

# A Community of Practice among tutors enabling student participation in a seminar preparation

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**Abstract** Educators who are prepared to make use of CSCL can find themselves restricted in their space for maneuvering regarding educational innovation. As a supportive context can be very important for them, the study presented here describes and analyzes a related case of a Community of Practice (CoP) among tutors contributing to the development and conduction of an educational in situ experiment. The paper describes the emergence of the CoP, its dissolving impact on limiting context factors and the empowerment of student participation in a MOO-mediated preparation of a Computer and Law seminar. It shows that a CoP among tutors can be beneficial for educational innovation and is a promising model to support the implementation of CSCL.

**Keywords** Learning · Collaboration · Computer support · Communities of Practice · MOOs · Seminar Organization · Educational Innovation

## Introduction

The implementation and use of new media in education can involve complex tasks and demand competencies in various sectors such as pedagogy, media didactics, informatics, and others. In particular, the selection, tailoring and educational embedding of technology are complex tasks, and not many educators have the full set of the necessary competencies. Therefore, sharing knowledge can be a promising approach for them, too.

The Communities of Practice (CoP) conception (Lave and Wenger 1991; Wenger 1998; Brown and Duguid 1991) has pointed at informal opportunities of sharing situated

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knowledge. Briefly speaking, a CoP demands a joint enterprise, a shared practice and a common identity. Far from being an exotic exception, informal forms of learning are based on human capacities, which are of high importance for practical learning (Rohde et al. 2007; potentially for possible exclusion practices as well; Contu and Willmott 2003).

The CoP discourse, among others, motivated a “community-based” approach (Scarborough and Swan 2001) in the fields of e-learning and knowledge management. The socio-cultural perspective (Fischer et al. 2007) focuses upon learning as a discursive change in the worlds of communities (Osterlund and Carlile 2003). From a constructivist point of view, education is not a one-way ride from blueprints to practice, but a recursive, iterative, multi-perspective practice.

In educational practice, the space for creative, self-organized learning forms is limited by curricula generally aiming at the comparability of test preconditions among students. Although educational expertise has only seldom (see Skinner 1971) been explicitly defined as full control over the educational process, concerns of losing educational control can hinder experiments with creative, innovative forms of education. Additional factors can also contribute to innovation blockades. In such a situation, a CoP among tutors is not a general solution, a nostrum, but if one emerges, it can help to evolutionarily identify and tackle problems.

As a CoP is related to self-organization, it cannot be “built” from outside. However, possibilities for its emergence can be established by a supporting environment for its operation. To do so, the perspective on educational media should focus on better and more practice-oriented education in communities of learners. Even if new media contributes to cost-saving in some cases, the exploitation of new media potential often requires additional investment of resources and intelligence of educational strategies (Nett 2003).

As a case study, this paper describes the emergence of a CoP among tutors in an educational project from the perspective of a participant. After the explanation of the project, it is shown how an educational experiment and its operationalisation only became feasible through the emergence of a CoP among tutors. In the following, the conception of the educational experiment is presented with regard to its technical and organizational dimensions. Its performance is only briefly described, as it does not present the focus of the paper: its key point is the analysis of new opportunities for situated learning of the tutors resulting from the emergence of the CoP, and its empowering effect upon student participation and learning. The concluding remarks, therefore, show that a CoP among tutors can be a promising resource when trying to improve education, for instance by implementing new media.

## The research context

The case study described here is based upon experiences of the author in an educational project. The project was dedicated to improving academic Computer and Law (C&L) education by implementing innovative forms of computer-supported collaborative learning focusing on practice-orientation, student–student cooperation and gender mainstreaming (Nett 2005). The project was financed by the German Ministry of Education (BMBF). The inter-disciplinary project consortium consisted of institutes from law, computer science and economics, which had not cooperated before and were located all around Germany. The project was steered by a board of professors. One group of project partners, the content providers, was to produce C&L content, a task organized autonomously.

Another project task was to develop, implement and evaluate innovative, computer-supported course designs and a didactical conception for C&L. The lead for this task was

allocated to the institute at which the author worked. This institute was also responsible for the analysis of the existing learning cultures and educational in situ experiments to be organized and evaluated. For these purposes, project work was delegated to a team at the coordinating institute, called the “didactical team”. The didactical team consisted of staff which had been contracted for the project, some of which had worked at the institute before. All members of the didactical team had experiences as tutors (as it turned out, most partner institutes also used tutors in their education).

The author was involved in the formative and summative educational evaluation of the project and was responsible for the external coordination of the didactical team with the project partners. As a member of the didactical team, he was involved in the discussion, decision and operative processes related to didactics and innovative course designs during the whole project process. He was neither included in the activities dedicated to content production nor in the meetings of the board of professors, but informed of related relevant discussions and decisions as a member of the didactical team.

The case study presented here thus is based upon observation from the “inner” point of view of a participant, ex post reflecting changes of roles related to an emerging CoP among tutors. It is argued that the history of the project can be explained as the articulation of a structural innovation blockade within the managing board of professors, which was overcome by a CoP among tutors replacing top-down decisions with collaborative self-organization. The concern of the paper thus is not so much to describe and evaluate the educational experiment and its success (although some related information is needed to understand the case fully), but to describe how its implementation became feasible. This description thus reconstructs necessary learning, decision and design processes in an emerging CoP among tutors and its impact upon the processes.

The project started with a kick-off workshop and an analysis of common interests in the project consortium, which showed a general consensus on project aims, but also documented differences among the partners: some had the priority of reforming education, others the use of new media to support the existing educational situations instead of trying to reform them. A third group prioritized the production of an expert system to make C&L regulations accessible on the web. After the kick-off workshop, the partner institutes were visited and asked to deliver their curricula. Interviews with professors, tutors and 167 students made it possible to get important insights into the learning cultures of the participating institutes (see Schinzel et al. 2003).

However, the intended integration of curricula was not achieved, as it demanded common decisions from the representatives of the participating institutes. It turned out that the differences among the partners on the understanding of the discipline were too deep to allow for a common definition of a curriculum. Some underlying problems had to do with the different interests in the project already reported, which were partly based on disciplinary views. However, additional problems paradoxically had their origin in commonalities among the professors: the necessity of committing oneself to inter-organizational cooperation without always fully knowing what implication these decisions had was a problem for all representatives of the participating institutes. Their far-reaching individual autonomy was organized within a frame of responsibility, which included, among others, the need to follow a curriculum with its goals and methods. Following the curriculum thus seemed to require control over the performance of courses. In experimental settings, however, the outcome often cannot be fully under control.

On the other hand, the academic *habitus* (Bourdieu and Wacquant 1992) of professors generally is based on their learned way of organizing, representing and defending their (educational) competencies as a controlled way of following an educational plan (the

curriculum). The required compliance with the curriculum in itself thus limits the opportunities for educators to experiment in education. Furthermore, in the given case, the project tried to promote creative, cooperative learning, and curricula were oriented on individual, replicable tests.

Such problems limited the space for change, and problems were always aggravated when the responsible educators were asked to explicitly approve definite decisions without knowing beforehand what would result from such decisions. Thus the given interests, affiliations and curricula made common educational activities a problem. Furthermore, in the project, the main focus of activities was the production of educational content. Educational experiments, in this context, were seen as endangering the focal activities of the project.

As a consequence, in the board of professors, conflicting views upon the project and the discipline were always aggravated when concrete decisions were at stake, decisions that turned out to be complicated to achieve. The *habitualized* interaction of the professors, based on their competence to deliver optimum education according to their educational planning, limited the opportunities for experiments, even when the given situation was not considered to be an optimum.

In education, there generally is no such network of distributed, cooperating institutes as in the case presented here. However, this does not imply that competition and conflicts are not common in education: decisions of individual educators generally are situated within fields of conflicting aims and priorities as well. Furthermore, the need to maneuver in such conflicting situations with a possibly further limited curriculum is also given for individual educators. This can limit the space for educational innovation as in the case presented here. In this regard, the experiment-enabling role the tutors played in the given case can be instructive in non-experimental settings, too.

#### The emergence of a CoP among tutors

When the didactical team evaluated the educational cultures of the project partners, they met with other project staff. On one of these occasions, members of the didactical team met with tutors from one of the law institutes. Due to his pressing agenda, the professor was interviewed at fixed time, and left immediately afterwards. The rest of the day, the tutors of the law institute helped the didactical team find relevant interview partners.

The didactical team learned that the education at the law institute consisted of compulsory and optional subjects, with C&L courses representing additional educational offerings that were accepted as an optional subject. The curriculum demanding a wide range of compulsory certificates, and the optional subjects and the presentations in seminars were rare opportunities for choice, more so because it was not easy for students to find a vacancy in a course. Tutors assisted the professors as main contact points and organized student workshops. A lot of the students were living in remote villages of the rural area surrounding the small university town. This could cause problems for them in attending courses at certain times and, in turn, motivated the institute to organize courses only during core times.

After a long day of interviews, the tutors of the law institute and the people from the didactical team went to a bar. A (more and more) lively discussion about opportunities for the project grew among members of the didactical team and tutors of a law institute. As the didactical team also consisted of tutors, tutoring became a source of storytelling and participants attempted to contribute absurd failure stories from his/her tutorial practice, trying to cause maximum laughter. The narrations helped the tutors of the different

institutes to get to know each other better. Only in this relaxed atmosphere did the didactical team hear about problems of the tutors at the partner institute when preparing seminars.

In calmer moments, it turned out that all tutors, having been students themselves only recently, felt the necessity to improve education and, therefore, esteemed the related orientation of the project application very much. Furthermore, frustration was articulated and supported that tutors were involved in the project in one way or another, but had no direct influence on the esteemed project aims. The persons in the bar explained that they were committed to improve education, had even taken risks of conflict at their institutes, but did not know what could be done within the project frame.

The narrations indicated not only similarities among the roles of the persons in the bar (they all were project staff, tutors, and former students), but also among their perceptions of the given situation, and about reasonable reactions to this situation. To put it another way: the narrations were not only the means to exchange stories, but also attempts to understand how elements of these stories were told by the others, to understand their way of expertise representation.

A tutor of the partner institute made clear how important the role of tutors was at the law institute. The tutor expressed much confidence in the preparedness of the professor of the institute for educational reform, but hinted at the necessity of “diplomacy” for success. The tutor illustrated a personal success based on “diplomatic” proceeding by telling a related anecdote. Didactical team members expressed similar “war stories” (see Orr 1996).

In this narration process, a common understanding of a shared practice emerged, which had not been explicit to the actors: due to demanding daily work, professors seldom have the time to develop elaborate educational conceptions, but only to hint at related opportunities to their tutors. Therefore, tutors are to “guess“, what they could do, negotiate necessary resources, and embed their work into the educational context semi-autonomously.

In the bar, the members of the didactical team and the colleagues from the visited partner institute started to discuss their common role as tutors and found out that they would like to initiate a joint educational experiment on the basis of their inter-organizational project cooperation: the law tutors tutoring, the tutors from the remote didactical team tailoring the platform, preparing, helping and evaluating. To prevail, distance cooperation obviously was necessary. However, it could be organized using the open-source platform JurMOO, which had been implemented for educational purposes and now was at hand for inter-tutor communication and cooperation, too (the platform will be described later).

The anecdotes in the bar had made it easy for the law tutors to understand the platform better and to address related questions in cases of confusion without presenting themselves as ignorant. Due to obviously emerging mutual trust, the tutors of the law institute started to believe the didactical team members’ assertion that JurMOO could be worth being tested at their institute, too.

As the project application demanded a test of JurMOO for educational experiments, and the professors of the two institutes seemed to be open for innovations, the idea of the tutors to use JurMOO for their collaboration on an educational experiment of their own became a promising one. In this context, a tutor of the partner institute remembered a discussion in which proposals for improvements of seminar designs had interested a professor. The idea sprang up to present to him the proposed experiment with the didactical team as an implementation opportunity for the ideas in which he had shown interest.

With shared practice identified in tutoring, and joint enterprise defined as the educational experiment to be conducted, the third prerequisite for a CoP evolved: a shared identity. It was that of confederates with a common commitment. This worked as a strong motivation. Earlier discussions and experiences could be integrated into a common project, where their identity as tutors (and thus former students) played a pivotal role.

Looking back from an *ex post* perspective, there might even have been a foregoing conspiracy between the professor and the tutors of his institute to propose the use of “diplomacy.” Anyway, the implementation opportunity for the educational experiment and its first design ideas only evolved with a CoP among tutors emerging between the tutors of both institutes on the basis of a common commitment. This was of utmost importance for the project, as it was the basis of the first educational success story. After possible inter-organizational cooperation had been discussed in the project, tutors from other partner institutes reacted more openly to related proposals too. This was reinforced when the *in situ* experiment of a seminar preparation by JurMOO turned out to be a real success story. However, there was a lot to be done before.

In this context, it is important to distinguish between the inter-organizational *team* and the *CoP among tutors*, although they consisted of the same persons and thus appear identical at first glance. However, the important point is that no detailed plan for a common course was given. The tasks of the didactical team were only roughly lined out. After the unanticipated failure to develop a common curriculum and due to the problems described above, the board of professors was stuck in a trap of cooperation blockades and unable to elaborate plans in necessary detail. The only resource for the very formation of inter-organizational cooperation thus was the commitment and initiative of the tutors, not vice versa. Without the self-organization of the tutors, which formed the CoP and overcame the anti-experimental effects of the curriculum and the inter-institutional cooperation problems, the whole inter-organizational experiment would scarcely have been conducted successfully. Before this is outlined in more detail, the cooperation platform JurMOO has to be described.

## The educational experiment

### The technical platform

At the institute of the project leader, a “technical platform for playful cooperation and collaboration” had been implemented, which was to be tested within the project context. At the time of the meeting in the bar, it had already been tested at the institute of the project leader, with the results being a source of anecdotes causing laughter. This platform was a MOO called JurMOO. Goldstein (1998) pointed out that educational media should be chosen on behalf of didactical ideas, not vice versa. In this regard, a MOO is not a good media for traditional top-down teaching (Bruckman and Resnick 1996), but instead one that can support active groups of learners (Rogoff et al. 1998). The potential of the MOO is based on its combination of information and communication, and on easy shifts between them (see Enyedy and Hoadley 2006). This makes it interesting for constructivist practice-oriented, collaborative education.

The acronym MOO adheres to another acronym, which is MUD. A MUD is a multi-user domain, in an elder terminology: a multi-user dungeon (the genesis of the MOO was related to computer games). A MOO thus is an object-oriented MUD. This means that the whole setting including the “characters” is programmed in an object-oriented manner, allowing all elements to be changed (Haynes and Holemevik 1998). A MOO can be seen as a set of websites plus chat and command functionalities. The websites are textually described as “rooms,” “characters,” and other “objects.” One can “walk” into rooms and read the related descriptions.

Embedded in these sites there is a command and a communication window. One can “talk” to the people “in the room,” or “whisper” to some special person at whatever place.

Furthermore, one can search for people, rooms and objects. During the stay in a MOO, users are represented by their avatars, an icon indicating their JurMOO name. In the “rooms,” they may meet the avatars of other users (meeting here means reading each others contributions), or those of the programmers and evaluators, and even “NPCs” (non playing characters). Such NPCs are represented with an icon and name (a textual description can be opened, too) and can, among other things, be used for animation or questioning.

Users can “fetch” (read) and “drop” (upload) their own material, and describe their own characters, while such description, when activated, may be read by other users. By describing a “character” as a representation of oneself, the “Mudder” (a real-world person participating in a MUD) can experiment with social roles. By writing, the students interact with other “characters” representing other students, tutors, or others. Interacting thus mainly is writing to other users. Besides “talking,” there is “emoting”: describing the actions of their own character.

Bruckman (1992) interpreted MOOs as “identity workshops” pointing to their potential to simulate personality processes similar to Ericson’s “psychosocial moratoria”: important opportunities to experiment with identities. Such opportunities normally being very scarce in ones life cycle, they are important tests of the “quality standards” of one’s own life without too much of a risk (Haynes and Holmenvik 1998).

MOO interaction happens in a context structured by a geographic metaphor, which can be used to structure and motivate communication. As this context can be changed by the users, too, they can influence, structure and motivate communication. The ability to “drop” things implies an opportunity to upload documents for asynchronous cooperation too.

MOOs and chat are quite popular in e-learning. It is interesting that these quite old and (from the perspective of the interface) often a little “showy” technologies remain attractive among users. Although synchronous media have been propagated as being too difficult to structure and control by some researchers (see Veerman and Veldhuis-Diermanse 1999), if used to support creative, rational discourse, they are able to take on “a flow of interrelated ideas.... The referential structure of this flow provides a basis for the... experience of intersubjectivity, common ground and a shared world, ... *group cognition*—a form of distributed cognition that involves advanced levels of cognition” (Stahl 2006).

The world of the MOO is text-based like a chat, but additionally is an “ever-changing... environment” (Holmevik and Haynes 2000). Users can change the environment (as long as the right management allows it) and thus influence their media of communication, for example, by structuring it according to their cooperation. Therefore, a MOO can contribute to lasting representations of emergent, afore distributed ideas, and thus function as “*middle space*” between communication and cooperation (see Hoadley 1998).

#### A scenario of a MOO-mediated seminar preparation

In the bar, a problematic scenario for law education was developed by the tutors of the law institute as follows: students join preliminary seminar meetings to find a topic to be studied and presented (the preliminary seminar meeting generally is organized some months before the seminar in order to allow students to prepare their papers). Students seldom use the opportunity to discuss their papers before the seminar event, which leads to misunderstandings; students sometimes focus on issues with little relevance to the seminar. The presentation of papers is in the seminar. The professor, in order to be polite and to appear interested, asks questions after the presentation. The auditorium, however, is more or less passive, which to a certain degree is due to a poor understanding of what the others present.

Students only “wake up”, when it is up to her/him to read her/his paper. Discussions among the students are rare.

This scenario was not presented by an individual tutor, but evolved in the common discussion among the tutors. They could be more open than the professors, among whom competition and responsibility pressure was by far stronger and more limiting. Although the problematic scenario presented above is in no way uncommon in academic life (though an ideal-typical worst case), professors might have hesitated to participate in the development of such a failure scenario. From their common experience, tutors could derive that the coordination of student contributions was a promising field to promote inter-student cooperation. One point at stake thus was the coordination of student contributions for a seminar in its preparation phase. Normally, such coordination between different presentations for the seminar was only organized top-down and beforehand in a very general manner. A more detailed and efficient coordination of student presentation could be achieved by tutoring during the elaboration of the student papers.

It was pointed out that tutoring happened only when students contacted tutors before a seminar, what occurred rather seldom. Giving the students the opportunity to discuss their work together would provide them with the opportunity to take over from others, or vice versa. Obviously, this was related to interests. Therefore, discussing conflicts could be a promising means to promoting a cooperative working culture among the students. Furthermore, it could produce more awareness of the implications of the individual work among the students.

In order to synchronize the virtual student works and allow for a feeling of co-presence and community, synchronous virtual meetings (*jours fixes*) with tutorial moderation were proposed for the seminar. Students could drop the outlines of their papers early in the MOO, read those of other students and annotate them. The same could be done with a summary later. The uploading of student outlines could be reflected on in synchronous online discussions on the topics to be covered in the seminar presentations. In between the synchronous events, students could “walk around,” read room and person descriptions, describe rooms of their own and enjoy explorative learning.

All these ideas were elaborated among the tutors, who tested them among themselves through their cooperation. The meeting at the bar was the initial point of the design of the educational experiment. At its basis was the feeling of mutuality: the tutors of the law institute promised to do their very best to get the *placet* of their professor, the didactical team promised that they would get the platform and ability to the law tutor right in time. This general accord given (implicitly) among the tutors, it was not necessary to fix up any detail formally. Formal definitions would have demanded for a full picture right from the start; the tutors instead could proceed iteratively testing opportunities on a growing basis of trust in the competences and loyalty of the others, and into the quality of decision taken among them. This opportunity to gradually proceed was their main advantage over the professors, who due to a prevailing control paradigm had to demonstrate control of the educational process even with the first decision (when nearly nothing could be clear) – a vicious circle limiting innovation.

#### The design of the seminar

An outlined design of a virtually supported seminar preparation using JurMOO thus was the result of the cooperation among the tutors. It was iteratively presented to and approved by the professors, after it had been invented, tested and conceptualized by the tutors. For the tutors, the design thus was no fixed blueprint to be applied and controlled, but the result of

common construction on the basis of practical experience: a lot of trial and error. The most general conception was outlined as follows:

- New seminar preparation procedure
- Tailored MOO (JurMOO) as cooperation platform
- Online “on-the-fly” training
- Fixed dates for online tutoring

A concretization of the seminar design characterized the interaction structures (person-person and person-machine) which had to be supported by the cooperation platform JurMOO:

- Online authentication of seminar members
- General seminar information and news available on the platform
- Tutored chat at *jours fixes*
- Outlines and summaries of student papers to be uploaded and discussed
- Annotation options for students on the work of fellow students
- Online evaluation

This conception defining an alternative seminar process could be based upon shortcomings in the given situation and used for an evaluation conception, as well:

- Student activities (navigation, interaction, use of emoting, all to be stored in a log file)
- Gender behavior (personal data to be collected by a special participation list: email address, gender, computer literacy, Internet access, MOO name, etc.)
- Collaborative versus individualistic behavior in JurMOO
- NPC used for evaluation purposes
- Gender-typical JurMOO usages to be studied

However, the design presented above was not developed in the deductive way of its presentation. In contrast, as the feasibility of solutions and inter-dependencies among problems could not be clear right from the start, a lot of work had to be done to establish the presentable seminar design. During this process, the design conception functioned more as a *boundary object* (Star and Griesemer 1989) among the tutors than as a blueprint. Even at the end of the process, the most general questions of the plan remained unclear, such as: will law students, mostly accustomed to graphical user interfaces (GUIs) accept a merely text-based environment at all, and use it, or will they reject it due to its Spartan appeal? Are C&L students prepared to participate in educational experiments at all?

The tutors organized the tailoring process and agreed upon a time schedule, involving a pretest simulating the situation of the coming preliminary seminar meeting and a follow-up with several test persons. JurMOO was related as closely to the face-to-face seminar elements as possible, as tutors followed Schulmeister’s (1997) remark that there is nothing more frustrating than sitting in a boring, abandoned educational space, in particular, if it is a virtual one. Students had to fill out a participation list including specific questions such as email address, favorite JurMOO-identity and suchlike at the preliminary seminar meeting. In addition, students were to receive a more detailed evaluation form. It had to be assured that (technical) accessibility was guaranteed for any participant. Furthermore, privacy had to be assured, such as transparency. After the distribution of the seminar tasks, the didactical team had to give a short demonstration of JurMOO. This preliminary seminar meeting was to be followed by a distributed online JurMOO training of two evenings. From that time on the students should “meet” in the JurMOO every fortnight at a given time, the tutors being virtually present. On a given date, students were to be asked to upload the outlines of their

papers and to comment on those of the other students. The same was expected, later, for a summary.

The use case for this prototype of a virtually supported seminar preparation by JurMOO was as follows: Students were to join JurMOO from home or from existing computer pools at the university. The JurMOO offered one “room” for any participant, which was “described” with the title of the task that participant had to do. However, students “entered” JurMOO not in their room, but in a common one, the “*Juridicum*,” which, among other surprises, comprised of a virtual student lounge and access to the whole JurMOO environment. As sources of help, usage explanations were implemented in JurMOO. Furthermore, anticipated forms of usage were described in the form of “index cards“, which were well-known among law students. Furthermore, telephone numbers of tutors for “emergency calls” were given to the students. A concept for the online JurMOO training was elaborated. For the evaluation, a log file was implemented into JurMOO documenting all kinds of (inter-)action. Together with the general conception for the evaluation mentioned above, this allowed for a *posteriori* evaluation.

The tailoring of JurMOO required intense communication. In the beginning, email played a central role. In times of time pressure, synchronous media became prominent, first telephone, later JurMOO: allowing for communication and collaboration at the same time, JurMOO made it possible to *in situ* try out design options. While design decisions formally were left to the responsible persons (the professors), the need for such decisions was only communicated to the professors when related problems had already been discussed among the tutors and solutions had been developed. The tailoring of JurMOO thus was developed semi-autonomously by the inter-organizational CoP among tutors, not taken as a given blueprint.

The tutors of the law institute had convinced their professor to accept the proposed experiment. In spite of skepticism, the professor could accept most of the proposals, as the tutors presented them in a convincing manner (most proposals pre-tested by the tutors for themselves) which supported the need of bureaucratic representation of educational competence, as the design (which was the boundary object of the CoP among tutors) was presented as an educational blueprint to the professor.

Nevertheless, neither the decisions taken, nor the educational experiment itself could be “deduced” from orders, project descriptions, working contracts of the actors or any such defined context. In contrast, the seminar design instead had a double function: as a boundary object, it was a product to be developed, and as a plan it was a blueprint to be implemented at the same time. The CoP among tutors made it possible to look at the production side and its inter-dependencies by internal cooperation first, and at the representative and bureaucratic side by negotiating with the responsible professor later. This proceeding allowed for tentative innovation.

The tutors thus acted within the formal framework, but important design decisions and the organization of the educational experiment rested mainly upon their self-organization. As they never before had collaborated on a similar project, they had to learn from each other in an inter-disciplinary manner, this knowledge being based upon their shared identity. On the other hand, the preparedness of their professors to accept proposals of the tutors showed that their inter-organizational CoP functioned like a catalyst and was able to overcome a cooperation blockade.

### The seminar process

At the preliminary seminar meeting, the professor explained the subject of the seminar and distributed lists of the related headings for the student papers to be presented in a final face-

to-face seminar event. When it came to the educational experiment of an improved seminar preparation, he advised “only students with spare time” to participate. The tutors of the law institute intervened and propagated participation for all seminar participants pointing out that participation would mean additional opportunities to contribute to the seminar more than additional work. They later said that the inter-organizational CoP had empowered them to take up a stance in favor of common project in this moment of decision.

In spite of the obvious skepticism of the professor, the advanced time (9:15 P.M.), and of the obvious necessity of additional efforts, some 20 students (all besides one who was not interested in the subjects distributed and left the seminar) followed the invitation of the tutors to the media room to learn about the intended test of a virtually supported seminar preparation in JurMOO. This shows that tutors can function as “social capital” for the establishment of knowledge-exchange networks (Huysman and Wulf 2006). The usage of JurMOO was explained in the media room, an effort to be completed in two remote online sessions, the preparation of which was discussed with the students.

The following *jours fixes* were moderated by the preparation team of tutors, who succeeded in switching from preliminary chit-chat to task-related discussion simply by addressing the problems at stake. As the students could discuss problems related to their contribution to the seminar from their home, they experienced JurMOO as a real help. All participants were very content and engaged. In the face-to-face meeting at the end of the seminar, the tutors and students mostly addressed each other by their the MOO names, as for many of them, who had not known each other before the seminar, the MOO name represented the identity of the other. The same was true at a party, which tutors and students had co-organized via JurMOO as a follow-up.

A tutor, who had feared a further isolation of the individual students by means of computerization, reported that the use of the MOO in the virtually supported seminar preparation had led to the contrary effect: an increase of interaction and even face-to-face appointments, meetings and discussions between the students. Students even asked for a maintenance of their JurMOO accesses in order “to keep in touch”. Interesting enough, the acceptance of the experiment was even higher among female students, who praised the better opportunities to communicate when preparing seminar contributions. In a follow-up interview the professor, who had been so skeptical, reported that he was surprised that the seminar had been lively and communicative in an exceptional manner, and that he even had to stop discussions among the students in order to keep within the time frame.

## Discussion

In the educational experiment, the students had become integrated into the virtual preparation for the C&L seminar, which had motivated them strongly. They learned about organizing courses, self-organization, disciplinary subjects, and technology at the same time, and enjoyed legitimate peripheral participation (Lave and Wenger 1991) in the CoP among tutors. Participating in the preparation of the seminar, students were not only confronted with the preparation of their presentation, but could see and discuss their presentation as an evolving contribution to “their” course in JurMOO. Discussions on the inter-relations between different issues were related to the own presentation, which motivated discussion strongly and led to a broader view upon the own work task at the same time.

In the seminar, the opportunity for asynchronous cooperation made tutor–student relation more structured and more convenient at the same time: participants could join from

their homes, and tutors could stick to the weekly time schedule and feel better prepared than being asked at occasional meetings in corridors. To a certain degree, the high investment of time was counterweighted by the opportunity to place tutoring sessions into calmer time slots such as evenings (7–8 P.M.) without having their students protesting, as they could join in from their homes.

It is less the educational experiment, but its feasibility based on the emergence of a CoP among tutors, which is the focus of this paper. Therefore, the presentation concentrates on the related findings. The installation, tailoring, maintenance and evaluation of the educational platform required different skills. One tutor of the educational team was a programmer. He became an important interface between technological and didactical aspects of the experiments, as he provided important information for the didactical discussion and minimized the typical misunderstandings and problems of inter-disciplinary cooperation. However, design decisions were discussed in the CoP among tutors without much specialization, and competencies spread among the members. For example, the programmer started to collect law materials on intellectual property, as he wanted to use it to make up his mind about the political discussion on IT regulations and considered the possibility of establishing an IT firm himself. On the other hand, a law tutor tested additional programming opportunities of JurMOO, as these experiments helped him to express and further elaborate his visions of reasonable JurMOO use.

The emergence of a CoP enabled inter-organizational and inter-disciplinary knowledge exchange, as the identity on which it was based was not that of established domain experts, but that of a community who, in spite of being dependent upon hierarchies, had to “guess” and elaborate what was demanded from them (see above). JurMOO was a helpful media in this regard, as its synchronous chat channel allowed for immediate reflections on tentative changes of the asynchronous elements of the MOO, for instance, the use of its geographical metaphor. Cooperative design and negotiations of meaning could thus be developed tentatively and iteratively.

When tutoring in a seminar can be seen as the institutionalization of trans-generation communities among students (Rosson and Carroll 2003), the CoP among tutors facilitated the trans-disciplinary and inter-organizational knowledge exchange. In this regard, storytelling (Brown et al. 2004) was of great importance and allowed for more flexible and tentative proceeding. Even before developments fully turned out (and could be proved) to be dysfunctional, related skepticism could be expressed and motivate the replacement of problematic decisions. The same was true for intuitions of improvement options. Neither decisions nor their revisions were connected to established expert roles in a fixed manner. When compared to the *habitus* of the professors, it was less a problem for the young tutors to display gaps in their knowledge. This allowed for their learning-by-doing.

When the complexity of the process demanded qualifications, these could partly be based upon on distributed experience within the CoP among tutors. For example, the danger of “getting lost” in the MOO world was expressed and experienced by the tutors themselves when cooperatively trying to implement the conception of one “room” for each student in the virtual “*Juridicum*.” The idea to provide a virtual “geographical” map for the students navigating JurMOO emerged when the tutors identified related problems themselves, this is: within situated action (Suchman 1987).

“Identification of problems” worked in a way that initially informal critical remarks on the cooperation platform motivated usability evaluations and improvements, not vice versa. In innovative environments, results of developments cannot fully be anticipated, and “systematic” (formalized) development processes can only be elaborated ex post. Furthermore, the tailoring of platforms for distributed cooperation is highly problematic

due to their multi-user character (Wulf 2000) Therefore, the contribution of the CoP to the team-work of the tutors cannot be overestimated.

When reflecting on the didactical experiment, the tutors stated that their workload was increased by the didactical experiment when compared to normal seminars. The tutors did not only have to support the students preparing their presentations, but had to learn about the social and organizational demands of an innovative seminar design, to commonly tailor the educational platform, to learn to tutor virtually, and to teach the students the necessary media literacy. From this point of view, it seems even less likely that people from different backgrounds, affiliations and interests collaboratively committed themselves to the development of new educational models which they implemented, tutored and evaluated themselves. In any, even the most peripheral, decision, all problem dimensions of the project were at stake. There was nobody who knew all necessary information, and there was no blueprint for an optimum process.

While this formed a vicious circle and innovation blockade in the board of the professors, there was ongoing experimenting and on-the-fly learning among the tutors, stakeholders of a shared “conspiracy.” The CoP among tutors thus dissolved the vicious circle of the institutional blockades by mutual learning-by-doing. The tutors, after thus having become active, became more and more responsible and visible in the project process. On project meetings, they increasingly articulated own ideas and discussion contributions such as critique and promotion, which they formerly had restrained to individual work reports. Due to the complexity of change processes, it is not always self-evident which decisions are merely executions of earlier decisions, and which are decisive for the further proceeding in reality, since many decisions involve both elements. Therefore, the power of the operating persons tends to increase when given more autonomy. In the given case, the operators were the tutors.

Due to the complexity of the design process, professors often did not even notice developments at all. As a striking example, the programmer of JurMOO implemented a separate communication channel for tutors and other gimmicks, for example, a functionality to virtually “throw tomatoes at the professor” (the use of this functionality triggered a sentence in the hidden communication channel of the tutors: “<NAME> throws tomatoes at the professor”). This function was never used, but ironically referred to in inter-tutor communication on their channel. As this functionality was unknown to the professors, it further deepened the clandestine feeling of a shared secret among the tutors. The exclusive media appropriation by the tutors allowed, for example, the tutors to obey orders of the professor in the MOO and to ironically comment on them at the same time. This contributed to a “hidden transcript” (Scott 1990) and a strong feeling of mutual trust among the tutors. This led to an empowerment of the tutors in the seminar, and to a more relaxed atmosphere.

## Conclusion

Tutors found it very beneficial to be able to exchange experiences and learn about the use of new media. In this regard, it was helpful that the tutors could learn about cooperation media by using them for themselves. The open and adaptable architecture of the MOO made it possible for the CoP to appropriate the cooperation media (as in the extreme cases of the hidden communication channel and the “tomato-throwing” functionality). The students benefited from related competencies (as can be seen by the example of the “map,” which first helped the tutors to navigate on the portal, then the students).

However, to achieve this, self-organization of the tutors was necessary. The tutors had to find out who was an expert in which kind of problem and how one could communicate with him. Asking the right questions of the right people and understanding the answers correctly was in no way a simple thing. For the tutors, their CoP could develop and communicate related expertise without endangering individual reputation, as was a major obstacle to the formal cooperation of the professors at the project board: their *habitualized* disciplinary competition and their modes of responsibility representation made cooperation much more of a problem for them.

In contrast, for the tutors, the CoP made things easier. It was neither any more necessary for them to only rely upon the established frame of their own discipline, nor to have complete, clear, contradiction-free information before taking first steps. Instead, the CoP of the tutors allowed for stepwise, practice-oriented learning-by-doing, as it involved mutual trust and solidarity on the basis of a shared identity as tutors. In education, where there are a lot of complicated and complex problems to be tackled, a CoP among tutors may have more room for maneuvering than teachers or lecturers and thus can be a promising support for efforts to improve education.

The CoP of the tutors influenced the identity of its members and vice versa, which enabled change processes. These changes related not only to identities and power, but also to learning abilities of its members. Especially in the preparation and follow-up of courses, student participation could be promoted by the innovative form of tutoring. Success demanded additional work and competencies of the tutors. To support both, the CoP among tutors was crucial. Although a CoP among tutors cannot be formed top-down, empowerment and some semi-autonomy are important prerequisites for its emergence, which can become a booster of self-organization and collaborative learning for students, too, as the field study shows.

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