THE NEW ERA OF MOBILE LEARNING

EXPERIENCE INDICATES THAT LARGE CORPORATIONS HAVE BEEN SLOW TO ADOPT MOBILE LEARNING.

BY DON DUQUETTE

In December 2009, Morgan Stanley released a 424-page mobile Internet report. The report identified eight key themes, one of which is that mobile is "ramping faster than desktop Internet and will be bigger than most think." The report goes on to predict that smartphones will outship the global personal computer (PC) market—including notebooks, netbooks and desktops—by 2012.

Based on these statistics, smartphones are quickly becoming a large part of our daily lives, keeping us continually connected to online media. As such, they offer companies unprecedented opportunities to reach learners on their schedules, when they need to learn.

The challenge now is how to have learning content presented on smartphones. Ambient Insight's U.S. Market for Mobile Learning Product and Services 2008-2013 Forecast and Analysis reported the demand for mobile learning services is growing at a five-year compound annual growth rate of 21.7 percent. But experience indicates that large corporations have been slow to adopt mobile learning. The main factor behind this hesitancy may be the number of challenges companies face when starting a mobile learning initiative, especially the diversity of hardware, software and security issues compared to a PC. If you are trying to develop a course that will be displayed on a smartphone, you need to consider the following challenges:

- Screen resolution
- Bandwidth
- Learning management systems
- Instructional system design

Screen Resolution

In order to design a course for mobile learning, you are going to be faced with the problem of what screen resolution to design for. Mobile phone screen resolutions include 176 x 220, 320 x 240, 480 x 320 and 480 x 360. The BlackBerry Bold and Curve have screen resolutions of 480 x 360, so if your company issues BlackBerry smartphones, then the default should be 480 x 360. But then you also have to consider that the iPhone and the new BlackBerry Torch support a landscape mode where the width and height are reversed as the phone is rotated.

When designing training for a mobile device, you can assume that

the device will scroll up and down, so screen length is not an issue, but you do need to consider screen width and the number of pixels or, more specifically, the pixels per inch (ppi).

The number of ppi is important because it will affect the details in any picture or drawing that is displayed. The human eye can resolve about 340 dpi at a one-foot viewing distance. So, you need to determine the pixel densities to ensure that critical details are not lost when displayed on the phone. As an example, the BlackBerry Curve has a pixel density of 245 ppi.

Once the screen resolution and pixel density are determined, you can set the results as your reference and design all of your learning modules based on that standard. However, in some cases, some staff members in your organization have phones with different screen resolutions and pixel densities. Therefore, it is necessary to view the course on several different phones to ensure all learners have access to the learning.

Bandwidth

It is all about the speed. As a society, we have become less patient with waiting for Web pages to download. A typical corporate

IT IS NECESSARY TO VIEW THE COURSE ON SEVERAL DIFFERENT PHONES TO ENSURE ALL LEARNERS HAVE ACCESS TO THE LEARNING.

Internet connection could be 20 million bits per second (Mbps). At that speed, it would take about two seconds to download a one-minute video.

Conversely, bandwidth on mobile phones varies from 56 thousand kilobits per second (kbps) on a General Packet Radio Services (GPRS) network to 1 Mbps on a 3G network. At these speeds, the same one-minute video would take anywhere from 10 seconds to download at 1 Mbps to 2 minutes at 56 kbps. So developers need to be aware of download speeds and carefully choose the media elements that will be used in the course.

Learning Management Systems

Regardless of the learning management system (LMS) in place, it is essential to determine how the mobile phone will communicate with it. This includes establishing how the device receives content from the LMS and how the phone tells the LMS the course has been completed.

Your choices are connecting with the LMS through an application downloaded to the phone or streaming through the mobile Web browser. A course downloaded and stored on the phone is the best way to go. This allows for greater interactivity since you are not dependent on the browser. But this approach is also more complex since you may have to develop multiple versions of the application if you want it to work on a variety of mobile phones. You will also need a portal that can push the course to the phone or allow the user to access a site to download (think BlackBerry App World and Apple's App Store.)

Delivering a course via a Web browser is easier because it does not require working within the operating system constraints. However, this option can pose a significant challenge for companies that have strict security rules on accessing the company's intranet. You can see a browser accessing an LMS with MLE-Moodle, a plug-in for Moodle, adding m-learning functionality to this open-source LMS.

Instructional System Design

Instructional system design (ISD)

Alternatives

If all of the challenges of mobile learning seem insurmountable at this time, then you might consider starting with the development of learning applications instead of courses. Everyone is familiar with the wide range of applications available today for the iPhone and the BlackBerry. These applications run the gamut and include business, finance, health and games to name a few.

Why not brainstorm applications that a learner might need? For example, how about an application that makes use of a phone's GPS and provides directions to where the class is being held or an application that includes a glossary of terms and acronyms? Today's mobile phone technology presents unprecedented capability for organizations to take full advantage of every available opportunity for learning.

INSTRUCTIONAL SYSTEM DESIGN FUNDAMENTALS DO NOT CHANGE WHEN DESIGNING LEARNING PROGRAMS FOR MOBILE DEVICES.

fundamentals do not change when designing learning programs for mobile devices, but keep the following guidelines in mind:

- Web-based training courses for PCs make extensive use of Adobe Flash or Microsoft Silverlight. Flash and Silverlight provide an easy way to put interactivity and animations into the course. Almost all PCs have the Flash plug-in; Silverlight can be easily downloaded if it isn't already installed. However, it is a completely different story for mobile phones that do not contain this capability. The instructional designer will need to keep this in mind when designing interactivity or animations.
- Do not make this a page-turner like the early days of Web-based training. Build in interactivity and be sure your instructional designer is cognizant of each mobile device's means of navigation (for example, track ball, scroll wheel and touchscreen).
- Chunk the mobile device learning into small nuggets of learning. In a typical Web-based training module designed to run on a PC, the ISD may be chunking the content into 15-minute segments. But can you imagine staring at your mobile device screen for that long? On a mobile device, aim for about five minutes or less of content at a time.
- Plan the media asset mix. In a typical PC Web-based training lesson, you will have a mix of 2-D graphics, 3-D graphics, animations and video. But on a mobile device, system limitations may prevent you using some or all of these media types.
- Keep information architecture and navigation top of mind. Your designer needs to consider the following:
  - How do users find/access courseware on the LMS?
  - If there is more than one course lesson, can users easily recognize the different lesson structures?
  - When a user is in one lesson, can he/she easily move to another lesson and return to the LMS course catalog to choose a different course?

Conclusion

As we move into this new era of mobile learning, success is possible if you have a clear vision of how to use the medium to its best advantage. While some of that story is still being written, there's no reason not to start testing the waters now.

Don Duquette is Executive Vice President of GP's Learning Solutions Group, responsible for the company's global training outsourcing practice. Don has more than 25 years of workforce learning experience, with his international consulting experience including the full spectrum of learning such as blended learning, learning strategies and corporate training governance. Email Don at editor@trainingindustry.com.

Takeaways

Key points to remember when investigating the feasibility of mobile learning for your organization include the following:

- Mobile learning succeeds or fails based on the design. Its design is 100% different from online—and it's 100% more important. The challenge in the future will be how to create instructionally valuable courseware that works on both PCs and mobile phones.
- The approach you use is key—is it application-based or web-based? These approaches are very different and require different strategies. If you choose the application approach, you will need a way to deliver the applications to the phone and communicate to and from the LMS. Using a web-based approach, you must be able to deploy content so that it is rendered properly across a wide range of devices.
- Mobile learning now means social learning can take place in new, low-cost and highly interactive ways. We can connect with people very quickly by using communities of practice or social networking sites that allow us to leverage the expertise of many people to solve our problems.
- Consider developing applications, instead of courses, that can help the learner with things like finding the classroom or understanding a particular acronym.