# PODCASTS: A BRIDGE FROM E-LEARNING TO M-LEARNING

**Larisa Savyuk, Oleksiy Voychenko**

***Abstract**: For educational organizations offering e-learning, intensive flow of technological innovations may be considered as both blessing and curse at the same time. On the one hand, many challenging tasks, such as creation of multimedia content, become easier with new technologies and tools, so e-learning creation, support and delivery is currently affordable in sense of investments and human resources as a part of common educational practice. On the other, large scale technological changes, such as transfer to a new platform, require meticulous analysis of potential benefits and drawbacks due to the need for personnel training, compatibility problems or unexpected development costs. Introduction of mobile learning as an option for distance learning delivery is a typical example. Nowadays e-learning services are available globally, so high technical quality and pedagogical soundness of learning offers are the issue of survival for educational organization. Technology innovations, as m-learning, cannot be ignored, taking into account wide availability of not only mobile devices but also mobile applications and services. Smartphone's and tablets are widely used by the youth for various forms of communication, including email, Skype and specific apps, for playing games, or for internet access to news, data and content - browsing/skimming, listening to favorite music or watching HD video. Therefore, e-learning organizations have no other choice than offer m-learning for their customers - a learning content in a mobile-accessible mode - as it enhances flexibility, extends "learning hours" by time spent on commuting, waiting, and unexpected breaks, and thus makes e-learning offer more attractive. Several approaches to introduce m-learning are known, and each of them has both benefits and drawbacks further discussed in the paper. Thus each organization has to make its own decision based on short- and long-term analysis of its resources, personnel skills and qualifications, potential audience, and many other factors. There is no universal method to evaluate all of them, and related error cost may be significant. Moreover, due to specifics of mobile devices and environment in which mobile learning takes place, as well as some implementation issues, mobile mode may be rather an option for e-learning delivery and cover some but not all learning experiences offered in a course. Therefore, introduction of m-learning should not be costly or time-consuming, and should not require changes of the established e-learning processes. Considering that m-learning is a new delivery method, we decide to offer it in a trial mode to evaluate customers' readiness and preferences and adjust related mechanisms and resources accordingly. Based on the analysis of the*

*approaches and requirements to mobile delivery, we suggest generating of podcasts as a first step in m-learning implementation. Further, the implementation of podcasts is described and its relevance is discussed.*

***Keywords**: e-learning, m-learning, podcasting, LMS, content*

***ACM Classification Keywords**: D. m Miscellaneous*

## Introduction

Nowadays highly qualified specialist cannot work a lifetime using once obtained knowledge. Almost any knowledge in rapidly developing areas after a while no longer meets the requirements [Savyuk, 2014]. To stay qualified a person has to constantly go through trainings, acquire new knowledge, get new professional skills, etc.

As a reply to this challenge raised new paradigm - Lifelong Learning - learning throughout life when professional activity is combined with educational activities, which means to work and study at the same time. This area is primarily concerned with adult education. Modern adult learning has its specifics.

The traditional solution to this problem is the use of distance learning technologies [Voychenko & Synytsya, 2011]. However, technological changes lead to an increasing demand for educational services in a mobile format.

Efficient m-learning often requires redesign of content, activities, interface, as well as access rules to cope with different presentation frame, non-learning environment challenges and input specifics. At initial stage of m-learning, an e-learning organization should evaluate its own potential as well as expected benefits from mobile delivery to select an appropriate approach.

Thus each organization has to make its own decision based on short- and long-term analysis of its resources, personnel skills and qualifications, potential audience, and many other factors. Implementation of m-learning solution may be a costly and sophisticated process

## E-learning and m-learning

The appropriate use of modern technologies for mobile learning still generates a large number of questions. One important aspect in the implementation of mobile learning in the educational practices of the institution is a clear understanding of the fact that at this stage of technological development the mobile learning is not a competitor to the traditional distance learning but rather its organic complement.

As an analogy, we may consider a comparison of a Smartphone and a laptop: the majority of students and actively use both, depending on the problem, but cases of complete rejection of a laptop in favor of

a Smartphone or vice versa never occur. In most cases, both devices are used in a complementary manner. For example, photographs taken by a Smartphone then are loaded on a laptop for further processing in an image editor, and audio files are copied from the laptop to a Smartphone for listening them at any time.

Returning from this analogy to the problem of determining the place of mobile learning in the educational process and the selection of the optimal strategy for its implementation, it is easy to notice that the most popular services of mobile learning will be in situations when access to a PC (laptop) is difficult or not possible. For example, when driving the use of a laptop is rather problematic, while a Smartphone may be successfully used for listening learning audios.

Another important issue is the understanding of Bring your own device (BYOD) policy [Wikipedia, 2015] in terms of m-learning. Students, especially adult ones are more likely to use their owned mobile devices for all tasks including learning rather than purchase new ones for particular learning purposes. So when planning the implementation of m-learning it is important to provide maximum interoperability of offered con-tent/services with wide range of learnrs' devices.

There are a few approaches usually considered for m-learning implementation: adaptation of existing delivery methods to serve mobile devices, creation of mobile applications for a particular platform (native apps) or web apps.

Adaptation of e-learning solutions to mobile devices is offered in latest versions of LMS, such as MOODLE. In general, this is rather complicated and costly task, as it requires creation of mobile interfaces and modification of both LMS interface and learning content. Change of interface alone does not solve the problem, as learning content created for "traditional" computers may be displayed incorrectly or be missing on mobile devices. Courses designed according to the slides metaphor are intended for some range of screen sizes, so adaptation would require reconstruction of the content or dropping some part of it.

Interactive courses or their elements based on Adobe Flash technology do not work on Apple iOS mobile devices, and only some non-interactive fragments like videos could be converted into MP4 for mobile delivery. So, this approach in some cases leads to need of substantial changes in learning content and still gives no warranty that it would work well on the majority of mobile devices used by the learners.

Native apps for mobile devices are more popular as an efficient m-learning instrument, allowing learners to use the whole functionality of their mobile devices. Based on the features of a certain platform and device, they usually offer interactive activities and engaging content. However, their creation requires specific programming skills, and resulting product is deliverable to the chosen platform only. In contrast to corporate training, educational organizations usually rely on BYOD (bring your own

device) or rather “use your own device” principle and thus should be able to serve their audience using various platforms – at least Android, iOS, Windows Phone and may be more. The amount of resources necessary to deliver an hour of training depends on the number of supported platforms and availability of tools to replicate typical scenarios, but even in case of a single platform e-learning content production is more efficient and easy due to availability of authoring tools and producers’ skills requirements.

Web apps are an alternative to native ones based on HTML5 technology that ensures that the product will run on different platforms and behave in a similar way. It is also easier to find qualified developers, as HTML5 is gaining popularity. Cross-platform applications rely on browser’s interpretation of HTML5 and do not have access out-side the browser environment, for example to media gallery, camera, gyroscope, etc. The last two approaches are similar in a sense that programming efforts in creating a learning app exceed that of instructional design, so high expenses may be justified by creation of unique learning experience rather than repackaging existing learning content.

## Podcasting

A podcast is a sequence of digital media fragments called episodes that are published on some resource (website) and available for download or streaming for the sub-scribed users.

Podcasting is based on the RSS format with a specific element "enclosure" describing media content (a document, video or audio file) of an episode.

Podcasting is a popular service for sharing information and news on a range of topics, such as sport, politics, healthcare, entertainment etc., so learning podcasts clients may have already been subscribed to other types of podcasts. According to Apple, subscriptions of podcasts on iTunes reached the 1-billion mark last year and a study by Edison Research shows that 39 million Americans listen to some podcasts monthly [Weiner, 2014].

Here we consider three basic content types for podcasts: text, audio, video. There is a lot of free software available for creating and modifying digital content of these types.

While text processing is not a problem in the most cases, the production of audio and video content may be confusing for some users.

We recommend focusing on the simple approaches like creating media content using the disposal Smartphone. Use of particular software depends on the Smartphone platform but the general approach is almost uniform.

There are many services allowing authors to create and host their podcasts.

Probably the most popular one is Soundcloud (www.soundcloud.com). However it has certain limitations. As it becomes clear from its name, the service is dedicated for dealing only with audio content. Users are not allowed to use in their podcasts content other than audio files.

Moreover free accounts provide hosting for only 180 minutes of audio that is in most cases insufficient to host an educational podcast with audio recordings of several lectures. Paid options extend hosting capacity, but even in this case such solution seems to be reasonable only in case of providing just single authored audio-only pod-cast.

Another popular service is Archive.org. It allows hosting any kind of content and does not limit users in a disk quota used, but some users report problems with access to podcasts hosted there from iTunes, the most popular podcast player.

Another problem is file management as Archive.org is aimed to keep all previously uploaded data; the deletion of previously updated digital content may cause some difficulties.

Amazon Simple Storage Service (S3) provides good set of features to host podcasts. It charges reasonable prices for its service. However, the total cost depends on popularity of the content (number of downloads), which is probably appropriate choice for companies and individuals promoting commercial content like music or talk shows but does not seem to be a good choice for educational institutions. As it can be seen from a short overview above, most of the podcast services are not free, and many of them set some limitations.

If a podcast service supports only certain type of media, organization would need to use two services to distribute both audio and video materials, and text documents still need to be cared of.

The organization may choose to install its own server for generating necessary pod-casts instead of using available cloud services; however, it involves both initial investments and ongoing costs for administration of the server, content management, users support, etc.

Selection of free podcast players' software is available for all major mobile platforms as well as for PCs.

Podcasts may be considered as one of the first successful technologies used for mobile content delivery in a form of audio information. Its potential for learning was built on a long-term practice of broadcasting through educational video and audio channels and users' habits of downloading music or audio books to listen during commuting to school or university.

Figure 1 illustrates options for learning content access from various devices.

Experiments with podcasting in education were inspired by the idea of giving students access to the learning resource which could be re-played and operated by the student in contrast to a real lecture or tutorial. Indeed, the research findings indicate benefits of podcasting perceived by the students, such as increased flexibility in time management, ability to listen to the missed lecture, get back to important

fragments, or stop the audio while checking associated information [Tynan & Colbran, 2006; Evans, 2008].

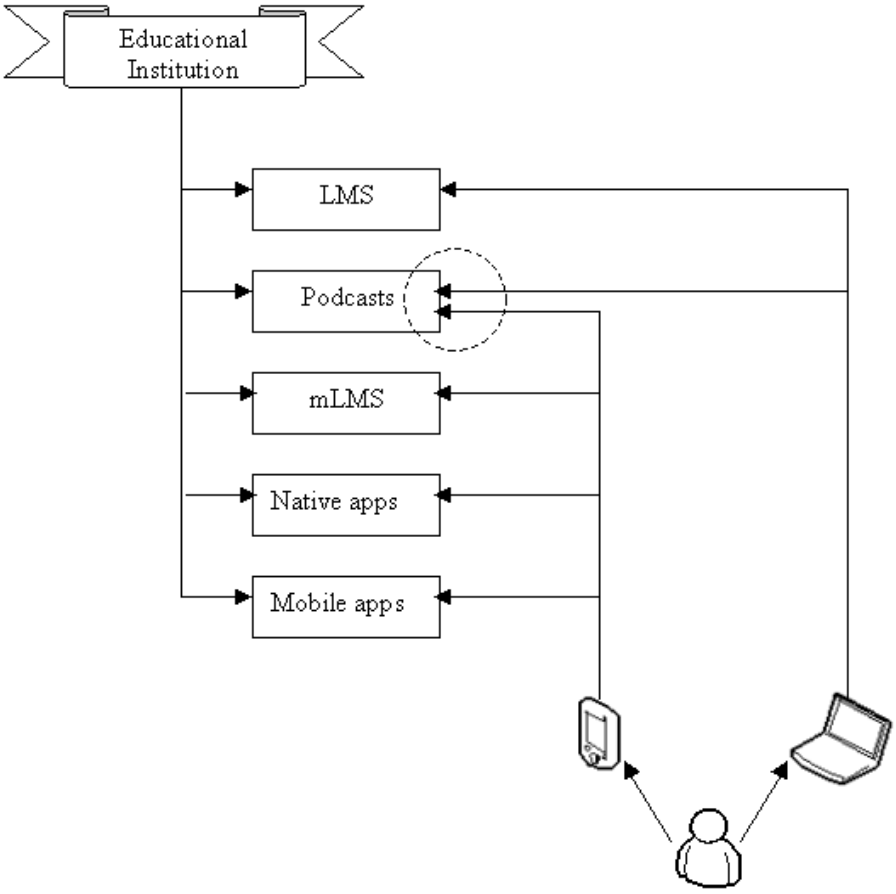


**Figure 1.** Options for learning content access from various devices

## Conclusion

Suggested approach to introduce m-learning elements as a part of m-learning development strategy for educational organization met all requirements. It does not involve additional investments or operational costs, staff training or significant changes in routine procedures of the tutors. It does not require a preparatory stage or involvement of external experts. It extends access options for existing learning materials and thus eliminates issues of uneven opportunities.

The use of podcasts from mobile devices may be a good indicator of the audience's overall interest to m-learning, and willingness to extend learning habits. A pilot project based on podcasts may be a reliable source of information concerning mobile devices used by the students and practice of their use. Statistics and a short questionnaire can save a lot of efforts by helping identify what type of learning content would be most popular on mobile devices without jumping into development, transformation or adaptation of the course for mobile delivery.

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