

# M-learning and Mobile Knowledge Management: Similarities and Differences

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**Abstract:** Existing e-learning and knowledge management projects have shown that m-learning and mobile knowledge management may have real and valuable contribution to development of knowledge society. The paper analyses and compares different m-learning and mobile knowledge management introduction scenarios based on evidence found in the literature. Special emphasis is given to the examination of current practices as they are found in m-learning and mobile knowledge management, similarities and differences are identified. The article attempts to find critical success factors for sustainable deployment in both m-learning and mobile knowledge management.

**Keywords:** Mobile Learning, M-learning, Mobile Knowledge Management, MKM.

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## 1. Introduction

Widespread availability of mobile devices and wireless networks offer enormous opportunities for knowledge acquisition both in terms of interaction with sources of information and in terms of collaboration. Development in microelectronics and telecommunication technologies provide continuing increase of processing power, improved interfaces, extended functionality, fast and diverse wireless connectivity for mobile terminals. Combined with tendency to go down in price per unit and having advantage of being truly personal mobile devices have a potential to become a valuable learning and information acquisition tool for everyone.

Mobile learning (m-learning) and mobile knowledge management (mKM) are relatively new areas of research and practice. Since their appearance in the last decade interest on using mobile technologies in different knowledge acquisition scenarios and contexts has risen enormously. Some research indicate exponential growth of number of Internet publications in m-learning [8]. There have been attempts to explore relations between e-learning and m-learning [6, 7], KM and mKM [4], even between KM and m-learning [5] but nothing so far was found on comparison of approaches in m-learning and mKM. This paper tries to close the gap by finding similarities and differences between mKM and m-learning as well as by finding critical success factors for sustainable development in these areas.

## 2. Mobile learning and mobile knowledge management

In relatively short history m-learning and mKM have proved their vitality and viability in knowledge sharing processes. Several research and implementation projects have been organized all over the world [7, 13]. The mobile approach allows delivering learning in place and time that was out of reach before. Though there are two different terms and two independent developments still m-learning and mKM are essentially about the same i.e. about learning and knowledge acquisition in a mobile situation. To compare m-learning and mKM let us first review existing definitions.

Many authors view m-learning as a further development of e-learning [7, 8, 10] or even more it is often considered as a sub-set of e-learning [3] or a sub-set of distance education [6]. Quite often definitions of m-learning are technology oriented like "learning that takes place with help of mobile devices". A number of sources define m-learning in intersection of e-learning and mobile computing [11]. For the purposes of this paper we will use definition given in MOBIlearn project [9] "Any sort of learning that happens when the learner is not at a fixed predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobiles technologies".

In most cases in literature there are descriptions of mKM system implementations rather than generic mKM definitions. Attempt to define mKM in a broader sense is made in [4, 13]. In [4] authors take a multidisciplinary view and mKM is defined in a merge of two research areas - mobile computing and knowledge management. Authors classify mKM as a subset of KM emphasizing extra value added by mobile and wireless technologies to classical KM tools and approaches. According to [4] mKM has its focus on *“the seamless integration of mobile work into the corporate knowledge management loop, especially where knowledge is associated while performing tasks, tasks necessitate out-of-office work and tasks necessitate communication”*.

From the literature survey and definitions above one can make conclusion that m-learning could be treated as mobile extension of e-learning technologies and approaches whereas mKM builds strongly on knowledge management technologies and approaches. Both of them rely heavily on mobile computing tools and technologies. Research outlines also similar nature of e-learning and knowledge management [14]. There is no widely accepted and strict borderline of what fits into mKM and m-learning research and application areas. Same practices and applications exist both in m-learning and mKM. Finally we may say that these research and application fields are diverse, complex and overlapping that could be represented graphically (see Figure 1).

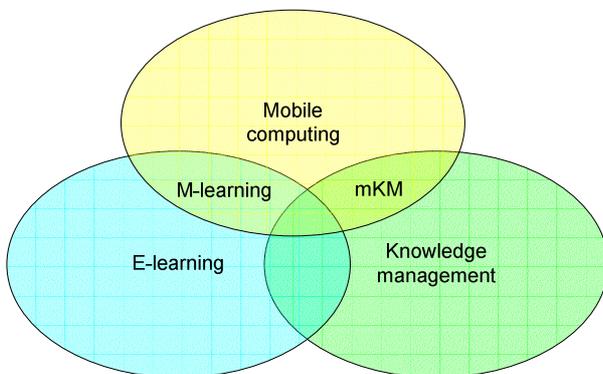


Figure 1. Interrelations of concepts

### 3. Similarities between mobile learning and mobile knowledge management

Although m-learning and mKM often are applied in different scenarios they have a lot in common:

- Both carry the attributes of any time and any place accessibility to knowledge as well as personalisation, context awareness for content creation and delivery, and option for permanent connectivity.

- Both make use of out of office learning situations or knowledge acquisition “without any pre-planned infrastructure” thus bringing information to where the people need it instead of forcing them to be in the place where information resides - classroom, library, etc.
- Both gain from advances in fields of microelectronics, wireless communications and human computer interfaces.
- Both use the same or similar technology tools and therefore have inherently the same range of technology limitation such as performance, limited memory, and software compatibility problems.
- In both adaptation of content is necessary when delivering either course content in m-learning from e-learning system or delivering a knowledge chunk in mKM from KM system. This involves creating a “cut down” versions of original material and also adding of new features provided by mobility.
- Both tend to support rich interactive multimedia communication and knowledge capture.

### 4. Differences between mobile learning and mobile knowledge management

One of the differences observed is much less research has been done and small number of internet publications available on mKM. Quick search on the Goggle reveals three orders of magnitude difference in number of publications when compared to m-learning. We were not successful to find any book devoted exclusively to topic of mKM. There are two titles however available from amazon.com on topic of m-learning [6].

If we look at the major differences between KM and e-learning we see that traditionally KM is being associated with corporate sector, whereas e-learning traditionally is being applied more widely including academic and vocational training sectors. This is still true to some degree to mKM and m-learning where a greater overlap between areas observed.

mKM is often mentioned in context of organisations more often than not encompassing it as entire system instead of providing separate courses as this is the case in m-learning. mKM tends to create a long term evolving system rather than simply training module and puts an accent on collaborative activities in particular.

## 5. Critical success factors for sustainability

Despite the fact that m-learning and mKM as a new research and application areas are becoming popular and many trials are being organized all over the world they still are not part of the mainstream yet. Several reasons could be identified.

- Although there is an enthusiasm to adopt new technologies for knowledge acquisition some institutional opposition to change exists [2]. New technology often comes with a requirement to change old ways of thinking and working. Extra motivation and building of new skills should be provided.
- Devices and platforms available for the areas are diverse so are the knowledge acquisition scenarios for each type of situation. It is resource and time consuming to produce customized materials.
- Technical capabilities is an important factor in developing sustainable m-learning and mKM projects. Larger colour display and some increased computing capability of mobile terminal are welcome.
- Cost of introduction is still high [2].
- Mobile operators and manufacturers of mobile handsets pay a little interest to knowledge sharing applications, as there is no real revenue stream [6].

A precondition for successful m-learning implementation is that technology should be widely available for massive usage to begin [6]. According to the statistics mobile device adoption is widespread and will continue to grow significantly.

According to numerous user trials [12] m-learning works best when it is a part “*of a blend*” i.e. a part of other learning activities. Therefore m-learning should be viewed as an accompanying element and not as substitution to either classroom or distance education. Integration of m-learning into e-learning and traditional teaching reported to be successful [15]. For wider implementation of m-learning it is important to achieve that universities incorporate m-learning approaches into curricula and grant some acceptance from educational establishments in forms of degrees, diplomas and certificates. There is no general agreement on how successfully m-learning integrates into existing learning processes. In some cases “m-learning” is finished as soon as project ends [6] still there are number of organisations that continue m-learning after the first trials are over [12].

Important is role of social networks in adopting of new approaches for knowledge acquisition [2]. There must be a discussion and sharing of best practices about the benefits of m-learning and mKM for increased their acceptance. Other critical success factors include interactivity, coordination, communication, and proper organisation [1].

For mKM to be successful it should be integrated in the knowledge management cycle of an organisation and effectively support knowledge creation, codification, sharing, and application.

## 6. Conclusion

M-learning and mKM are new approaches that contribute to transition to the knowledge society. Currently well developed e-learning and KM approaches do not take explicitly into account possibilities offered by user context e.g. location. This has provided a basis for new research and application area development with potentially large target audiences. Anyone with a need to access/create some sharable “information chunk” in a mobile situation is a potential user of mKM or m-learning.

Traditionally KM put an accent on organisational performance and goals providing work related information, whereas e-learning emphasized individual studies and development. For majority of people it becomes difficult to separate work from studies, and that is inherent property of knowledge age.

We conclude that although there are two different research and application areas m-learning and mKM they are similar in nature, they are merging at even faster pace as e-learning and KM does. There are more differences between KM and e-learning than there are between mKM and m-learning. Much of the research done in one area may be easily related to the other, technology and tools used are often the same. Overall there are many more similarities than differences.

It should be noted that M-learning and mKM are still at the begging to become a widely accepted way of knowledge acquisition. These fields are dynamically changing and developing along with supporting technologies and methodologies. Despite the fact both fields have a great promises for flexible knowledge acquisition it is clear that many situations will demand a combination of delivery and communication channels.

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