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Abstract

This paper examines the affordance of the Danish social networking site www.mingler.dk for peer-to-peer learning and development. With inspiration from different theoretical frameworks, we argue how learning and development in such social online systems can be conceptualised and analysed. Theoretically the paper defines development in accordance with Vygotsky's concept 'Zone Of Proximal development [ZOP], and learning in accordance with Wenger's concept 'Communities of Practice' [COP]. We suggest analysing the learning and development taking place on www.mingler.dk by using these concepts supplemented by the notion of horizontal learning adopted from Engeström and Wenger. Our analysis shows how horizontal learning happens by crossing boundaries between several sites of engagement, and how the actors' multimembership enables the community members to draw on a vast amount of resources from a multiplicity of sites. We show how the members thereby also become (co)producers of such resources, which then in turn become resources for other communities.

Keywords:
Analytical framework, communities of practice, community websites, technology enhanced learning environments, zone of proximal development

Introduction

The concept of social computing coupled with web 2.0 technologies have caught a wide audience since 2004 and have revitalised an interest in peer-learning and collaboration, notions that have a longer history within the area of Computer Supported Collaborative Learning (CSCL). Here we address the question of what designers of formal educational technology enhanced learning environments may learn from the peer-learning taking place on social networking or community sites. Our point of departure is insights gained through research conducted in the TELEPEERS project (http://www.lmi.ub.es/telepeers/telepeers.php) focused on Technology Enhanced Learning Environments (TELEs). The TELEPEERS project based its understanding of technology enhanced learning environments on Zimmermann's definition of self-regulation in terms of goal setting. Steffens, in summarizing the state-of-art of model building and empirical research in the field of self-regulated learning concludes:

> 'It came somewhat as a surprise to us that of the TELEs that we evaluated, those from the category "Container systems with tutors" received the highest ratings with respect to their potential to facilitate self-regulated learning. We had not expected that these TELEs form a rather homogenous group in this respect. A possible explanation might be that in learning environments with container systems, the system as the technological component may play a

> more important role than a content system in another learning environment because the container system simply requires more interactivity with students and teachers than a content system. It is therefore conceivable that a container system simply offers more possibilities for interaction, feedback and self-monitoring that content systems. In fact, the home reviewer for the Digital Portfolio wrote in her comments on factors that contribute to the strength of the TELE: "The TELE scores very high on all aspects in the cycle of self-regulation: it allows for explicit reflection over a period of time on the development of own knowledge, skills and attitudes and monitoring of progress in achieving required competencies." (Steffens, 2006, p. 373)

Thus, the TELEPEER evaluation tools were able to identify learning potentials in technology enhanced environments with respect to peer-learning, and we very much agree that the increased 'interactivity' between students and teachers is a key issue (as we shall shortly return to, this observation is one of the basic assumptions of CSCL research). In this paper, however, we shall argue how we can extend the analytical view from the 'container system' and interactions between its 'inhabitants' within the boundaries of the system to wider arenas of interaction.

The area of CSCL has from its outset been occupied with notions of peer-learning and collaborative learning (Koschmann, 1996). Rather than individual, cognitive accounts of learning, ideas of distributed, collaborative or group cognition (Stahl, 2006) have dominated this research tradition. It has, however, also been argued that CSCL research has had a too strong focus on small, tightly-knit groups (Jones *et al.*, 2006; Ryberg & Larsen, 2008) – a unit of analysis explicitly emphasised by e.g. (Stahl, 2006) in his theory of 'group cognition'. Although we find the arguments of Stahl (2006) both convincing and strong, we argue that we also need to expand our knowledge of 'cognition' and learning happening in large-scale, loosely tied groups with ill-defined boundaries. Such larger scale online groups (Wiley & Edwards, 2002) have been termed Online Self-Organizing Social Systems (OSOSS) which they argue are part of the 'the decentralized future of online learning' – a pattern which has become even clearer with the recent popularisation of blogs, social networking sites and other 'web 2.0 technologies'. We explore how learning, development and knowledge production processes take on a more porous, fleeting and decentralised character, which resemble processes of patchworking (Ryberg, 2007) or braided learning (Preston, 2007), where multiple resources are repurposed and remixed. We argue how we can provisionally analyse learning encompassing such flows and streams of resources by utilising a theoretically and empirically developed framework of analysis.

Therefore, in this paper we analyze the potential for learning and development in container systems, using a Danish social networking site, www.mingler.dk as our case in point. In the outset we build on the assumption that social web communities (or online self-organising social systems) are built around shared needs and shared problems, and that actors find them a feasible way to obtain, whatever they want to obtain.

From learning theory to analytical framework

We ground our analytical framework in social learning theory, and we see the relationship between learner and environment as unfolding in two steps, which we in popular terms call 'from COP to ZOP'. By 'COP' we refer to Wengers concept of 'community of practice' as he has explained it in a briefer manner:

> 'Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.' (Wenger, 2007, What are communities of practice? Section, para. 2)

By 'ZOP' we refer to Vygotsky's term 'zone of proximal development' and the later development of this idea by Engeström. The original definition of ZoP is:

> 'The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers' (Vygotsky, 1978, p. 86)

The two steps, as we take it, are 'entering by learning' and 'transcending by developing'. Learning happens through different degrees of participation. Depending on the social situation, the start may take the form of lurking, of legitimate peripheral participation, or formal schooling. The point in all cases is that the participant pays attention and tries to figure out patterns in what is going on, and gradually feels invited to mimic the behaviour, guided either by rules the student has figured out for himself (maybe without making them explicit), by rules expressed in the environment, or a combination of these. If staying in contact with the environment, the student or participant will gradually become more apt, and gradually closer to the centre of the community performing the activity. This model, often termed 'apprenticeship learning', has a long history as traditional (pre-modern) educational practice, but was revitalised by e.g. (Lave & Wenger, 1991; Rogoff, 1990). The ideas were not presented as arguments for a specific educational design, but more as an analytical perspective asserting that learning is always embedded in social practices in which learners' gradually become increasingly legitimate members through their participation. This particular view of learning has been criticized, by e.g. (Engeström, 1996) for focusing too much on enculturation into the existing norms, knowledge and practices, rather than on the creation of new knowledge. Engeström equally criticises the idea of ZOP (and many interpretations of scaffolding building on this) for focusing too much on the acquisition of the culturally given; leaving questions of how 'the new' arises unanswered. Though Engeström agrees that learning is a process of acquiring the culturally given, he also points to creativity, variation and 'change of the rules' as part of human practice. From this he reformulates the idea ZoP to the:

> "distance between the present everyday actions of the individuals and the historically new form of the societal activity that can be collectively generated as a solution to the double bind potentially embedded in the everyday actions" (Engeström, 1987).

This reformulation incorporates an idea of 'spread or diffusion of knowledge', which encompasses more than just an individual learning something or acquiring a certain skill – a point we shall return to. The reformulation is part of Engeström's broader idea of expansive learning (Engeström, 1987). In short, the theory of expansive learning accounts for how 'new' practices and collective activities emerge through the collective expansion of existing activities. An important prerequisite, however, for 'generating the new' is the mastery of the existing practice/activity with its rules, regularities and patterns, which Engeström (building on Bateson) characterises as deutero-learning (learning to learn). The mastery, we would argue, could also entail the ability to overview, express and formulate the rules. This is qualitatively another 'level' than being able to mimick or unreflectively reproduce a certain behaviour or practice. Thus, we would argue that a development happens when the learner has the opportunity to present the outcome of learning to others, to teach back and explain the rules – in other words when the learner is able to explain why things are the way they are, and figure out ways for things to be different.

The environment can support this process by offering opportunities to help others, to serve as coach and to teach. In this way we can depict the movement from CoP to ZoP as a process of gradually mastering an activity or acquiring an increasing level of competence:

Figure 1: A ladder of participation and mastering

In this view, however, it is both an individual and a social, collective process of acquiring an increased level of competence. Though the Vygotskian view of learning is profoundly social, it has also been criticized for focusing too narrowly on the vertical ascension or acquisition of increasingly complex skills; or as Engeström (2005) frames it:

> "The zone of proximal development has a central place in Vygotsky's (1978) work. It is depicted as the distance between the actual developmental level and the level of potential development reachable under adult guidance or in collaboration with more capable peers. 'Level' and 'more capable' are vertical notions. Thus, while Vygotsky acknowledged the ill charted and locally accomplished nature of development, he stuck to the idea of vertical improvement." (Engeström, 2005, p. 45)

This leads Engeström to the notion of 'horizontal learning', which is learning taking place between and across activities/communities through boundary crossing (Engeström, 2004, 2005). The concepts of boundary crossing and learning happening across communities is equally taken up by Wenger through his focus on 'brokers' moving across boundaries between different communities (Wenger, 1998). In this way, both Wenger and Engeström notice how knowledge spreads or diffuse between different environments. Building on this we can provisionally elicit different modes of learning along the dimensions of vertical/horizontal learning and individual/ collective learning, as depicted below.

Figure 2: Horizontal & vertical relations and movements in learning and development

These are the modes of learning we shall further explore through our analysis. The provisional model represents the theoretically derived and rough framework of analysis, and also serves as an empirical entrance point into our case study. However, the framework has also emerged from the empirical investigations, rather than solely from the theoretical reflections, which we shall return to after the presentation of the case.

The Case Study

We have chosen what we consider to be a good case with respect to the question of how designers of TELEs in formal education may learn from the design and interaction on social networking websites. Mingler.dk is a Danish social network site/community site, where the users are invited to create a personal network, to re-connect with old friends, to seek inspiration and get answers, to open a group, start a blog and make friends for life. Mingler.dk as a company opened in 2005 and by March 11, 2008 it had 126.240 primarily Danish or Scandinavian participants, but with quite a spread in age (although primarily 20+). Until mid-April 2008 also international users were part of Mingler's user base (on Mingler.com where one could chose between different localised views on the front page)[1]. The vast majority of users, however, are Danish and secondly Swedish or Norwegian, which means that people communicate in their native language (the three languages are quite similar and most can read and understand the other two). There are more than 3200 groups/communities, gathering around subjects ranging from 'programming C++' to groups on 'reality-TV shows', and there are also a number of groups formed around geographic location (cities). Each user is offered a blog on which one can post whatever thoughts one wants to share, and many use this feature. The level of interaction differs from group to group, but the most active groups are shown on the front page and can feature several hundred postings a day.

On the site the main areas of activity are: The various interest and discussion groups one can join, the personal profiles and people's blogs. These primary activities are also foregrounded on the front page. On the front page one can find an overview of users' activities and random profiles. It displays e.g. the latest postings in groups, latest uploaded pictures, recent blog-postings, and the most active groups. This is a quite common design for sites relying on 'user generated content'. User generated content refers to that the content on the site is produced by the users, rather than by the site-owners, who only provides the frames and structures for the users' production of content.

Furthermore, Mingler.dk can be characterized as a social networking site, as it features some of the characteristics which e.g. (boyd & Ellison, 2007) draw out as a minimum definition for social network sites:

> "We define social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of

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[1] Please refer to the postscript for an elaboration on this issue.

connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site." (boyd & Ellison, 2007, Social Network Sites: A Definition Section, para.1)

Mingler.dk is clearly structured around the metaphor of traversable connections between public or semi-public[2] profiles within a bounded system, and from the beginning it has explicitly built on the notion of 'six degrees of separation'. These traits from social networking sites can be seen from the individual profiles where a list of connections is visible along with a self-authored description. Also the profiles feature a list of interests (with each interest/keyword/tag linking to a dynamically generated site of users who share similar interests) and an overview of the groups the user is a member of.

However, Mingler.dk is also slightly different from some of the major and recently popularized social networking sites, such as Facebook and Myspace. Firstly, while the main activities on many social networking sites are communicatively focused on the individual's semi-public profile (a comment wall, greetings or a guest book) (boyd & Ellison, 2007; Larsen, 2005; Ryberg & Larsen, 2008) the main arenas for communication and interaction on Mingler.dk are the groups (forums). Secondly, while the networks on other social networking sites are predominantly focused on socializing/networking with one's existing network (and also expanding one's network) this aspect seems less articulated on Mingler.dk. In fact, we would argue that Mingler.dk is a mixture between the historically well-known interest or "site"-based online groups and the ego-centric networks often associated with Web 2.0 sites:

> "The rise of social network sites is often taken to exemplify a shift from the interest–based online communities of the Web's "first" incarnation to a new "Web 2.0" in which individuals are the basic unit, rather than communities. In a recent First Monday article, for instance, boyd (2006) states, "egocentric networks replace groups." I argue that online groups have not been "replaced." Even as their members build personal profiles and egocentric networks on MySpace, Facebook, BlackPlanet, Orkut, Bebo, and countless other emerging social network sites, online groups continue to thrive on Web boards, in multiplayer online games, and even on the all–but–forgotten Usenet." (Baym, 2007, Introduction Section, para.1-3)

While it should be noted that the 'ego-centric' social networking sites, such as MySpace and Facebook, also feature affinity or interest groups, it seems that the main vehicles for interaction and communication are the personal networks (friends, colleagues and acquaintances) (boyd, 2006; Ryberg & Larsen, 2008). On Mingler.dk this is not the case; even though there are examples of personal 'ego-centric' networks the connections between people are based on shared interests, rather than existing friendship. Furthermore, as mentioned, the main spaces for interaction and communication on mingler.dk are the interest or discussions groups. These groups are what we will focus on in our analysis

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[2] Semi-public refers to that the profile owner can choose which information to share with different types of users e.g. all internet users, friends, other site users with a profile and so on. The ways of and affordances for showing or hiding different types of information in the profiles vary greatly between the various sites.

Methodological approach

The data stem from observations of the interaction in one of the communities on Mingler.dk, and from a small qualitatively oriented questionnaire. The observations and the questionnaire have been informed by one of the authors who has been a regular user of the site for approximately two years and also an active participant in the group chosen for analysis. Secondly, the online interactions were observed more closely for a period of 14 days. Though many of the groups on Mingler.dk show indications of peer-learning happening, we selected one of the technology communities in order to avoid emotional and identity sensitive issues (e.g. some groups are about coping with disease, discussing single life, politics and the like).

While the longer-term participation by one of the authors cannot be characterised as an online ethnography (Hine, 2000) or participant observation it has informed the analysis and the process of data collection. The participation, although initiated on basis of a research interest in online communities, has not consisted in rigorous data-collection in the form of e.g. field notes, screen-shots or field reports. In this sense the author has acted as a regular member or insider on the community site. We are fully aware that being an insider or participant in the field one is studying can be problematic in relation to doing research, but equally we would argue that it is a valuable resource for analytical insights if handled in a critical manner. Within the field of design-based research or design experiments researchers are often immersed or even the designers of the practices studied (Collins *et al.*, 2004). As Michael Roth notes when commenting upon studies of his own classes and his role as a teacher-researcher in design experiments:

> "From a researcher perspective, being immersed in the school culture comes with all the benefits of ethnographic research (e.g. Marcus & Fischer, 1986), especially access to local knowledge […]. As the anthropologist Geertz (1983) noted, understanding our subjects also requires closeness to their experience and the language that renders it and which cannot be revealed by exclusive reliance on external "etic" or "experience-distant" accounts" (Roth, 2001, p. 36)

However, such an immersion also holds dangers which one must be aware of:

> "Being an insider also comes with the danger that one simply reifies one's preconceptions about how the place works. To minimize entrapment in my own presuppositions and beliefs, I involve colleagues (teachers and professors) as "disinterested peers" (Roth, 2001, p. 37)

In this case, the 'outsider-author' has acted as a critical discussant, interviewer and has asked for elaborations, empirical observations and groundings for interpretations, or these have been critically sought out together. However, the long-term participation serves as a backdrop or frame for analysis, and as contextualising and enriching the closer observation and the questionnaire, rather than being the prime object of analysis – in the analysis, however, we

make references to broader patterns of use and practices which are based on the longer-term participation and the period of closer observation.

During the period of closer observations we began categorizing the interaction and indications of learning based on the theoretical reflections. This we did by following closely and analysing the posts and topics in the forum selected for analysis. The forum itself acts as a temporally organised archive, but also we printed and created screenshots of the topics and posts. We have, however, not found it possible or ethically feasible to use textual or visual examples of actual interactions as part of the analysis. Particularly, since the forum is a closed group we found we would need consent from the participants to use their posts (often participants who would like to post another person's solution in a related group ask permission from the author). As there are multiple topics and posts every day it would be both disturbing to the interaction and excessively difficult to ask permission of each and every participant taking part in the conversations. We did, however, ask for permission in one topic that we initiated, and which specifically concerned the online questionnaire and our investigation.

The period of closer observation led to an iterative theoretical development and revision of our ideas where the theoretical-analytical cycles crystallized into the development of the analytical framework as it is presented in Figure 2 ('Horizontal & Vertical relations and movements in learning and development'). By drawing on the longer-term participation, the focused observations and the theoretical reflections, a small qualitatively oriented questionnaire was devised. The analysis of the results of the questionnaire, as presented in this article, aims at supporting, grounding and developing the analytical framework presented.

The online questionnaire was posted in a group on mingler.dk in week 40, 2007 and was kept open for three weeks. We used SurveyXact-software to facilitate potential statistical treatment of the data, but the main aim of the questionnaire was to gather qualitatively oriented responses through open questions. The questions asked were the following:

- Have you helped someone or tried to help someone to solve a problem within the last month? (yes/no)
- When you help someone, do you mostly know the answer right away, or do you yourself start solving the problem - in which case: where do you go to find a solution? (open)
- Have you yourself posted a problem within the last month? Did you get help, and how? (open)
- Can you mention an example of something you learned in this group and brought to other places (open)
- How long have you been a Mingler? (options)
- How often are you on Mingler? (options)
- Gender and age? (options)

The questionnaire generated 27 responses and also a number of meta-comments in the forum where it was posted. In these meta-comments the users began to discuss their own use, and reflect on the role of the community. This prompted us to ask the participants, whether they would allow us to use these comments as part of the investigation which some agreed to and others did not respond (wherefore those posts have not been included). We base our analysis on both sources of data treated as small narratives, while drawing also on insights from the longer-term participation and the period of closer observation.

Analysis

From the analytical framework already presented we can elicit four different modes of learning:
- Individual-vertical
- Individual-horizontal
- Collective-vertical
- Collective-horizontal

Unfolding the answers or statements by means of these categories our analysis allows us to give a more complex view of learning happening than can be expressed by only understanding individual appropriation of competence facilitated by interactions with other (students, teachers) within a bounded environment (container system). Furthermore, we shall also expand on notions of movements or 'flows' between the different modes and on the importance of boundary-crossing.

First of all it is worth noting that people do get help from other more experienced users in solving the problems they post, which help them to further learning action or activities.
Woman, 25-35: "Have posted problems earlier and many were willing to help e.g. with HTML-codes, possibilities in programming, links to programs etc"
Woman, 26-35: "Got help. Was looking for a specific web-solution. […] I got a lot of useful information from which I could proceed"
Male, 46-55: "I have received help here in the group and by searching on the web myself".
This individual-vertical appropriation of competences, however, also raises the collective-vertical knowledge of the community. By this we mean, for one thing, that a higher number of people are able to help with similar problems in the future, but also that solutions already given are reified in the 'threads' in the forum. In this sense they function as a 'collective memory', as the threads can be referred to by one or more hyperlinks. This often happens when new-comers pose questions that have been thoroughly discussed earlier, and others respond by referring to earlier discussions of e.g. best anti-virus software or a solution to a specific browser problem.

However, what is also clear is that the individual-vertical appropriation of competence becomes a matter of individual-horizontal movements. This happens when solutions to a

problem appropriated by an individual in the group is employed in other settings – for instance by helping out family, co-workers or friends.

Woman, 55+: 'Yes, I pose questions and get help, and the knowledge I get in the group, I pass to others'

Woman, 26-35: "I learn something new every day which I take with me"

Woman, 55+: "The knowledge I get from the group, I happily share with others having a computer problem"

As such the individuals' who have been posing questions often become able to help others subsequently, which suggests that the individual-vertical ascension encompass a horizontal move or spread of knowledge between different environments.

Another interesting finding is that people in the community often do not know the immediate solution to a problem posed. This leads to activities where the different participants start searching for the solution elsewhere, which is often referred to as 'googling' for a solution. But equally some participants mention that they ask their friends for solutions.

Woman, 46-55: "I go to google and search for the answer, or places where I have just been e.g. forums where we have just discussed the question"

Woman, 26-35: "I often know the answer, sometimes not in details. Then I just find the pieces I need to help that person. I often find the answer in my own storage, by asking friends and so on […]."

Woman, 26-35: "I only help to the extent that I know the answer. However, sometime I refer to an external site where the questioner can find more help"

Male, 26-35: "[…] If I lack the solution, Google is my friend"

The solutions are thus found by drawing on a multiplicity of outside resources which are then crystallized into a solution (or suggestions for a solution) to the problem at hand. At other times the solutions are directly or indirectly linked to. By directly we mean situations where a concrete solution is suggested by inserting only a hyperlink and short description (this could be e.g. a link Microsoft knowledge base article describing the problem and the solution). By indirectly we mean hints at where an answer might be found, which can take the form of pointing the questioner to a thread of another group or community, where the same or a similar problem has been discussed.

This also describes what we mean by the term collective-horizontal modes of learning, as it suggests how a collective solution arrived at in another context is re-appropriated, translated or transferred into the community (and possibly becomes instrumental in leveraging the collective knowledge of that community). When referring to 'collective solutions' it should be noted that the cycle from "problem to solution" is rarely a matter of just one question from an individual user and then an all-in-one answer from another. Most often the problem solving processes incorporate several exchanges and often encompass a sharpening or negotiation of the problem definition. Some users have difficulties formulating (or understanding the nature of their problem), and the people responding may need to ask for clarifications or entirely misunderstand the problem. Furthermore, there are often multiple suggestions that may not

help before a solution is finally found – sometimes through using the different suggestions and their lack of effect as a source to identify the problem.

Applying the analytic categories shows that the modes of learning are entangled and intertwined. There are different movements and flows related to the modes of learning where for instance the individual-vertical appropriation of competences may transform into individual-horizontal modes (through the users teaching e.g. family and friends). At the same time the shared knowledge of the community – the collective-vertical modes – are also leveraged. Equally, we see how individuals draw in, or become 'carriers' of, collective-horizontal modes of learning by re-using, re-appropriating or referring to problems, solutions and knowledge originally developed in other communities. In this way the interactive dimensions are quite complex and multifaceted; multiple movements between the modes may in fact be happening within a single thread (or be a subsequent cause of action e.g. through sharing a solution with others outside the community). This suggests also that the learning or problem solving is not only 'self-regulated' in an individual, psychological sense, but rather collectively and socially regulated (or mediated to use a term from socio-cultural theories).

In all cases the social fabric of the community is an important variable in relation to all of the modes of learning. This aspect especially became visible through the meta-comments that followed the questionnaire.
Woman (49): 'I think you seek help among 'Minglers' because you do not get it, when you ask experts, you just feel stupid. On Mingler we are all equal, even when someone is the expert on something, we do not downgrade each other...'
Man (24): 'Jargon is the key, when you choose a social portal when in need of support: How can I get help in my own language? Here at Mingler the conversation is the focus, not the technology...'

As can be seen from these comments the particular group does not only support learning, but also provides a social, friendly and safe environment for these users. Obviously the community affords the opportunity to develop new skills, new tools and new languages by offering more capable peers the opportunity to serve as guides or mentors. It is a resource with respect to something you feel a need to know. But what is equally important is that one can pose problems in a friendly safe atmosphere and feel understood. The community also manages to provide a friendly environment that maintains a language for a variety of different user (that is – not too technical, geeky or complicated, while still being helpful on technical issues). In this way this community on Mingler.dk supports that one can learn what works for others; one can have conversations over ideas with more capable peers, where there is a need for one's competence. And also – one can become an increasingly proficient resource for others and for the community. The notion of 'own language' for one thing refers to the less technical terminology (or jargon), but it may also be an important factor for many of the participants that the communication is in Danish (with some Swedish or Norwegian posts). For instance some participants express distress with links to resource sites in English, as they may not understand English very well – at least not when it comes to relatively complex technical support documents.

Conclusion: Are Mingler-users developing?

We defined development to happen when learners become able teaching others what they have just learned themselves, and our analysis indicates that development is happening at Mingler.dk. The movement from CoP to ZoP and the vertical modes of learning (both individual and collective) can be seen in many of the statements from the questionnaire. Here, however, it is also important to note how respondents point to the social fabric (norms, language, sociability, support, tolerance) of the community as being an important part of this process. From the answers it is clear that individuals feel they increase their competences through the interactions with the community, but also that in many cases people may not know the answer to a problem straight away; rather a solution (and sometimes the problem itself) is found by drawing on external resources. In this sense the modes of learning are more complex than just the relations between the individual and the community and the vertical appropriation of competences. From the statements by the member of the forum, and from the observations, a more complex landscape of relations and movements between the different modes of learning start to appear. Our analysis shows that we can distinguish different modes of learning that reach outside the boundaries of the relations between an individual and the community. We have shown how the relations between individuals' or communities' vertical appropriation of knowledge are complemented by sideways horizontal movements. These horizontal movements happen when individuals bring the knowledge of a community to the service of friends and family, but also when the knowledge developed in one community is re-purposed or re-appropriated into another community.

Learning happens on the boundaries of multimemberships and is motivated by various modes of belonging afforded by the site-structure and design. Learning and development is thus facilitated by various modes of belonging, afforded when the site-structure and design allows self-regulation and collective, social regulation around problem solving. There is a potential for TELE-designers to learn from how the different modes of learning unfold on the boundaries of multimembership of a variety of communities within and across social network sites and community sites.

Another issue we would point to from the findings, with respect to design of technology enhanced learning environments, is to pay more attention to the learning environments and community sites, which exist at the periphery of current attention. Much in line with (Baym, 2007) we would say that site based communities, as opposed to the massively popular ego-centric networks, such as MySpace and Facebook, are certainly alive and thriving. However, these online communities are taking more complex forms where the participants spread across and draw on several sites and resources in their engagement, as also our analysis suggests.

Acknowledgements

Postscript

During the review process of this article, and more specifically on the 14th of April 2008, Mingler.dk transformed into 24.dk and merged with the existing user community of 24.dk. 24.dk was/is a user community formed around the gratis news paper 24timer (24hours) – a news paper which is freely distributed to private homes and also available in the public space (e.g. in busses, trains or at institutions). 24.dk is owned by the media corporation JP/Politikens Hus, which acquired or initiated a strategic partnership with Mingler already back in 2006. In an earlier edit of this article we shortly mentioned this fact, but, ironically, left it out as it seemed superfluous information; simply because it had no visible impact on the site. The sudden transformation of the site came somewhat as a surprise to us, but also to a lot of other users. It caused a period of turbulence and heated debate on the site, as some users felt that they had not been sufficiently informed about the changes (also some users were anxious about ownership of postings – would postings in groups or in one's own blog suddenly be used in the printed paper?). Furthermore, the international version of Mingler (Mingler.com) was closed down. While there was a relatively brief period of turbulence and anxiety, the users now seem to have settled with their 'new' community site. Apart from the change of name, and a new front page, the communities seem to function as they did before. In relation to the change of name, it is quite interesting that many users in the groups (and in blog postings) still refer to the site as Mingler (or use Mingler/24) and explicitly refer to themselves as 'minglers'. Thus, the changes do not mean that our analysis or findings are obsolete; even though the name has changed, the interaction in the particular group has not. We primarily mention it, as some readers might want to see Mingler.dk for themselves, and would probably be surprised to find instead 24.dk.

References

Anderson, C. (2006). *The long tail: Why the future of business is selling less of more* (1st ed.). New York: Hyperion.

Baym, N. (2007). The new shape of online community: The example of swedish independent music fandom, *First Monday* (Vol. 12).

boyd, d. (2006). Friends, friendsters, and top 8: Writing community into being on social network sites, *First Monday* (Vol. 11).

boyd, d., & Ellison, N. (2007). Social network sites: Definition, history, and scholarship, *Journal of Computer-Mediated Communication* (Vol. 13). http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html.

Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design research: Theoretical and methodological issues. *The Journal of the Learning Sciences, 13*(1), 15-42.

Engeström, Y. (1987). *Learning by expanding - an activity-theoretical approach to developmental research*. Helsinki: Orienta-Konsulitit Oy.

Engeström, Y. (1996). Developmental studies of work as a testbench of activity theory: The case of primary care medical practice. In J. Lave & S. Chaiklin (Eds.), *Understanding*

practice - perspectives on activity and context (pp. 64-104): Cambridge University Press.

Engeström, Y. (2004). New forms of learning in co-configuration work. *Journal of Workplace Learning, 16*(1/2), 11-21.

Engeström, Y. (2005). *Developmental work research: Expanding activity theory in practice*. Berlin: Lehmanns Media.

Hine, C. (2000). *Virtual ethnography*. London: SAGE Publications Ltd.

Jones, C., Dirckinck-Holmfeld, L., & Lindström, B. (2006). A relational, indirect, meso-level approach to cscl design in the next decade. *International Journal of Computer-Supported Collaborative Learning, 1*(1), 35-56.

Koschmann, T. (Ed.). (1996). *Cscl: Theory and practice of an emerging paradigm*. New Jersey: Lawrence Erlbaum Associates, Publishers.

Larsen, M. C. (2005). *Ungdom, venskab og identitet - en etnografisk undersøgelse af unges brug af hjemmesiden arto.* Unpublished Master Thesis, Aalborg University, Aalborg.

Lave, J., & Wenger, E. (1991). *Situated learning - legitimate peripheral participation*. New York: Cambridge University Press.

Preston, C. (2007). Social networking between professionals: What is the point? In J. Beishuizen, R. Carnerio & K. Steffens (Eds.), *Self-regulated learning in technology enhanced learning environments: Individual learning and communities of learners* (pp. 76-89). Amsterdam: Shaker Verlag.

Rogoff, B. (1990). *Apprenticeship in thinking*: Oxford University Press New York.

Roth, W. M. (2001). Situating cognition. *The Journal of the Learning Sciences, 10*(1/2), 27-61.

Ryberg, T. (2007). Patchworking as a metaphor for learning – understanding youth, learning and technology, *PhD thesis published in: e - Learning Lab Publication Series* (Vol. 1, pp. 1-477). Aalborg: Department of Communication and Psychology Aalborg University.

Ryberg, T., & Larsen, M. C. (2008). Networked identities: Understanding relationships between strong and weak ties in networked environments. *Journal of Computer Assisted Learning, 24*(2), 103-115.

Stahl, G. (2006). *Group cognition: Computer support for collaborative knowledge building*: MIT Press.

Steffens, K. (2006). Self-regulated learning in technology enhanced environments: Lessons of european peer review. *European Journal of Education, 41*(3/4), 353-379.

Vygotsky, L. (1978). *Mind in society. The development of higher psychological processes.* Cambridge: Harvard University Press.

Wenger, E. (1998). *Communities of practice - learning, meaning, and identity*. New York: Cambridge University Press.

Wenger, E. (2007). Communities of practice - a brief introduction. Retrieved 10 March, 2008, from http://www.ewenger.com/theory/

Wiley, D. A., & Edwards, E. K. (2002). Online self-organizing social systems: The decentralized future of online learning. *Quarterly Review of Distance Education, 3*(1), 33-46.
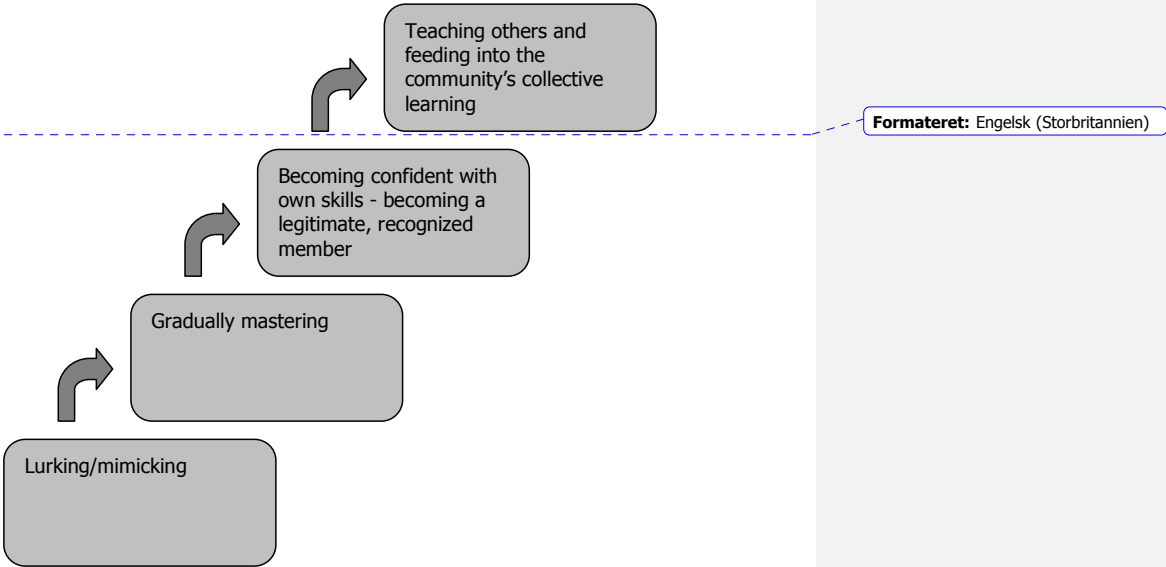
Teaching others and feeding into the community's collective learning

Becoming confident with own skills - becoming a legitimate, recognized member

Gradually mastering

Lurking/mimicking

Formateret: Engelsk (Storbritannien)

Figure 1. A ladder of participation and mastering

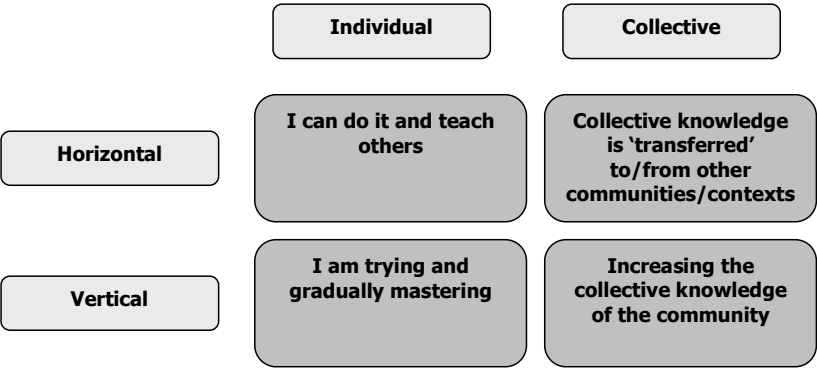|	**Individual**	**Collective**
Horizontal	I can do it and teach others	Collective knowledge is 'transferred' to/from other communities/contexts
Vertical	I am trying and gradually mastering	Increasing the collective knowledge of the community

Figure 2. Horizontal & vertical relations and movements in learning and development