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Designing a blended learning model for primary school language learning
How can mobile production promote pupils in portfolio-work in language learning?

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In Finland, there is a desperate need for flexible, reliable and functional multi-e-learning settings for pupils aged 11-13. Southern Finland has several ongoing e-learning projects, but none that develop a multiple setting, with learning and teaching occurring between more than two schools. In 2006, internet connections were not broadband and data transfer was mainly audio data. Connections and technical problems occurred, which were an obstacle to multi-e-learning. Internet connections today enable web-based learning in major parts of Lapland and by 2015, broadband will reach even the remotest villages up north. Therefore, it is important to research the possibilities of multi-e-learning and to build collaborative, learner-centred, versatile network models for primary school-aged pupils. The resulting model will facilitate distance learning to extend education to rural, sparsely populated areas, and it will give a model of using mobile devices in language portfolios. This will promote regional equality and prevent exclusion. Pupils’ ages may be a challenge; pupils from 11 to 12 are not able, or not allowed, to work on the internet alone or independently. Consequently, asynchronous, independently taken web-based courses are not suitable for primary school-aged pupils. Saari Primary School is located in the town of Rovaniemi in Finnish Lapland. The Saari School’s primary concern is languages. Since 2006, Saari has focused on developing e-learning environments in optional languages, so called A2-languages for pupils from 11 to 12. The current e-learning German group is physically located in four different schools. A German teacher teaches in each school changing her location weekly. The online connection between schools is created and offers a video conferencing program. Pupils can see each other as a class on the screen. The video conferencing system enables document and desktop sharing. Each school has an assistant who helps pupils with both technical and pedagogical questions, though the teacher is only responsible for the pedagogic aspects of the class. Pupils work on their laptops. The German class has it own web page to inform and to organize pupils’ portfolio work.

Portfolio work is based on the framework of European language learning. Working with portfolios is a solution to gather the group together socially and virtually on the same platform. It is also a solution to make lessons visible, to have a place to publish artefacts and to make the learning process visual, as well as to highlight the goals for learning. The most important aspect is that each pupil can produce portfolio artefacts individually, but process learning in peer work. Working with portfolios provides the opportunity to develop mobility from a pedagogical point of view. It is important to study the pros and cons of mobile devices in producing artefacts on portfolios in e-learning and language learning settings.

The practical aim of this study is to build a blended learning model, which is suitable for primary school pupils. According to Kagan & Kagan (Sahlberg & Sharan 2002), each environment, including e-learning settings, should contain different classroom structures and practices.

Research approach
The current study represents a design-based research approach. The design research approach includes two important aspects concerning the current research: ‘a teacher as researcher’ aspect, which means there is the possibility to be strongly involved in developing processes and an obstacle-aspect, which means that problems while developing, are seen as a promoter in evolving the designed model, as opposed to negative results. What determines design research best is its purpose to produce innovative development. It is meant to be any kind of research that produces findings that are modified back into further cycles of innovative design (Bereiter, 2002). “A goal of design research is to improve the way a design operates in practice”(Collins, Joseph and Bielaczcy 2004). The research has some distinctive characteristics, which Bereiter (2002) describes as the following:
1. Design research is carried out by or in close collaboration with designers. Design research
is part of the design process. This is obligatory.
2. Design research is inherently interventionist. In practice, this means that researchers are participant observers but also actors, they are trying to make something happen.
3. The most immediate goal of design research is the solution of problems modified on the basis of perceived shortcomings and obstacles. In other words, attention is paid to negative results. This is in contrast to many educational communities that vigorously reject any negative evidence or criticism.
4. Design research is guided by some vision of unrealized possibilities and is characterized by the goals that arise and evolve in the course of phases of design and research.
   As mentioned above, researchers need to work closely with practitioners. As a matter of fact, my role as ‘a teacher as researcher’ is a perfect match for this research approach. Evidently, it is a remarkable advantage to be a practitioner as well as a teacher, a researcher and an avid design-model developer. Also, on the basis of this approach, practitioners need to be the ones who are receptive to innovation and willing to experiment with unproven methods. In terms of methodology, design research is not particularly a method, but it may employ other methods (Bereiter, 2002).

Objectives and research questions
Besides refining the practice, design research should also address theoretical questions and issues (Collins, Joseph & Bielaczyc, 2004).
A practical design-problem in this study is to develop a blended learning model for primary school language learning. A theoretical problem is to research how mobile production can support and promote pupils in portfolio-work in language learning.
The research question is to investigate
What should a blended learning model consist of to promote pupils’ autonomy and in producing content for portfolios in language learning?
The more specific objectives of the study are:
1. Of what should a blended learning model consist in language learning?
2. How does portfolio work promote pupils’ autonomy?
3. How do the elements of mobility come true in blended learning settings?
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Pedagogical framework
Pedagogical framework consists of approaches and theories, which are considered according to the phase of the study. In the beginning of the virtual project at Saari, in 2006, the focus was on the structure: what should be taken into account in building up an e-learning model with mixed use of face-to-face teaching and e-teaching? This mixed model is called blended learning (phases 1-2). The work with the model was carried out persistently, as was the simultaneous search for a pedagogical approach into language learning in virtual environments.
The practical development, in terms of functionality and technology, was satisfactory in 2008. Still, there was an urgent need to find an appropriate pedagogical approach from the pupils’ point of view, in organizing and combining the pupils’ material and their interest in social media with the current development phase. In late 2009, the missing approach was found and the work with digital language portfolios (phase 3) in Common European Framework of Reference for Languages (http://www.coe.int/T/DG4/Linguistic/CADRE_EN.asp) has started. The portfolio work is accomplished with laptops. Laptops are seen as a mobile device for sharing resources, information, social media or in producing content. Thus, mobility (phase 4) is an approach to investigate mobile elements (Kynäslahti, 2003).
Blended learning
The definition of e-learning has changed over the years. Adams, Hanesiak, Morgan, Owston, Lupshenyuk & Mills (2009) define the term blended learning as “a combination of various instructional modalities combined with synchronous web-technologies to facilitate interactive and reflective individual and collective learning.” The authors also state, that this definition offers “maximum flexibility for innovating and developing the full potential of the blended learning concept”. Blended learning is a way to combine asynchronous and synchronous access, electronic-learning or mobile learning, varying materials, individual work and group work, methods and pedagogic approaches. See the figure below by Adams (2009): Figure 1. Blended learning (Adams, 2009).
Blended strategy is a mix-and-match approach, but it is not just about selecting various delivery methods and putting content in front of learners in a variety of formats. The “driving design factors for blended learning are modern pedagogy, learners’ needs and expectations,
and technology” (Adams, 2009).

Blended learning’s advantage is its flexibility. From the learner’s point of view, it takes into account diverse learners, learning methods and strategies. In terms of language learning, learning should be cooperative and in blended learning settings. Kagan and Kagan (2002) are considering cooperation through structural approach and interaction. Classroom structures are chains of varying interactions between pupils and a teacher. Languages are learned explicitly in interaction, so every part of the chain of interactions that is missing, or is not possible to put into practice, diminishes the possibility to learn. Interaction impacts deeply in pupils’ social, cognitive and academic progress, including language learning and social skills (Kagan and Kagan, 2002). Evidently, interaction is essential in language learning. In an ordinary face-to-face classroom, interaction is a question of pedagogical solution, classroom practices, such as plays, drama or dialogs. In blended learning settings, new solutions should be found to enhance pupils’ interactivity. This is noteworthy, especially when the pupils are physically located in separate schools. It is important to find ways and means to maintain interaction and collaboration between separate schools. The school lessons are constructed from different elements. Elements consist of two or three sections: actors (a teacher/a pupil), acts and objects (a classroom). The teacher creates interactive elements with at least actor- and act-sections. Sometimes there is also an object. For example, pupils interview each other on the network. The elements vary according to the goals.

In designing an environment for blended learning settings, it is a question of combining different environments, both virtual and physical. It is also a question of combining different technologies and pedagogical approaches in using technologies and in structuring blended learning. Therefore, the modification is rather a model than a new learning environment. Also, Tella (2004) points out the current possibilities in human language technology. He mentions a plan to combine language learning, different media and e-learning.

**Mobility**

Oksman (1998) says that place is irrelevant to mobility. Evidently, when something is on the move, the location does not matter. Mobile devices are small and compact, and easy to carry to school. Combining learning and mobile devices is an opportunity as opposed to a challenge. However, this aspect is rather new in education, especially at the primary school level. This is inconsistent with the fact that children and young people are increasingly using mobile devices. According to the Kaiser Foundation, in January 2010, children used mobile devices for more than seven hours per day. One key could be to find a way to make the walls of an educational organization more permeable (e.g., Kynäslahti, 2003).

The approach to mobility in this study is characterized as media educational, concerning the way mobility represents wider cultural and social milieus (Kynäslahti, 2003). This approach takes into account the needs and intentions of people from an educational point of view. It is also a question of resources. The aspect of resources points out the idea, that learning with mobile devices provides an opportunity to learn in different contexts, and to produce content in language learning settings. This aspect takes into account how well certain resources are integrated into the activities (Collins, Joseph & Bielaczyc, 2004). Mobility is a resource that enables different pedagogical solutions in language learning. The aspect of resources will be considered in analyzing the outcomes of this designed model from three essential elements: convenience-rationality, expediency, and immediacy (Kynäslahti, 2003).

Convenience-rationality means that a pupil is able to choose a suitable time and place to perform his or her educational activities. He or she is not moving for educational reasons, he or she is rather using the mobile device for educational reason. This aspect also holds some promises for enhancing the quality of learning and life. There are two aspects of expediency: Firstly, we can learn something in a certain place, and this knowledge is worth transmitting elsewhere using mobile devices, or, secondly, we can travel to a certain place with the educational purpose to transmit the knowledge, which can be used locally.

**Digital portfolio**

The portfolio is a sample of artefacts and learning outcomes, as well as learning processes. Digitally produced works are produced with the aid of computers (Barret 1999; Kankaanranta & Linnakylä, 1999; Niguidula, 2005; Niikko, 2000). Digital portfolios can be stored in network environments where accessibility is either free or password protected (Barret, 1999). Portfolios can be shared to two sections on the network, to private and to published sections. The private section is the processing part of the portfolio work, while the published section displays
the finished product. Pupils, parents and teachers assess the whole process and progress. While working on portfolios, pupils reflect their thoughts as language learners, and also their working in portfolio settings. Helen Barret (2010) has combined all factors from private portfolios (Workspace) and from published portfolios (Showcase) in the figure below:

Figure 2. ePortfolio (Barret, 2010).

Portfolios in this current research are considered from the point of view of The European Framework in Language Learning. The Common European Framework provides a common basis for the elaboration of language syllabuses, curriculum guidelines, examinations, textbooks, etc. across Europe. It describes in a comprehensive way, what language learners have to learn in order to use a language for communication, and what knowledge and skills they have to develop so as to be able to act effectively. The Framework also defines levels of proficiency, which allows learners’ progress to be measured at each stage of learning and on a life-long basis (CEFR, 2001). But the main focus of portfolio work is on each pupil’s autonomy, learning self-assessment and individual language learning. According to Little (2004), there are some principles, which promote a learner’s autonomy: a learner’s commitment, a learner’s reflection and the appropriate use of target language (Mäkinen, 2008).

Implementation of the study
As the original design research investigators, Roethlisberger and Dickson (1939), determined, in design research, there is no question about testing certain single variables in controlled experimental situations. On the contrary, the question is about the human situation, which is needed to be understood and described as an interdependent system with varying factors. In design research, it is important to analyze why certain elements of the design are not working, what causes problems and failures, and take a step further to modify the model. Thus, failures and critical elements, modify the design and mark the border between phases. In other words, each modification starts a new phase. It is important to characterize the critical elements, and describe the reasons for making the modifications. The data, relevant to the research questions, should be collected in each phase (Collins, Joseph & Bielaczyc, 2004). The data of this research consists of inquiries, videos and interviews. In evaluation, pre- or post-tests were used, depending on the timing of the test. The main idea was practical: to develop a blended learning model in a primary school setting in language learning.

The project started as a pilot-project, not conducted by any University but by two teachers and a headmaster heading the resources. Thus, three phases (from the researcher’s point of view) are practical, modified for the reason; certain elements were not working. Each modification was made on the basis of inquiry (N= 18 pupils) and teachers’ field notes. Theoretically, there was ‘a Teacher as researcher’ approach. The teacher observed and ran the development and teaching processes. The piloting project started in September 2006, it was funded by the Board of Education as a Virtual School project, to facilitate the project and to support the foreign language learning. Participants (N=18) were primary school pupils who had chosen German as an optional language in 5th and 6th grades until spring 2008. The project was continued with new funding from the Finnish Board of Education. In autumn 2008 a new group of e-learning German pupils (N=15) started. On the basis of modification and teachers’ field notes, pupils started in a new video conferencing setting. In January 2009, the project turned into a study, an objective setting of the teacher-researcher’s dissertation, conducted by the University of Lapland. Since 2010, the study has been part of the OPTEK-research project, Educational technology in school’s everyday life-research project, coordinated by CICERO Learning and funded by the Ministry of Transport and Communications (co-ordination), Ministry of Education and National Board of Education and conducted by the University of Helsinki.

The developing model was called the ‘e-learning model in languages for grades 5-6’. The model provides a solution to carry on e-learning in multidimensional settings in terms of several schools, devices, circumstances and facilitators. It was important to build an e-learning model, which combines both environments, the virtual, network-based environment and the physical school environment in order to learn and teach optional foreign languages at primary school.

Phases
According to the idea of design based research, the teacher is an expert that contributes to different phases of the designed model. This research contains four phases, and a progressing
phase. In this paper all phases are described and their critical elements are identified, but the focus is on the fourth phase.

All the variables cannot be controlled. Instead, design researchers try to optimize the design as much as possible to observe carefully how the different elements are working out.

The observation entails both qualitative and quantitative observations. When an element is not working, the researcher should consider different options to improve the design and institute design changes as frequently as necessary, with respect to how they fit with other elements in the design. Thus, the evaluation is an ongoing process. Ethnographic methods are also optimal in design research, because ethnographic research produces rich descriptions in inquires to explain and make it possible to understand what is happening and why. (Collins, Joseph & Bielaczyc 2004.)

Each implementation is different. Therefore, in evaluation it is important to identify the critical elements carefully and describe how they interacted and how well these elements worked together toward the designer’s goals. There should be five sections in reporting on design research: goals and elements of the design, settings where implemented, description of each phase, outcomes found, and lessons learned.

**Phase 1: Developing a blended learning model in language learning**

The first phase started in 2006, as a virtual project. Since the early 90s, there has been an enthusiasm to build up virtual learning environments. Schools were fairly well facilitated with hardware. Saari School’s Virtual School Project in optional A2-languages for 5th and 6th graders was funded by the Board of Education because of its pedagogical approach to ICT. The project was called Saari School’s Virtual Project. The goal was to develop an e-learning model in language learning, and the focus was in observing what devices (hardware), what programs (software), and what other materials were needed to structure an e-learning model, as well as discovering the pedagogical approach on networks. The project consisted of 18 5th graders from four different schools in the area of Rovaniemi. From the beginning of the project, it was evident that pupils, as well as teachers would need their own computers. A program needed to be installed on to all computers that would allow users to access the virtual conferencing classes. In the beginning of the project, all pupils were transported to Saari School because the hardware was not available elsewhere (due to local administrative delay) until December in 2006. Until then, the German group was learning as an ordinary A2-language group, twice a week at Saari School. In January 2007, the group was transported on Tuesdays to Saari School and on Thursdays they learned at their own school with their laptops. In addition to their computers, pupils always had their paper books. Pupils needed printed texts and workbooks and in 2007, not all of them had access to the internet at their homes. The audio-connection with computers seemed not to be enough. In an inquiry at the end of April, when asked about the pros and cons, pupils (N=16) complained that they would like to see each other and their teacher, and not only a picture of their teacher. Evidently, group cohesion is important in enhancing learning processes (Kagan & Kagan, 2002). Students also complained that it was difficult to follow what was happening during the lesson. Due to their complaints, pupils got a copy of the lesson plans every Tuesday for the Thursday’s elearning lesson. Most of them had their lesson plans at Thursday’s lessons, but some of them lost them regularly. Paper copies were not enough either.

**Outcomes:**

- **Pros:** Tuesday’s lessons were face-to-face lessons. Information was easy to share and progress with schoolwork could be verified.
- **Cons:** Pupils could not see each other, the teacher could not see what happened in other schools, there were no assistants in other schools, and arrangements demanded a lot of effort from the teachers.

Solutions: A web conferencing program, web pages for the German group, school assistants with pupils in other schools, and rationalization of teachers’ work.

Evidently, the goal was to design the model where interaction is possible in all circumstances, between all actors, and that a teacher could create classroom elements appropriate to each learning target.

**Phase 2: Developing a blended learning model in language learning. Building web pages to inform and to share web-based resources**

Since August 2007, all the learning was carried out in pupils’ own schools; transportation was no longer charged for optional studies. Therefore, it was important to consider the critical
elements in improving the model for the coming periods. The critical elements in the first phase caused modifications to the second phase. The web conferencing program made it possible to see the teacher or another person online. It was a great progress to see an online picture of a talking person, at least one at a time. It also increased group cohesion by allowing all group members listed on the program’s virtual classroom-page to be seen on each computer screen. Each school was contacted at the beginning and the end of the lessons to get a live insight into the classes, and to let some pupils interact with their teachers. Each school arranged for a person who was responsible as a teacher or an assistant. Lesson plans, material links and other resources were available to insert into the schools’ German group web pages. It was possible to rationalize the teacher’s work. Every lesson could be inserted on to web pages beforehand, and planning was easier when editing became familiar to the teacher. The German group’s web page was set to be the default browser on the pupils’ computers. During the ongoing period, the lack of certain classroom structure was becoming irritating; there was not enough interaction between pupils. Two pupils learned alone at their schools and could interact only with their teacher. Collaborative activities belong to language learning as a natural part and interaction is essential. Lessons are chains of interactions, so every part of the chain that is missing, or is not possible to put into practice, diminishes the possibility to learn (Kagan and Kagan and Sahlberg & Sharan, 2002). This should be considered, especially when the pupils are physically located in different schools. This proved to be the critical element: to find a solution to interact both in peer work and ingroup work as a whole.

**Outcomes:**

**Pros:** The German group’s web page is a successful accomplishment: it is informative, easy and fast to edit, and is a gateway between schools and homes.

**Cons:** Web conferencing did not evolve the group cohesion. Pupils could not see each other as a whole class, the teacher could not see what happened in other schools while she was talking. Pupils were frustrated: they could only see their German teacher occasionally, approximately twice a period.

**Solutions:** Video conferencing system, Internet calls with Skype. Pupils learn at their own schools, teacher teaches weekly in each school to create face-to-face-learning situations regularly.

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**Phase 3: Building a blended learning model, which combines a virtual, network-based environment and a physical school environment. Developing web pages.**

In 2009, a new German group started in completely blended learning settings. The German group consisted of 15 pupils in four separate schools in Rovaniemi. The Finnish Board of Education still funded the project, but the town also supported the blended learning project both financially and mentally. Also, two other A2-language groups had started in Swedish. During the resulting inquiry, pupils expressed their dissatisfaction with the issue that they could not see the German class as a whole and they did not feel to belong to this German group, and a video conferencing system seemed to be the appropriate solution. Multipoint video conferencing connects several separate group conferences, and in the present case, several separate schools together. In order to promote group cohesion, pupils’ need to belong to a group. When using a Multipoint Control Unit (MCU), it is possible to share documents and a teacher’s desktop with any school. It is also possible to participate in Arctic Connect Ltd’s multipoint videoconferencing by using a mobile phone (http://www.arcticconnect.com/en/multipoint-videoconferencing.html). There was still the need to connect to each other, to make demanded peer- and group-work, in other words, to find ways and means to maintain interaction and collaboration in a network environment. Thus, in addition to video conferencing, the free application, Skype was loaded on pupils’ laptops, to make free calls over the internet. On Skype, pupils could make phone calls and do peer work independently. The primary focus of this 3rd phase was to develop an optional, versatile blended learning model that takes into account interaction and as many classroom elements as possible, in terms of e-learning settings (Sahlberg & Sharan, 2002).

During the period autumn 2008 to autumn 2009, video conferencing proved to be a success. There was no doubt of the system’s benefits. Each participant could see what was happening with one glance, while all pupils could be seen on the screen projected by a data projector. The possibility to share documents, desktops and to use a document camera to share pupils’ work, facilitated work and expanded the perspective pedagogically from the teacher’s point of view.

**Outcomes:**
Pros: Video conferencing is an essential part of blended learning. Through video conference, the classroom management is easier and it enables multifunctional use of technology and other devices.

Cons: Skype internet calls proved to be too complicated. Pupils forgot their passwords, web cameras were not compatible for all laptops, and headsets were too often broken. The free access seemed to be a problem too: the teacher could not see which pupils were writing to each other on the live messenger. Pupils’ sensitivities should be taken into consideration in terms of bullying. The pedagogical thread was still missing: how to combine network, language learning and pupils’ enthusiasm in appropriate use of social media.

Solutions: Waiting for new laptops with integrated web cameras and new headsets, meanwhile working in pairs or groups at each school. Every lesson consists of interactive tasks. Producing content in digital portfolios was a missing thread to be found.

Phase 4: Portfolios as pedagogical frames
Pupils started their work on digital portfolios in the beginning of January 2010. The pedagogical thread was found. Digital portfolios combine network, language learning and pupils’ enthusiasm in appropriate use of social media. The focus on this phase is to develop a model for portfolio work and to enhance the use of mobile devices in producing artefacts in portfolios. Pupils worked in pairs to share and to build knowledge together. Pupils were encouraged to look at each other’s inserts in the public portfolios as well as to write in blogs to reflect their own work and progress. The digital portfolio proved to be a learner-centred approach to technology.

Outcomes:
Pros: Digital language portfolio is a successful pedagogical approach. It includes all the other reviewed approaches involved in previous design research, such as pupils’ pedagogical thinking, working collaboratively, and using mobile devices in producing content.

Cons: In inquiries, some pupils mentioned that the current portfolio pages are too complicated. Previous portfolios are not well organized. Pupils could not use their portfolios in an appropriate way. Inserting from some devices was impossible and frustrating. There should be more specific instructions in reflecting pupils’ progress.

Solutions: Portfolios will be organized in a new way. Portfolios will also include instructions on using the portfolio and reflecting on own progress. Using new mobile devices, as well as pupils’ own mobile phones in interactive tasks and producing contents in portfolios.

Phase 5: progressing
During the progressing phase portfolios will be organized in a new way. Portfolios should include more specific instructions in how to use the portfolio, but also how to reflect own learning processes and monitor own progress. The next goal is to use new mobile devices in interactive tasks and producing contents in portfolios. The goal is to investigate, could mobile phones been used in producing content in language portfolios and would it be appropriate in terms of learning languages.

Table 1. Designing a model.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Goal</th>
<th>Critical element, “promoter”</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1: Autumn 2006</td>
<td>To develop an e-learning model in language learning</td>
<td>Virtual, audio-e-learning environment did not consist any online-video setting: pupils could not see each other or their teacher; the lack of informative platform: pupils felt to be alone</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>-&gt; Webconferencing</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>-&gt; Web pages for German group</td>
<td></td>
</tr>
<tr>
<td>Phase 2: Autumn 2007</td>
<td>To develop an e-learning model in language learning including</td>
<td>To build web pages to inform and to share web-based resources Webconferencing did not evolve the group cohesion: pupils could not see each other as a whole class, teacher</td>
<td></td>
</tr>
</tbody>
</table>
could not see what happened in other schools -> Videoconferencing

Phase 3:
Autumn 2008
To build an blended learning model which combines virtual network based environment and physical school environment
To develop web pages
The pedagogical approach was missing
Pupils’ laptops should not be only an instrumental solution, a connective element -> Digital portfolios:
content production

Phase 4:
Spring 2010
To combine language portfolios in blended-learning model
Producing the content in portfolios:
laptops are not enough, pupils product more (for their own purposes) in their free time with their own mobile devices
-> Mobile devices

Phase 5:
Progressing
To develop producing with mobile devices

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Analyzing the design’s outcomes

Analyising the learning environment, we can see there are many different aspects that need to be considered in order to assess (educational interventions in) the design, and its outcomes.

On a cognitive level, learners are asked about their understanding, what they understand before they enter a particular learning environment and how that understanding changes over time. The interpersonal level addresses how well learners interact personally. It also considers, if there is any sharing of knowledge, or students’ bonds with each other, which encourage mutual help. The group or classroom level addresses issues of participant structures, group identity and authority relationships, as well as providing a sense of the goals. The Resource level deals with the resources available to learners and whether these resources are easy to understand and use, how accessible they are and how well they can be integrated into the activities. The Institutional or school level raises issues of communication with outside parties and support from the entire institution (Collins, Joseph & Bielaczyc 2004). Unlike the authors, I consider a sense of the goals as a cognitive aspect, a part of pupils’ pedagogical thinking.

In the current paper, the outcomes are considered from different aspects. The first three phases are considered from the interpersonal, from the group and from the institutional levels. The focus is on phase 4, and includes pondering the level of mobility as a resource.

Outcomes, preliminary results, phases 1-3

Interpersonal level:
The preliminary result of this design-research indicates that primary school-aged pupils do have the capacity for independent work on the network temporarily, but a teacher’s presence virtually or physically is important.

Group or classroom level:
As a consequence of this finding, the next modification of the blended language learning model consisted of many usual classroom practices and elements. The most important was to combine separate e-learning groups to one German class projecting them virtually on the screen. Group cohesion is very important in terms of motivation and learning outcomes. A teacher’s presence, live or virtual, seemed to be essential. Peer work, collaborative tasks, individual work and homework should also be a part of blended learning. The preliminary results also demonstrated that working in a network environment did not encourage the use of foreign languages in interaction. A solution can be the creation of a collaborative networkbased learning environment that utilizes multiple communication channels.

Institutional or school level:
The preliminary results also show that the ecological aspect of the educational technology should be taken into account as well as the aspect that the schools should not be a closed institution in the future. Only through cooperation with the public sector and companies will
the school remain involved in the development. The progressing phase 5 will be considered at
two levels: a cognitive and a resource level.

**Outcomes: preliminary results, phase 4**

The preliminary results of phase 4 are more specific, containing the research questions. The
research questions are considered at the resource level, with mobility as a resource.

*Research question 1: Of what should a student-centred, digital portfolio consist to be part of language learning?*

Pupils were satisfied with the present portfolio model. They mentioned that it was easy to work with and to produce artefacts into a portfolio, that it was a pleasure to do their “own work”, and that it was good that they could freely publish their works or insert them into their hidden, ‘x-files’. In response to the question: “How would you develop portfolios”, some pupils mentioned the need for more instruction in adding artefacts and the idea of self-esteem as a language learner. Some pupils suggested that in order to develop their portfolios’ structures more clearly, they would like to add more learning objectives into the portfolios.

*Research question 2: How does portfolio work promote pupils’ autonomy?*

Pupils enjoy individual portfolio work. According to them, the positives of portfolios was being able to work individually, to work freely, to produce unique personal artefacts, and to be able to make their own decisions while working.

Social media, blogs and publishing one’s own work is getting more interesting. Pupils are more conscious of what the sharing of knowledge means. Some pupils mentioned that blogs are nice, “I can impress myself in my blog. It is nice that I can decorate my own [public web-] page.” This pupil was enthusiastic with the audience. She decorated her page for others.


Pupils’ attitudes to language learning with laptops after school lessons were positive. Some responses to the task, “Describe your expressions with portfolios, while using laptops after school lessons” were: “It was handy”, “It made me really work”, and “I got my own peace while working”. Pupils also used a mobile device, laptop, while on the move or in a suitable place at a suitable time. According to their answers, pupils studied in the library. One girl used her laptop in the car, in the hotel, at her school camp, in the café and on the train. This has only been possible for a few years, when access to wireless networks was developed in the northern part of Finland. Also, mobile technology is developing rapidly. The devices are smaller, lighter, and more user-friendly. They can be used for many purposes, even simultaneously. The usage of mobile devices is trivial to teens today, and also the time used with media has increased to over six hours per day.

*Immediacy:*

Pupils want immediate access to the internet, regardless of where they are. Pupils did not want to use their laptops as ‘writing or producing machines’. “I did not do anything, because there was no access to the internet and I did not have a cable,” one girl described.

Access to the internet is essential in e-learning and in blended learning today.

**Outcomes, pre-test, phase 5**

As a pre-test, pupils were asked the following question: “Would you like to study with a mobile phone, if it contained the right applications?” Approximately half of the pupils (N=15) answered “yes”. One pupil said she was interested in downloading files on to her mobile phone and from her phone to her portfolio. One girl argued that, “I would not like to implicate my mobile phone into this.” This answer is interesting. Does this girl mean that she does not want to use her own phone? Would she like to try with another phone, perhaps the school’s mobile phone? Or did this girl mean that she would not like to learn languages/work with portfolios on a mobile phone. To conclude the pre-test, I highlight two critical elements: pupils’ desire to use mobile phones in their learning, and my interest to find out whether mobile phones are appropriate for language learning and in producing content for portfolios. This will be the focus of phase 5 in May 2010: can mobile phones be used to produce content in language portfolios and would it be appropriate in terms of learning languages. Also, pedagogical thinking will be considered from the pupil’s point of view during phases 2-5.

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**Conclusion**

Some conclusions can be made on the basis of the preliminary results. The boundaries between the school and free time can be lowered, as well as the transfer of information. Also, Kynäslahti (2003) points out that mobility indicates that the walls of an educational organization...
become permeable. Information and knowledge should not be seen as institutionalized or too academic. This result has risen lately in terms of lifelong learning. It is time to find new ways of learning and thinking about learning and possibilities to facilitate learning. Portfolios and mobility could be one solution. Tirri (2003) mentions, that new learning environments often rely on heterogeneous hardware platforms and contain different equipment. There are some who argue against this. Weiser (1994) points out that in many cases where the term mobile learning is used, it would be more accurate to use the term “ubiquitous learning” (Tirri, 2003). The notion of the learning environment can be recast to learning-inplace, whatever and wherever this happens to be (Leander, Phillips & Taylor, 2010).

According to Lipponen (2001), research in the future should be especially focused on the social infrastructures, including pedagogical models and uses, and in the interaction of social and technological infrastructures. This is the only way to provide the appropriate and optimal use of technology in supporting learning processes. In researching technology, the research can be outdated the day after publishing. Thus, there should always be some research heading from here far into the future. As pointed out, on the basis of design research, a new phase that looks into the consequences of change is needed. It is also a fact that there will always be opponents of change demanding it slows down. But educators need innovators. A school’s walls are said to be too thick, like barriers pushing real life far away. But do these walls really exist? What actually is the correct place to learn? The classroom is significant not just as a material location in which education research is located, but also as a conceived or imagined space (Leander, Phillips & Taylor, 2010.) These are interesting viewpoints in debating mobility and learning environments.

REFERENCES
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