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Position Paper:

Mobile Work-Based Learning & Context

Context is seen as a crucial construct of mobile learning. This is, for example, reflected in definitions where mobile learning is seen as 'the processes of coming to know through conversations across multiple contexts among people and personal interactive technologies' (Sharples et al., 2007, p. 158). Context is not restricted to physical dimensions but covers also technological, conceptual, social and temporal aspects. Context is a dynamic entity, constructed by the interactions between learners, tools and their environment (Kukulka-Hulme et al., in press, p. 9). It is continuously shifting, even in an illusionary static sphere of traditional classroom learning (Sharples et al., 2007, p. 260).

The mobile dimensions of context are more obvious in work-based settings: Employees can work and learn across different physical spaces, for example in their offices, on the move, at costumers' sites etc. The number of physically mobile employees is on the rise, jobs are fewer and fewer performed at fixed locations (Lesser, 2005, p. 3).

Technological mobility refers to the portability of mobile devices such as smartphones. It has increased remarkably in recent years. Innovations have lead to more and more capabilities combined in increasingly smaller devices (Livingston, 2004) at decreasing costs (Eurostat, 2008, p. 296). This is an important driver for the high penetration of mobiles in general (Eurostat, 2008, p. 296) and in business environments in particular (Dzartevska, 2009, p. 274). Consequently, mobiles have become more and more embedded in the life-worlds of users and, due to that degree of integration they can be considered as important cultural resources governed by social structures, cultural practices and user agency (Pachler, 2009) Conceptual mobility comprises the variation of topics and themes for work as well as for learning. The attention moves from one conceptual topic to another, driven for example by schedules, problems, incidents, personal interest, commitment or curiosity. Mobility in social spaces is constructed by the learner's interactions with varying individuals and groups such as team-mates, business partners or customers. The increased short-term formation of project teams (Bergmann, 1999, p. 14) and the broad use of communication devices contribute to a rising social mobility.

Temporal context describes learning that is dispersed over time. It can be described as a cumulative process, combining various formal and informal learning experiences (drawing on Kukulka-Hulme et al., in press, S. 9). The basis for workplace learning is seen primarily in experience (Collin, 2006) that has an essential relation to time: It can be understood as a past and present entity, considered a source and a way of competence construction in workplace learning (Paloniemi, 2006, p. 447).

Unfortunately, the majority of mobile learning projects is focused on providing content without taking contextual issues into account. A particular lack of projects with social context was identified by Froberg et al (2009, p. 315). This is surprising, given that communication is a core functionality of mobiles. This tendency seems to be also true for projects in corporate settings: scenarios where employees learn individually and independent of context were expected to predominate the corporate landscape in the near future. Scenarios based on interpersonal and social learning were expected considerably less often (Pimmer and Gröbriel, 2008). This goes along with a phenomenon generally encountered in technology enhanced learning: Technological innovations have been primarily used to support and even reinforce traditional pedagogic approaches (compare e.g. Attwell et al., 2009, forthcoming, Hug, 2009).

However, in terms of mobile learning this seems - due to its strong relation to changing contexts - particularly critical. Mobile devices could best provide support for learning in context (Frohberg et al., 2009, p. 323). Also in work-based settings the contextualisation of learning and the integration in work processes is regarded as very promising (Pimmer and Gröhbiel, 2008). With the help of mobile devices it is – at least theoretically – possible to access knowledge in the context in which it is applied, in the work process - and to embed virtual communication within the tools of the workplace (Attwell, 2007, p. 3). Attwell and colleagues (2009, forthcoming) suggest to address emergent learning needs during everyday working practices with the immediacy of mobile interactions where the contextual dimension supports the choice of a suitable problem solving partner or contextual knowledge will encourage problem solving processes. This will finally lead to greater learning opportunities through rich dialogues in situations where they are needed - to address concrete and emergent problems or opportunities at work.

A similar idea was proposed and conceptualised in the clinical sector where junior doctors in critical situations are supported virtually by mentors with smartphones using image and video technologies. Contextual information will be generated and transmitted via mobile phones and should essentially contribute to the problem solving process. The multimedia materials generated in this way are later used in follow-up meetings for reflection and discussion with mentors (Pimmer et al., 2009, Pimmer, 2009). The second phase encourages “critical, creative and reflective learning” that is valued in formal education but normally not enabled through informal learning in social networks (proposed by Cook, in Attwell et al., 2009, forthcoming).

Thus, the concept can be seen as one possible form of combining informal with more formal learning contexts.

The importance of connecting informal, incidental problem-solving situations with formal learning is also highlighted by Collin (2006). Reflexion is regarded as a suitable approach to bridge formal and informal learning (Rohs, 2007, p. 160).

The implications of changing and merging contexts are manifold and complex and do not have per se positive affects on learning and working. The enrichment of physical context with additional topical information, for example, can distract the learner from the actual “physical” learning objects. This is known as the “heads-down” phenomenon (Proctor, 2005) or as the focus problem (Göth et al., 2006). Furthermore, the impact on learning achieved by a mere provision of contextual information is questionable: This problem was pointed out for example in the evaluation of a scenario where an engineer who was repairing a machine was supported by contextualised information: Due to a lack of reflection the simple provision of contextualised information was not regarded as sufficient for the internalisation of the acquired competences (Pimmer and Gröhbiel, 2008).

Another problematic example can be shown when enriching working situations with additional social and, consequently, topical information as shown in the junior doctor - mentor example above. The immediate social interactions with colleagues could enforce a highly interruptive working environment, and, eventually, increase the potential for errors to be made (Parker and Coiera, 2000).

To create and encourage “mobile” learning opportunities across different work contexts, a number of cognitive, didactical, organisational, socio-cultural, technological, legal and usability-related issues has to be addressed. Consequently, the central question to be addressed should focus on how changing contexts can (positively) impact on the process of learning (drawing on Kukulska-Hulme et al., in press, S. 9) according to the respective situation.

Questions

Contextual issues of work-based mobile learning will be discussed in a 2 hour workshop. Topics and questions to be addressed in that workshop might include, but are by no means limited to:

- What boundaries exist between users' everyday lives, their life-worlds and the world of work and how can the structures, agency and cultural practices of users' personal life-worlds be made fruitful for work-based learning?
- Will there be a meaningful differentiation between learning inside and outside formal educational settings with regards to work-based mobile learning?
- How can employees and companies cope with the more informal approaches of mobile learning?
- How can concepts such as collaborative, situated and contextual learning, which are seen as essential benefits of mobile learning in schools and higher education (compare e.g. Naismith et al., 2004) , build a sustainable basis for work-based learning?