LEARNING COMMUNITIES IN AN ONLINE COURSE ON "PSYCHO-SOCIAL ASPECTS IN NURSING" - A COMMUNITY OF PRACTICE?

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Abstract

This paper describes the pedagogical design of a non-credit online course for professionals in the field of healthcare. It is shown and discussed that participants establish a "virtual community of practitioners". The online learning environment and personal tutorial support facilitate the communicative and collaborative process of learning towards community building. Many authors in the field of e-learning or "distributed learning" (cf. Lea & Nicoll, 2002) apply the "community of practice" concept from Lave & Wenger (1991) to describe learning communities in online courses. However, the authors question if structured distance learning courses with a fixed curriculum or syllabus provide the space for "legitimate peripheral participation", which is essential for a community of practice in the sense of Lave & Wenger.

The Online Course

The online course for nurses is based on the study materials and experiences of the certificate programme on "Psycho-social Aspects in Nursing" developed and delivered by the Centre for Distance Education at Carl von Ossietzky University of Oldenburg (Bernath & Fichten, 1999). The study materials were also adapted in an extended German-American joint project on "The Healing Partnership - A New Model for Healthcare" (Waltos & Waltos, 2002). The objective of the course is important for political and pragmatic reasons in healthcare. It aims at developing the psycho-social competence of nurse practitioners and enabling them to impart suitable solution-centred strategies for promoting health among patients/clients.

The development of nursing towards an academic profession and its development into an "autonomous human services profession" (Keuchel, 2002, p.59) has led to completely new requirements and profiles, for which education and training has not yet been sufficiently prepared in Germany, so that there is a considerable demand among nurse practitioners for further training and professional development. In addition, nurses working in different sectors or institutions in the healthcare business frequently experience a discrepancy in their every-day working routine and the requirements and actual possibilities for their improved professional performance (Görres, 2002). This applies particularly for new tasks like health information and health advice. Psychological knowledge is necessary for appropriate interventions, because it has been found that psycho-social factors and processes are significant for actions concerning and promoting health (cf. Fichten, 1999).

Following the positive experiences with the implementation of the certificate programme in "Psycho-social Aspects in Nursing", in which distance study components are combined with face-to-face phases (Bernath, 2000), an online course was developed consisting of four modules, of which two modules were tested in 2001/2002 in an eight-week online seminar with a group of 32 nurses. The online course provides access and reduces the restrictions of face-to-face settings that do not comply with the organisational situations and circumstances of nurses such as work schedules, shift work, etc., as well as underlying private and social conditions or obligations. Distance education is therefore an appropriate mode of delivery for this target group (cf. Novotny, 2000).

The Online Learning Environment

The design of the online course is practically based on experiences with the Virtual Seminar for Professional Development in Distance Education (Bernath & Rubin, 1999) and its application in the Foudations of Distance Education course in the Master of Distance Education programme (Bernath & Rubin, 2003). Theoretically it is related to constructivist assumptions on the acquisition of knowledge. In the last few years various instructional approaches for designing learning environments have been developed on this basis "which should encourage an active exposition of problems and increase the application quality of knowledge " (Gerstenmaier & Mandl, 1995, p.875). According to Jonassen et al. (1995) constructivist learning environment should concentrate on four characteristics: context, construction, collaboration, conversation: "Constructivist environments engage learners in knowledge construction through collaborative activities that embed learning in a meaningful context and through reflection on what has been learned through conversation with other learners" (p. 13). Along the lines of these four characteristics the principles of constructivist learning environments can be described as follows:

Context: Learning is to be situated, i.e. embedded, in the material and social environment to which it refers (Clancey, 1997; Lave & Wenger, 1991). Learning tasks must be authentic and have a complexity that is realistic (Mandl, Gruber & Renkl, 1997). Subjects that are learnt in this way can be applied more easily and transferred to new, similar contexts. Learners are to observe and evaluate multiple contexts from different perspectives, a skill which is typical for advanced knowledge (cf. the "Cognitive Flexibility Theory" in accordance with Spiro & Jehng, 1990).

Construction: The construction of knowledge or meaning is an active process of articulation and reflection within a context. Articulation and reflection take place within the learners themselves (internal negotiation), whereby new knowledge is integrated with prior knowledge, as well as with other learners (external discussion) (cf. Jonassen et al., 1995, p.12).

Collaboration: Because learning is regarded as a social process, collaboration and cooperation play a central part. Learners must be encouraged to contest actively about contents. This is done in collaboration with others, for example, by a learner explaining his or her own understanding to other learners, and also by jointly discussing the procedure for solving a problem. Cooperation and articulation are the core elements of constructivist pedagogy (Duffy & Jonassen, 1992). Learning takes place in a so-called "knowledge building community" (Scardamalia & Bereiter, 1992).

Conversation: Mutual discourse, and not one-sided reception, is the focus of collaboration and cooperation (Johnson & Johnson, 1991; Slavin, 1995). Learners discuss their strategy for solving an authentic problem. The planning process contains phases of joint reflection, which can lead to changes to the problem strategy. The discussion is the basis of this process. In on-line learning it usually takes place via text-based computer conferences.

There are various examples for the realisation of these requirements in the field of e-learning, including in particular in the framework of training and further training for nursing personnel (cf. Naidu & Oliver, 1996, 1999; Naidu, Oliver & Koronios, 1999). However, fulfilling the principles referred to above requires considerable media development expenses (Mandl, Gruber & Renkl, 1997, p.176), which were not realisable for the Oldenburg online course. The course can therefore be used to show how a learning environment can be designed with an acceptable level of expense so that it corresponds as far as possible to the constructivist paradigm.

The success of online learning stands and falls "with the securing of the necessary information basis [...] and adaptive support for the group processes " (Reinmann-Rothmeier & Mandl, 2002, p.52).The print-based study material of the original programme course were revised and adapted to the requirements of an electronic learning environment. For example, a transparent structure, reduced amounts of text and practical cross-linking of text modules were all important. In addition, new text parts and documents were integrated, which correspond to the current state of discussions in this rapidly developing sector of health science. Particular value was placed on the communication of controversial positions (multi-perspectivity) and on presenting empirical data as well as examples of authentic cases (authenticity) (cf. Reinmann-Rothmeier & Mandl, 2002), which were provided by

nurses on previous courses and which were aimed at enabling problem-oriented learning (Renkl, 1996; cf. Hurst & Quinsee, 2003).

The Internet-based learning environment of the online course is Lotus Learning Space from IBM–software which is based on Lotus Notes. Lotus Notes is a so-called "groupware" for the computer-based collaboration of spatially dispersed groups (cf. Burke & Calabria, 1999). In spite of all the variety of software for Internet-based learning environments (cf. Baumgartner, Häfele & Maier-Häfele, 2002) they usually provide three types of tools that make up a virtual classroom: Information and presentation tools, communication tools and assessment tools (cf. Zawacki-Richter, 2004, forthcoming). An online course in Lotus Learning Space consists of three function areas: The "Schedule" guides users through the contents of the course. It contains introductions for each module with links to the appropriate study materials. The "Media Centre" contains the study materials, which can also be found with their own search terms (full-text search). Users can make their own notes for the individual documents. Communication on the module contents takes place in the "Course Room", which is also the location for group work. The "Profile" serves to strengthen the "online presence". Users can introduce themselves here with a photograph.

Situated, Collaborative Learning

In contrast to learning theories, which assume that knowledge exists independently of individuals and that the learning context has no effect on the acquisition of knowledge, new theoretical approaches from cognitive psychology postulate that learning processes cannot be separated from the concrete circumstances of the mediation and acquisition of knowledge. Learning processes are personally and socially situated (Mandl, Gruber & Renkl, 1997; Seel, 2001; Vosniadou, 1994). This view has also gained some significance for e-learning, whereby intensive discussions are taking place on the special characteristics (situative qualities) of electronic learning environments and their influences on the learning processes of participants in a virtual seminar.

One feature of virtual learning environments, and of the Oldenburg online course, is that participating students communicate with one another in the Course Room, analyse case examples together, work through assignments, etc., on the basis of their dealings with an information base (Media Centre). These reciprocal processes of exchange, which are created through media-enabled interactivity (Reinmann-Rothmeier & Mandl, 2002), result in a social contextualisation of the learning processes. As analyses of collaborative learning in online learning environments show, during the course of discussions learners jointly develop a largely corresponding reality construction, or mental models (Seel, 2001). The stocks of knowledge that each learner has are linked to one another and related to one another (knowledge integration: Carell, 2000). The learners participate in the process of cooperative knowledge construction (Reinmann-Rothmeier & Mandl, 2002; Bloh, 2002). Among the activities which play a part in the joint construction of a common knowledge base are the exchange of resources and information, attention to the contributions of other participants, feedback, etc. (McLoughlin & Luca, 2000). These collaborative activities start up and encourage higher-level mental processes, i.e. "the capacity to go beyond the information given, to adopt a critical stance, to evaluate, to have metacognitive awareness and problem solving capacities" (McLoughlin & Luca , 2000, p.2) (higher order learning: cf. Jonassen et al., 1995).

Socially distributed knowledge (shared knowledge, Reinmann-Rothmeier & Mandl, 2002) in the possession of learners is the basis of cooperative knowledge construction. It forms a common background for cooperative learning processes and provides a meaning for them[1]. Rapid comprehension is possible, because the contributions of individuals to a discussion are located by the other participants in a network of shared knowledge and can be received without further explanations.

[1] Based on the work of Gibbons et. al (1994), Peters (2003, p.142) notes that it is a general trend that knowledge is socially distributed. Degele (2002, p.11) calls this new kind of knowledge "informed knowledge". Peters (ibid.) analyses 17 characteristics of "informed knowledge" and concludes: "Knowledge in the computer age is [...] in a state of fundamental transformation, whereby not only its contents but also its functions and structure are changing. There are new stocks of knowledge and knowledge activities. This transformation is taking place at a practically incomprehensible speed so that we can already imagine the great effect this new knowledge will have in future on traditional knowledge and thought" (p. 144).

The knowledge base of the individuals and of the group also has gaps, i.e. it is constantly being supplemented and developed in the course of communication in the virtual seminar (individual knowledge base: the stocks of knowledge brought in by others; collective knowledge base: through the information input of the stored documents and through the inputs of the course leader).

In the case of the Oldenburg online course this means: as healthcare specialists the participants bring stocks of knowledge with them, which are common to all (declarative and procedural knowledge, occupational model, ethical standards, etc.). The heterogeneity of the occupational field and the areas of activity has the effect that at the same time individual participants have special occupational knowledge, which is integrated into the online communication. The socially distributed knowledge guarantees the common basis for understanding, while the special occupational knowledge ensures in the course of cooperative knowledge construction the expansion and differentiation of the profession-related knowledge structure.

The quality and sophistication of the communication, which is ascertainable in the Oldenburg online course can be traced back to the following aspects:

- Adaptability: The course contents are practice-related. This makes it possible for participants to relate the information provided to their own experience and to argue from their respective experience horizons.

- Complementarity: The occupational embedding of the nursing personnel in various areas of the highly specialised health sector represents a favourable precondition for generating differentiated argumentation interdependences and practical experience.

- Compatibility: Because of the common professional background there is a potential for compatibilities, which enables mutual understanding and comprehension and a discussion of the individual contributions in a uniform learning and perception process.

Learning Communities, Knowledge Building Communities and Communities of Practice

The interactivity enabled by network-based learning environments is a pre-condition for collaborative learning and the cooperative construction of knowledge, which is associated with this. However, collaboration does not develop until the participants of an online seminar see themselves as a group and act as such. For this reason greater attention has been paid to the conditions for creation and the process sequences in virtual groups. The characteristics and qualities of virtual groups are discussed and the question is brought up as to why and under what conditions we can in any way speak of groups in network-based learning environments. Here, the model of the "communities of practice" comes in. The concept of "legitimate peripheral participation" is significant and central to situated learning in communities of practice favoured by Lave & Wenger (1991). This means: participation in practice is necessary for learning. Here learners must be permitted to take a peripheral part, at least temporarily, a position characterised by seclusion from the pressure to act. In order for learning to develop access to the practical field and the specific seclusion (peripherality) must be legitimised and accepted. If these characteristics are projected onto Internet-based learning environments and virtual learning groups it becomes clear that they certainly apply to defined types of mediated forms of interaction and communication (e.g. chat rooms or open forums). However, in the case of course programmes with a fixed curriculum and declared learning objectives peripherality becomes a critical factor. There are different degrees of participation in the joint discussion process (Carell, 2000). Passive participation can also certainly be tolerated[2] (legitimate peripherality), but the question remains regarding the effects passive participation has on the formation of a virtual group, on the process of cooperative knowledge construction, and what is the threshold value for passive

[2] As in traditional face-to-face seminars, online courses nearly always have participants who never take part in the computer conferences, or only as often as necessary. In the field of e-learning this behaviour is usually known as *lurking*. This does not necessarily mean that these participants learn less or poorly. In fact, it has been seen that they can achieve very good results. The term "witness-learner" (Fritsch, 1998) or "invisible student" (Beaudoin, 2003) appears to be more suitable because of the negative connotations of the term "lurk".

participants from which group coherence can no longer be referred to. Kirkup (2002) characterised communities as follows: "Communities [...] are seen as having strong reciprocity and members are actively engaged in the negotiation of meaning" (p. 187). In his opinion virtual learning communities have "only limited kinds of participation" (p. 194) available. Above all, if too many online learners do not participate actively in the joint construction of meaning and knowledge, a learning community (Reinmann-Rothmeier & Mandl, 2002; Carell, 2000; Kirkup, 2002; Thorpe, 2002) or a knowledge building community (Scardamalia & Bereiter, 1992) cannot be created.

How do participants in an online course become a virtual learning community? The question whether a community can come into existence in online learning, or whether and how a virtual group is formed, will be examined using our experiences with the Oldenburg online course. We differentiate first of all between structure and process. The structure includes the elements stipulated by instructional design in compliance with instructional principles for the design of constructivist learning environments, which provide a scaffold to support group formation. According to Jonassen et al. (1995), these include "worthy problems or questions of importance [...] tasks that are either replicas of or analogous to the kinds of real-world problems faced by [...] professionals in the field [...] problems requiring a repertoire of knowledge" (p. 12; cf. Mandl, Gruber & Renkl, 1997, p.171). These design principles also support motivation and promote transfer, and they encourage collaborative learning: "Complex and multidimensional tasks from authentic contexts [...] offer more (intrinsic) incentives for spontaneous collaboration processes" (Reinmann-Rothmeier & Mandl, 2002, p.48).

The participants of the online course were introduced at the beginning of each course to the study material which was to be worked through. In addition, specific learning objectives were listed and questions specified as suggestions for the joint discussion. Tasks were set as well, and sample solutions provided later. Along with the authentic cases contained in the documents, the participants brought case examples from their respective practical experience into the course of the discussions. The special advantages of the virtual seminar can be seen here: In a face-to-face seminar the focus is usually on one case from the practical experience of a single person (the course leader) and this is worked on, but in the online course all participants have an opportunity to present their cases and to discuss them with the others. The asynchronous communication allows the strategies for action and solution approaches, which have been discussed and developed jointly to be tested parallel in everyday practical work and the respective experiences to be fed back into the course, or feedback on the case to be obtained from other participants or from the course leader.

The process of group forming starts with the participants introducing themselves in the "Profiles" section. They report to the Course Room and are welcomed there. After the warm-up phase, and after they have familiarised themselves with the structures of the learning environment, a process which, like the discussion processes, is led and supported by the course leader, participants start the actual work of dealing with the contents of the information base (step 3), which leads to cooperative knowledge construction (step 4) and finally to the largely self-regulated further development of the knowledge building community (Jonassen et al., 1995; five-step model: cf. Salmon, 2000, p.26).

Groups are formed around tasks, which have to be worked on together. Coordination of the individual activities succeeds if the participants have a consistent conception of the problems set and the objectives. These have to be worked out and constructed jointly beforehand. Tasks are worked on in the context of internal group structures, which have to be designed in such a way that they encourage and promote collaboration and achieving objectives and results. A difference must therefore be made between a factual level and a relationships level.

On the factual level the asynchronous communications format provides a series of advantages. The participants of the online course were able to fall back on their own stocks of knowledge, relevant documents, additional literature, etc. to a much greater extent than in a face-to-face course. The following processes of cooperative knowledge construction (cf. Bloh, 2002, p.158) could be seen in the Oldenburg online course:

- Exchanges of opinions, information, concepts, ideas, etc.
- Concurring, rejecting or differentiating replies from other participants, illustrations, analogies, etc.
- Evaluating opinions, action strategies and solution approaches that were presented, pointing out alternatives, etc.
- Introducing additional cases, models, best practice examples, etc.
- Sharing resources by introducing additional documents (e.g. nursing models), bibliography, materials (questionnaires on medical histories and nursing documentation), etc.

In comparison with face-to-face settings, online learning environments lack social information stimuli and nonverbal signals, which serve to constitute and regulate internal relationship structures within the group. In our experience, however, this deficit is not as serious as it is often portrayed. Participants in an online seminar can also be "experienced", as individuals acquire a personal signature for each other in time. This is done via: introductions in the "Profiles" section; individual argumentation and discussion styles; the institutional establishment and job characteristics, which show through in the contributions to discussions.

A criterion for the "degree of maturity" of a group can be seen in the fact that, if problems with relationships occur, the group is able to clarify and cope with them itself. This was seen in the Oldenburg online course when some participants complained that some of the others were dominating and that their own contributions were being ignored. These conflicts were discussed and solved within the group without the course leader having to intervene.

On the whole, because of these indicators – collaborative development of knowledge in the framework of generated relationship structures – we can speak of a virtual community of practitioners. While it does not comply with the principle of peripherality (legitimate peripheral participation) emphasised by Lave & Wenger (1991) for Communities of Practice, which is based on the expectation of commitment, which results from collaboration. However, we can still refer to a "community of practitioners", because the participants belong to the same profession, have comparable occupational experiences and, at least as far as their basic training is concerned, have a largely concurrent stock of knowledge (homogeneity). This spectrum of common features, which creates opportunities for communication (cf. Carell, 2000), is overlaid and modified through special knowledge, which is acquired through occupational specialization and further training and moulded through different occupational environments/fields of activity, or in institutional situations, and contributed during the cooperative construction/integration of knowledge (heterogeneity). In this way, and through discussions with other members of the group, it becomes possible to develop new knowledge. The collaboratively generated knowledge base leads to an extension of the knowledge of all members of the virtual community of practitioners.

Conclusions

The online course is attractive above all because of the self-control and the autonomous, self-determined use of the teaching programmes. The precondition for a sound and intensive discussion is that the course contents are practice oriented and can be related to a participant's own occupational experiences. References to experience, problems and action are central criteria of problem-based occupation-related further training. Only then are opportunities opened for arguing on the basis of a participant's own experiences, for connecting imparted knowledge to practical situations, and also for being able to plan and realise concrete steps for change based on a widening of competence. These learning processes acquire a special quality in Internet-based learning environments through the opportunities existing there for an improved reflection in the common discourse.

The participants of the online course for nurses were able to link their personal experiences and practical knowledge with the contents of the course. The interactive and collaborative discourse in a "community of practitioners" supported the process of knowledge building. It is important that course members develop a sense of group identity, which leads to strong motivation and social commitment

in order to contribute on a regular basis towards the construction of a common knowledge base. After the end of the online course such a "community of practitioners" can be transformed into a Community of Practice in the sense of Lave & Wenger if the participants are interested in an ongoing discussion and exchange of ideas and experiences. We advocate for a two-step model in the context of structured online courses like the one described in this paper. It should be further investigated under which circumstances a "community of practitioners" can be developed towards a Community of Practice and what kind of learner support and guidance is needed to facilitate this process.

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