JOURNAL OF THE
RESEARCH CENTER FOR EDUCATIONAL TECHNOLOGY
KENT STATE UNIVERSITY

www.rcetj.org

ISSN 1948-075X

Volume 6, Number 1
Spring 2010

Edited by:

Mark van 't Hooft
Editor

A. Quinn Denzer
Managing Editor

Special Issue:

Handheld Learning 2009
Research Strand Papers

Research Center for Educational Technology

JOURNAL OF THE
RESEARCH CENTER FOR EDUCATIONAL TECHNOLOGY
KENT STATE UNIVERSITY

The *Journal for the Research Center for Educational Technology* is published twice a year by RCET (http://www.rcet.org). It provides a multimedia forum for the advancement of scholarly work on the effects of technology on teaching and learning. This online journal (http://www.rcetj.org) seeks to provide unique avenues for the dissemination of knowledge within the field of educational technology consistent with new and emergent pedagogical possibilities. In particular, journal articles are encouraged to include video and sound files as reference or evidence, links to data, illustrative animations, photographs, etc. The journal publishes the original, refereed work of researchers and practitioners twice a year in multimedia electronic format. It is distributed free of charge over the World Wide Web under the Creative Commons License (Attribution-Noncommercial-No Derivative Works 3.0 United States) to promote dialogue, research, and grounded practice.

JOURNAL OF THE
RESEARCH CENTER FOR EDUCATIONAL TECHNOLOGY
KENT STATE UNIVERSITY

Volume 6, Number 1
Spring 2010

RCETJ 6 (1), 157-171

MoLeaP – The Mobile Learning Project Database: A Pool for Projects and Tool for Systematic Description and Analysis of Mobile Learning Practice

Judith Seipold
WLE Centre, Institute of Education, London

Norbert Pachler
Institute of Education, London

Abstract

This paper introduces *MoLeaP – The Mobile Learning Project Database*, a service provided by the London Mobile Learning Group (LMLG; www.londonmobilelearning.net) at www.moleap.net. MoLeaP is a public and free-of-charge online database for education professionals interested in mobile learning practice underpinned by theory. Projects, applications, and resources can be submitted by users in order to make materials and experiences available to a broad audience and to encourage the implementation of mobile learning projects in different learning contexts, such as school/college/university, family, workplace, and/or everyday life. As no user data are available yet at the time of writing, we focus here on the theory, which underpins the database. In addition, we present a working example, which we describe and analyze according to the fields of the database.

Keywords

Mobile Learning Project Database; Replicability; Transferability; Socio-Cultural Ecology; Research Methodology

Background

Research on mobile learning is closely related to the implementation of mobile learning projects in different contexts, in particular education and everyday life (see e.g. Kukulska-Hulme, Sharples, Milrad, Arnedillo-Sánchez, & Vavoula, 2009). Projects are characterized by different approaches to teaching, learning, locations, and a broad variety of technologies (see e.g. Faux, McFarlane, Roche, & Facer, 2006); they deal with mobile technologies as topic or they support their use as learning and teaching tools (Seipold, 2008). As the rapidly developing field of mobile learning gives rise to a growing amount of projects, *MoLeaP (*www.moleap.net) was conceptualized as a resource and tool for education professionals who are interested in mobile learning, especially in sharing their experiences and projects with others, or in learning from established practice. The database, which is based on the idea of non-proprietary and collaborative knowledge building, aims to provide an opportunity for the systematic gathering of practice to

- disseminate experiences gained from such projects in order to make practice less ephemeral;
- enable synergies;
- contribute to sustainability in innovation of teaching, learning and research; as well as
- enhance the replicability of mobile learning projects.

The option to submit data in two languages, English and German, is provided in order to support knowledge transfer and scientific exchange between these two language communities. In principle, the range of language interfaces is expandable. We hope that the potential for educational exchange and knowledge sharing, the innovative use of mobile technologies in educational contexts, as well as support for learners and their technology-related cultural practices, will be an incentive for educational professionals to contribute to the database and/or to learn from projects. As the fast growing content of already existing resource-based websites such as www.lehrer-online.de attests, such resources are willingly accepted, frequently used and contributed to by education professionals in order to find new ideas to inform their pedagogical practice (Lehrer Online is an established German website and comprehensive database containing projects about the use of digital media in school).

As MoLeaP is a resource for education, teaching, and learning, all data submitted, be they projects, applications, reviews, or links, are vetted and reviewed before they appear in the database in order to avoid misuse and to ensure high standards.

The database does not aim to achieve technical innovation, but simply to provide straightforward functionality on the basis of design principles derived from principled conceptual work (Seipold, Pachler & Cook, 2009) in an attempt to facilitate the sharing of pedagogical practice. The conceptual and theoretical work is considered to be a particular strength of this database. Furthermore, the operators of the MoLeaP database and website are aware that it is the initiative and willingness of project holders to contribute that makes such a database a rich resource. MoLeaP, therefore, is conceptually in line with the practices of web 2.0 communities, who together produce content in weblogs, forums and other kinds of community-based websites, and thereby provide a basis for collaborative knowledge building.

Focus

The project database combines theory, research, and application. The categories, which are used to describe and analyze mobile learning projects, are based on the theoretical background of a socio-cultural ecology of learning with mobile devices (Pachler, Bachmair, & Cook, 2010). The database as a tool to collect and disseminate projects is seen as a web-based application, which collects practical experience and invites reflection on and analysis of it.

Methods

Theoretical and Methodological Background

The group developing MoLeaP, the London Mobile Learning Group (LMLG), has also developed a theoretical and conceptual framework for mobile learning, in which educational uses of mobile devices are viewed in ecological terms as part of cultural and pedagogical contexts in transformation. This notion of a socio-cultural ecology comprises different components, such as learner agency, appropriation and cultural practices, everyday life, school contexts, and structures. Importantly, it views mobile devices and the digital artifacts accessed through, and produced with, them as cultural resources (Pachler, 2009). As a consequence, the database is open to any projects with mobile media, irrespective of the notion of learning underpinning it and irrespective of the setting. The theoretical work of the LMLG has led to a set of categories, which are intended to be applicable to projects taking place inside and outside of educational institutions; they provide the basis for the categories of MoLeaP.

Categories for Project Descriptions

The following categories, which are an outcome of the LMLG's research on mobile learning and a socio-cultural ecology, were designed for project description. The structure of the database has been designed to be helpful to colleagues planning mobile learning projects by flagging key considerations to be attended to during the planning and evaluation phases, in addition to fostering shareability by providing a common 'language' (soft ontology) to talk about practice.

Contributors will have to follow a multi-step online submission process. In addition to personal data for identification and authentication purposes, the following information is either required or optional for project submission. Online help is available as necessary.

1. General project data: language of the project description; project name; URL; country; year; project owner and copyright holder; contact; partners; project workers; language in which the project was conducted; types of mobile devices; further media; age of participants; number of learners involved; number of teachers involved; number of supporting staff; role of supporting staff; duration; location; location latitude & longitude (of the location where the project was conducted; for further implication in location-aware contexts); type of educational establishment; phase of education; subject domain; teaching/ learning focus; tags/ keywords; optional text field.
2. Context/rationale: background information, i.e. how many persons; type of educational establishment; duration; devices used; technical support etc.; learning and teaching aims; and envisioned role of mobile devices.
3. Approaches to teaching and learning: how are the devices used; key activities, key tasks, and key pedagogical/'didactic' issues.
4. Technologies and requirements: interoperability, storage, usability etc.
5. Project outcomes.
6. Lessons learned/ issues emerging.
7. Recommendations and future possibilities.
8. Replicability and transferability.
9. Recommended literature and references (optional).
10. Project analysis (optional).

Categories for Project Analyses

The analysis framework might best be described as a heuristic with relevance for mobile learning in the context of a socio-cultural ecology, covered under meta-categories rather than a rigid analysis scheme. The analysis framework is open to examples from school contexts as well as to examples from everyday life. We opened the analysis to aspects of identity construction, and social inclusion/exclusion in order to be able to access the most evident issues of cases of mobile use from everyday life. As for the categories used for the project description, more general and/or additional categories might be considered in order to describe cases from these two 'spheres' more comprehensively.

The criteria for the analysis relate to key concepts of the theoretical framework of the LMLG of a socio-cultural ecology as well. As this framework deals with a number of theoretical concepts, which are not self-explanatory, contributors to MoLeaP are free to provide a project analysis that refers to our five proposed categories below. However, in order to allow contributors to refer at least to some of the categories, we provide keywords as well:

1. *Agency, structure, cultural practice*: e.g. new habitus and social segmentation; 'at-risk learners'; literacy, traditional vs. new; understanding media as cultural resources; participation in cultural practices.
2. *Approaches to teaching and learning*: e.g. informal/situated/collaborative/problem-based learning; bricolage; knowledge building; meaning-making.
3. *Notions of mobility*: e.g. mobile device used as tool; mobile devices used in relation to meanings; mobility in contexts (place, time, concepts, social constellations, activities, curriculum, cultural resources, and meanings).
4. *User-generated contents and contexts*: e.g. transformation of mass communication; mobility; learning as meaning-making in context; ubiquity, choice, appropriation; context crossing.
5. *Replicability and transferability*: e.g. replicability and transferability of the 'didaktik' script, using it in a new context; scalability.

Sample Project Description and Analysis: Project "Mobile Classroom Experiment"

The Mobile Classroom School test project carried out by an Austrian school is described and analyzed here by way of an example.

Project Description

Context/Rationale

The project was led by Eduard Schittelkopf, a teacher educator of Physics and Chemistry for Hauptschule in Austria. At the same time, he is also a teacher of Mathematics, Biology, Chemistry, and Physics at the Praxishauptschule of the Pädagogische Hochschule Steiermark in Graz, Austria. The project started in the summer of 2007. In 2008, when this case was compiled, two stages of the project had been completed: one in the summer of 2007, the second in February 2008.

Stage 1 was completed in the summer semester of 2007 within Physics lessons with learners from a 4th grade Hauptschule (year eight, 14-year-olds). It was a test run to see if the technology worked properly, i.e. to evaluate the connectivity and test the upload from mobile phones to a Moodle platform. The 11 mobile devices (Nokia N71) were borrowed from Nokia for a limited period of time, and had to be returned at the end of the project.

Stage 2 aimed to explore new approaches to assessment. According to the project leader, the assumption underlying this part of the project related to the assumption that the way tests are conceptualized and completed is a determining factor for which content students memorize. The duration of this second stage was five days (a project week). A group of student teachers supported this part of the project by supporting learners in their Physics experiment as well as in the use of mobile phones.

Further technical support was available through partner institutions (eLibera and muevo – supported by the Austrian Ministry of Education) for the Moodle platform (MoMo – Mobile Moodle); the module for mobile devices (MLE mobile Learning Engine) was also used. Costs as well as technical support were born by the information management section of the Fachhochschule JOANNEUM Information management.

The aim of the "Mobile Classroom Schultest" project was the evaluation of intensive use of mobile phones within school and curriculum settings. The mobile phone was used to produce and use mobile learning content on mobile phones, including audio and video recordings of experiments, and handling and production of homework and communication between students and teachers (Mobile Classroom Schultest Factsheet, 2008). General project data (as would be submitted into the MoLeaP database) is provided in Table 1. A more detailed description of the project then follows.

Table 1: General Project Data Mobile Classroom School Test

Project Name	Mobile Classroom Schultest (mobile classroom experiment)
URL	http://moodle.mobileclassroom.at/moodle18/
Country	Austria
Year	Summer Semester 2007; February 2008
Contact	Eduard Schittelkopf
Types of mobile devices	Mobile phones Nokia N71
Further media	Moodle platform
Number of persons	25 students in 2007; 2008 about 24 students
Duration	2007: 1 semester; 2008: 5 days
Location	School/classroom
Educational establishment	Hauptschule
Phase of education	Year 4 (project stage 1); Year 1 (project stage 2)
Subject domain	Physics
Teaching/learning focus	Assessment; oral reporting and writing skills
Keywords	Physics; assessment; audio-video; archive; sustainability; literacy (talking, writing, picture); connectivity; convergence; sharing

Approaches to Teaching and Learning

The mobile devices were used as tools for observing experiments (video-recording and photo capturing), as well as for reporting and verbalizing (audio- and video-recording). The Moodle platform was used as an archive for storing recordings, and for later access, recall, and discussion. It was also envisaged to support students' ability to report, to speak in a structured way, and to improve their writing skills.

Technologies and Requirements

Technologically the project is based on the Mobile Learning Engine (MLE), and the Moodle integration solution momo (aka mobile Moodle). Both software solutions are available on the open source platform SourceForge (2009a, 2009b).For the duration of the project, learners were provided with mobile phones (Nokia N71) equipped with camera and microphone functions and with the MLE software, which allowed learners and the teacher to connect and upload content from the mobile phone to a Moodle platform. The Nokia N71 phones, which were used for project stages 1 and 2, were to be replaced by Nokia N95 phones in due course.

Figure 1 gives an overview of how mobile Moodle is used in the physics lesson and describes how the data, which learners collect, are sent to the Moodle platform and made available to other users.

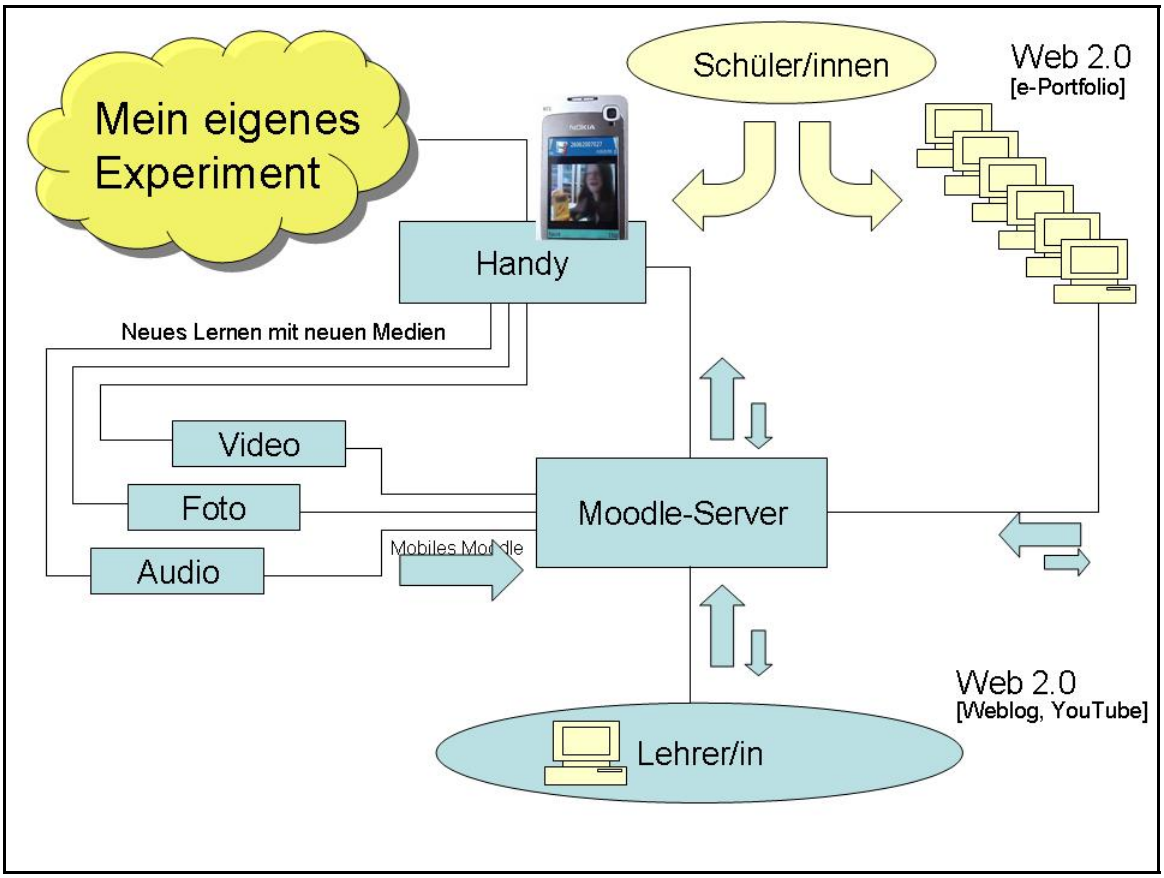

Figure 1: Concept of the Mobile Classroom Experiment (Schittelkopf, 2007c)

Project Stage 1: Testing the Mobile Technology and Moodle Platform

The technological basis for this project stage was to use mobile phones, a Moodle platform, and Java-software, which allowed students to upload their data immediately and without cost to the platform. The project was completed in the summer of 2007 with the aim of evaluating the technology and connectivity, i.e. to see if the upload from the mobile phones to a forum on the Moodle platform worked properly. For this purpose, students had to take pictures of their experiments in Physics (unit: “Spannung und Stromstärke” [amperage and voltage]) and upload pictures and videos taken of the experiments from their mobile phones directly to a forum on the Moodle platform (Figures 2 and 3).

The added didactic value was in providing learners a platform on which to store their observations, and thereby to make short but complex experiments available for the long term, i.e. to overcome ephemerality and to make the material available for analysis and reflection. Thus, learners would be able to refer to and access their recordings and results again later for further discussion and descriptions (Nischelwitzer, 2007).

Figure 2: Amperage and Voltage: Learners Record an Experiment with their Mobile Phones (Nischelwitzer, 2008)

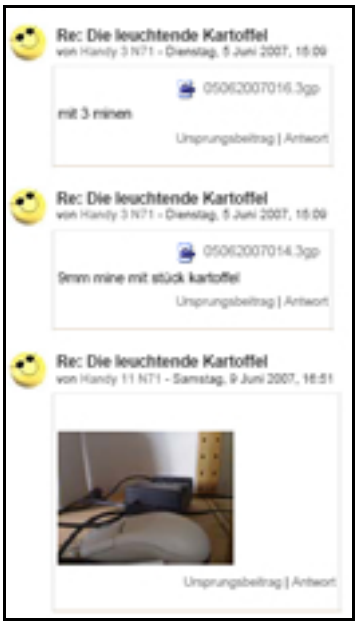

Figure 3: Amperage and Voltage: Learner Postings of their Results in a Moodle Forum (Schittelkopf, 2007b)

The luminescent potato was one of various experiments to see how voltage and amperage have to be set in order to make different kinds of wires and a potato glow (Figure 4). For each of the experiments a set of learning materials was provided. These materials consisted of a circuit diagram, a video of the experiment, worksheets, solutions, and keywords. Additionally, a forum was available to which students could upload pictures and videos of their experiment and present and discuss the results.

Figure 4: Spannung und Stromstärke: Die leuchtende Kartoffel [Amperage and Voltage: The Luminescent Potato] (Schittelkopf, 2007a)

Project Stage 2: Evaluation of Learning Progress with Short AV Reports

The second part of the project was completed in a 1st grade Hauptschule (year five, 10-year-olds) during a project week from February 4th to 8th, 2008 (three-and-a-half hours each day, supported by a group of students from the University of Graz). The teacher aimed to find new modes of assessment and to enhance the examination culture by using mobile phones. He conceptualized a learning unit in Physics, in which students had to report on certain stages about what they had learned – by using just a limited number of sentences as part of a presentation. First, learners produced reports called “I did IT-Videos” (Figures 5 and 6). These videos were produced individually by each learner with the camera function on the mobile phone and included sound. It was not a recording of the experiment as in the first part of the project. Furthermore, learners had to report in seven sentences what was needed to conduct the experiment and what its purpose was. For the teacher these videos were a means of receiving information from each learner individually about their comprehension of the learning outcomes associated with a specific teaching unit, i.e. the videos had a formative assessment function. At the end of a learning unit, or as soon as the teacher saw that the learners had achieved the relevant level, the teacher recorded so-called “Peer-Movies” by using a digital camera (Figure 7).

Figure 5: Learners Record “I Did-IT-Videos” with Mobile Phones (Schittelkopf, 2008a)

Figure 6: An “I Did IT-Videos“Film (Schittelkopf, 2008b)

Figure 7: A Peer Movie (Schittelkopf, 2008c)

Learning Outcomes

The learning outcomes focus on “understanding” and “verbalization”, which, according to the teacher, is a key issue in assessment. Learners had to respect the seven sentence limit (e-media, 2008) to explain their experiment and record it on video. In personal correspondence the teacher mentioned that verbalizing within a very limited number of sentences helps students to structure their knowledge and improves their writing skills. This addresses an imbalance that exists in the lessons between the possibilities to verbalize and the necessity to report in written form.

As a result of this part of the project, and at the end of the project week, the teacher had more than 400 “I did IT-Videos”, which were available for assessment. Each video was between 30 and 90 seconds long, and had a file size of about 1 MB. The sound quality was good enough for the teacher to work with, and the file size was adequate to store the file on a mobile phone. Due to a lack of functionality of the Moodle platform at the time, the videos were saved in an e-portfolio. The costs which arose, because the mobile phones had SIM cards, can be reduced in the future by using W-LAN phones.

Lessons Learned/Issues Emerging

According to the project leader, the lessons learned with respect to the two project stages were very positive. The envisaged aims – recording experiments, uploading user-generated content to a platform, as well as the video recording for purposes of assessment – were met and provided a good basis for further research and practice in this area. One emerging issue, which needed improvement, was the availability of technology, i.e. an adequate number of multimedia mobile phones. Also, high quality cameras and lenses in mobile phones are needed in order to meet the requirements for recording experiments in Physics without cords and fuzziness, as noted by the teacher.

Recommendations and Future Possibilities

As a future possibility, evaluation mechanisms are envisaged which allow learners to reflect on the learning content by using mobile media. Technological improvements in terms of the quality of cameras and lenses, as well as connectivity options which allow learners to upload and retrieve information without incurring costs, are needed, as is infrastructural support in terms of the availability of devices for learners.

Nevertheless, this project seems to be a good basis for the connection of e-learning and e-assessment with learning with mobile media. To provide learners the opportunity to record their learning achievements on video or as a sound file, which includes the option to take recordings not only once but as often as necessary in order to produce a small assessment unit, might provide learners with a basis from which they can improve their language skills. This can be done without running the risk of not meeting teacher expectations regarding the production of comprehensive sentences. Especially for learners whom we describe as “at-risk learners” (i.e. learners who show indications of weak performance), this might be a good way of gaining self-confidence in an exam situation without being exposed to the critique of their classmates.

Project Analysis

Approaches to Teaching and Learning

The two stages of the Mobile Classroom Experiment have different pedagogic concepts: the first stage seeks to provide an infrastructure for learning by means of convergent media, which offers a common, accessible basis for storage, distribution, and access of the data from experiments from Physics lessons for later recall. The second stage makes use of the video-recording function of mobile phones to find new forms of e-assessment as well as improve learners’ skills in reporting and writing. Within this project two aspects are most evident in terms of the use of the mobile phone as learning tool: one is the combined use of mobile phones and a learning platform – a phenomenon we describe as convergence; the other is

the dominant use of videos and images instead of written text – we refer to this as multimodality.

The use of mobile technologies, with a web-platform as convergence medium used for storing material, seems not to be at the core of the Physics lesson and the problem-based learning task, even if the aims of the project are related to the use of mobile phones and platforms for storage and assessment purposes. Furthermore, the mobile phones can be seen as tools, which support learners in activities that could also be completed with other media, such as cameras or video and audio recorders. However, an advantage of mobile phones over "traditional" media is their multi-functionality, and thus a reduction of equipment and technologies, which could not be afforded for all learners. Until that point, the purpose of using mobile phones is not evident despite their characteristics, i.e. multimedia devices with options for connectivity, and despite the familiarity of learners with mobile devices and their features. The use of basic functions of the mobile phone, such as the camera, is routine for learners given their familiarity with the devices from everyday-life use. They only have to be introduced to the mobile Moodle application in order to be able to upload pictures and text to the platform.

Learning within this project can be characterized as individualized and formal rather than collaborative and informal. Judging from the pictures, which show groups of learners taking pictures, collaborative learning is intended, but in practice learners work on their own. Collaborative learning is not in the foreground. Even if learners are pictured standing in a group around the experiment equipment during the first project stage, they take pictures and videos individually and without collaborating. The procedures in the next stage of the project, storing and uploading the videos and images to a Moodle platform, are also not collaborative in nature. The same applies to the second project stage, where learners recorded their "I did IT-videos". The collaboration aspect might take place at a later stage, for instance through accessing and discussing the results of the experiments in groups.

Agency, Structure, Cultural Practice, User-Generated Contexts

The agency of learners, which is related to their everyday lives, appropriation, and/or meaning-making, is not obvious here, except for their use of mobile phones, and especially their recording functions. Also, the learners' potential familiarity with documentary formats and genres from television etc., and the option to revert to them by recording videos and taking pictures, might be helpful for learners to adequately complete the task of presenting their results in a way so that the teacher can use them as assessments. At this point, the learners' expert status can come into play, their knowledge about media formats and genres, gained in informal contexts such as their leisure time, and might give learners confidence in their work. This aspect is strongly connected to the media literacy of learners, in this case their knowledge about media formats, and to their production of media artifacts and content in a semi-professional manner. As mentioned above, such links might support particular learners who show affinities to popular and less formal modes of representation, but who are not as adept at meeting the formal requirements of traditional school assessments.

Visualization, instead of description with text, is one of the most obvious results of the first project stage. Instead of describing a process through words, video is chosen to provide learning material. As mentioned above, this might be an equalizer for learners as they can contribute and refer to a resource bank of learning materials at any time, which can be characterized as a common and objective knowledge base. This knowledge base, the learning platform and its learning materials, is open for all learners in the class, and all learners have access to the same learning materials.

However, it also marks the introduction of video as a mode, which replaces the written text. As Kress (2003) outlines in his book *Literacy in the New Media Age*, learners choose the mode which seems to be most adequate for them to describe activities or things: a learner describes the way from school to a museum by using written text; another learner creates a painted picture to describe the scene of a mummy in a museum. In Kress' example, a process, the move, is described with the linear tool 'written sentence', whereas a stable scene, a still image, is described in a way which allows several parallel things to be depicted at once, without the risk of missing anything or imposing unintended priorities by naming something in the 'wrong' place or with 'wrong' words. With the video-recording function of the

mobile phone, written or spoken sentences seem to lose their importance as mode to provide descriptions of procedural incidents. As for the image, the functionality seems to remain the same as in Kress' example: A static situation is described by a snapshot.

Spoken text in the "Mobile Classroom Experiment" example is used to structure knowledge and transform observations into objective and comprehensible knowledge. In terms of the assessment of learning achievements, the simple provision of an observation as video or picture provides at a first glance no real evidence for conclusions about what a learner has learned, even if the perspective and focus with which the object was filmed or depicted might give the teacher a clue about the learner's understanding of the topic. The reflection process can, however, be objectified by using the video function as a tool to record reports and reflections about a topic as it was completed in the second project stage. Here, by using the mobile phone as a documentary device, learners reflect on their experiments by describing what they have done, from the experimental setup to the description of the results. One of the requirements, defined by the teacher, was to keep the description limited to a couple of sentences or a maximum video duration of about one minute, with the aim of structuring the learner's knowledge, improving the learner's oral skills and, as a consequence, their writing skills. The video recording function is at this stage no longer used as a tool to make a common knowledge base available, but as a tool to provide evidence to the teacher about one's own learning. The didactic framing, the limitation of the report to seven sentences, is the common activity basis for all learners. Also, the need to describe a process with one's own words demands understanding of and reflection on the topic by the learners, as well as the ability to describe this process step-by-step without missing any essential parts.

Notions of Mobility

Mobility, in terms of physical mobility, seems to be of minor importance at both project stages. Also, immediate and ad-hoc aspects, which are considered to be key for mobile learning, are excluded in favor of transfer and storage options. Immediacy might be relevant in terms of capturing experiments which are short-lived and ephemeral.

The technology-dominated phase in the two project stages gives way to pedagogical aspects which arise through the recall of the material and the common study of the learning materials at a later stage. The platform as repository, which can be accessed by all learners, provides a frame which defines the use of the stored material in terms of a common basis. On this common basis students can refer to and discuss curriculum-related tasks and questions in a collaborative and discursive process. The advantage is that students have relatively objective, filmed resources which are not interpreted in advance through the attempt to describe the physical experiment with one's own words. The initial position of all learners is the same and thus forms the basis of a common meaning-making process. Collaboration takes place via the provision of learning materials and by means of each learner contributing to this task.

The recourse to recorded and stored material allows non-professionals to become experts in evaluating learning achievements. The adequacy of learners' explanations can be evaluated by the project teacher on the basis of his knowledge. In addition, other learners, who might not be experts in the respective field, are also able to assess the learning achievements of their peers by referring to the recording of the experiment, in order to determine if the explanations meet the process and characteristics of the experiment. This might be an improvement in the evaluation process and of the use of mobile phones in connection with a digital repository.

As mentioned above, mobility in this case might also include the mobility of modes. Written or spoken text, which aims to describe a process, might be replaced by visual sequential modes such as film. An advantage of filming processes instead of describing them might be the relative objectivity of documented material over spoken or written descriptions.

Replicability and Transferability

By using mobile phones as tools for documentation and by providing software which allows learners to immediately upload their recordings to a platform, learners and teachers have the opportunity to learn and teach and to do so independently from specific locations. In Dr. Schittelkopf's projects, the only reason for staying inside the classroom instead of learning Physics outside is the experimental setup, which is related to a specific compulsory curricular task. However, in general the setup of the project allows replicability independent from the subject as well as from a specific location.

Applications

In order to address not only practitioners through project concepts but also people who are only interested in the use of single applications, or in references to literature and project websites, MoLeaP covers these applications as well. The applications section covers the following information (this may change at a later stage depending on user needs):

1. Application name
2. URL
3. Country
4. Year
5. Copyright
6. Contact
7. Partners
8. Language(s) in which the application is available
9. Price
10. Open source (yes/ no)
11. Compatibility with the following mobile devices/operating systems
12. Further media required to use the application
13. Educational establishment
14. Phase of education
15. Subject domain
16. Teaching/learning focus
17. Tags/keywords
18. Optional text field
19. Short description/ background info

Resources

The option to systematically submit references, e.g. to project websites, to the database makes project websites quotable and allows researchers to refer to such projects in texts by means of references. The following information can be submitted to the database:

1. Title
2. Author(s)
3. Editor(s)
4. Project holder(s)
5. URL
6. Country
7. Year
8. Language in which the resource is available
9. Tags/keywords
10. Optional text field
11. Short description/ background info

Contribution

In the context of our work in the field of mobile learning, we were confronted with the fact that even if a tremendous number of mobile learning projects as well as other resources exist, no database could be found which provides a comprehensive overview of existing mobile learning projects or focuses on a standardized set of categories which allows interested parties to search by certain strings for specific projects according to their (research) interests. With this in mind, the idea to build a mobile learning project database evolved. During the conceptualization of the MoLeaP database there were two components which provided a basis for the database design. One is research of the LMLG, which aims to develop an analysis framework around the notion of a socio-cultural ecology. This allows for project descriptions and analyses independently of their location, context, methodology, and aims, and thus for a comparability between different mobile learning projects. The other component relates to already existing databases and resources, which served as a model for the current project, such as www.lehrer-online.de, www.handysektor.de, www.klicksafe.de, www.handywissen.at or www.internet-abc.ch. Further resources with mobile learning projects are provided by the Kaleidoscope Mobile Learning SIG (now: The International Association for Mobile Learning – IAMLearn; (http://mlearning.noe-kaleidoscope.org/projects/), the Futurelab mobile learning literature reviews and handbooks (http://www.futurelab.org.uk/resources/publications-reports-articles) as well as Becta (http://www.becta.org.uk/). Furthermore, proceedings of mobile learning conferences such as mLearn, Handheld Learning, and IADIS are seen as valuable potential resources in this field. In order not to ignore the efforts and relevance of these resources, MoLeaP provides links to these resources and thus access to further references beside those available in the database itself.

The MoLeaP project is at an early stage of implementation and represents work in progress. Because MoLeaP is a relatively new service – it was launched in December 2009 –, there are no results available to date which allow an estimation of the acceptance and/or use of the database. Future research will focus on these aspects.

Reflection

MoLeaP aims to provide a rich resource for mobile learning experiences in order to allow researchers and practitioners from all over the world easy access to projects and relevant resources. The categories for project description might assist practitioners in planning mobile learning projects and enhance dissemination, replicability, and transferability of projects by providing a common basis. It is hoped that the database will be able to support educators in the implementation of mobile media and mobile learning projects in any educational context and that it contributes to sustainability in teaching, learning, and research.

References

e-media (2008). Mit dem handy auf draht [With the cellphone on wireless]. *E-media*, *3*, 40–43.

Faux, F., McFarlane, A., Roche, N., & Facer, K. (2006). *Handhelds: Learning with handheld technologies: Futurelab Handbook.* Bristol, UK: Futurelab.

Kress, G. (2003). *Literacy in the new media age.* New York, NY: Routledge.

Kukulska-Hulme, A., Sharples, M., Milrad, M., Arnedillo-Sánchez, I., & Vavoula, G. (2009). Innovation in mobile learning: A European perspective. *International Journal of Mobile and Blended Learning, 1(1)*, 13–35.

Mobile Classroom Schultest Factsheet. Retrieved from http://www.fmk.at/media/pdf/pdf391.pdf?PHPSESSID=ba4c3f86c5fa8cea3a3df189c5cca3ea

Nischelwitzer, A. (2007). *Interview with Prof. Eduard Schittelkopf.* Retrieved from http://www.youtube.com/watch?v=zwgKnooEKlk

Nischelwitzer, A. (2008). *Mobile interfaces, learning and school: A set on flickr.* Retrieved from http://www.flickr.com/photos/nischelwitzer/sets/72157603856098206/

Pachler, N. (2009). The socio-cultural ecological approach to mobile learning: An overview. In B. Bachmair (Ed.), *Medienbildung in neuen Kulturräumen. Die deutschsprachige und britische Diskussion* [Media education in new cultural spaces. The German and British language discussion] (pp. 155-169). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften.

Pachler, N., Bachmair, B., & Cook, J. (2010). *Mobile learning: Structures, agency, practices.* New York: Springer.

Schittelkopf, E. (2007a). *Kurs: Spannung und Stromstärke.* URL on 24 August 2007: http://www.mobileclassroom.at/moodle/course/view.php?id=23. Retrieved from http://moodle.mobileclassroom.at/moodle18/course/view.php?id=5

Schittelkopf, E. (2007b). *Kurs: Spannung und Stromstärke.* Retrieved January 10, 2009; URL on August 24, 2007: http://www.mobileclassroom.at/moodle/course/view.php?id=23, from http://moodle.mobileclassroom.at/moodle18/mod/forum/discuss.php?d=17

Schittelkopf, E. (2007c). Handy Im Unterricht. Retrieved from http://www.slideshare.net/schittelkopf/handy-im-unterricht [Stand 2010-02-11].

Schittelkopf, E. (2008a). *I did IT-Videos 1*. Unpublished video in possession of author.

Schittelkopf, E. (2008b). *I did IT-Videos 2.* Unpublished video in possession of author.

Schittelkopf, E. (2008c). *Peer Movies 1.* Unpublished video in possession of author.

Seipold, J. (2008). Mobile phones in school: Selected m-learning projects from Great Britain and the German speaking countries. In T. Hug (Ed.), *Media, knowledge & education: Exploring new spaces, relations and dynamics in digital media ecologies.* Innsbruck, Austria: Innsbruck University Press.

Seipold, J., Pachler, N., & Cook, J. (2009). Towards a methodology of researching mobile learning. In N. Pachler & J. Seipold (Eds.), *Mobile learning cultures across education, work and leisure. Book of abstracts. Proceedings of the 3rd WLE Mobile Learning Symposium, London, 27th March 2009* (pp. 121–128). London, UK: Institute of Education, WLE Centre. Retrieved from http://www.londonmobilelearning.net/symposium/downloads/3rd_wle_mlearning_symposium_-_book_of_abstracts_single_page_display.pdf

SourceForge (2009a). *Mobile Moodle (MOMO).* Retrieved from http://sourceforge.net/projects/mobilemoodle/

SourceForge (2009b). *MLE - Mobile Learning Engine*. Retrieved from http://sourceforge.net/projects/mle/