Chapter 3.4
Mobile Learning Technologies

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INTRODUCTION

While educational and corporate training environments have made large investments in getting wired to high-speed Internet connections, our work and social environments are rapidly becoming more mobile and flexible. The Internet and organizationally based intranets are powerful learning and performance tools, as long as users have a high-speed connection and up-to-date computing equipment. Online learning and information is not nearly as convenient or reliable when learners need to access sites from their homes, hotel rooms, client locations, or while on the road. In corporate settings, large numbers of critical employees such as factory engineers, health care professionals, builders, and maintenance workers often do not even have offices in which to use a computer.

Beyond the need for fast and flexible access to interactive learning, the field of online learning is being reshaped by several important economic and professional trends:

1. **Many corporate training departments are moving towards a more holistic professional model of "performance consulting" in which they provide solutions beyond instructional interventions; the trend is to provide short performance support tools and job aids that are meant to be used in the process of actually performing work.** Thus, the need for small and wireless media devices is even more pressing. Even the smallest laptop is a clumsy reference device when one is trying to troubleshoot a telephone system in a cramped equipment closet or when attempting to develop specs for a new manufacturing facility while walking around a construction site. Moreover, constantly updated information is often needed in tasks such as order-tak-

ing or quality control; therefore, some type of wireless connectivity, sometimes called "persistent computing," is needed.

2. **On the education front, many colleges and universities are attempting to broaden their student base and income by offering courses and noncredit educational experiences to adult learners who are already in the workplace.** Because of this, distance technologies often need to be able to be accessed in nontraditional locations, such as during commuting time. INSEAD, a large international business school based in France and Singapore, is already using applications that run on cell phones to allow their students to collaborate and check on course updates and grades. This is especially useful because many of their students are busy executives who can use their very limited time (such as while commuting or waiting to be served in a restaurant) to engage in coursework. These applications run in coordination with traditional classroom learning as well as WBT-based course materials.
3. **While interactive learning and Web browsing have become second nature even to very young children, it is expensive and cumbersome to equip elementary and high-school classrooms with traditional computers.** Thus, some other more mobile and less expensive devices that still offer the immediacy and interactivity of the Web are desirable. Many schools have purchased or received grants to equip every student with a small personal digital assistant.
4. **As education and business are becoming more global, there is a need to provide information and instruction to regions that are not well served by high-speed Internet connections or even good phone service.** In many developing countries, it is much easier and cheaper to use wireless connectivity than to attempt to install conventional wired access. The prevalence of cellular technologies in areas such as Japan, Singapore, and Scandinavia make it attractive to employ wireless systems because of the large installed base of users.
5. **Finally, millions of personal digital assistants and other handheld technologies such as MP3 audio players are now in the hands of users worldwide.** Many businesspeople already use palm-type computers as date books, and they would like to leverage their investments to use these devices for more applications. Digital audio players and other multifunction devices, including cell phones that connect to the Internet and share pictures, are becoming popular among young people; again, this rapidly growing installed base makes it inexpensive to offer instructional programs on them.

THE RAPID MOVE TOWARD WIRELESS COMPUTING

The communications landscape is becoming wireless even more quickly than it became wired. For example:

- By 2009, there will be more than 61 mobile workers in the United States alone.
- Almost 2 billion people now have cell phones worldwide.
- Of the 9 million handheld computer units purchased in the last few years, 80% are synchronized to some corporate user's computer at work.
- Laptops and personal digital assistants now outnumber conventional desktop computers.
- Over two-thirds of the telephone numbers issued worldwide are for cellular phones.

Today, it is common for office workers to have both cell phones and some type of mobile computing device. For less than the price of lunch for a corporate project team, one can buy wristwatch audio players, a credit card-sized organizer that will store thousands of phone contacts and appointments, or a digital camera that can directly send its pictures via wireless e-mail and browse the Web. New software systems can now turn a home or office PC into a mini-server which you can access from anywhere by using a variety of devices, so