

# Learning with Mobile Phones: A Survey of Expert Expectations

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## 1 Introduction

Late 2005 FernUniversität in Hagen, Germany, pursued a second evaluation of user experiences with mobile phones in learning settings. This time the major target group was experts in companies from the educational sector who are involved in the design, production and implementation of educational material and, thus, have particular experience with new media in (vocational) education and training.

1012 personalised requests for participation in the online survey were sent out by mail to carefully selected subjects including a reference to the online questionnaire and an access password. The questionnaire was composed of 23 questions separated in five different topic areas including trends, application areas, and challenges of mobile learning, personal experiences, and characteristics of the actual enterprise.

In return 170 questionnaires (i.e., 16.8 %) were filled out from experts in 137 different companies. Below we summarise and visualise an excerpt of the evaluation data that is most interesting to our mlearn2 project.

A German version of an extended evaluation report is accessible for download under URL:

[http://www.fernuni-hagen.de/BWLOPLA/ME/Mobile-Education.de\\_Kuszpa\\_2005.09\\_Survey-Hagen.pdf](http://www.fernuni-hagen.de/BWLOPLA/ME/Mobile-Education.de_Kuszpa_2005.09_Survey-Hagen.pdf)

An English draft can be found at:

[http://www.fernuni-hagen.de/BWLOPLA/ME/Mobile-Education.com\\_Kuszpa\\_2005.12\\_Online-Educa-Berlin.pdf](http://www.fernuni-hagen.de/BWLOPLA/ME/Mobile-Education.com_Kuszpa_2005.12_Online-Educa-Berlin.pdf)

## 2 Survey

About 85 % of the subjects have more than 5 years of experience with mobile phones. Nearly  $\frac{3}{4}$  of these phones have Internet access but 31.5 % of their owners never used data services like e-mail, Internet search or information queries. Only 10,7 % of the subjects own a smart phone and 48.2 % a PDA.

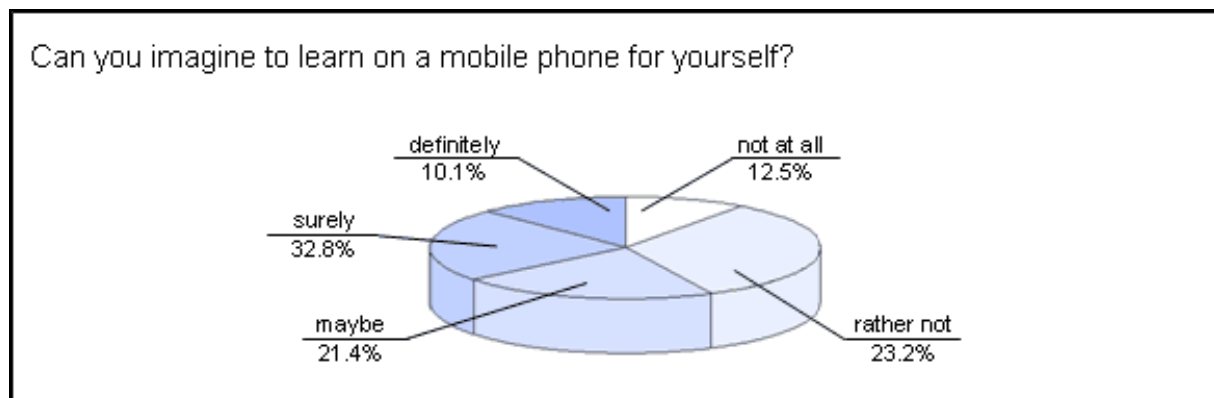
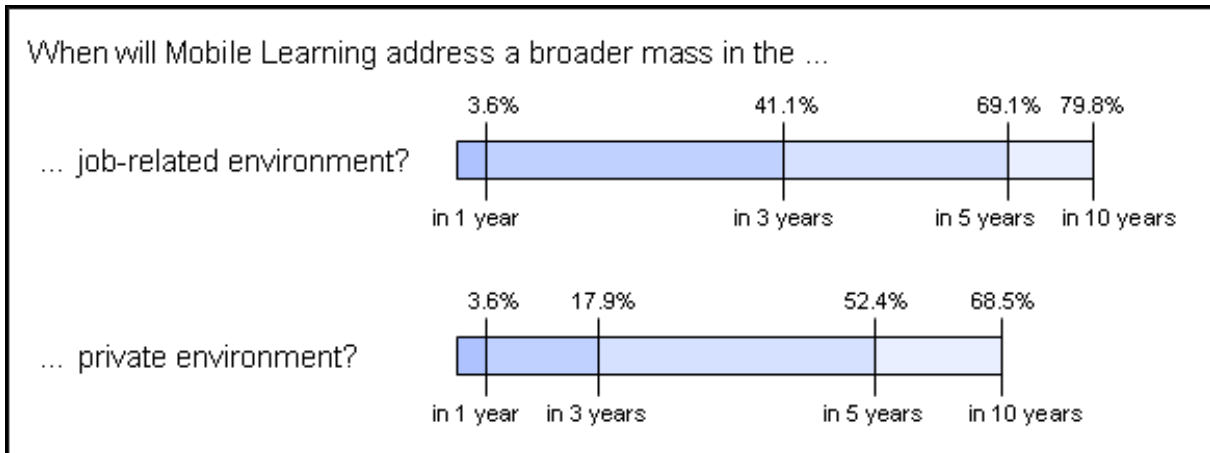


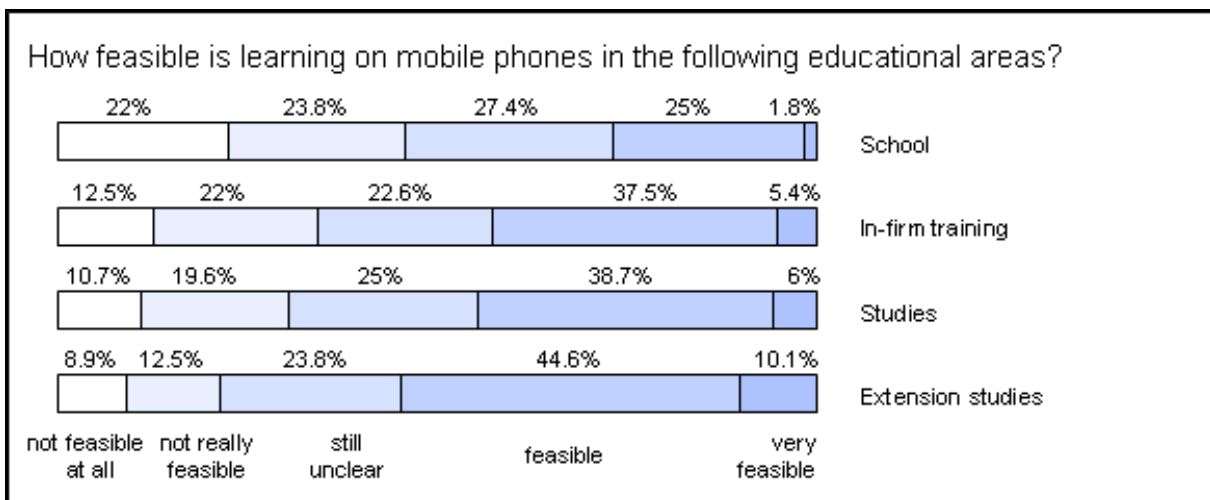
Fig. 1: Affinity for Mobile Learning

Figure 1 illustrates that 43 % of the subjects are willing to use a mobile phone in learning settings, 21.4 % are undecided and nearly ¼ is unwilling to learn with the help of a mobile phone.



**Fig. 2:** Expected advent of mobile learning at a large scale

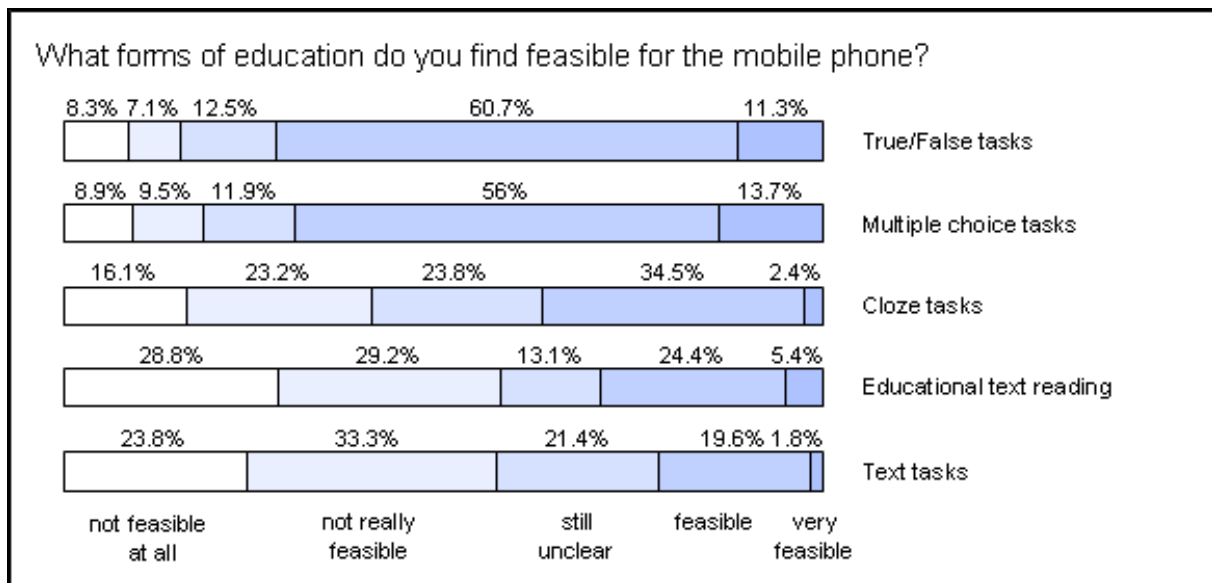
The question addressed in Fig. 2 tries to find out whether m-learning is just a superficial trend or rather an important asset to life-long learning. According to Fig. 2, 68.5 % of the experts share the opinion that the importance of m-learning will increase in the near future as opposed to 17.9 % who assign no relevance to m-learning. 41.1 % of the subjects even believe that mobile devices will gain substantial importance in learning within the next 3 years.



**Fig. 3:** m-Learning in different educational domains

More than half of the subjects are convinced that mobile learning offers are best suited for further education and vocational training. 44.7 % consider mobile phones adequate for higher education settings (3<sup>rd</sup> column). The introduction of mobile learning at schools is objected by a large group of 45.8 %. It is noteworthy that nearly 1/4<sup>th</sup> of the subjects is still undecided on this topic.

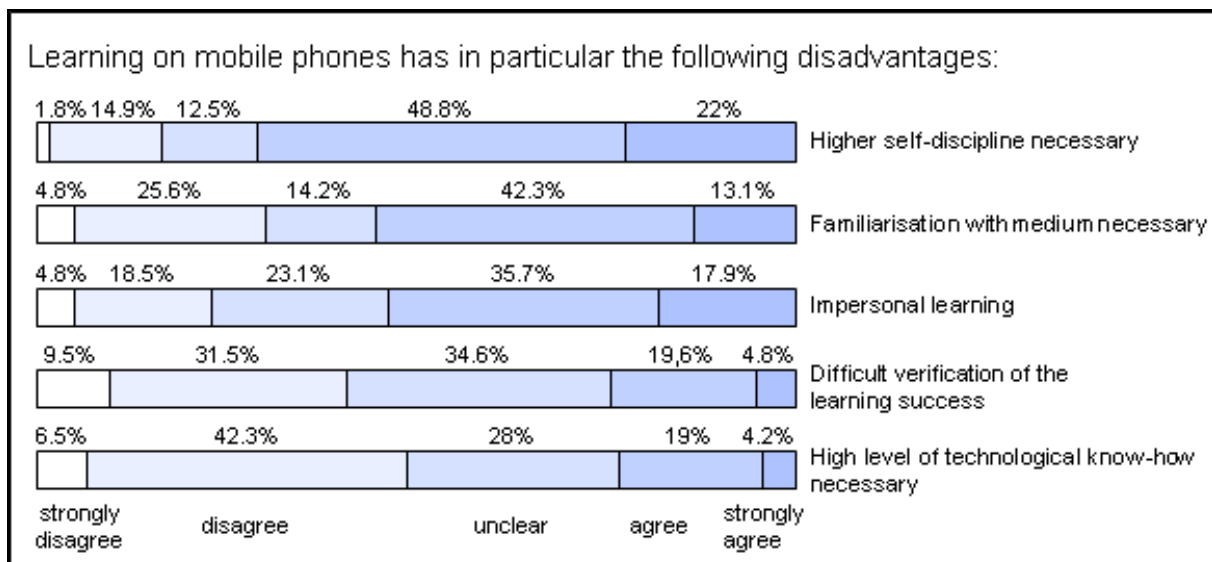
Figure 4 illustrates the distribution of answers to the question which types of learning activities and which types of content are considered most appropriate for mobile learning settings. True-false problems, in which the learner is exposed to a statement that he or she has to verify or falsify, are favoured with 72 %, a little lower rank multiple choice questions with 69.7 %, and fill-text tasks received a positive vote by 36.9 %.



**Fig. 4:** Forms of m-learning

Dealing with extensive text materials is considered inappropriate by 58 % of the subjects. Problem solving in groups supported by m-phones is viewed inappropriate by 52,4 %. The advantage of mobile learning was also seen in cases where just-in-time information is needed, e.g. glossary terms drawn from knowledge bases, in language training or in situations that refer to location-based services.

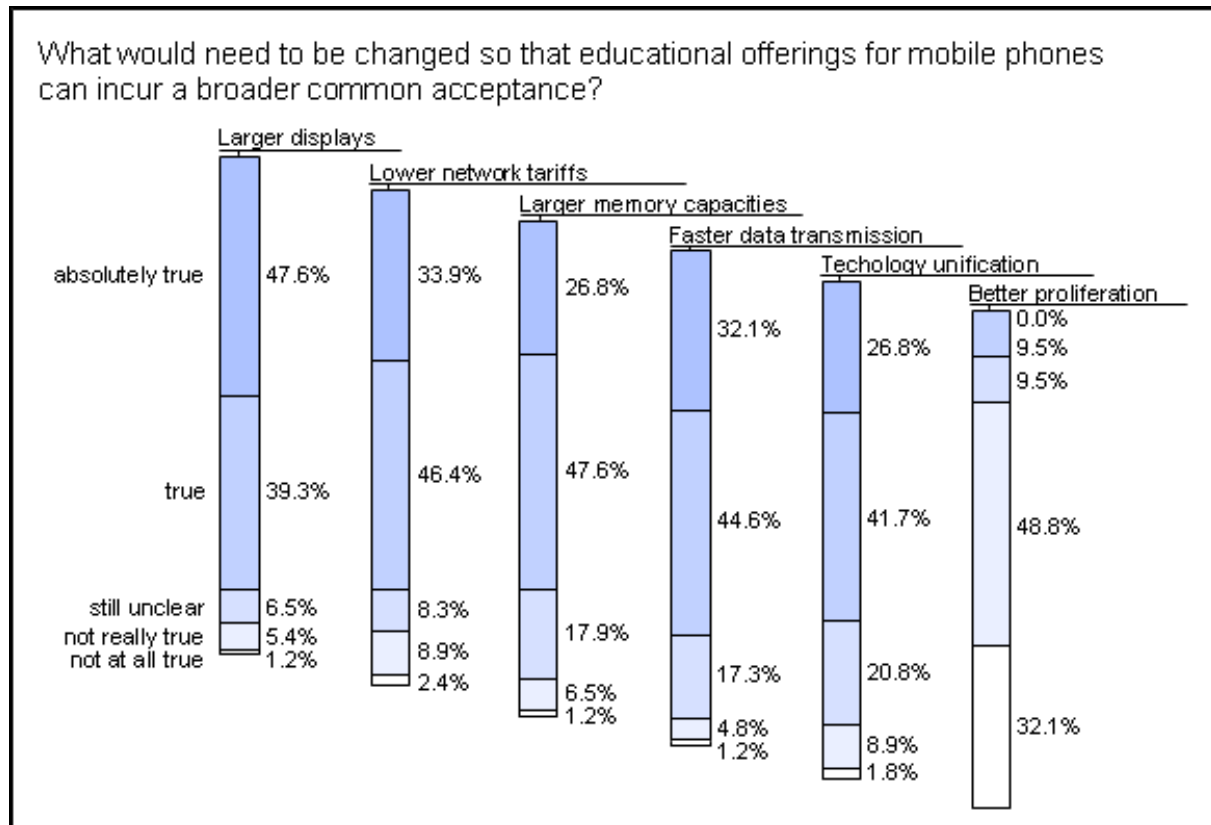
To the question which type of content is best suited for m-learning, 77.3 % of the subject nominate domain knowledge, 71.4 % view content that support work processes important. An example is a maintenance scenario in which deviations form the normal process occur and the maintenance engineer wants to learn more about further checking procedures. 59.6 % see a use of m-learning in language training.



**Fig. 5:** Disadvantages of m-learning

As the experts' opinions about the advantages of m-learning agree with earlier evaluations in the project (90.5 %: time and location independence, 79.2 %: individual learning speed, flexibility and availability), we focus on their opinions about disadvantages illustrated in Fig. 5. Self-discipline seems to be the greatest challenge for m-learning (70.8 %). Another barrier is seen by 55.4 % in the need to train the use of

mobile phones in learning situations, and 53.6 % feel a disadvantage in the impersonal form of learning supported by m-phones.



**Fig. 6:** Preconditions for a broad acceptance of mobile learning

The barriers for a broader use of m-learning as seen by the subjects are listed in Fig. 6. These results largely agree with the finding made in the first evaluation in the project pursued by FernUniversität. They include: small displays (86.9 %), costs (80.9 %), low transmission speed (76.7 %), limited storage capacity (74.4 %), and heterogeneity of Internet access protocol (68.5 %). The latter is particularly crucial for reducing development and maintenance costs for mobile learning applications.

### 3 Summary

The results of this survey have shown the mobile communication technologies, in general, and mobile phones, in particular, can be useful in selected learning settings and under certain preconditions. Mobile learning provides a high degree of mobility, flexibility and independence. Individuals can learn at any time and any location according to their personal learning budget. They can use unexpected idle times spontaneously for learning, obviating the need for computer access and availability of learning materials.