Mobile Platforms and mLearning - Challenges and Solutions (Oct 10)

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Mobile Learning is one of the fastest growing parts of the learning industry and you will soon be confronted by it (if you haven't been already). Get ahead of the curve with concrete information about how to get started, the tools that are available, and future trends and directions.

Sometimes you have to be patient – but while you are practicing patience, it may also be a good idea to do some preparation. Such is the case with mLearning.

Many of us have noted that, although we've been talking about mLearning and mobile performance support for several years now, adoption has taken a bit longer than we expected, mainly due to lack of suitable platforms. Well, get ready for some fast movement!

In this article, I will address the flood of mobile platform OSs coming in the next six months (iOS, Android, webOS, Windows 7, Blackberry Tablet OS, and the devices that use them). I will review the challenges that mobile devices present to the design of Web-delivered content. Finally, I will provide links to information about available tools for developing mLearning and mobile performance support, and to the sessions that address mLearning at the upcoming DevLearn 2010 Conference in San Francisco, November 3-5 (over half of which are available to those with free Expo Only registration – yes, I said free).

How many ways can learning be mobile?

Until January 27, 2010, when someone said "mobile learning" the main focus of concern was almost always mobile phones, at least if the discussion was among those who designed and developed content.

On that landmark day in January, Apple launched the iPad, and the discussion has not been the same since. The focus of attention for mobile learning and performance support shifted substantially to include tablets. At about the same time, the Android operating system took off, adding another set of delivery channels, with some interesting similarities and differences in capability.

The diversification of platforms continues. Today, there are mobile phones running Apple's iOS, Google's Android, and Microsoft's Windows 7. There are two tablets available as of this writing. Within the next six months, at least three more tablets in the same screen-size range are likely to join the field. There is no way to know how many more mobile phone models running Android and Windows 7 will appear in the same period of time, and HP expects to release at least one model running WebOS.

 In addition to the specifications in Table 1, all of these devices will have different price points and different TCO (Total Cost of Ownership, which mainly involves the cost of broadband service from telecommunication providers).

In planning for mobile adoption in 2011, there are a few factors to take into account. To begin with, the iPad adoption rate is the fastest of any electronic device in history. Current best estimates are that as of the end of September, Apple has sold just over eight million iPads. Educational institutions, including K-12 education, are investing heavily in iPads. The early money was on Apple's iPad, but that's not a guarantee for 2011.

Android smart phones are selling even faster than iPads; Android is now the biggest smart-phone platform in the U.S., and the third biggest worldwide. Of course, there are many models of Android phones, and there is no guarantee that all of them will be compatible with each other's apps. It is worth

noting that, just as the Apple iPad stood on the shoulders of iPhone sales, Android tablets could well gain great momentum based on the popularity of the Android phones.

Table 1 summarizes the main current and prospective tablet offerings as of this writing.

Tablet	Operating System	Connectivity	Basic Tech Specs	Available
Apple iPad	iOS	WiFi WiFi+3G Bluetooth	9.7" multi-touch display 1 GHz Apple A4 processor 16/32/64 GB flash drive options (non-upgradeable) No camera Dock connector No Flash player	Now 2.0 version rumored for late 2010, possibly 7" display. AT&T network only in U.S.
Dell Streak	Android	WiFi 3G Bluetooth	5" multi-touch display Qualcomm ARM 1 GHz processor Dual cameras (front and back) 512 MB ROM + 512 MB SDRAM + 2 GB non-user accessible MicroSD for system & applications files only. MicroSD card slot (16 GB preinstalled) USB Supports Flash player	Now AT&T network only in U.S.
Samsung Galaxy Tablet	Android	WiFi 3G	7" multi-touch display 1 GHz Cortex A8 processor 16 or 32 GB internal storage Up to 32 GB expandable storage 2 GB RAM (one report says 512 MB RAM, and Samsung hasn't released the actual spec)	E.U. – October U.S. – Unknown Apparently will be available from all four telecom providers in the US.

			Dual cameras (front and back) Dock connector Supports Flash Player	
HP Slate	Windows 7 Rumor: Windows 7 model may be for corporate sales only, with a WebOS version later for consumer sales.	WiFi Bluetooth 3G option	8.9" multi-touch display 1.6 GHz Intel Atom Menlow Z530 processor 1 GB RAM (non-upgradeable) 32 or 64 GB flash drive Dual cameras (front and back) SDHC slot, USB port, SIM card slot, HDMI out, dock connector Supports Flash Player 10.1, Adobe AIR	Early 2011 or before
Blackberry Playbook	Blackberry Tablet OS	WiFi only at release, 3G and 4G later	7" multi-touch display 1 GHz dual-core processor 1 GB RAM Dual HD cameras (front and back) Micro HDMI, Micro USB Supports WebKit/HTML-5, Adobe Flash Player 10.1, Adobe Mobile AIR, Adobe Reader, POSIX, OpenGL, and Java	2011 (estimated)

Table 1. Current or known tablet computers, through early 2011. All specs and availability are "as announced by manufacturer" as of October 6, 2010.

And in the meantime, Blackberry still has the largest share of the mobile market in the U.S., particularly in the corporate arena. To complicate things further, Motorola and Verizon have just announced the Droid Pro for November release, a Blackberry-like phone that includes a very good keyboard, an excellent form factor, and a robust feature set. (Worldwide, Nokia is the champ – but so far is not significant for mobile learning and support.)

In other words, unless your organization has already made a decision about which platforms (tablets, mobile phones, and operating system) it will support, your guess is as good as mine which platform will most likely demand attention in your world next year. In any case, you can be sure that you will experience pressure from clients, employees, and managers to provide content in mobile format for performance support, reference materials, and learning.

How mobile devices affect design

One of the surprises this year has been how quickly the iPad has affected the design of Web sites. Even before Apple sold the first three million iPads, designers were reworking the site layouts, not just to make the content fit whether in portrait or landscape, but to make the content look like an iPad app. Mobile phones certainly never had this effect. The iPad even affected the re-design of *The Guild's* Learning Solutions Magazine.

But beyond the matter of layout, there are other concerns for learning designers and developers as they think about ways to make learning work on mobile devices, especially the tablets.

First, there is the matter of screen real estate. Aspect ratios of the mobile device displays are not proportional to desktop displays. In some cases, the aspect ratios will not work well with videos, resulting in loss of image area or in wasted screen space. The tablets have several times more area than do the mobile phones, but legibility and space are still concerns.

There are interface considerations. The mobile devices do not operate with a mouse – they rely on touch. This means, at a minimum, that mouse-over effects won't work. Reviewers have noted that Windows 7 really does not do a good job of supporting touch screen or multi-touch operation.

Then there are the obvious limitations of the iPad, which does not support Flash, or Java. In addition, the iPad supports only a limited range of video formats – many videos will require conversion in order to play on the device.

Finally, content producers will need to make a choice between creating content as an app (or as two apps – one for iPad and one for Android) or as a Web-based course, or between HTML 5 and Flash (or both).

Fortunately, there is help for many of these problems, and for others.

Solutions and support for mobile learning design and development

Emulators

Designers get some help from emulators. An Emulators is software that will show you what your Web site or app will look like. For the iPad, there's iPad Peek (http://ipadpeek.com/), which will test your Web pages. There's also LiveView (http://zambetti.com/projects/liveview/) for the iPhone and iPad; this is a specialized remote screen viewing application intended as a tool to help designers create graphics for mobile applications. (Note: LiveView runs only under Mac OS X.)

The Android SDK (Software Development Kit) includes an Android emulator that will let you prototype, develop, and test Android apps without having an Android device. A full description of this emulator is online at http://developer.android.com/guide/developing/tools/emulator.html. The SDK supports Windows, OS X, and Linux.

Authoring tools

A number of e-Learning authoring tools now support (to one degree or another) creation of mLearning for mobile phones, particularly the iPhone. Judy Brown compiled a list of these in early 2009 (http://mlearnopedia.blogspot.com/2009/01/mobile-learning-tools.html). A list of three "rapid" authoring tools recently appeared on the Upside Learning blog:
 http://www.upsidelearning.com/blog/index.php/2010/06/17/rapid-authoring-tools-for-creating-mlearning-2/

We have reported on or reviewed several of these in Learning Solutions Magazine:

- Lectora: http://www.learningsolutionsmag.com/articles/459/
- Raptivity 6.0: http://www.learningsolutionsmag.com/articles/527/
- ReadyGo: http://www.learningsolutionsmag.com/articles/69/
- Toolbook 10.5: http://www.learningsolutionsmag.com/articles/110/ and http://www.learningsolutionsmag.com/articles/478/

Articles in Learning Solutions Magazine

In addition to the reviews, we have published over 30 articles on designing for mobile: http://www.learningsolutionsmag.com/showTopic=21/

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