance of interaction is widely emphasised in networked learning projects following the principles of socio-cognitive (cf. Resnick, Levine & Teasley, 1991; Resnick, 1989; Salomon, 1993) and socio-cultural (Lave & Wenger, 1991; Rogoff, 1990) perspectives to learning. There is an abundance of research that focuses on interaction in learning with computers (cf. Littleton & Light, 1999). However, we suggest that there is still a need for research which would relate web-based study more strongly with its surrounding educational contexts, in its official and informal arenas. Furthermore, there seems to be a lacking body of data-driven research which would shed light on the participant perspective. The voice of the students reflecting their learning experiences and conceptions is crucial when making pedagogical conclusions, but also in confirming our interpretations of the data.

This particular study is part of wider research collaboration called SHAPE (Sharing and Constructing Perspectives in Virtual Interaction), which is a cross-disciplinary research project on learning/teaching interaction in web-based environments (cf. Saarenkunnas, Järvelä, Häkkinen, Kuure, Taalas & Kunelius, 2000; Järvelä & Häkkinen, 2000).

## **Theoretical framework**

### *Learning and interaction*

The socio-cognitive (cf. Resnick et al., 1991; Resnick, 1989; Salomon, 1993) and socio-cultural (Lave & Wenger, 1991; Rogoff, 1990) views to thinking and learning argue that most knowledge is an interpretation of personal experiences and also social in nature: in other words, knowledge is jointly constructed in interaction. Lave and Wenger (1991), among others, have put forward the idea of cognitive apprenticeship (see also Collins, Brown & Newman 1989). According to this theory, learning is a process of participation in communities of practice, at first legitimately peripheral, working its way to the more central positions. Learning occurs in interaction through cognitive apprenticeship in real contexts, in authentic learning tasks. What becomes essential from our point of view is that this learning theoretical framework puts forth interaction, i.e. the meaning making and knowledge construction process, as a focal point for developing new educational solutions and redefining the role of teachers and students.

The fact that the roles of teachers and students are asymmetrical from the perspective of power relationships alone cannot be denied. The teachers as more experienced participants are the “gate-keepers” of communities of practice and engage in evaluating the students, for example. However, as Lave and Wenger (1991) point out, if learning is seen as an increased ability to participate in a community of practice, for newcomers the purpose is to learn to talk, not to learn from talk. This implies that teachers need to arrange opportunities for students to fully participate in learning interaction. In fact, Morrison & Collins (1996:108) regard epistemic fluency as a bridge to sharing knowledge frameworks. This ability helps participants to understand different ways of

knowing and their forms of expression and thus to take the perspective of others who are operating within a different epistemic framework.

Student-initiated discussions are also an important resource for the teacher. By listening to, for example, how the students conceptualise the topic of learning, the teacher will be able to engage in negotiations of mutual understanding: to compare his/her experienced understanding of the object of learning to that of the students. This view is supported by research on collaborative learning (cf. Dillenbourg, 1999), which accentuates the role of negotiating a common ground as an essential part of the learning process (Baker, Hansen, Joiner & Traum, 1999). The traditional classroom interaction pattern of IRF exchange (initiation, response and feedback) as observed by Sinclair and Coulthard (1975), among others, and discussed thoroughly by van Lier (1996), seems not be fertile soil for these negotiations to occur. Shared knowledge, shared understanding and shared goals are built when all parties initiate and close conversations. Negotiation of common ground becomes even more central, when the life-worlds of the interlocutors differ, in this case the experienced teacher and the apprentice student. Gutierrez, Rymes & Larson (1995) provide an interesting interpretation of this through the concept of third space, which is created when the students and teachers step out of their scripts and engage in true dialogue. Therefore, a more symmetrical distribution of turns is desirable in learning interaction between the students and the teachers.

There is evidence of teacher discourse style affecting the kind of discourse created in learning situations. Ahern, Peck & Laycock (1992: 307) point out, for example, that the conversational approach by the teacher in computer-mediated discussion increases peer-peer interaction and the quality of responses. This seems to be the case even though the institutional context of study sets certain requirements upon the teacher to fulfil (e.g. responsibility for the process, encouraging all the students in the study, contributing to the communicative atmosphere so that the participation threshold is low enough). In other words, the whole context of the learning/communicative environment should be considered from the point of view of what kind of interaction it allows and encourages. Silverman's (1997) observations in his treatment of the discourses of counselling seem to fit the framework of pedagogy as well. He suggests that focusing on particular counselling strategies may lead to the adviser ignoring the communicative resources of the other interlocutor. We claim that this situation is transferable to the learning context as well. Still, this does not mean neglect of focused teaching but proposes that the practices, framework, goals, etc. of the interaction situation should consciously be renegotiated together between those who are involved in the action.

### *Towards diversity in patterns of teacher-student interaction*

Current learning theoretical advancements, together with the emergence of new learning environments suggest a need for a change in how we perceive the relationship of the teacher and the student. The roles of teachers and learners are seen as flexible. Following the idea of legitimate peripheral participation (Lave & Wenger, 1991), we cannot truly talk about learners and teachers, but, instead, of diverse identities along a continuum reaching from "newcomers" through "journeyfolk" to "oldtimers". A teacher may be an expert of his/her

specific area, but the students also have different kinds of expertise. This principle becomes clearly visible in computer supported learning projects, where the students are, in fact, often the masters of the medium, instead of the teacher.

There are several ways of talking about teacher roles in modern learning settings. Teachers are referred to as facilitators, tutors, participators, resource people, learning consults, to mention a few descriptions (cf. Nunan & Lamb, 1996:137–142). An important goal for a teacher is to become a reflective practitioner (Schön, 1987) who critically examines his/her teaching practice and develops it further. Teachers could also be seen as co-learners. This metaphor suggests that instead of delivering content to the students from an expert point of view, a teacher should engage in collaborative research projects with the students, all the participants assisting each other throughout the process and learning from it as equal participators. As authenticity and originality of the learning process are essential for successful learning projects and good learning outcomes, the students should also be engaged in planning the learning tasks, processes and environments. In a sense a new working metaphor for a teacher could be a co-designer: an expert of learning and content area who designs learning tasks and processes together with the students. When the students are involved in planning the process and contents of learning projects, their motivation and engagement increase.

New learning environments, or the learning applications of information and communication technology (ICT), are demanding for teachers and students, especially in distance learning. Students need to be autonomous, independent and self-directed agents of their learning. Teachers have to be able to support the learning, without the aid of face-to-face interactions, relying in most cases mostly on written communication. In reality, web-based learning projects rarely consist of web-based instruction only. These projects are usually also supported by small-group meetings, lectures and other more traditional forms of contact teaching.

At the same time, pedagogical applications of ICT allow collaborative or team teaching, which is one of the most powerful benefits of networked learning environments. In Internet-based courses, for instance, it is possible to bring in several different kinds of experts and novices to a single course (cf. Saarenkunnas et al., 2000; Bonk, Malikowski, Angeli & Supplee, 1998; Bonk, K. Daytner, G. Daytner, Dennen & Malikowski, 1999). It is a noted fact, supported by the theories of distributed cognition (Salomon, 1993; Hutchins, 1991) and socially shared cognition (Resnick et al., 1991), that the power of a group in building new knowledge and solving problems, is more than the sum of its individual members. Students are entitled to this opportunity of shared expertise, which is now easily available via networked environments, in projects where several teachers and their students collaborate.

In a sense, the demands for redefining our roles in web-based environments are no different from the demands we meet in traditional classroom teaching. However, new web-based environments and ICT provide us opportunities to reshape instruction by forcing us to design new teaching practices. Involvement and commitment to a collaboratively built process is a key issue in this respect. A teacher has no way of knowing whether students are attending the course, let alone learning, if you cannot encourage them to interact and express themselves. A silent student in a classroom may give the teacher feedback by extralinguistic means while a web-based environment does not yield this possibility. Therefore,

the equal opportunity of and responsibility for initiating discussions becomes a vital issue on web-based courses.

## Research procedure

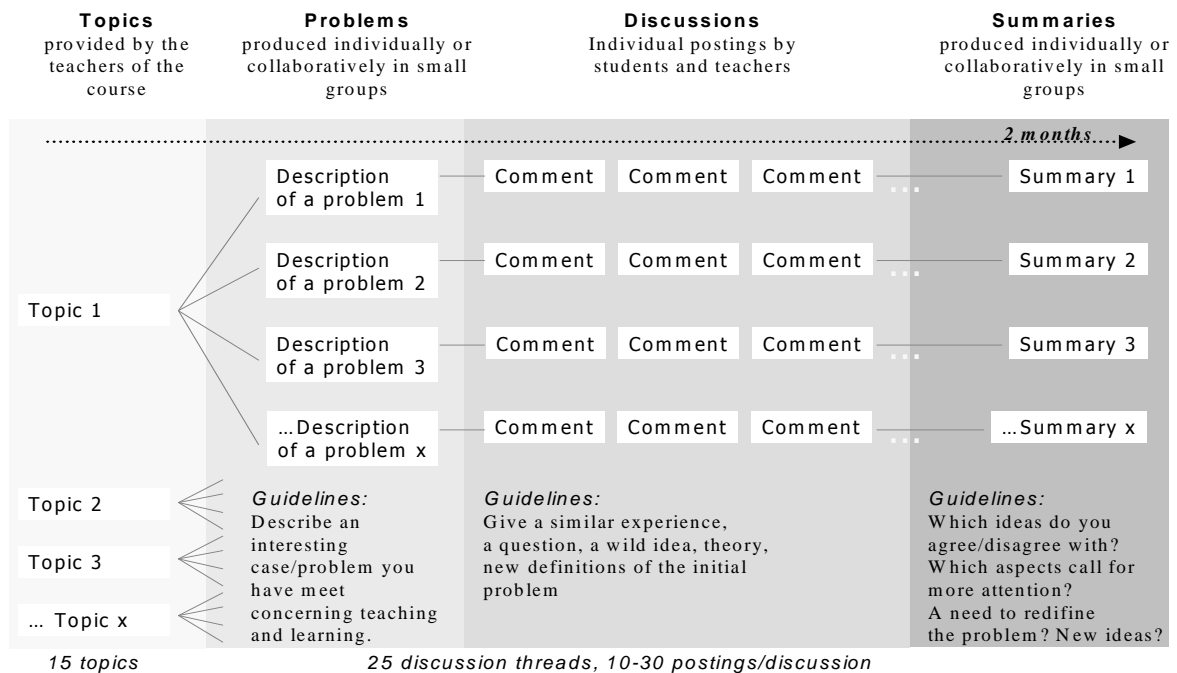
### *Context and pedagogical approach*

In the following, the overall course design including practical and pedagogical choices of the present study will be explained. The data discussed in this paper come from the initial phase of the NINTER project in the spring of 1998. The pedagogic framework joined the three international partners, the Universities of Oulu and Jyväskylä in Finland and the University of Indiana in the USA, together for a period of two months. Each of them had their own educational contexts with topics varying from language teacher education to educational psychology. The shared issues of interest for all the participants in these different study contexts were learning and teaching. The total number of participants in the joined web-work was 136 students (106 from the USA and 30 from Finland) and 13 mentors (7 from the USA and 6 from Finland).

The mentors of the project came from different fields of education (educational psychology, learning research, applied language studies, field schools) with theoretical and practical knowledge on learning and teaching. The aim of the project was to apprentice students into the culture of teaching and learning through engaging them in joint problem-solving concerning issues and questions in everyday educational work together with a variety of professionals. The mentors (experienced teachers, researchers, peers) were instructed to give feedback and to provoke the discussion by taking different roles: e.g. a devil's advocate, pessimist, supporter. Their task was not only to support the ongoing discussion by expert knowledge, but also to guide the process (a more detailed discussion follows below).

Electronic conferencing on the WWW was used as the shared contact space during the course. The conferencing software was an asynchronous web-based tool called Conferencing On the Web (COW), which is a typical electronic conferencing environment. In order to strengthen the feeling of a virtual learning community, also other means of communication were used. The web-work was supported by two international ISDN-based videoconferences between the two Finnish sites and the American counterpart. At the opening videoconference, the students introduced themselves and at the closing conference they discussed the cases and their experiences concerning the project. The idea behind these videoconferences was to build a shared view of the learning process at hand, as well as to support community building.

Group meetings were also arranged on a weekly basis on each Finnish site to ensure that the students had a possibility for face-to-face support from their peers and instructors. These occasions had two additional purposes: Firstly, to make sure that all students had access to the Internet and the technology they needed to complete the project, and, secondly, to engage the students in a discourse of sense and purpose of the project. The activities in the Internet were designed according to the following pedagogic approach.



**Picture 1.** Case-work procedure in the COW-environment.

The students' assignment was to collaborate in creating joint theory-based cases in different areas of teaching and learning. The case-work procedure (see Picture 1 above) started with an opening phase in which a student described a success story or a problematic incident from a real-life educational situation. The construction of these cases was often based on the students' field-experiences. After the opening phase, a reflection phase followed. The students and the other participants in the COW environment started constructing the cases by adding comments, agreeing and disagreeing with the others, sharing experiences, referring to a theory, providing help for each other etc. The cases were closed with summaries by their authors. (Bonk, Malikowski, Angeli & East, 1997; Järvelä & Häkkinen, 2000; Saarenkunnas & al., 2000).

### *Research approach and data*

In the following, the main theoretical underpinnings of the research approach of the study will be described. The research approach adopted for this study combines quantitative as well as qualitative elements. The validity and the reliability of the study were addressed through the following methods along the lines of Silverman (1993:165). Firstly, to test initial interpretations in the whole pool of data, various types of records or instances of data were simply counted, e.g. the number of postings by mentors, and the number of questions by students and mentors. Secondly, the analyses and interpretations were discussed and compared by the three researchers. Thirdly, different types of data were accessed in order to crosscheck interpretations. The study is also interested in 'multiple realities' rather than one truth. In other words, we believe that discourse data do not directly display external realities but express interpretive procedures of people in their talk and actions (cf. Silverman, 1993:106 – 107, see also Alasuutari, 1995: 63 – 68).

At the beginning of the study, the applicability of various approaches into the analysis of interaction was weighed. A structural analysis, for example, was tried out (see chapter 4.2.). Regarding the complex nature of studying human activity and meaning-making processes, a data-driven approach proved suitable since our aim was to gain a deeper understanding of the interaction at hand. Special emphasis was put on trying to let the data “speak” and avoiding imposing the researcher’s categories on it (cf. Alasuutari, 1995:67 – 68). As for the relationship between theory and empiria, it is assumed here, however, that theory is always present in interpretation in one form or another through our preliminary knowledge. In other words, even in a data-driven approach it is possible to utilise data and theory in interaction for a better understanding of the phenomenon under scrutiny (Alasuutari, 1995; Strauss & Corbin, 1990). Yet it is especially important that the researchers take a conscious effort in avoiding premature theorising when collecting data (Glaser & Strauss, 1967).

In the chosen data driven approach, the research material was examined several times in the course of the study narrowing down and readjusting the research questions. In practice, this procedure was followed in several data-sessions during a six-month period in which the observations made by the researchers were put into test. Such a cycle is illustrated in the following example:

- a) *Observation 1:* Student X's Case development shows quality (data source: web discussion). *Interpretation:* The student has been successful in the learning process.
- b) *Observation 2:* Student X expresses discontent with her Case (data source: peer interview). *Interpretation:* The criteria for quality in learning are not necessarily the same for the teacher/researcher and for the student. Therefore direct conclusions about the quality of learning cannot be made on the basis of one source of data alone during restricted time span.

Sarangi (1999) discusses the multilayered nature of context through Goodwin (1992). In addition to the physical and social frame of activity, also the behavioural context should be examined: how the social space is being used and how the deictic relationships are formed in it. By examining the language context, it is possible to see how we use language to define, to use, and to get in and out of the context. There is also the extra-situational context encompassing the social, political and cultural dimensions as well.

Following the chosen research approach, the research questions were gradually narrowed down in the course of the study. The initial focus of the study was to find out "What kind of mentoring it is that seems to be effective?" By examining the interaction during the course through different kinds of data we concluded that there is a complexity of subtle meaning-making going on in exchanges between participants. Consequently, mentoring does not only consist of active interventions by the teacher, as implied in the initial research question. We are dealing with a more complex concern, which cannot be explained by solely looking at the intentional actions of the mentor. The research question was then reformulated as "Which are the interpretative resources available in the whole learning context that may contribute to how participants in web-learning projects perceive mentoring?"

The data consist of video and audio recordings of communicative situations (collaborative work at the computer, peer discussions, videoconference

situations) and written material (Internet discussions in COW and in e-mail, pre- and post-collaboration questionnaires) (see Table 1 below).

**Table 1.** The Data of this study (*italics*) in the framework of data-collection in the NINTER-project.

<b>Data collected in the NINTER-project in 1998</b>	A. Video and audio recordings of communicative situations	Collaborative work at the computer (not yet transcribed).	<i>Recordings of 2 videoconference situations (approx. 1,5 hours each).</i>	<i>Unstructured peer discussions in groups of three (7 approx 30 minute face-to-face sessions) produced 23 pages of rough transcription.</i>
	B. Written data	<i>Discussions (342 postings, 25 threads) in the asynchronous international web-conferencing environment (COW, conferencing on the web).</i>	E-mail correspondence between the teachers and coordinators of the international web-work.	Pre- and post-collaboration questionnaires (30 questionnaires from Finnish students).

The range of data for the whole project was wide, largely because we wanted to make sure that the data would yield possibilities to check the initial analyses the web-discussions suggest from a wider context of student activity. In this paper, the analysis is focused on the web-discussion, altogether 342 postings and 25 threads<sup>1</sup>. These data were, however, examined in the light of the information provided by the other data sources in the project. Here we utilized the unstructured peer discussion and the videoconference situations as resources for checking interpretations. First the web-discussions were read through several times concentrating on the postings by the mentors. The early interpretations were then crosschecked against the transcribed peer-discussion data. The following chapter describes the process of analysis in more detail. The sequence of presentation follows the sequence of the research procedure.

## **Analysis and discussion of the data**

### *Mentoring moves and strategies*

In the initial stages, an attempt was made to apply a structural discourse analysis on the data along the lines of early studies on exchange structure (e.g. Sinclair & Coulthard, 1975; Edmondson & House, 1981). The idea of analysing the discussion according to mentoring moves (linguistically articulated intentional interventions with the aim of guiding the process in question), however, proved to be problematic. The original aim was to classify the data according to three categories (e.g. Bonk, Appelman & Hay, 1996): process move (the mentor prompts the student to provide further details of his/her case), content move (the mentor provides theory or an expert opinion), interactional move (the mentor's comment is directed towards involving the students in the interaction and work).



It became evident in the analysis that the above kinds of mentoring moves overlap to the extent that almost every explicit mentoring comment could fit more than one category. Another problem from the point of view of this kind of analysis was the specific kind of sequential structure in asynchronous communication in comparison to the adjacency-pair sequence of face-to-face interaction (cf. Sacks, 1987: 55). The moves that the mentors made were seldom explicitly referred to in the later stages. Thus, it was often impossible to trace how the intended audience had interpreted the comments. In order to achieve a satisfying picture of mentoring and instructional interaction in a web-based learning environment, a fuller account of the whole institutional and interactional context was needed. The initial structural analysis clearly showed the complexity of the phenomenon at hand. For this reason, we turned to the more data-driven approach covering a wider range of data.

One of the verbalised starting points for mentoring in our project was based on Bonk and Kim's (1998) twelve forms of learning assistance. Using their list of mentoring strategies, guidelines and instructions for teachers were produced. Students had access to these documents as well. These guidelines illustrated possible mentoring actions through a list of phrases. Mentors were encouraged to reflect upon their own interactional roles and to expand their repertoire of interventions. In addition to direct instruction, other kinds of electronic assistance were discussed. These included social acknowledgement (e.g. 'I agree with everything you say'), cognitive task structuring (e.g. 'Ok, now summarise your case'), encouraging articulation/dialogue prompting (e.g. 'Does anyone have a counterpoint or alternative to this situation?'), and fostering reflection and self awareness (e.g. 'Describe how your teaching philosophy will vary from this...')<sup>2</sup>.

This list certainly served as a good point of departure when trying to explore the different sides of mentor roles and teaching/learning interaction. It focused attention to the variety of possible strategies for action and was thus a good tool for developing teaching practices, for example. However, we also noted that developing successful mentoring practices cannot solely be based on a strategic approach, for several reasons. Firstly, if teaching strategies are focused too forcefully, the importance of negotiation of meaning may fade. We easily forget that true reciprocity in interaction also involves *listening*. The more the teachers give students space to communicate and elaborate their thoughts and conceptions publicly, the better they can take into account their perspectives in guiding the process (cf. Silverman 1997 and related discussion above).

Secondly, since interaction is a process of meaning negotiation, it must also be observed that feedback given by the teacher may be interpreted in several ways depending on the addressee. For example, a comment meant as social acknowledgement could be understood as criticism. From the teacher's perspective, it is thus impossible to find out what kind of thought processes individual mentoring moves evoke in a student. This becomes crucial in web-based asynchronous communication because of the delay in the pace of exchanges and the lack of most extra-linguistic means for communicating and interpreting pragmatic meaning (cf. Stubbs, 1983). Therefore, we wish to emphasise the teacher's interaction skills especially in terms of listening and contributing to the learning environment so that it supports such an approach in interaction.

*Strategic and collegial mentoring*

From the data-driven research perspective used in the analysis, two different mentoring approaches seemed to be discernible in the COW environment. These were labelled as strategic mentoring and collegial mentoring. By strategic mentoring we refer to the mentor's active intervention to guide the process of study. As the mentor thus positions him/herself as the teacher in the interaction, the orientation of support or guidance could be termed as vertical. By collegial mentoring, on the other hand, we mean an approach in interaction, which focuses on co-participation instead of "teaching". The orientation of mentoring in this case is horizontal. A similar observation on the same data has also been made by Bonk et al. (1999). The strategic approach is identifiable in the Case discussions through expressions of the type listed in the "Twelve forms of electronic mentoring" (e.g. 'You might want to write to Dr. X for...'). Such interventions often attempt to direct the students towards the process vision represented by the teachers on the course. An example of such guidance is illustrated in the following data excerpt:

... As we trying to connect with theory with the practice of teaching, I'd like to know a little bit more about portfolio assessment from the point of view of your learning/teaching experiences. Have you ever used portfolio assessment /seen it used in schools? Where? Could you describe a concrete situation...  
(Mentor S in Finland\_Cases)

The collegial mentoring approach is exemplified in the following extract from Case discussions. Here the mentor shares personal experience with the students and relates the comment to theoretical discourse around the topic.

This is a very difficult issue. I have personally thought about these kinds of problems and talked about them among some university staff who were, like me, attending a course on personal tutoring of students. I felt relieved when the teachers said that we should recognize the fact that we are not therapists and we should therefore not try to take responsibility for something that belongs to "expertise" of some other field. of course, we can act as human beings Y This is not an issue only in relation to psychological problems, but also in terms of any guidance and tutoring, academic or personal. (Mentor K in Finland\_Cases)

During the project, the issue of mentor approach seemed to be of importance to us as teachers, and the nature and consequences of different mentoring approaches were dealt with in planning and executing the COW course. Our concern with this issue became visible in the e-mail discussions and project meetings. We paid special attention to the first approach as we felt that it would not be sufficient on its own, and, moreover, would easily work against the effort for equal-power discourse by producing asymmetry between participant roles in interaction.

### *Textual resources for interpreting role and presence*

In our data analysis, we found out that also seemingly insignificant texts, such as address forms and definitions after participant names and signatures on web pages, contribute to our interpretations of particular roles and social rank conventionally implicated by them (cf. Levinson, 1983: 53). Levine, Resnick and

Higgins (1993: 593) point out that people anticipate the interactions they are engaging in on the basis of the mental representations they have of others. The teacher role, for example, is easily associated with particular kinds of interactional patterns, which are culturally bound. In addition to anticipation, the explicitly verbalised teaching philosophies in the interaction itself contribute to the complexity of aspects related to studying and working in new learning environments. This is echoed in the conflicting discourses through which participants seek their roles and identities as learners. Students might, for example, express a wish for independence in learning, but elsewhere express a need for being “taught”.

B: Y and come here to hear "All right, go the library!" We'll never get so deep in these issues in that half-hour compared to listening to a person who has done research and would let us have a little of that

C: I don't mean that we would need to go back to one person delivering knowledge from above and put it into our heads

B: but it is that we go from one end to another

C: from one extreme to another Y (Students in peer discussion, translated from Finnish)

In the talk around the study experience one of the mentors (referred to as M from now on) was reconstructed as having strong presence in the web environment. This became evident in the transcribed evaluation discussions among students, for example (see the excerpt below).

I think it could have gone somehow differently so that M would not have been so quick to answer comments because as far as I am concerned it happened that when I wanted to comment something s/he had already been there and then I did not bother any more because s/he had said it already (Student in peer discussion, translated from Finnish)

Initially, we assumed that a high number of postings would be the reason for the students seeing M as strongly present in COW. Counting the actual postings we, however, noticed that M had visited the space reserved for the Finnish students only six times, whereas the most productive mentor had visited the same space 19 times (average number of postings by mentor was 8.5). In conclusion, the impression about active and powerful participation was constructed by other factors than the frequency of postings.

Firstly, some of M's visibility was due to the features of the conferencing system. M was visible in different locations at the conference. The software required assigning certain administrator functions to those responsible for putting up the web-environment and creating the conferences. M was assigned the function of “instructor”. Other responsible people were called “fair witnesses”. They had access and control rights over the whole environment, which was stated on the opening page of the Finnish conference. This was the page, which had to be accessed each time at entering the Finland Cases conference (see Picture 2 below).

Secondly, the authorial choice in producing various textual elements such as Signatures, Profiles or conference descriptions and instructions (how to proceed) carry meaning. Signatures would appear with each posting and typically include a participant name together with a login name (e.g. *Author: Jane Smith (jsmith)*). The login name was created by the Unix administrator, but the participant name

area could be designed and modified by the participant him/herself. Thus the author could include indicators of status or academic rank (e.g. *Dr. M - Project MOO Supervisor (userid)*) in the Signature according to his/her wish. In the Profile, the author had the opportunity of giving more personal details about him/herself. It could be accessed through the hyperlink on the login name in the Signature. Most Profiles included minimal information such as name, university and study subjects, or no details at all (see Picture 3 on next page). Few participants had designed a more extensive homepage or homepage webonry. Conference descriptions and instructions were welcome messages placed by the instructor on the conference opening page.

These authorial choices, partly constrained by the conference system, are raw material for interpretations on the hidden and explicit structures and practices of institutional culture (cf. Fairclough, 1989; Peräkylä, 1998). How strong presence is perceived by different people is dependent on their own background, beliefs and values. From the Finnish perspective, M could be understood as an experienced academic with clear institutional power.

Thirdly, the nature of actual mentoring discourse, i.e. the text produced by the mentors offers a further explanation for M's strong presence in COW. M was one of the driving forces in planning the activities and improving the environment. M was also very active in the International Café, a conference area set up for socialising. Out of M's ten postings two were also topic-opening turns, and others otherwise posted in the initial phase of the discussion. In addition to this, M positioned him/herself in the role of the host by invitations and welcomes thus conveying ownership of the environment. The following data extract from COW café opening discussion illustrates this.

Author: Dr. M (Project MOO Supervisor) ( xxxx)

Date: Feb. 3 4:18 AM 1998

Hello, Flower Power people. Welcome to COW! COWs do their part for fertilizing plants and making them grow far beyond what was expected. I hope you will all learn and grow in COW as well. We have had more than 350 preservice teachers discussing in COW here in Indiana during the past year and there are lots of interesting stories that they have created. We saved 4 of their case discussions in the practice cases in the Cultural Immersion conference – go there and read some interesting stories in the US about paddling, drugs, motivation, and so forth. That is all for now as the Project MOO Supervisor needs to go to bed. Suffice to say, we are glad to have you in the COW conference this spring. It is Spring in Finland, right? Very warm winter we are having here in US this year. Not much snow at all (have yet to shovel). Have a barnful of fun in COW. Bye.

The centrality of M's role was reinforced by talk in other related learning events, such as small group meetings and videoconferences, which M chaired. This suggests the importance of social discourse in shaping the participant roles.

# Finland\_Cases



(Click on the university logos above to visit their web site.)

Welcome to the Finland Conference! It has been created for you to exchange questions, answers, and ideas with other students, faculty and teachers during your field experience. You can also view the discussions for [Cultural Immersion](#), [Indiana-US](#) and the [International Café](#).

Some of the topics listed below are RESTRICTED to either students, faculty or teachers. Other topics are PUBLIC and anyone may participate. But ----, ----, and ---- serve as "fair witnesses" to this conference, and they can read ALL messages.

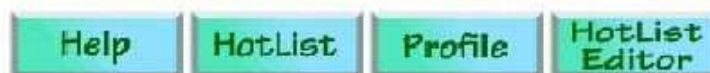
**Note:** A [practice topic](#) has been created to help you become familiar with this online system and project.

## Conference Topics:

Number	New	Topic Name
200	27	<a href="#">Alternative Teaching Methodologies</a>
201	36	<a href="#">Assessment and Evaluation</a>
202	24	<a href="#">Big Global Problems</a>
203	146	<a href="#">Classroom Management and Discipline</a>
204	18	<a href="#">Co-operative Learning</a>
205	23	<a href="#">Foreign Language Teaching and Learning</a>
206	12	<a href="#">Culture in the Classroom</a>
207	0	<a href="#">Intercultural Communication</a>
208	28	<a href="#">Learner-Centered Instruction and Constructivism</a>
210	12	<a href="#">Local Problems</a>
212	35	<a href="#">Motivation</a>
214	9	<a href="#">Multicultural Education - Ethnic Minorities</a>
216	13	<a href="#">My Own Topics (use as a last resort)</a>
219	23	<a href="#">Teaching Methods</a>
220	55	<a href="#">Technology (Computers and Learning)</a>

[COWSearch]: Search This Conference

Instructor: Dr. M ( email: xxx@xxx )



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Picture 2. The opening page of the Finland Cases conference

**Profile: Dr. M- Project MOO Supervisor (userid)**  
 Last login: May 5. 7:49 PM 1998  
 Real name, PhD.

I currently teach at [X University](#) in the school of education. My Ph.D and Master's degree are from the [University of x in x](#). My web page is at <http://xx.xx.xx/~xx>.

Among my professional interests are x, x, x and x.

I have been involved in COW (Conferencing on the Web) project for over two years now and there are so many interesting research avenues to pursue. I would like to create a guidebook on electronic mentoring when we are done.

**Picture 3.** An example of a user profile.

### *Interpretative resources for constructing mentor role and presence*

The following table summarises the interpretative resources the students have available in constructing role and presence in web-supported study.

**Table 2.** Interpretative resources available for constructing mentor role and presence.

<b>Resources for interpretation</b>	Constraints of the conferencing system	e.g. administrator functions expressed in the opening page
	Authorial choices in frequently appearing textual elements	e.g. signatures and profiles attached to each message; descriptions and instructions for the students in the opening page
	Sequencing and the contents of web-discussions	e.g. topic opening turns, invitations & welcomes conveying ownership of the environment, mentoring approaches
	Participation in other related learning situations (formal and informal).	e.g. positioning

The examples in the previous analysis illustrate the complexity of constructing interpretations and drawing conclusions around teaching and learning, especially in electronic learning environments. As Table 2 above illustrates, the participants in web-supported learning projects have a range of resources available for interpreting the activities going on during the working process. These resources are not restricted to the web-environment itself. Rather, the students relate these events to the whole educational context they are part of. Furthermore, it is not only the official but also the unofficial stages of action that provide opportunities for meaning-making and elaborating the shared understanding concerning the goals of learning and desirable learning and teaching actions.

The observations of Sarangi (1998: 90, 106) and Nunan & Lamb (1996:134) support the above interpretations. They point out that there is a multiplicity of

social and interactional relationships negotiated in pedagogic situations, which shape the practices of learning, and of which teachers and students rarely are aware. On one hand, there are the institutionalised statuses of teachers and students with their expected and predictable behaviour patterns, and, on the other hand, the variety of roles and tasks, negotiated by speakers and hearers in natural conversation. From the teacher's point of view this requires constant research and challenging of his/her teaching practices and pedagogical choices.

## **Conclusion**

This study focussed on examining the interpretative resources available in the whole learning context that may contribute to how participants of web learning projects perceive mentoring. The data of the study came from an international web-supported learning project and the research approach adopted relied on the notion discourse as situated, constitutive use of language in social settings and was thus primarily data-driven. The analysis singled out four different types of interpretative resources: constraints of the conferencing system, authorial choices in frequently appearing textual elements, sequencing and the contents of web-discussions as well as participation in other related learning situations, formal and informal.

The results imply that understanding web-based learning requires careful consideration of all the fora on which learning activities are performed and negotiated. It is the hidden and outspoken rules of the learning community that are at play in developing a new learning culture. From a research methodological point of view, we wish to emphasize the importance of data-driven research paradigms and a wide scope of data-collection in mapping the complex context in which the participants act.

As for pedagogical implications, it seems that developing successful pedagogies is not a matter of developing particular kinds of designs for learning environments, new task types or interaction patterns alone. What is important is to involve teachers and students alike in assessing the collaborative processes of learning, aware of the complexity of the meaning-making process. To reach the students= learning experience teachers need sophisticated tools or methods for analysing the studying process while it is still in progress, for classroom and web-work alike. In other words, we need to develop such pedagogical practices, which enable negotiation of a new culture of doing learning together with the students.

## **Endnotes**

<sup>1</sup> The data analysis of this specific study focused on one particular conference (Finland Cases) meant for case descriptions of Finnish students, which all the students from Finland and the US could comment. In addition to Finland cases Finnish students also had the possibility of reading and commenting the cases produced in a separate conference reserved for the U.S. students.

<sup>2</sup> The original list included a more extensive account of electronic support. The full list is available for example at <http://php.indiana.edu/~vdennen/aera99.html>

## References

- Ahern, T., Peck, K. & Laycock, M. 1992. The effects of teacher discourse in computer-mediated discussion. *Journal of Educational Computing Research*, 8(3), 291–309.
- Alasuutari, P. 1995. *Researching culture. Qualitative method and cultural studies*. London: Sage Publications.
- Baker, M., Hansen, T., Joiner, R., and Traum, D. 1999. The role of grounding in collaborative learning tasks. In P. Dillenbourg (Ed.), *Collaborative learning: cognitive and computational approaches*. Oxford: Elsevier Science LTD, 31–64.
- Bonk, C. J., Appelman, R., & Hay, K. E. 1996. Electronic conferencing tools for student apprenticeship and perspective taking. *Educational Technology*, 36(5), 8–18.
- Bonk, C.J., Daytner, K., Daytner, G., Dennen, V., Malikowski, S. 1999. Online mentoring of preservice teachers with web-based cases, conversations, and collaborations: Two years in review . Paper presented at the American Educational Research Association annual meeting, Montreal, April 22, 1999. Available at: <http://php.indiana.edu/~vdennen/aera99.html>
- Bonk, C. J., & Kim, K. A. 1998. Extending sociocultural theory to adult learning. In M. C. Smith & T. Pourchot (Eds.), *Adult learning and development: Perspectives from educational psychology*. Lawrence Erlbaum Associates, 67–88.
- Bonk, C. J., & King, K. S. (Eds.). 1998. *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse*. Mahwah, NJ: Erlbaum.
- Bonk, C.J., Malikowski, S., Angeli, C. & Supplee, L. 1998. Holy COW: Scaffolding case-based "Conferencing on the Web" with preservice teachers. Paper presented at the American Educational Research Annual Meeting, April 16, 1998, San Diego, CA.
- Bonk, C.J., Malikowski, S., Angeli, C. & East, I. 1997. Web-based case conferencing for preservice teacher education: Electronic discourse from the field. Paper presented at the European Conference for Research on Learning and Instruction, August 1997, Athens, Greece.
- Collins, A., Brown, J.S. & Newman, S.E. 1989. Cognitive apprenticeship: teaching the crafts of reading, writing and mathematics. In L.B. Resnick (Ed.), *Knowing, learning, and instruction: essays in honor of Robert Glaser*. Hillsdale, NJ: Lawrence Erlbaum Associates, 453–494.
- Edmondson, W. & House, J. 1981. *Let's talk and talk about it. A pedagogic interactional grammar*. München–Wien–Baltimore: Urban & Schwarzenberg.
- Dillenbourg: (Ed.). 1999. *Collaborative learning: cognitive and computational approaches*. Oxford: Elsevier Science LTD.
- Fairclough, N. 1989. *Language and power*. London: Longman.
- Glaser, B.G. & Strauss A.L. 1967. *The discovery of grounded theory. Strategies for qualitative research*. New York: Aldine De Gruyter.
- Goffman, E. 1967. *Interaction ritual*. Harmondsworth: Penguin.
- Goodwin, C. & Goodwin, M. H. 1992. Assessments and the construction of context. In A. Duranti, & C. Goodwin (Eds.), *Rethinking context. Language as an interactive phenomenon*. Cambridge: Cambridge University Press, 147–189.
- Gutierrez, K., Rymes, B., and Larson, J. 1995. Script, counterscript, and underlife in the classroom: James Brown versus Brown vs. Board of Education. *Harvard Educational Review*, 65, 445–471.
- Hutchins, E. 1991. The social organization of distributed cognition. In L.B. Resnick., J.M. Levine & S.D. Teasley (Eds.), *Perspectives on socially shared cognition*. Washington, DC: American Psychological Association, 283–307.
- Järvelä, S. & Häkkinen, P. 2000 (in press). Web-based cases in teaching and learning - the quality of discussions and a stage of perspective taking in asynchronous communication. *Interactive Learning Environments*.
- Lave, J. & Wenger, E. 1991. *Situated Learning. Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.



- Levine, J.M., Resnick, L.B. & Higgins, E.T. 1993. Social foundations of cognition. *Annual Review of Psychology*, 44, 585 – 612.
- Levinson, S.C. 1983. *Pragmatics*. Cambridge University Press: Cambridge.
- Littleton, K. & Light, P. (Eds.). 1999. *Learning with computers. Analysing productive interaction*. London: Routledge.
- Morrison, D. & Collins, A. 1996. Epistemic fluency and constructivist learning environments. In B.G. Wilson (Ed.), *Constructivist learning environments: Case studies in instructional design*. Englewood Cliffs, NJ: Educational Technology Publications, 107-119.
- Nunan, D. & Lamb C. 1996. *The self-directed teacher. Managing the learning process*. Cambridge: Cambridge University Press.
- Peräkylä, A. 1998. Institutionaalinen keskustelu [Institutional interaction]. In L. Tainio (Ed.), *Keskusteluanalyysin perusteet*. Tampere: Vastapaino, 177-202.
- Resnick, L. B., Levine, J. M. & Teasley, S. D. (Eds.). 1991. *Perspectives on socially shared cognition*. Washington, DC: American Psychological Association.
- Resnick, L. B. (Ed.). 1989. *Knowing, learning, and instruction: essays in honor of Robert Glaser*. Hillsdale, NJ: Erlbaum.
- Rogoff, B. 1990. *Apprenticeship in thinking*. New York: Oxford University Press.
- Saarenkunnas, M., Järvelä, S., Häkkinen, P., Kuure, L., Taalas, P. & Kunelius, E. 2000. *NINTER – Networked interaction: theory-based cases in teaching and learning*. Accepted in Learning Environments Research.
- Sacks, H. 1987. On the preferences for agreement and contiguity in sequences in conversation. In G. Button & J.R.E. Lee (Eds.), *Talk and social organization*. Clevedon, Avon, England: Multilingual Matters, 54-69.
- Salomon, G. 1993. *Distributed cognitions. Psychological and educational considerations*. Cambridge: Cambridge University Press.
- Sarangi, S. 1998. >I Actually Turn My Back on (Some) Students=: Metacommunicative role of talk in classroom discourse. *Language Awareness*, 7 (2-3), 90 – 108.
- Sarangi, S. 1999. Identity work in professional discourse studies: The dynamics of interactional and institutional orders. Lecture given in the 19<sup>th</sup> Jyväskylä School of Applied Language Studies. University of Jyväskylä, 8<sup>th</sup> June, 1999.
- Schön, D. A. 1987. *Educating the reflective practitioner. Toward a new design of teaching and learning in the professions*. San Francisco: Jossey-Bass Publishers.
- Sinclair, J. & Coulthard, R.M. 1975. *Towards an analysis of discourse: the English used by teachers and pupils*. London: Oxford University Press.
- Silverman, D. 1993. *Interpreting qualitative data. Methods for analysing talk, text and interaction*. London: Sage Publications.
- Silverman, D. 1997. *Discourses of counselling. HIV counselling as social interaction*. London: Sage Publications.
- Strauss, A. & Corbin, J. 1990. *Basics of qualitative research*. Newbury Park: Sage Publications.
- Stubbs, M. 1983. *Discourse analysis. The sociolinguistic analysis of natural language*. Blackwell: Oxford.
- van Dijk, T.A. 1997. *Discourse as interaction in society*. In T.A. van Dijk, (Ed.), *Discourse as social interaction. Discourse studies 2. A multidisciplinary introduction*. London: Sage Publications, 1-37.
- van Lier, L. 1996. *Interaction in the language curriculum. Awareness, autonomy and authenticity*. London: Longman.