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Designing Mobile Learning in School Contexts – Considerations and Examples for Practice

By now, Mobile Learning has a more than ten-year long tradition within the field of educational practice. However, how teaching and learning with mobile technologies is realised diverges greatly. This article outlines which approaches of learning with mobile technologies seem to be the most popular, which aspects need to be considered in the course of planning mobile learning in curricular contexts, and that it is important to pay attention, among other things, to the knowledge and expertise learners bring with them from their everyday lives.

At a first glance, the use of mobile technologies for learning is not obvious. This is because mobile technologies are commodity items and originally not designed for learning but for entertainment, communication, networking and are sold as lifestyle and consumption items. At a second glance though, a manifold range of opportunities emerges also for school-based learning and for the use of mobile technologies for teaching. No standardised concepts exist yet for the systematic use of mobile technologies for teaching and learning. But some tendencies are obvious already: looking at the last ten years of mobile learning practice it is possible to categorise the use of mobile technologies in the classroom and to derive some pointers for lesson planning design from it (see e.g. Seipold 2011; Pachler et al. 2010; Bachmair et al. 2011).

Consideration 1: Build links to the everyday life of learners by referring to structures, agency and cultural practices

Mainly because mobile technologies and their functions are designed for communication, entertainment and consumption, they have first of all relations to aspects of the learners' everyday lives outside of school. However, this doesn't mean that the use of these devices, their functions and their contents in these contexts is un-reflected. Quite the contrary, everyday life use of technologies is intentional. The everyday use – e.g. making appointments with friends, using the calendar function of the mobile phone or accessing the internet with its social networks – indicates not only communication, entertainment and consumption. The users of these mobile technologies communicate, structure, organise and order, plan, network, furnish information, assess, evaluate and produce. In the process they are friends, managers, producers, journalists, reviewers, etc. The challenge is to acknowledge such activities taking place in everyday life as competences which have relevance for school learning and thus to relate school and everyday life meaningfully to each other. This can be realised e.g. by considering in which **structures** young people are acting, which structures they are constructing, which **competences** they are establishing in

this process and which **routines** they are developing in the process (see the model of the socio-cultural ecology by Pachler et al. 2010):

- **Structures** are for example structures of mass communication and everyday-life, e.g. learning environment, home, school, peers, leisure time. Learners navigate within these structures and use them but they also produce structures, which is an important and emancipating aspect. Orientating oneself is as important as is to provide orientation.
- **Agency** means the ability to act in the world with all available structures and to appropriate these structures. Part of this is that each individual has a subjective perspective on the world. This indicates that agency is affected by subjectivity and that – as a consequence – appropriation and learning are first of all and always subjectively meaningful. The aim is for school learning to moderate between subjective perspectives of the learner and objective requirements of school.
- In some areas young people develop **routines** (so-called "**cultural practices**"). These routines enable young people to act confidently and safely in situations and within structures. Here it becomes necessary to acknowledge e.g. the organisation of everyday life, networking, media reception and production or investigation competences of the learners in relation to curricular requirements and to make them available for school learning.

The terms and concepts of structures, agency and cultural practices evidence the fact that engagement in media activity is an intentional activity, which is also dependent on the social and cultural situation of media use. These aspects are important for teaching because they help to consider that learners from different social milieus have different availability of technologies, attitudes towards learning, availability of information etc.

Consideration 2: Three common approaches to implementing mobile technologies into formal education

What can mobile learning look like in practice? Mobile learning practices are potentially manifold and creative – even if there are also challenges such as the high cost of devices, difficulties in purchasing mobile devices, compatibility of devices, expensive internet connections, focus of learners on the devices rather than on the curricular content and so on.

In general it is possible to distinguish three main approaches of the implementation of mobile learning practice (see Seipold 2011):

- **Top-down approach**: often mobile devices are implemented into learning contexts from top to bottom which means they are set-up in relation to already existing teaching and learning structures. This happens often within big projects that have large budgets (see e.g. example 1). In such projects, whole grades, years or even schools are provided with mobile devices such as PDAs. A benefit of this approach is that learners who are structurally disadvantaged are not excluded because all learners own the same devices through which equal opportunities are ensured. Risks extend especially to two aspects: first, it may be possible that technologies now have to be used in situations that didn't require the use of technologies before and that learners and teachers need to adjust their teaching and learning process to the requirements of technology and infrastructure. This can result in excessive demands. Second: because tools from everyday life can now be used in school contexts,

- **Bottom-up approach**: the bottom-up approach takes account of available resources such as devices and knowhow of learners and teachers. This is cost-saving because no devices have to be supplied. Besides, learners are confident with their devices and can revert to their routines, competences and knowledge when using them. Such projects benefit also from a range of resources originating from the everyday life of learners. If they get the opportunity to work in a self-directed manner when using mobile technologies, contents and other resources supporting their creativity, learners often build exciting connections between school and everyday life (see e.g. example 2) – and at the same time the outcomes are still re-usable and assessable in school categories. However, one needs to take into consideration that some learners don't own mobile devices, or that they have only old models at their disposal which don't have all the features that new devices boast. In this case learning groups can be recommended. The cost question still exists in relation to the internet or connection cost. And finally, the diversity of devices and models can be a challenge, which, on the other hand, can be considered in advance when planning carefully.
- **Affordance approach**: the demand-orientated use of mobile technologies is certainly the use pattern that is closest to the everyday use of mobile technologies because the devices are used only when users consider them necessary/helpful or when teachers apply them selectively and explicitly as teaching and learning tools. Mobile use within this scenario is often related to the use of Interactive Whiteboards or platform solutions such as Moodle or Mahara (see e.g. example 3). Such arrangements are often very complex, and in order to guarantee the "seamless" use of these technologies in class it is necessary to guarantee stable and sustainable infrastructures – which are accessible for learners also from outside school (e.g. from home or on the go). But apart from that, the affordance strategy allows for the opening of the school to media use in everyday life as appropriate and to design lessons by referring to instructional or communicative and discursive learning – alone or in groups. Also, it provides the opportunity to choose learning materials and content provided by school or to refer to resources from everyday life etc.

Consideration 3: Creative and critical relationship between school and everyday life

To balance the tensions that arise from the use of mobile technologies between demands of the school and its curriculum on the one hand and informal competences, practices and resources from everyday life on the other is one of the biggest challenges with mobile learning. By referring to four parameters (see e.g. Bachmair et al. 2011) it should be feasible to sensitize teachers to such areas, to balance tensions and to bring together those aspects that seem to be contradictory. The four parameters each span two poles and focus on the creation of content and learning contexts (see e.g. Bachmair et al. 2011):
- **Parameter A** names the teaching setting (didactic setting), learning spaces and social form of learning and ranges between the practices of school and everyday life.
- **Parameter B** points to the relationship that the learner has to the object of learning and covers the range between mimetic reproduction and personal reconstruction.

- **Parameter C** covers the learners' individual expertise and covers the area between the pole of school curriculum and personal expertise.
- **Parameter D** refers to the span between different modes of representation such as written text in a book and moving images in films. Here, we have the two poles discrete (i.e. mono media, mono modal) and convergent (i.e. e.g. mobile and web 2.0 technologies).

This approach mainly attempts to help to acknowledge learners' media use, content preferences, styles, expertise, competences, knowledge etc. which they bring to school from their everyday lives and to provide spaces and places to use these resources for learning in the classroom e.g. by bringing together formal and informal aspects.

Examples for the implementation of mobile learning practice in school

Example 1: The "Dudley Handhelds Initiative"
This initiative addresses learners in grade 5-10 in 3 different school types (6 primary schools; 1 secondary special school; 1 mainstream secondary school). About 300 devices were provided to some learners only. The initiative covered English as mother language, physical education, ICT, maths, art and humanities. Also, the devices were used in interdisciplinary programmes. The aims were, amongst others, to support learners and their families in their reading and numeracy skills, to identify most appropriate devices for mobile learning, to calculate project costs, to find options for financing learners' devices, to explore the development of resources and learning scenarios and the installation of resources on the devices and to use learners' expertise to support counselling of parents, to enhance collaborative learning and social interaction, and to provide access to underprivileged learners and to increase their attendance rates. (see Seipold 2011; Faux et al. 2006, p. 7-12)

Example 2: Project "Handy"
Within the project "Handy" learners were encouraged to produce small learning units, referring to a subject of their choice and by using their mobile phones. This is how – by taking materials from text books as well as photos and films from their everyday life – learners produced small artefacts featuring text, photos, questions and solutions – even small teaching films and audio files for the language lessons. The final units were uploaded to a public weblog by the teachers so that others can use the episodes as learning resources. (see e.g. Seipold 2011; Deubelbeiss 2007)

Example 3: Project "eBag"
"eBag", the "digital school bag", is an approach to mobile learning which consists of the learners' mobile phones, a computer hosting a learning platform and an interactive whiteboard. As soon as learners come close to a Bluetooth receiver the mobile phones log in and connect to the platform. In this way learners are connected to each other and have access to learning materials stored on the platform. This approach attempts to make access to learning materials easier for learners and allows for easy exchange of materials. Also, learners are supported in collecting, exchanging and accessing already available materials. Besides the infrastructural aspect, eBag aims to allow for collaborative learning and location independent learning because the platform can also be accessed via the Internet and wireless technologies. (see Seipold 2011; Brodersen et al. 2005)

Links
- Information about the London Mobile Learning Group (LMLG)
  http://www.londonmobilelearning.net
- Project „Handy"
  http://metaportfolio-phsg.kaywa.ch

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About the London Mobile Learning Group (LMLG)

The London Mobile Learning Group (LMLG) brings together an international, interdisciplinary group of researchers from the fields of cultural and media studies, sociology, (social) semiotics, pedagogy, educational technology, work-based learning and learning design. Members work on a theoretical and conceptual understanding of mobile learning and its application in practice. Further information is available at: www.londonmobilelearning.net