



A Case Study on the Futures Mobile Work-based Learning

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A Case study on futures work-based mobile learning

- The case study on the future views of mobile work-based learning continues the scenario research began with Nokia in the first phase of the Digital Learning project.
- Case study was implemented with one globally operating Finnish company whose mobile learning experts took part in Delphi.
 - In this case study we explore the conditions of mobile learning implementation in the operational environment of the company.
- With Delphi, we aim to highlight the present situation and the possible, probable and preferable futures (e.g. Bell 1997) of mobile learning from the viewpoint of one company.
- The more general aim of the study is to explore new and perhaps converging forms of futures mobile learning practices, personnel development and knowledge management in corporate settings.



The case company...

- Operates globally
→ multicultural, distributed working environment.
- Has an interest on developing solutions of mobile work and mobile learning in different operational areas.
- Has used mobile solutions around ten years in some locations and operations.
→ e.g. telecommuting, video conferencing, mobile terminals
- Example 1: Centra session on a gprs connection, telephone is used for audio
- Example 2: KCO Take care launch via Centra



Mobile learning at work

- We approach mobile work-based learning (or mobile learning at work) from the viewpoints of informal and lifelong learning (e.g. Sharples 2000; Merriam & Scaffarella 1991)
 - Learning is approached as activities connected to the service processes and personnel development of the company.
- We include also the possibilities of formal and non-formal learning situations where mobility is an elementary part of a learning process.
- In education, the boundaries of different learning types are blurring e.g. non-formal learning activities can be certified, and identifying, assessing and certifying of informal learning at the work place is increasingly discussed (Gray 2001; Colley et al 2002).



Mobility

- In principle, mobility is understood as a possibility for flexible learning everywhere, anytime.
 - In different situations learning activities can be supported with different media. When do the mobile solutions serve learner - or worker - the best?
 - The nature of learning makes the concept of mobile learning ambiguous. Although the learner may be on the move, the learning activities still require some amount of stability and attention.
- In practice there are many factors affecting the process such as bandwidth, the capacity of the mobile device, the size of the user interface, the nature of the learning object and the nature of the learning situation itself.
 - This has forced design of the mobile services to focus strictly in situations of use and specific information needs (Pasanen 2002).
- Also cultural factors have significant effect on adopting new ways of working and learning.

5.7.2004

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Delphi study for the mobile learning experts of one globally operating Finnish company

- The idea in Delphi is to explore possible worlds and their realisations through collecting and iterating expert knowledge. (Linstone & Turoff 1975)
 - Delphi as a method for structuring a group communication process.
 - Basically, the group has at least one opportunity to evaluate and revise its views, and there is always some degree of anonymity for the individual responses (Kuusi 1999; Linstone & Turoff 1975).
- We applied Delphi as a hermeneutic and heuristic method of collecting and interpreting expert views, and concentrated on the deviating answers as possible weak signals in the future development.
 - On the first Delphi round the mobile learning experts (N=25) from eleven countries answered a survey basing on six future scenarios of mobile learning.
 - The second Delphi round was held in form of half structured interviews, in which the conflicting issues from the first round were further examined.

5.7.2004

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Scenarios of mobile learning as a starting point

- The organisational, psychological and cultural, pedagogical, and technological aspects depicted in scenarios represent the contradictory dimensions of mobile learning.
- This approach is based on the earlier studies on the future learning practices, mobile learning and teaching technology (e.g. Bonk & Cunningham 1998; Bork 2000; Caldwell & Koch 1999.)

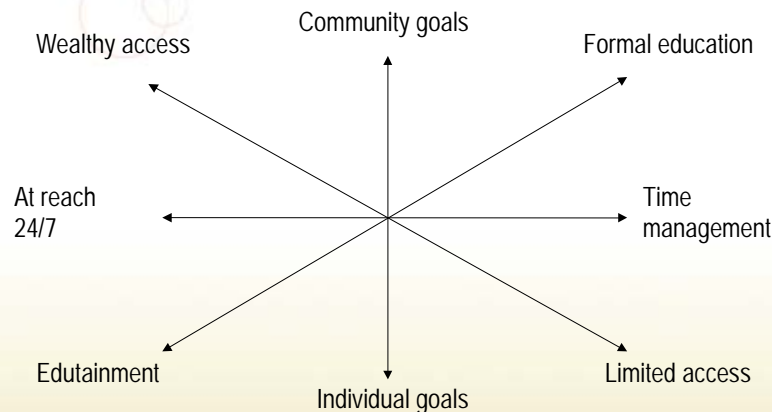
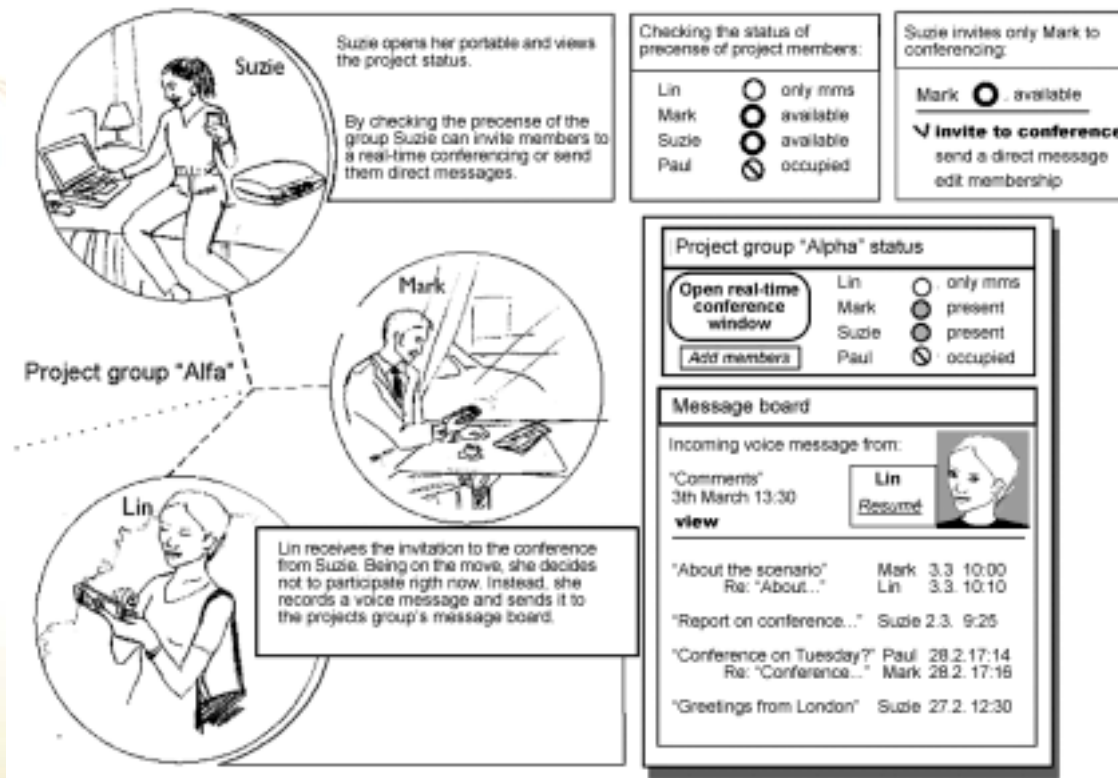


Figure 1. The opposing dimensions (Ahonen, Joyce, Kotala, Peltola & Turunen 2002) represent the possible development trends of mobile learning that embed so called wild cards, uncertainties (also: germs, weak signals, see e.g. Kuusi 1999) in the future.

Example of a scenario:



- The scenarios were presented in pictorial and narrative text forms.

- Six different models of action were depicted through actors, their situations, and their actions with materials in certain time and environment (Mannermaa 1991).

- Futures research would speak of the images of the future - scenarios should also show how to get there. (e.g. Kahn & Wiener 1967; Mannermaa 1991; Kuusi 1999)

5.7.2004

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Six scenarios of futures mobile learning

The scenarios - or images of the future - depicted:

1. Collaborative problem solving for learning and knowledge management purposes
2. Instant messaging services supporting collaborative, problem-based learning
3. Collaborative evaluation activities based on learning material
4. Simulation games that encourage problem solving
5. Field study and collaboration in face-to-face settings, supported by mobile devices
6. Agent and network-based intelligence and tutorial learning

The first round of Delphi: the scenarios of futures mobile learning

- Each scenario was followed by an open-ended question of the strengths and weaknesses. The potential strengths, weaknesses, opportunities and threats of mobile learning were also phrased in statements after each scenario.
 - The data consists of the subjective beliefs and judgments of the expert respondents.
- We sorted the comments on the strengths and weaknesses of mobile work and learning basing on each scenario under wider and recurrent themes that represent the organisational, cultural and psychological, pedagogical and technological aspects of mobile work and learning.



Strengths	Scenario						Weaknesses	Scenario					
	1	2	3	4	5	6		1	2	3	4	5	6
Organisational aspects													
Mobility (no time or location constraints)		•	•				Different time zones		•				
Efficiency		•	•	•	•		Long response time	•		•			
Cultural & psychological aspects													
Flexible time management						•	Increasing demand for efficiency & time mgmt		•	•	•	•	
Sharing & learning from others, collaboration	•	•			•		Fragmentation in team work, reduced contacts		•			•	
Audiovisual input & output	•				•		Required learning and IT skills, acceptance	•	•			•	
Pedagogical aspects													
Real cases for learning	•		•		•		Different interpretations			•			
Simulation as a safe way to practice real situations				•			Gap between real life and simulated cases				•		
Simulation as a motivating way to learn				•			Bonus & Publicity as rewards				•		
Individual working methods, self-monitoring					•	•	Motivation to learn voluntarily, self-direction			•	•	•	
Instructional learning						•							
Technological aspects													
User-friendliness & flexibility		•					Usability of the system (bandwidth and device)	•		•		•	
Feasibility			•				Lack of interoperable standards		•				
Accessible, systematic database	•						Cost & added value of system	•	•	•	•	•	
							Data protection	•				•	

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The first round of Delphi: how the mobile learning experts commented on scenarios of futures mobile learning

- Strengths of the mobile situations presented in the scenarios:
 - Efficiency
 - Collaboration, sharing and learning from others
 - Learning in authentic problem solving situations
- Weaknesses of mobile learning based on scenarios:
 - Growing demands of efficiency and time management
 - Skills, abilities and motivation to learn and to use information and communication technologies
 - Usability of handsets and services
 - The added value and cost efficiency of the presented systems
- Some other contradictions that may turn into wild cards:
 - In scenarios 5 and 6 individual working methods and self-monitoring were seen as strengths which associate to motivation meanwhile in scenarios 3, 4 and 6 motivation to learn voluntarily and the level of self-direction were doubted.
 - Collaboration, sharing and learning from others was seen as strength in scenarios 1, 2 and 5 while scenarios 2 and 5 also raised threat of fragmentation in teamwork and reduced contacts.

5.7.2004

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The second round of Delphi: expert interviews on present and futures mobile work-based learning

- There are differences between countries, cultures and units in technology acceptance and in adopting new ways of working and learning.
- The views of the work-based learning and its evaluation also differ.
- Mobility is applied to the actual needs from the viewpoint of flexible learning and working.
- According to both the survey and the interviews, the main reason for applying mobile working and learning practices in our case company was efficiency.
 - Working in the virtual teams cuts travelling expenses
 - They enhance time management.
 - Accompanying working methods are perceived effective which also facilitates their distribution.
 - At their best, mobile solutions connected to the operational systems help to streamline the business processes when they enable communicating of the real time information from/to the field.



The second round of Delphi: expert interviews on present and futures mobile work-based learning

- As a starting point the certain status of the unit and its level of integration to the organisation culture are the preconditions for adopting different types of mobile operations.
 - Culturally, digital presence adds the new global sense of community and belonging to the same organisational culture.
- The basic condition for applying mobile work and learning is still the necessary level of the IT infrastructure.
 - Vital steps in launching new services are the maturing of the technologies, the usability of the systems, and the competitive advantage gained with the different forms of mobile work and learning.



The second round of Delphi: expert interviews on present and futures mobile work-based learning

- Instead of approaching the human resources development in the spirit of lifelong learning, more weight is still put on recognising the key skills from the viewpoint of organisational activities
 - Regarding learning and evaluation, some experts believe that the competence measuring will be more systematically approached in the near future. Evaluating informal learning does not seem plausible.
 - Others see the potential of mobile solutions in connection with knowledge management and tacit knowledge.
- Basing on the case study, we cannot see one future of the converging mobile work-based learning, personnel development, and knowledge management in the multicultural environment. Instead there seem to be many different possible futures.

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5.7.2004

Pehkonen, M. & Turunen, H.



Thank you!

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5.7.2004

Pehkonen, M. & Turunen, H.