

Mobile learning's on the move

By Clive Shepherd, independent e-learning consultant

New technology, new headaches

Once again, technology is on the move, this time literally. Just when you thought you'd finally come to terms with e-learning – the technical standards, the accessibility issues, the problems of compatibility and bandwidth – the process starts all over again, this time with mobile technology. You might think that working with a monopoly software provider (Microsoft) and a dominant platform (PCs) was hard enough, but mobile devices bring with them a variety of new operating systems, radically new interfaces, a completely new networking technology (wireless) and a whole host of interesting bandwidth issues. Will it be worth it? I'll leave that to you to judge, when you've discovered what benefits this new wave of technology can bring.

The M word

All words beginning with 'e' are sounding a little jaded, so it's time we started afresh, this time with an 'm'. M, or mobile learning is the use of mobile devices – cell phones, palmtops (often called PDAs, or 'personal digital assistants'), even MP3 players – to assist in the process of learning. Mobile devices provide an additional channel for learning, to complement face-to-face, print, TV/video, radio/audio, landline telephones and desktop/laptop computers. Teachers and trainers now have another way of providing their target population with learning content and opportunities for collaboration; another way to try and make learning faster, cheaper, better and more plentiful.

If you and your fellow employees work on a single site, happily ensconced at your desks behind screens and potted plants, equipped with only modestly out-of-date computers and but a few floors from the training centre, then you will laugh at the idea of m-learning. Why, you mock, would anyone want to learn anything from some jumped-up calculator with a postage stamp screen, many miles away from the security of base camp? Good question, if that's how you work. Apparently, however, something like half of the population are not so fortunate (although they wouldn't see it that way) – their jobs are mobile, away from a physical office. Try maintenance engineers, salespeople, general practitioners, logistics executives (lorry drivers), police and security guards, tradespeople, consultants and those managers who've learned the lesson that it's hard to hit a moving target. Take a moment out and you could develop your own list just as long, and that's just people working in your organisation.

Of course, just because your work keeps you on the move, doesn't mean you don't need to learn. In fact, the reverse could be true. Constantly encountering new places, people and problems, you survive because of what you know and your ability to adapt to the situation you are met with. You need fast access to the very latest information and to people who can help you solve real problems real quick. Mobile technology may not come with a 19" LCD screen and a colour laser printer, but you can carry it in your hand.

All mobile devices were not created equal

M-learning suffers from much the same problem as e-learning: no two people believe it to be the same thing. Although, as we shall see, the various mobile technologies are converging, the current marketplace finds a plethora of different devices, each with its own unique heritage:

Mobile phones: We've all got them and we first bought them so we could make and receive telephone calls on the move; then the younger generation discovered texting, providing an asynchronous alternative to real-time voice messaging. Mobile phones now take and transmit photos, provide access to data and, with the advent of higher bandwidth 3G (third generation) networks, provide us with full-motion video as well.

PDAs: The natural evolution from the Filofax and the humble electronic calculator, through the Psion Organiser to the current generation of Pocket PCs, which run a cut-down version of Microsoft Windows. PDAs are small computers which, until recently, worked primarily offline; meaning that, to

keep up-to-date, you needed to schedule in regular synchronisation, downloading and uploading sessions with your desktop PC.

Portable MP3 and DVD players: These are the natural evolution from the original Sony Walkman: mobile media players delivering a predominantly passive, offline, media-rich experience. We've come a long way from those early cassette players: Apple's iPod can store up tens of thousands of your favourite tracks and now videos too; as an alternative, portable DVD players provide you with much-better-than-VHS quality pictures and sound on a robust and interactive storage medium.

Tablet PCs: A relatively new arrival, tablet PCs are modified laptops equipped with handwriting- and voice-recognition as an alternative to using a keyboard. These are fully functioning PCs, so they can do just about anything, but at a price in terms of size and weight.

In their current form, each of these devices has its own unique advantages, which can be exploited to facilitate learning. What is more exciting is how these technologies are converging, providing more versatile platforms for teachers and trainers to consider. Essentially, mobile phones are becoming more like computers and PDAs are being supplied with wireless connectivity – ultimately they should meet in the middle.

Take mobile phones first: as these integrate contact databases, diaries, games, email and web surfing, then surely they're doing what a PDA can do and more. More sophisticated models, usually labelled 'smart phones', with their relatively large colour screens and powerful operating systems, not to mention video capture and playback, are more computer than phone by any definition. Nearly 40 million of these were sold in 2005.

Then the PDAs. With always-on Internet access, provided using wireless technology, these devices can provide real-time, online access to unlimited quantities of the latest information, not to mention connectivity with email users everywhere. With a computer like this in the palm of your hand, who wants to lag around a laptop?

As you can imagine, the distinction between PDAs and smart phones is increasingly unclear, as both product types gain new features and converge on each other. Gartner defines a smart phone as "a large-screen, voice-centric handheld device designed to offer complete phone functions while simultaneously functioning as a personal digital assistant", and a PDA as "a handheld computer that serves as an organiser and electronic notepad". Soon the distinctions will be academic.

Not even the portable media players will be immune from the trend towards convergence. We already have MP3 playback in phones. Why not DVD playback from an (admittedly somewhat larger) PDA? It's probably already available.

As yet it is unclear whether consumers are looking for devices that provide the greatest amount of functionality in one box, or prefer to carry round a number of more specialist gadgets. Chances are you know plenty of people who have a mobile phone, a PDA and an iPod. Whether they will continue to want to put such a strain on their pockets or their handbags remains to be seen.

Supporting performance

Only the most obsessive m-learning enthusiast would foresee the day when complete courses are delivered using mobile devices. Neither the devices themselves, nor the circumstances in which they are employed really lend themselves to this type of application. Where m-learning will score is, firstly, in providing just-in-time, context-specific support for real-world tasks; and, secondly, in providing a means to carry out a myriad of supplementary activities that form part of a broader, blended learning programme. Let's start with performance support.

The purpose of performance support is to help someone to get a job done. Whether they retain any of the information that's provided to them, or they hold on to any of the skills, is not the point. As a result, trainers can argue, with some justification, that this is not learning at all. Whether it is or not, training departments know that they are judged on the extent to which they can influence real-world performance, not on the number of passes in an online quiz. Mobile devices are a way of getting the job done, and trainers should be the best people to call upon when information has to be communicated clearly and concisely in a variety of media formats.

Here are a few examples of how mobile devices could be employed to support performance:

- Pre-recorded voice tutorials for access from mobile phones.

- Access to online product knowledge databases.
- Procedural documents in simple text and graphical form.
- Fault-finding algorithms to help in troubleshooting.
- Animated diagrams to explain how things work.
- Maps to show where things are (with GPS, all the better).
- Video to demonstrate how things are done.

There are no learning objectives, terminal or otherwise, and no tests; no discussion and no group exercises. Just excellent usability, crystal clear information and super-fast access. Just what you need when everything your organisation does seems to change on a weekly basis.

Blending in to the bigger picture

In case you were about to write in protesting that m-learning be re-named as m-support, it's time we looked at the potential of mobile devices to contribute to what we might consider to be 'real' training, with a proper start, a proper finish and measurable outcomes. We've already concluded that you're unlikely to deliver anything like a whole course on a mobile device, not even a 'primary' learning event within a blended solution; but you are able to contribute a wide range of valuable supplementary activities to support the main event. For example:

- Diagnostic quizzes and questionnaires.
- Short case studies presented in a variety of media.
- e-Books for prescribed reading.
- Competitive online activities, such as business games.
- Online assessments with scores saved to an LMS.
- Reminders and other reinforcing messages delivered as text messages to mobile phones.
- Lectures, interviews and conversations delivered as pre-recorded phone messages or as MP3 files (typically distributed as 'podcasts').
- Training films delivered on DVDs, video iPods or PDAs.
- Interactive video-based simulations on DVD or PDAs.
- Full-scale web-based training modules for Tablet PCs.

We should also expect to see increasing opportunities for collaboration to support the learning process. E-tutors will be able to communicate with mobile students using the phone, SMS messaging or email. Learners will be able to work together in discussion forums and chat rooms. None of these activities requires high bandwidth, large screens or sophisticated interfaces – just wireless connectivity.

There's scope too, for opening up the interface to learning management systems to enfranchise the whole workforce. How about catalogues of learning resources, formatted for delivery on a PDA? Voice-activated registration? Joining instructions as text messages? Even trainers can benefit, as PDAs acquire the ability to connect to video projectors and deliver PowerPoint presentations. The possibilities are endless.

Some practicalities

No training manager can be expected to deliver to every type of mobile device in all their possible configurations. Most likely your organisation already has a policy about the types of devices it will issue to its mobile workforce and the way it expects these to be connected to your company networks systems. Training is unlikely to be driving this process: you'll be riding on the back of whatever technology is already out there.

Once you know what your delivery platform is, then you can begin to assess its capabilities as a device to support learning: Is it unconnected, occasionally connected or always connected? What means does it use to make this connection (GSM, GPRS, 3G, WiFi, GPS) and what implications does this have for

bandwidth? What media does the device support (voice, text, still images, animation, video)? How flexible is the interface (numeric keypad, pen, voice recognition, QWERTY keyboard, joystick)? What is the size and resolution of the display (given that, according to usability guru Jakob Nielsen, 'pack-of-cards' is an appropriate screen size for most mobile applications)? Having this information will, in most cases, cut down the possibilities open to you, but will help you focus on a manageable number of realistic options.

Once you've decided on your platform and on what you intend to do with it, your attention can turn to the small matter of how you prepare content. In most cases this content will be simple and only modestly interactive, which means you can employ whatever are the normal tools used by your IT department for this type of machine. If you're looking to create something a bit more special, you should take a look at the latest version of Macromedia Flash, which greatly assists the process of developing animated, media-rich, highly-interactive applications for all the major mobile devices. You may not want to create Flash movies yourself, but I'm sure your normal e-learning provider would be only too happy to oblige.

M-learning is not compulsory; it's merely another channel with which to reach your audience. You'll probably need to conduct some research in your organisation before you know whether m-learning is remotely feasible or desirable. If it is, your journey is just beginning and I wish you luck.

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