

Microlearning in Virtual Communities of Practice?

An explorative analysis of changing information behaviour

(Changing Patterns of Learning: Schools, Universities, Vocational Training)

Nina Kahnwald

Thomas Köhler

Technical University Dresden (Germany)

Abstract: During the last years there was an increasing demand for a new paradigm to better model computer-supported learning and knowledge-processes. With concepts like eLearning 2.0, Connectivism and Microlearning, first approaches are made to adequately describe the development of new information behaviour.

Virtual communities of Practice as places of informal social activities of knowledge-building and learning are the obvious place for an analysis under the above mentioned point of view.

The paper will first bring out the essential aspects of new approaches to educational research and give an introduction to the concept of social learning in virtual communities.

The introduction will be followed by a re-interpretation of the results of selected studies concerning learning in virtual communities of practice. With this analysis it can be shown, in how far interests of community-members as well as their usage comply with concepts like shallow thinking, connection-making or microlearning. The paper thus contributes to the urgently needed empirical description and awareness of changing individual information behaviour, which is a first step towards developing supportive educational scenarios.

1. New Concepts of networked learning

In his paper „eLearning 2.0“ Stephen Downes claims that during the last years, eLearning at large developed further together with the world wide web to an extend that requires new terms and models for analytical description. A closer look to discussions and publications of the last years reveals a number of approaches and concepts that aim at modelling actual media use, three of them will be summarized in the following chapter.

1.1 eLearning 2.0

The term “eLearning 2.0” was chosen by Downes in analogy to the buzzword “Web 2.0” that summarizes platforms, applications and services that enable users to easily create, share and connect content on the web (e.g. social networking sites, blogs, wikis,...) which is thus continually transformed from the so-called *Read-Web* to a *Read-Write-Web*. Although “Web 2.0” is about technological development, the most fundamental changes occur at the level of internet users, who as “digital natives” (Prensky 2001) developed new approaches to learning, working and gaming online:

„They absorb information quickly, (...) from multiple sources, (...) expecting instant responses and feedback. They prefer random „on-demand“ access to media and expect to be in constant communication (...).“

– Prensky (2001)

In its core, „Web 2.0” is based on participation, content-creation and personalization. Against this background the term “eLearning 2.0” is chosen by Downes, to adequately describe a range of analogous approaches and developments in the field of eLearning. In contrast to the currently prevailing learning platforms with prestructured, linear learning paths, Downes anticipates the eLearning-application of the future to be a learning environment with several interoperating applications. This environment acts as a node in a web of content and supports learner by contextual collaboration with people and systems. This vision of future eLearning is among other things based on the learn-theoretical approach of connectivism which is getting more and more influential since its first publication in 2004 by George Siemens.

1.2 Connectivism

In the article „Connectivism: A Learning Theory for the Digital Age” Siemens claims, that the three main learning theories behaviorism, cognitivism and constructivism can no longer be used to adequately describe and analyse learning processes or develop learning environments considering the radical changes during the last 20 years. He emphasizes the necessity of a fundamentally new perspective on learning

“Many important questions are raised when established learning theories are seen through technology. The natural attempt of theorists is to continue to revise and evolve theories as conditions change. At some point, however, the

underlying conditions have altered so significantly, that further modification is no longer sensible. An entirely new approach is needed."

- Siemens (2004)

Technological development, that brings with it a reorganization of living, communicating and learning as well as the shrinking half-life of knowledge leads to a change of learning processes. Some significant trends are:

- Informal learning is gaining more importance, as learning occurs through communities of practice, personal networks or completion of work-related tasks
- Technological tools are altering and shaping the way we are thinking
- (cognitive) processes can be supported or taken over by technology
- Know-where is getting more important than know-how or know-what

Starting point of connectivism is the individual but learning is no longer considered to be an internal individualistic activity. Rather it is becoming a core competency, to connect to specialized nodes or information sources, when individual knowledge at the point of application is not sufficient. In this way, access to what is needed is getting more important than the knowledge currently possessed. As we can no longer personally experience and acquire all learning that is needed to act, competence has to be derived from forming connections. To facilitate continual learning, it is necessary to create and maintain multiple connections. From a connectivist point of view, learning is a process of connecting specialised nodes or information sources and may also reside in non-human appliances.

1.3 Microlearning

The term microlearning is not so much a clearly structured concept, but "a metaphor referring to a set of models of learning" (Hug 2006, p.3). Microlearning is understood as learning of microcontent or acquisition of microknowledge (Langreiter/Bolka 2005, p. 1). In contrast to connectivism microlearning is rather an integrative perspective that concentrates on structuring and syndication of information. Focus is the learning individual and although microlearning includes informal learning it has been mainly applied to model formal contexts.

The concept of microlearning is trying to provide forms of teaching and learning, that comply with the demands of information society like highly specialized knowledge

work, information-overload and lifelong learning (Bruck 2005, p.1) by focusing on dealing with large amounts of information and continuing integrated learning processes. Although there doesn't exist a precise definition of microlearning, its different forms can be analysed through the interaction of several dimensions (Hug 2006, p.3).

In the context of virtual communities, microlearning denotes spontaneous, informal and rather short learning- or information-activities, that connect to other social knowledge-sources via the internet. The shift to microlearning is characterised by the following three aspects (Bruck 2006, p.15):

- Creation of new architectures of information through reduction of information abundance and complexity as well as structuring in small units.
- Reduction of information from the perspective of the individual that has to cope with large amounts of new information and wants to learn. This requires new didactic models.
- Development and use of technologies to support learners in their individual habits and needs and offer personalised services to allow individuals to choose time, place and pace of learning

Especially for the development of better support for individual information-habits it is necessary to analyse in a first step individual needs and behaviour. As virtual communities are recognized as

Virtual communities of Practice as social learning and information spaces to which people quickly connect on demand are the obvious place for an analysis under the perspectives described in this chapter. In the focus of the following chapters is the theoretical foundation of an analysis of individual information-strategies and information-networks in social learning spaces.

2. Social Learning in Virtual Communities

Since the early days of the internet, even before the invention of graphical browsers, its different services have been used for communication between locally separated people. Soon, the first virtual communities developed, like "The Well" (Whole Earth

'Electronic Link), that Howard Rheingold analyses in his book "The Virtual Community" (Rheingold 1993) giving a first description of the phenomenon of online communities. In the following years it was intensively discussed among experts if community can develop and exist on the internet at all, a question that has been answered in the affirmative today (Matzat 2004). At the same time, virtual communities were identified and examined as places of collaborative learning and implemented in formal and informal contexts.

Theoretical background for this research was provided by the moderately constructivist approach of situated learning, which Wenger connected to the concept of communities of practice in 1998 (Wenger 1998).

2.1 Situated Learning

In the end of the 80s the assumptions of cognitivism in learning-theory were fundamentally questioned. This criticism aimed mainly at the reduction of human behaviour to cognitive information processing (Kerres 2001, p. 74) without considering the context of action. Brown, Collins and Duguid criticised for example the common assumption of a

„separation between knowing and doing, treating knowledge as an integral, self-sufficient substance, theoretically independent of the situations in which it is learned and used.“

– Brown/Collins/Duguid (1989, p. 32)

Although different approaches of situated learning are connected through this fundamental criticism of the cognitive point of view, there is no comprehensive theory of situated learning, but different approaches using the same concept (Clases/Wehner 2005, p. 563).

One of the main constructivist thoughts of situated learning is that concepts are neither right nor wrong but merely more or less functional for certain situations. Like this, knowledge is closely connected to experienced situations, it kind of indicates the situation in which it was acquired and used. The term *situated* which was already used by Mead (1934), was taken up again in the 80s in the context of artificial intelligence-research (Winograd/Flores 1986) and then referred to situated human action (Suchman 1987).

2.2 Communities of Practice

From a situated perspective, learning can only take place in connection to authentic action, which in this context designates that action is embedded in a culture („ordinary practices of the culture“ Brown/Collins/Duguid, S. 34) contrary to scholarly action with symbols (Lave 1988). Because functional knowledge can only be acquired in interaction with the social and physical context, processes of social participation have a key function for the learning process. Thus it is no surprise that already in the context of early situated approaches learning has been understood as enculturation into a community of practitioners (Geertz 1983), a concept that has been developed further by Wenger and Lave under the term Communities of Practice (Lave, Wenger 1991).

In an interview Wenger summarizes three central elements that constitute a CoP (see De Cagna, p.7):

1. Domain: The members must have expertise in a common area („domain“). In contrast to teams CoPs are defined not by a common task but by the shared interest in a topic.
2. Community: There must be a group of people, who interact with each other, develop ideas together and exchange experiences.
3. Practice: A further important element is a shared practice of the members, that is developed over time within the Community e.g. by together finding solutions for current problems.

The process of jointly defining meaning within a CoP is described by Wenger as a combination of participation and reification (Wenger 98, p. 55f). While participation designates the comprehensive sharing of common practice, reification represents the process of the shared formalization of experience and/or abstract knowledge into artifacts of the Community. Over time a commonly negotiated repertoire at abstractions, stories, tools, concepts, routines and procedures develops. Although CoPs in enterprises are increasingly created from the outside, they always are self-organized systems without a teacher role. The activities and topics of a CoP reflect the understanding of the individual members of relevant topics in their daily practice. CoPs represent a place of common learning: participants exchange ideas and best practices and together generate new knowledge, which in turn improves the individual practice of the participants.

2.3 Legitimate peripheral Participation

The Community of Practice approach is based on the concept of situated learning. In their book „Situated Learning. Legitimate peripheral participation“ Lave & Wenger (1991) describe learning based on anthropological research as legitimate peripheral participation (lpP) in a CoP.

At the beginning of the learning process and in the state of lpP the novice takes up a position at the fringe of the community. Free of the responsibility that full membership would bring, he participates only partly in common practice (described as peripherality) but at the same time has full access to the common practice of community members (legitimacy). The process of situated learning leads to the expert status and a full membership within the CoP and represents thereby also a process of cultivation. LpP thus describes the relationship between experts and novices and the process of growing into the community. Lave and Wenger indirectly take on Wygotskys concept of support in a zone of next development: learning is being facilitated through participation in the practice of experts, who already are in an advanced zone of development.

The learning motivation of the participants arises from the desire for intensified sharing of common practice as well as for its improvement. Only through this shared practice learning objects can become important for the individual (see Arnold, p. 80). It has to be taken into account that frequently it is not, as generally presumed, the exchange with the experts that is most efficient but rather the exchange with other novices (Lave & Wenger 1991, p. 93).

Naturally the learning process is not finished after developing expertise. The introduction of novices is, as Wenger points out, only a variation of the learning process that also defines the later advancement of the shared practice by the community members (Wenger 98, p.102).

3. Community-Research revisited

Wenger (2000) distinguishes five different levels of participation in communities of practice (see figure 1).

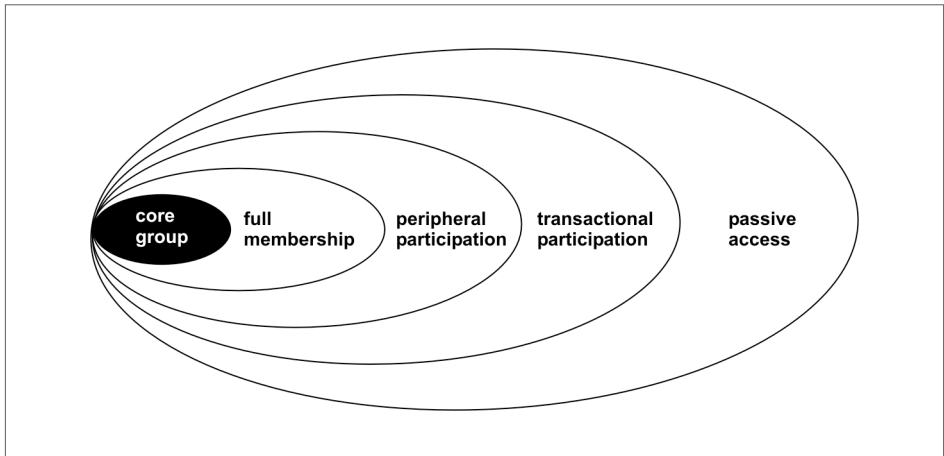


Figure 1: Participation levels (Wenger 2000, p.219)

Discussion of situated learning processes of enculturation described above only includes the three participation levels shown on the left side. The levels of passive access (access to artefacts produced by the community e.g. archives) and transactional participation (outsiders who interact occasionally to receive or provide a service) are hardly ever considered especially not in terms of learning. Even peripheral participation is not researched very often as community-studies mostly focus on learning processes of active participants and full members.

This is why, as Stegbauer (1999) observes, community-research often provides a distorted picture of actual community use, because access by these peripheral groups constitutes a large part of community usage, but is rarely considered nor supported on this note.

3.1 Lurkers – the neglected majority

Those users of virtual web-based communities who read messages of other users but

do not or rarely post messages themselves are commonly referred to as lurkers. Lurking-behaviour is a mass phenomenon as lurkers are in most cases the majority of users in mailing lists and message boards. Estimations run up to a lurker-poster-relationship of 100:1 (Carroll/Rosson, 1996). A survey of a large business consultancy in Chicago indicated, that 98% of the visitors of large online message boards (e.g. AOL and MSN) never posted any own ideas or messages (Katz, 1999). Other researchers found an average lurking-rate of 46% in health-related boards and 82% in mailinglists about software-support (Nonnecke et. al, 2000) respectively a rate of 52% lurkers that read postings and 6.2 % that never read postings of active members (Soroka, 2003). Given the prevalence of Lurking in virtual communities, behaviour, strategies and motivation of this user group are rather sparsely investigated. In publications about virtual communities, there are mostly only posters viewed as community-members, lurkers are hardly ever explicitly examined, although according to the concept of legitimate peripheral participation, they are supposed to represent an especially active group when learning is concerned. This reluctance can probably at least partly be explained with methodological problems that occur when researching "invisible" lurkers. For this reason it is mostly research about lurking in mailinglists as in these cases it is at least possible to gain information about numbers of subscribers which is much harder in the case of message-boards. But without analysing logfiles it is also in mailinglists hard to tell, if subscribers ever read postings of others at all (Soroka, 2003).

Another problem when researching the phenomenon of lurking is that its not easy to find a clear definition. Some authors for instance also define transactional (Wenger 2000) community-members who are posting seldom or only sporadically as lurkers (Nonnecke, 2000; Rafaeli, 2004). This example shows, that it is impossible to establish fixed classifications of lurkers and posters, as they can neither cover changes in time nor in individual behaviour in different lists. In addition, it is in most cases not possible to confirm if members are sending side-posts i.e. messages directly send to other listmembers. The phenomenon of lurkers sending side-posts is described by Katz, who analyses differences between public and private reactions to his postings and articles (Katz, 1998).

3.1.1. Perspectives on Lurking

In many cases, lurkers are viewed rather depreciatory. In a discussion about the subject in the virtual community "The Well" which was described by Rheingold (1993) one poster claimed that lurkers should pay more for their internet-connection than active

members. The appraisal expressed here, that lurkers are supplying themselves at the expenses of the community with information is expressed not only by active community members, but also regarded as reason for lurking by numerous researchers. Schönberger (1998) for instance holds the opinion, that lurkers are merely wasting bandwidth. Furthermore not only Kollock and Smith (1996), but also Wellman and Gulia (1999) as well as Morris and Ogan (1996) defame lurkers as free-riders. Beside this basically rather negative view, lurking is often advised to newcomers in virtual communities, to get to know rules, conventions and topics of the community before actively participating themselves (see Stegbauer/Rausch 2001, p. 49). This strategy corresponds to the concept of legitimate peripheral participation in communities of practice according to Lave and Wenger (1991). Empirically validated was the approval of so-called educational lurking through a study, according to which 64% of the members of educational and 71.5% of health support communities are considering it important to allow and accept lurking (Abrams, 2003). In addition, posters feelings of resentments against lurkers seem to be less distinct than the above mentioned negative connotations let assume (Nonnecke, 2004).

Views on the phenomenon of lurking are ambivalent – an observation that also proves to be true for scientific discussion. Rafaeli summarizes the conflicting approaches to lurking from perspective of the community as follows:

„On one hand lurking is a way of getting to know the community and becoming an integral part of it [...]. On the other hand lurking is seen as a negative behaviour that can jeopardize communities' existence. Free-riding can cause a "tragedy of the commons" [...].“

- Rafaeli (2004, p. 3)

Noticeable is, as already mentioned, that even in the scientific community a negative view on lurking prevails. In this context, lurking is primarily viewed from an E-business-perspective i.e. the perspective of community-operators. Nevertheless in recent years there was a continual change to the perception of lurking as legitimate strategy to be taken seriously (see also Nonnecke/Preece 2004):

„We used to think that we should encourage all community members to participate equally. But because people have different levels of interest in the

community, this expectation is unrealistic.”

– Wenger/McDermott/Snyder (2002, p. 55)

Despite this trend, aim and focus of most research remains at least implicitly the process of so-called delurking, which means the development from lurker to active participant, i.e. poster (see Nonnecke, 2004). In many cases the results are merged to recommended measures to better support the development from lurker to poster (e.g. Soroka, 2003).

The described conflicting perspectives towards lurking will in the following be examined closer from a pedagogical perspective. This examination is led by the assumption, that through a change of perspective the reproach of free-riding can offer an alternative view on individual strategies of informal learning of lurkers. We assume that learning activities identified in this context can be matched and explained with the concepts of networked learning introduced above.

3.1.1.1 Lurking as Legitimate peripheral Participation

The notion, that lurking is an important developmental stage while integrating into a virtual community, will be designated in the following as *developing perspective*.

Theoretically, it is based on the concept of situated learning through legitimate peripheral participation by Lave and Wenger. Also in the context of community-building different development stages of the community are conceptualized according to the shift from lurker to core member on the individual level. Reichelt for example identifies three steps of community-development: entry, participation and emancipation. While in the first phase input is mainly given by the operators, community-members continually learn to operate the platform themselves at begin to form a social network, that leads to a self-organised community of emancipated members (Reichelt 2004, p.72). The assumption, that active participation in a virtual community of practice is preceded by a phase of passive observation, is self-evident and in applies in many cases. But there are also findings, that contradict the general applicability of this model, like a recent survey showing that a core of active community-members participates from the beginning and does not necessarily need to go through a process of activation (Zinke et al., 2004). Soroka found that the time span of lurking prior to the first posting had no influence on users' future participation behaviour (Soroka 2003, p.10). Also the analysis of Stegbauer shows, that the first posting was in most cases sent after a relatively short period of

passive membership. The likelihood for inactive participants to become active was already minimized after four months. Of the new subscribers during the period of data collection only 30% became active posters (Stegbauer 2000, p.123).

It can be summarized, that the concept of legitimate peripheral participation is applicable to learning processes of lurkers in virtual communities. But it can not be used to exhaustively describe and explain the mass phenomenon of lurking, as lurking appears to be less a phenomenon of transition but rather a durable pattern of behaviour.

3.1.1.2 Lurking as Microlearning

As an alternative to the *developing perspective* one might re-evaluate the accusation of free-riding raised by the community to facilitate a different perspective on the lurkers' individual informational strategies. This perspective will in the following be called *informational perspective*. With this perspective lurking can be seen as a legitimate and – probably – very efficient informational behaviour. As has been said earlier this perspective is being supported in research to an increasing degree (e.g. Nonnecke/Preece, 2004). For the examination of this perspective it is not sufficient anymore to use the earlier described paradigm of enculturation, which has been transferred from offline- to online-cultures as the strategies of information enabled by digital networking seem to possess new qualities.

Concerning the reproach of free-riding, there are numerous approaches and arguments that emphasize the social function of lurking for the community. E.g. bridging to other communities in the sense of weak ties (Stegbauer, 2000; Nonnecke et.al, 2000), management of resources, which means the use of archives and FAQs to hold expert inquiries low (Madanmohan, 2004) and the avoidance of information-overload which would be the result of intense contribution by all members (Stegbauer, 1999; Rafaeli, 2004). But besides that there exist also findings on the reasons of lurking which indicate that lurking supports individual strategies of information and learning.

Asked for the reasons for lurking, 54% responding lurkers in mailinglists stated that reading/browsing was enough, 13,2% had no intention to post from the beginning and the majority was looking for answers to questions they had (62%). Although not posting, 50% of the lurkers did profit from list-membership as expected compared to the posters (Nonnecke/Preece, 2004). In a survey about reasons for using online-commu-

nities the reason mentioned most often was to find solutions and answers for urgent problems and questions and to receive general suggestions and tips while discussion and debate with others was no reason for community-use (Zinke/Fogolin, 2004). Aviv (2003) conducted a content-analysis in an informal message-board to study processes of knowledge construction and found that only simple questions were answered and that discussions never constituted processes of negotiation of meaning.

This summary of recent results regarding reasons for lurking shows that in many cases learning is not necessarily connected to enculturation into the community but that users are accessing archives or even posting some messages in order to quickly find needed information. The high percentage to which lurking occurs also depends on the special conditions of virtual communities. In many cases for instance it is much less costly to passively access archives of a virtual community or post a single question than to find experts for a face-to-face-meeting. Furthermore, virtual communities can according to Wellman (1999) characterized by their network-structure: people are no longer embedded in traditional, closely knitted and binding face-to-face communities but are moving through loosely connected less binding and often changing networks that are nevertheless still supportive and sociable.

4. Conclusions and further research

Drawing on existing studies about user- and especially lurking-behaviour it could be shown that established concepts of informal learning in virtual communities are not suitable to grasp user behaviour in all forms.

It can be assumed from the above presented research and considerations that by visiting, using and participating in different virtual social spaces, users create and maintain their individual informational environments to which they can connect on demand if acute problems or questions arise. Thus it appears adequate to view informational- and learning-strategies in virtual communities as microlearning from a connectivist perspective.

To further analyse individual strategies and behaviour explorative qualitative studies will be conducted by the authors. By using interviews for data-collection it will furthermore be possible to draw a more complete picture of lurking behaviour in different web-based environments than existing studies that do mostly focus on mailing-lists. As

informal learning in virtual social spaces is becoming more important it is necessary to gain a deeper understanding about personal strategies of learning virtual social spaces. Based on the empirical description and awareness of changing individual information behaviour, it will become easier to develop adequate supportive educational scenarios.

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