

Why learning professionals need to care about mobile learning.

EVERYWHERE YOU ARE THESE DAYS—whether shopping at the market, waiting at the airport, or cheering at a neighborhood hockey game—you see people connected.

They are talking on mobile phones, checking email on handheld computers or integrated communicators, or getting an instant or a text message on either device. Some are listening to music and playing games on personal game consoles, while others are checking sports scores, watching replays, or even making dinner reservations. No matter age, gender, national identity, or socio-economic status, broad mobile device adoption seems to know no bounds.

Mobile device adoption continues to rise. Just this past year, the number of U.S. mobile telephone users (181.1 million) surpassed the number of traditional land-based phone lines (177.9 million), according to a July 9, 2005, article in the *San Francisco Chronicle*.

The impact of device ubiquity is already showing up in some unexpected ways. In addition to opening up new forms of real-time interactive communication such as text messaging and instant messaging (IM), the adoption of mobile devices for one purpose is starting to show greater adaptability. For example, podcasting has breathed new life into the genre of prerecorded audio programming. One year after podcasting first appeared on the scene, Feedburner.com can now point to more than 22,925 podcasts on a variety of topics, up from just 505 podcasts in November 2004. The Diffusion Group predicts that U.S. podcasting audiences will climb from 840,000 people in 2004 to 56 million by 2010. After Apple Computer announced the video iPod, students from the University of Missouri School of Journalism wasted no time before trying their hand at video on-demand casting—blending techniques of podcasting with video production techniques to produce programming that could be downloaded for viewing at times and on terms determined by users.

Going mobile

While portable MP3 players and mobile games are capturing much early attention in the mobile learning arena, the real excitement these days continues to focus on the significant developments occurring in the mobile networking world.

According to SRI Consulting Business Intelligence, the interactive wireless network technologies currently supporting mobility today fall into three major categories:

- **Short Range or Personal Area Network technologies**, such as Bluetooth, are useful for connecting a wireless mouse to a computer or a cell phone with a laptop computer's Microsoft Outlook tools. Other short range tools, such as Radio Frequency Identification (RFID) tags, are used for inventory tracking purposes in supply chain and inventory management.
- **802.11 and its related family of frequencies** are colloquially known as Wireless Fidelity or WiFi. WiFi networks usually operate as local area networks and are set up to serve place-specific communities of computer users. When people speak of wireless networks, more often than not they are thinking of this kind of connectivity, since this is what is typically available for wireless office networks and home networks, as well as coffee shops, bookstores, and airports.
- **MAN/WAN networks** allow cell phones to connect to other telephones through metropolitan area or wide area networks. The technologies noted in this category support the international mobile telephony industries. As bandwidth continues to increase and new technologies make it easier for people to connect with each other, resources, and services, the rate of wireless adoption will continue to grow.

Why not mobile for learning?

Given the broad and growing adoption of mobile devices, it's hard to avoid the logical application of these devices for learning purposes. Mobile learning responds to people who need access to information and performance support when out in the field or on the job.

Mobile learning matters because today's learning stakeholders are increasingly mobile, and they are the ones who will pursue and ultimately demand mobile learning resources and opportunities. Broadband and dynamic applications have completely changed expectations of what an engaging digital experience should be.

Consumer expectations of engaging mobile experiences continue to rise as wireless networks expand and the processing power of integrated communicators, smart phones, and

Disconnected

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Wireless Technologies

MAN/WAN

W-CDMA

3.5G

4G

MobileFi 802.20

HSDPA

WiMax 802.16

CDMA2000

Mobile WiMax 802.16e

TD-SCDMA

Two-Way Satellite

Airborne Platforms

Terrestrial Datacasting

LAN

802.11

802.11a/b/g ...

HiperLAN

Ultra Wide Ban

802.11n

HiperMAN

"TinyLAN"

Short-Range

Bluetooth

Bluetooth v2

Wireless USB
and FireWireless

RFID

DSRC

NFC

802.11p

ZigBee

Source: SRI Consulting Business Intelligence

GOTO/See www.learningcircuits.org/2005/Jun2005/0506_trends
for more information on podcasting.

handheld computers continue to increase. The anxiously anticipated introduction of WiMAX (broadband cellular telephone service) is going to present interesting new opportunities and challenges as cellphones and WiFi networks provide consumers with wireless broadband access alternatives.

What mobile learning is

In many respects, mobile learning simply represents the next wave of strategies, practices, tools, applications, and resources that takes advantage of ubiquitous networks and pervasive digital devices to realize the promises of “anytime, anywhere” learning.

Taking advantage of the place-independent flexibility that comes from working away from the desktop, mobile learning gives each person the ability to connect with just the right content on just the right device at just the right time. It responds to on-demand learning interests of connected citizens in an information-centric world.

What mobile learning is not

Just as it is important to appreciate the things that mobile learning is, it is also important to appreciate some of the things that mobile learning is not.

Mobile learning is not e-learning on a cell phone. These days, e-learning is generally viewed as the practice of supporting online courses, everything from distributing courseware via the Internet to providing reports that certify compliance and competence. The form factor of a mobile phone, along with its current limitations on bandwidth and processing power, continue to make it a more appealing medium for conversations and information exchange, performance support, and for real-time collaboration.

Mobile learning is not limited to smart phones. A recent study published by the EDUCAUSE Center for Applied Research notes that close to 85 percent of all college students carry a cellular telephone, but only 1.5 percent of these phones are smart phones—integrated devices that combine telephony, computing, and communication resources into a single piece of hardware. Today’s mobile learning is as likely to depend upon a handheld or laptop computer with a wireless modem card as it is on a cell phone or an MP3 player.

Mobile learning is not always network-connected. The iPod phenomenon has demonstrated the commercial appeal of portable, personal mass storage devices. Connecting people to their music, books, pictures, and programs does not require a network connection.

Mobile learning is not always interactive. Sometimes a flat file delivered just-in-time is preferred over a dynamically assembled rich Internet application that arrives 10 minutes too late.

Mobile learning is not the same as wireless. Concerns for wireless typically focus on network connectivity. Mobile learning is the practice of supporting cognitive engagement using a variety of unplugged resources to create connections. Wireless focuses on providing the network infrastructure, wherein mobile learning is one of a variety of applications to be deployed on that wireless network.

Why mobile learning matters

With mobile learning, teaching professionals can connect informal learning experiences that occur naturally throughout a day with formal learning experiences. IT also provides the opportunity for using the tools—mobile devices—that most people already carry, that they currently depend on, and that are already part of their social practice. Mobile learning on phones gives mobile learning stakeholders more to do on the tools with which they are already reasonably proficient.

Effective learning for today’s mobile professionals and the future learning needs of tomorrow’s professionals must be based on a communications-based, transactional, social learning model rather than on the more behavioral, hierarchical, lecture-recitation models of learning that are the hallmarks of many training programs. In new communications-driven learning worlds, an instructor may choose to channel the power of IM, wikis, and blogs to create new knowledge. If learning professionals aren’t engaged in helping to shape the mobile learning movement, there are going to be a lot of substandard games on phones defining expectations of mobile learning experiences.

What mobile learning enables

Perhaps the most exciting opportunities for mobile learning will be found among the broad benefits that pervasive connectedness enables among distributed communities of learning stakeholders: equal opportunity access, ubiquitous connectivity, multigenerational users and uses, services for the mobile worker, and services for the mobile learner.

Equal opportunity access. The price points of personal digital devices continue to drop as device adoption continues to rise, which in turn brings more people with increasingly diverse interests to the mobile learning conversation. Devices such as cellular telephones, MP3 players, and integrated organizers are becoming affordable as they are aimed at new consumer markets. Significant efforts continue to lower price barriers to access. The recent announcement by MIT Media Labs regarding the introduction of a \$100 computing device with a hand-cranked power source is one example of the ongoing quest to bring robust communications tools

to the masses.

Ubiquitous connectivity, almost. The adoption of next generation WiFi and MAN/WAN cellular networks will continue to deliver on the promise of “anywhere, anytime access” by ensuring that mobile stakeholders can connect to a variety of broadband networks, no matter where they are or what device they may choose to use at any given time.

Multigenerational uses and users. From toddlers to seniors, personal mobile devices of all kinds continue to be adopted at unprecedented rates, opening up a variety of cross-generational and multigenerational resources and services.

Services for the mobile worker. Iain Gillott of iGillott Research recently noted that anyone who spends more than 20 percent of their workday out of the office is considered to be a mobile worker. Organizations recognize that physical location decreases in importance when the essential services needed to support individuals working away from the organizational “mother ship” are in place.

Services for the mobile learner. As everyone working in the knowledge economy is already aware, the need to stay on top of breaking news, new developments in one’s discipline, and new developments in one’s organization has never been greater. For anyone who spends significant time in the field, on the road, or at 35,000 feet, mobile learning’s ability to keep people connected, informed, and engaged is the “secret sauce” that holds distributed and virtual teams together and furthers each individual’s ability to participate in future professional development.

Communication and collaboration

It is critical to remember that our current models for teaching and training continue to be predicated on a model of “command and control” with an instructor in charge, goals to be met, and criteria to be mastered rather than a model of communication and collaboration. As mobile device adoption continues to bring increasing numbers of new voices to the global conversation, it is apparent that learning imperatives will need to be built on a foundation of constructs and practices that enable connectedness, communication, collaboration, and competitiveness.

Ubiquitous network connectivity will provide the vehicle for connecting people with whatever resources they desire, when and where those linkages are needed most. Having access is only part of the solution, however, because realizing the value of the connections still requires knowing how to take advantage of new connected opportunities.

The open exchange of ideas is an essential component of social learning and communications-based models of learning and performance improve-

ment, particularly when dealing with cognitive performances that address abstract ideas, problem solving, and critical thinking activities.

The natural extension of open, participative communication comes as greater value is attributed to collaborative work. The establishment of collaborative frameworks will help learning organizations better execute on shared visions, strategies, and tactics.

Competition is forcing people to be better connected, better informed, and better able to respond quickly to new and emerging challenges.

There will be equal opportunity for all digital communicators. But the ones who figure out how to develop effective digital communication skills and can leverage those skills in a world that has been leveled by mobile technologies will be more equal than others. **TD**

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