Chapter 1
"i" Is for Innovation

1.1 Introduction

When Apple launched the first of its "i" products, the iMac, in 1988, company officials declared that the "i" stood for "Internet" but also emphasized the company's focus on the computer as a personal device, "i" for "individual." In the context of this book, the "i" stands for "innovation"—how educators can design new approaches to teaching and learning in classrooms where students use tablet computers in place of traditional textbooks, notebooks, and other types of computers. Pundits often clamor for "experience-based" teaching strategies, but the road to experience begins with innovative learning designs grounded both in students' learning needs and the realities of their real-world experiences. Innovative teaching and learning has to take place before future teaching strategies can be "experience-based."

What are the current generation of students' realities? Today's young people have been called the "YouTube Generation," the "Net Generation," and "Generation M" (for media) for good reason. They are not only "wired" but also adept at digitally cocooning when left, literally, to their own devices. According to the *Generation M*[2] study (Rideout, Foehr, & Roberts, 2010), typical 8- to 18-year-olds in the United States spend nearly seven and a half hours each day using media. Because they often use two or more media at the same time, researchers estimated use to be closer to 11 hours per day, and such use did not include time spent on schoolwork using a computer or time used in talking or texting by cell phone.

This generation is defined by its use of technology, something that learning designers must take into account when planning what and how to teach. Adolescents (and even younger children) also are sometimes referred to as "screenagers." Think of the many screens they look at, the most ubiquitous being the tiny one on a cell phone or smartphone. This also applies to postadolescents, university students, and 20-somethings. The urge to use screens to create learning should be—must be—irresistible to educators. Researchers Mitzuko Ito and colleagues (2008) put it this

way: "Our values and norms in education, literacy, and public participation are being challenged by a shifting landscape of media and communications in which youth are central actors."

1.2 Technology Adoption Accelerates

In the 5 years between the first and second *Generation M* studies (2004 and 2009), ownership of cell phones among the 8–18 age group rose from 39 to 66 %. Access at home to high-speed wireless Internet jumped from 31 to 59 % over the same period. The pace of technology adoption, particularly among K-12 students, is approaching light speed. The pace of change in computer-related technology is already at light speed.

In 1979—ancient times by technology standards—Christopher Evans, in his landmark book, *The Micro Millennium,* described the rapid pace of computer technology change with an analogy to the automobile industry. If automobile manufacturing had developed at the same rate as computers, then today's consumers would be able "to buy a Rolls-Royce for $2.75, it would do three million miles to the gallon, and it would deliver enough power to drive the *Queen Elizabeth II.* And if you were interested in miniaturization, you could place half a dozen of them on a pinhead" (p. 76).

That was more than three decades ago. Think what is happening now.

Many adults, including educators, consider themselves to be digitally engaged, like the students in their classroom. Right? The truth is that the digital divide is not between haves and have-nots—even poor kids have cell phones—but between types of preferred digital devices across generations. Perhaps it should be called a "device divide." For example, a recent Microsoft survey posed the question, What's the best way to connect? E-mail or text message? (AARP, 2012) The results shown in Fig. 1.1 are illustrative:

E-mail is "old school," really old. But the point is that students comfortably spend hours a day focused on a handheld device that connects them to the Internet, to their friends, to their music and games, and in some cases to their other devices.

1.3 Coming of Tablet Classrooms

One perspective is to consider tablet computers as miniature laptops. In essence, laptops themselves are desktop computers that have been shrunk and made portable. That perspective mirrors the developmental history of the technology. But from the

Age	Email	Text
13 – 17	36%	64%
18 – 25	46%	62%
39 – 58	56%	40%
59 – 75	60%	19%

Fig. 1.1 Use of e-mail and text messaging by age groups

standpoint of tablet use and how educators might think about learning design that intersects with and capitalizes on students' heavy use of cell phones and smartphones, another perspective could be more helpful: Tablet computers are oversized smartphones. Think about it. The only difference is that tablets lack an actual phone, but there are lots of Internet-linked applications that offer suitable substitutes.

With the introduction of Apple's iPad tablet computer, the course of the future classroom seems set on tablet-based learning. The first-generation iPad was launched in April 2010 and sold some 300,000 units that month, 14.8 million worldwide by year's end. The fourth generation came out in November 2012, less than 3 years later. Unlike the first-generation version, the fourth-generation iPad includes a camera and a video recorder, has more versatile connectivity, and has a higher-resolution screen—and it weighs less.

A tablet market share study from November 2012 is telling. Apple's iPad accounted for 88 % of Web traffic. Its nearest competitor, Amazon's Kindle Fire, could claim only 3.6 % (Chitika, 2012). The iPad has competitors in the tablet computer field. Among them are the Samsung Galaxy, the Sony Tablet, the T-Mobile G-Slate, the Asus Transformer, the Motorola Xoom, the Toshiba Excite, the BlackBerry Playbook, the HP Slate, and the Dell Streak. Computer aficionados have their pets, but the iPad, according to most reviewers and users, stands well above the competition in most areas of functionality. The "i" in iPad really does stand for innovation; other tablet manufacturers are racing to copy and catch up.

1.4 How Tablets Are Changing Classrooms

The iPad and its competitors have already revolutionized many classrooms around the world, and more are coming online daily. Several areas are feeling the effects.

Accessibility. Tablet computers offer even greater portability than typical laptops, and their smaller size is matched by a smaller price tag, making them more affordable than traditional computers. For schools that want 1:1 computer capability for students, tablets can be a good fit for tight budgets.

Connected learning. All-iPad classrooms are proliferating to facilitate computer-mediated learning beyond the classroom. For example, in early 2012 St. Gabriel's Catholic School in Austin, Texas, unveiled a plan to issue iPads to all of its students, who will then be able to access their schoolwork both in the classroom and remotely (Hohenbrink, 2012).

Special needs. Handheld ease of use makes tablets ideal assistive devices for many learning challenges. For example, in 2011 schools in East Haven, Connecticut, spent more than $120,000 on 220 iPads to help teachers identify and help struggling readers. According to district officials, the devices allowed teachers to use time previously spent calculating and reviewing reading assessments to work with students or adjust lesson plans (Misur, 2012). Additionally, iPad classroom are not

merely a phenomenon in the United States. In Australia a 7-year-old autistic youth, who used to communicate using only pictures and one or two words, is now speaking in sentences, thanks to an iPad app, according to the *Sydney Morning Herald* (Arlington, 2012).

Assessment. In the fall of 2011, the schools in Lowndes County, Alabama (2,000 students), distributed 1,100 iPads to teachers to gather observational data and to gain a glimpse of students' thought processes. In Montclair, New Jersey, at Montclair Kimberley Academy, a K-12 private school, Reshan Richards, director of educational technology says, "You can gather a lot of data quickly, and you can do a lot of quick checks of understanding in a class, but I'm more interested in the deeper, more qualitative understanding that mobile might bring" (Ash, 2012).

Textbooks. Schools also are making the move away from traditional paper to digital textbooks or eTextbooks. In March 2012, US federal officials set a goal to have a digital book in every student's hands in the next 5 years after Apple announced plans to partner with publishers to offer titles for under $15 (the program is called iBooks textbooks) and to provide a free application that makes it easy for anyone with a Mac to create a digital book. School districts in the San Diego, California, region planned to join others in the state and the country in putting high-tech tools in the hands of students to use educational apps and electronic books to augment and even replace traditional textbooks (Kucher, 2012).

1.5 Summary

The iPad (and to a lesser extent its competitors) is an international phenomenon. When the third generation was launched in March 2012, a shortage sent Russians flocking to Tokyo to get their new iPads, according to Pravda (2012). Tablet classrooms of the future are already a reality in many schools—and the numbers are rapidly rising.

Not every rollout of new technology runs smoothly, and tablets are no exception. Glitches happen—with inadequate networks, unreliable devices, unworkable policies, erroneous practices, and so forth. Articles appear periodically in the popular or education press, touting the travails of tablet experiences in schools. The press is in the bad-news business. The good news, less often reported, is about tablet classrooms that are successfully changing teaching and learning for the better in both subtle and dramatic ways.

In the chapters that follow, readers not only will be able to explore learning design strategies that can help educators and students, from kindergarten to college, take full advantage of tablet-mediated teaching and learning but also will gain insights into the kinds of applications and activities that are available to put innovative learning design into daily practice.

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