Planning and Implementing Mobile Learning

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**The Corporate Imperative**

The convergence of mobile communications and handheld computers offers the opportunity to develop technology that can assist individuals and groups to learn anytime, anywhere. The corporate imperative of mobile learning is the need of just-in-time and on-the-spot information at critical situations. Mobile Learning (mLearning) addresses the need-based learning requirements of the employees, which are critical for their role and success.

It is essential to provide the workforce with learning or information, when they need it, where they need it. The workforce on the move or the “road warriors” requires learning, which they can access during the time gaps in their schedule. Mobile learning can help the learners to connect at the right time to share valuable learning, critical to handle real-life situations. This serves as the best medium to impart learning on the move.

**The Need for Transitioning**

Over the past ten years, educational researchers and practitioners and corporate policy makers have mapped out a new landscape of learning as a situated and life-long activity. The defining features of contextual life-long learning are that:

- Learning is not confined to pre-specified times or places, but happens whenever there is a break in the flow of routine daily performance and a person reflects on the current situation, resolves to address a problem, to share an idea, or to gain an understanding.
- Formal education cannot provide people with all the knowledge and skills they need to prosper throughout a lifetime. Therefore, people will need continually to enhance their abilities, in order to address immediate problems and to participate in a process of continuing vocational and professional development.

A consequence of this reconceptualization of learning is that the environments where contextual life-long learning occurs cannot be pre-specified, but can be created through the activity of learning. Also this environment cannot be decomposed into elements that are independent of the learner but instead can be dynamically constructed by learners interacting with their surroundings. For example, a student on an archaeology field trip finds a piece of pottery and thereby creates a micro-environment for learning that is fundamentally bound to a context that includes time, location and the student’s knowledge, skills and available resources.

The last decade has also seen a revolution in communications and computing technology, with the installation of digital cellular phone networks, and the development of mobile computers and digital cameras. These three technologies are now converging, into personal digital assistants (PDAs) that can enable people to access internet resources and run experiments in the field, capture, store and manage everyday events as images and sounds, and communicate and share the material with colleagues and experts throughout the world.
Most online training at corporate institutes is structured for employees to access via computers. Employees are required to have access to the internet in order to participate in the online structure. Sometimes employees are required to participate in virtual classroom settings.

In analyzing possibilities for distance learning, many corporations around the world are utilizing smart phones. Smart phones are substantially less expensive than a computer and give employees the ability to participate in discussion, accessing reading assignments, taking quizzes/surveys, downloading Podcasts and participating as mobile learners from anywhere that service is available to the smart phones.

The drivers of mLearning over traditional computer based training are:

- A large mobile user base
- Mobile, field-based workforce
- Home-based workforce
- Need to leverage idle time for learning
- Powerful handheld multimedia devices with rich client interface
- 3G/4G networks & ubiquitous computing capabilities
- Informed workforce for improved business
- Just-in-time, location based learning
- Information-sharing between employees
- Need to replication of experiences

In using mobile learning, there are manifold reasons why mobile informal learning might be motivating: control (over learners’ goals), ownership, and learning-in-context, continuity between contexts, fun and communication. With this in mind, lots of corporations are steadily introducing mobile learning to their overall training program.

**Constraints of mLearning**

Along with the various advantages, mLearning has its own challenges.

There are various mobile phone companies in the market. Each of these offers an assortment of models and types of phones; particularly, the screens are of several different sizes and the operation systems vary with each company. From a developer’s perspective, there is no standardization of the resolutions. The biggest constraint for mobile learning is the size and usability of the learning. It impacts the way learning is designed and delivered. Apart from bandwidth issues, challenges also involve creation of a GUI that suits the needs of the users and, at the same time, is in line with the mobile device that the user uses.

Also the resolution settings of different mobile devices make it necessary to consider different designs for optimal user experience.

Fortunately, the advent of HTML5 has created a common denominator for creating learning that runs seamlessly on most available mobile environments.
**Tapping Learning Time through mLearning**

Mobile Learning Framework is a response to the business need for cutting-edge individual and team performance through an informed, knowledgeable workforce by enabling corporations to adopt an integrated approach to learning and foster a pervasive learning environment.

While the requirements of jobs are continually being redefined by the dynamics of global competition, it is leaving working professionals with little time to pursue their learning agenda, whether professional or personal, through formal, classroom based learning and non-formal, self-paced, computer-based learning.

As a result of time deprivation, 80 per cent of learning by working professionals is happening through informal mechanisms such as collaboration and coaching and at places such as train, bus and plane.

Therefore, the integration of informal learning with the formal learning strategy is recognition of the informal learning happening in organizations, empowering corporations with a holistic view of learning to deliver a balanced mix of formal and informal learning-ware. Such integrated learning programs extend the way people work, collaborate, and learn in everyday lives and render a seamless, wireless, pervasive learning environment.

Benefits accruing from a pervasive learning Environment:

- Leverage idle time of professionals for learning
- Meet learning challenges of mobile workforce
- Access to learning when people want to learn
- Provide on-demand, just-in-time learning support
- Engage, inform workforce and satisfy customers
- Make learning resources available to wider audience
- Deliver low-cost, focused custom learning resources
- Extend collaboration to communities of practice

**Mobile Learning Framework @ InfoPro**

The defining element of InfoPro's Mobile Learning Framework is learner convenience, or giving the learner control over what, when, and where she wants to learn, and leveraging the quick content generation facet of pod-casting for well designed, low cost learning resources.

Typically, in the modern day dynamic work environment, time crunch on the part of professionals, whether office-based or non-office based, is failing both formal and non-formal learning interventions.

And, our mobile learning framework seeks to overcome this bottleneck by exploiting the communication capabilities, voice, text, or multimedia, of the ubiquitous mobile device.
Needless to add, it is a conscious move toward realizing 24x7, anytime, anywhere learning in its true sense, giving learners the freedom to choose the time and territory to pursue their learning agendas.

Further, recognizing the range and volatility of learning requirements, the framework is designed to blend the rapid content development advantage of pod-cast with instructional design elements and rollout user-centric content bytes for learning on the go.

Therefore, the framework seeks to get learners started fast on their learning agenda by capitalizing on their down time, or periods of time during which they are not constructively engaged such as riding a bus, through byte-size learning chunks. This frees the event of learning from the confines of a classroom and the monitor of a PC or learning transcends the barriers of space and time for LEARNING@LARGE.

How mLearning Works

mLearning constitutes of three components:

- A Mobile Learning Management System (mLMS)
- A Mobile Learning Content Management System (mLCMS)
- Mobile Learning Content (mLearning content)

User accesses the learning content through the web-browser available in their smartphones/tablets or through a specific native application which is installed in their mobile devices.

The enterprise server also hosts the enterprise LMS that contains a database of mLearning content created using mLCMS. The mLCMS is used by different content authors to create and customize content compliant with LMS standards and publish the content matching the standards of different mobile devices.

The mobile learning content is specific to the subject/topic which is being published and used by the learner.
Planning for Transitioning to mLearning

Analysis

Incisive front-end analysis of the learning requirements and the target audience moor the framework for instructional efficacy and learning efficiency. The analysis phase includes investigation into the current patterns of informal learning and coaching with the twin objective of finding out what kind of informal learning mechanisms, and the concomitant tasks, can be supported on a mobile device and identifying the informal learning that must be replicated at other locations.

Content analysis for mobile learning suitability is another key analysis. For example, behavioral, motivational content typically fit mobile learning paradigm because motivational, lifestyle content gels with lifestyle nature of mobile devices and, therefore, there is no dissonance between the nature of the device and its use for learning.

Further, the volatility of content can also be an important determinant of how the content should be deployed. For example, non-volatile, stable content, such as a ready reckoner, can be deployed on mobile devices through memory sticks, which the learners can print and use wherever required.

In addition to these, the context of use analysis is an important ingredient to the design of courseware. The usage context analysis is particularly relevant for mobile learning because if the targeted learners are field workers, such as sales workforce or courier staff, bulk of the learning resource will have to be developed for deployment onto handheld devices. Similarly, if the
intended audience of a learning program is on-location workers, such as supervisors at construction sites, then the program can be a mix of computer-based and mobile-based learning resources.

**Interaction Design**

Conscious of the distinct possibility that poor interaction design may adversely impact the potential of mobiles to deliver learning, InfoPro invests considerably in the learner-courseware interface mechanism with the objective of delivering an enriching user experience.

The context of use analysis also has an important influence on the mobile courseware and interaction design. Because mobile learning intends to enable professionals to make use of pockets of downtime, or idle time, the learning program should be highly granular and capable of handling interruptions because periods of downtime may end abruptly.

Further, the mobile learning paradigm, which hinges considerably on its ability to make use of idle time during which learners are not gainfully engaged, also suggests learning by multitasking, or pursuing learning while undertaking other routine tasks. Therefore, designing for hands-free interaction by focusing on the learner’s auditory capability, or auditory interface, facilitates the process of learning.

**Learning Design**

With the intent of delivering narrow and focused learning chunks, the learning design seeks convergence of the instructional intent and the instructional design of the courseware.

A snapshot of the instructional intent is given below:

<table>
<thead>
<tr>
<th>Instructional Intent</th>
<th>Focus of Instructional Design</th>
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<tbody>
<tr>
<td>Prepare or motivate learner for new content</td>
<td>Arouse interest, curiosity to increase learner motivation</td>
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<tr>
<td></td>
<td>Inform learners of the learning outcomes/benefits of learning new content</td>
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<td>Provide high-level overviews</td>
<td>Before presenting a new topic, provide an overview as an advanced organizer</td>
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<td></td>
<td>On completion, provide short review sessions</td>
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<tr>
<td>Recall/integrate previous learning with new content</td>
<td>Explain the connection between what has been previously learned with the new content</td>
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<td>Provide content to encourage analysis</td>
<td>Provide a stimulus (sharing industry news) for students to react to/reflect upon for deeper analysis.</td>
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<tr>
<td>Provide a lead-in to a learning activity</td>
<td>Provide a mental framework for new content</td>
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<tr>
<td>Prevent decay from short term memory</td>
<td>Reinforcements and summary type content that facilitates skim reading and focuses on essentials.</td>
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<tr>
<td>Troubleshooting</td>
<td>Development of problem-solving capabilities through a procedural design in which step-by-step instructions and results are mandatory elements of the design</td>
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<tr>
<td>Reference ware</td>
<td>Provide contextual learning material on as-and-when-needed-basis.</td>
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InfoPro’s Contribution

InfoPro initiated the research and development on mobile-based learning design as early as 2000. We have since created multiple apps using different native app iOS technologies such as XCode, Cocoa Touch and Objective C. We have also built web based applications using HTML5 and have converted them into native apps by wrapping them using PhoneGap.

With our wide experience in working with different mobile platforms we can execute accelerated UI design & Prototyping to bring forth a functional design for the client to test quickly. Our learning courses can automatically detect the browser used and then render the content in appropriate manner and are supported on different devices like iPhone, iPad, Android, RIM & Windows Mobile.

Our mobile applications include:

- Native applications for iPhone/iPad, Android, Windows Mobile and BlackBerry
- Web-applications specially targeted for the handheld devices
- Hybrid application for iPhone/iPad
- mLMS and mLCMS solutions – customized and generic
- m-Enterprise apps

Conclusion

As the corporate workforce adapts itself to the demands of the market, it is imperative that learning programs respond to the challenges of time-constraint thrown by this adaptation.

Mobile devices, because of their origin in communication, their ubiquity, and now their multimedia capabilities, seem ideally poised to realize the concept of Right Time, Right Place Learning. When properly implemented, mobile learning redefines the concept of effective utilization of learning time, by making learning available at all times, at all places, and most importantly, to the right person.
About InfoPro

InfoPro Learning helps organizations rapidly transform talent by focusing on Learning for Performance. A global, award-winning learning and training solutions company for nearly 20 years, InfoPro provides performance improvement strategies, blended learning solutions and managed training programs. At InfoPro, performance innovation, cutting-edge technology and a talented team are combined to deliver successful workforce solutions and business outcomes. InfoPro Learning is obsessed with helping customers build training capacity, advance their practices and respond effectively to changing learner needs.