

Chapter 2

Tablet Technology as a Moving Target

2.1 Introduction

On November 2, 1936, the British Broadcasting Corporation (BBC), operating out of the Alexandra Palace in London, began transmitting the first regular, high-definition, public television service. It is estimated that about 500 television sets would have received the first broadcast (Quick, 2009). Those few individuals who could tune in probably would have watched the BBC programs on a screen with a cathode ray tube (CRT). Screens at the time ranged from 3 to 12 in., and broadcast images were in black and white.

The innovation of television was controversial, and critics predicted both future wonders and dire consequences. Within a couple of decades, television had revolutionized society around the globe. It changed how people saw the world and themselves in it. And “the tube” profoundly affected education, altering not only what children learned but also how they learned.

On April 3, 2010, Apple revolutionized the portable computer world when the company launched the first-generation iPad. The slim, handheld computer featured a 9.7-in., full color, liquid crystal touchscreen display. Some 300,000 iPads were sold on the first day they became available (Harvey, 2010).

Today tablet technology is as controversial as early television. Enthusiastic proponents see Digital Age education propelled by tablets as a door into a new dimension previously only hinted at. More flexible than computer labs full of desktop devices and more portable than laptops, tablets offer lower costs and greater ease of use than any previous form of personal computer. Opponents, however, question whether the door to this new dimension in education ought to be opened more cautiously—or perhaps not at all.

2.2 Critics Weigh In

“Television won’t last because people will soon get tired of staring at a plywood box every night.” That was movie mogul Daryl Zanuck’s opinion in 1946, and he wasn’t alone (Paranicas, 2012). Every innovation, from the automobile to the computer, has been greeted with skepticism. In 1943 IBM’s former chairman, Thomas Watson, predicted, “I think there is a world market for maybe five computers” (Paranicas, 2012). Of course, computers were room-filling behemoths in those days. Once size and cost came down and functionality went up, everyone wanted one. Today, around the world and across the economic spectrum, it is almost unthinkable not to own or have ready access to a computer of some sort.

When a writer poses the question, “Should kindergartners use iPads in the classroom?” and then starts a sentence, “And with the rising fad of mobile devices,” the reader can be assured that the answer will be negative. Often the criticism centers on children—and, really, students of all ages—spending too much time staring at screens rather than doing other, usually more traditional learning activities. There has been a general transference of the types of criticisms that cover all sorts of screens. “In the past, we only had to be concerned about too much TV exposure,” according to Mali Mann, a professor at the Stanford School of Medicine. “Now we have video games, computers, and cell phones. It is overwhelming for young children and creates patterns of behaviors similar to addiction patterns” (Rich, 2012).

This criticism is not unfounded but often is exaggerated. Teachers and parents who have used television, videos, worksheets, paper-and-pencil games, and the like to keep children occupied instead of actively engaging them in learning are likely to use, or misuse, tablets and other mobile devices in the same way. High interest and engagement can look like “addiction” without that necessarily being a negative—just the opposite, in fact. Still, the concern is not wholly unwarranted.

Nor are other criticisms completely unfounded:

- Tablet computers are an expensive experiment.
- Students will break the handheld devices, the tablets will be lost or stolen, and replacement costs will soar.
- Increasing schools’ technology capabilities is too expensive.
- Students will be distracted from learning by other tablet features, such as games.

The answers to such criticisms are surprisingly straightforward.

Yes, outfitting schools with 1:1 tablet computers is expensive, but using computers in schools now has a positive track record so they are hardly an experiment. Tablets are computers with some more, some less, and some different features—and they are less expensive than laptops and desktop computers.

Yes, students will break or lose the handheld devices, but schools that have already incorporated iPads and other tablets have not found damage or loss rates in excess of normal expectations for any well-used school equipment. “We are not finding that that disaster fantasy is actually playing out in real life,” according to education consultant Bernajean Porter, “including being in

socioeconomic neighborhoods in which those devices might be taken from kids” (Rich, 2012). Repair and replacement costs also are lower for tablets than for laptop and desktop computers.

Yes, ramping up schools’ technological infrastructure is expensive, but no matter what type of computer is used, that is a cost that will need to be paid. Computers are integral to the functioning of modern schools just as they are to other enterprises in today’s world. Schools cannot remain in the twentieth century while the rest of the world functions in the twenty-first.

Furthermore, the Common Core State Standards (CCSS) that have been adopted by most of the US states include an online test component that already is pushing school districts to increase their bandwidth to accommodate mass Internet-based testing (see Quillen, 2012).

Yes, students will sometimes be distracted by tablet features, but once the novelty wears off, they are no more likely to be distracted by the tablet than they are by other, time-immemorial distractions, from birds passing the window to the irresistible urge to doodle. As a recent study concluded, “The same students who day-dreamed before were still liable to wander, with or without the technology” (Upton & Konar, 2012).

Critics, from parents and kindergarten teachers to pundits and professors, are lighting their hair on fire over the proliferation of tablets in educational settings, but the panic is largely because the devices are new. They represent change, and change is always threatening to some people, including those who ought to know better.

2.3 Intuitive Integration

Early in 2013 the *Washington Post* carried a story about an experiment done by Massachusetts Institute of Technology (MIT) researchers through the One Laptop Per Child program in Ethiopia. Researchers dropped off 20 Motorola Xoom tablet computers in a small village to find out whether elementary school-age children could teach themselves to read and write in places that did not have schools and teachers. Matt Keller, director of Ethiopia’s One Laptop Per Child program, said, “If we prove that kids can teach themselves how to read and then read to learn, then the world is going to look at technology as a way to change the world’s poorest and most remote kids” (Associated Press, 2013).

Over the course of several months, the students not only figured out how to use the tablets but also started learning to read and write. They did so in English rather than their native Amharic because English is viewed as essential for getting better jobs. One particularly precocious 8-year-old even figured out within a few weeks how to turn on the tablet’s camera, which previously had been disabled to save memory space.

The MIT experiment is only one of the many research projects being undertaken around the world to examine—and most often confirm—the value of tablet devices to improve teaching and learning.

Tablet computers at present represent a pinnacle in intuitive technology. Intensive instruction is not necessary for most users, at whatever age, to pick up a tablet device and quickly learn how to use it in basic ways. Witness the youngsters in Ethiopia. They may wear ragged clothes and live in stick-and-mud huts and they may help their parents grow potatoes and produce honey, but they intuitively can engage with a tablet computer in meaningful learning despite having no prior technology experience.

Many a parent has had the experience of their preschool child getting hold of their iPhone or iPad and later discovered that the child had downloaded a new app or played an existing game app. For many children, figuring out how to use a tablet computer may be easier than learning how to tie one's shoes or to ride a bicycle.

Therein resides the power and learning potential of tablet computers. It takes little imagination to realize how much more powerful learning might become when engaged teachers work with classrooms of students, whether kindergartners or co-eds, with tablet computers in everyone's hands.

2.4 Moving Target

Many schools have begun integration of tablet technology by providing iPads or other tablets to teachers with the idea that 1:1 student tablets would come later. This strategy is not without merit, but it can be limiting. When a teacher uses a computer to construct lesson components, this use is a step in the direction of technology-mediated learning. But simply developing traditional items such as quizzes, tests, and worksheets on a tablet does not represent a substantive change from the days when teachers ran off these paper-and-pencil components on the school's ditto machine. On the other hand, if the teachers involve students in using the computer, figuring out how to use the device together, then the potential for active learning increases. The fact is that teachers are likely to learn as much or more from their students as teachers will learn on their own.

The potential power to transform teaching and learning is more likely to be realized if dedicated student tablets arrive in conjunction with tablets for teachers. A growing number of school districts are moving in this direction—in spite of the relatively high cost and some noteworthy policy ramifications (see Chap. 14)—because the payoff in increased student learning is substantial.

In pre-tablet days, significant numbers of school districts committed to providing laptops to students and consequently discovered significant changes in how student improvement was achieved. Researcher Janet Trombley (2006), for instance, studied Project Laptop at Summit High School, an ethnically, culturally, and socioeconomically diverse public school in which students come from homes that speak 39 languages. Trombley concluded that providing computers was effective in “not only ‘leveling the playing field’ but also raising it by eliminating the technology disparity between the ‘haves’ and ‘have-nots.’”

When laptop computers first came onto the market, they were the only portable computer profile available. New profiles have now emerged, including netbooks or mini-laptops; handheld devices, such as smartphones and Apple's iPod Touch; and tablet computers. Computers used to reside in separate rooms, computer labs, and one or more computers might—just might—reside in each classroom. In today's technologically rich classrooms, the teacher's dedicated computer has moved up front, supplanting the once ubiquitous chalkboard with interactive whiteboards, or IWBs, that upsize computer functionality to classroom scale. IWBs can now operate from the teacher's iPad, allowing for the sharing of a wealth of applications—from projecting traditional screen content (documents, websites, images, PowerPoint presentations) to student-produced media, such as mock senate hearings and local news broadcasts (see Chap. 17). Now, with the addition of 1:1 tablets to the electronic capacity of the classroom, new avenues of potential learning are many and ever increasing.

2.5 Summary

From the first flickering black-and-white television images nearly a century ago to the latest generation of handheld, high-definition color, touchscreen tablet computers, screens have captured the attention and imagination of generations of users of all ages. Television transformed learning, brought it home to young children in the form of *Sesame Street* and other vehicles, and took it to remote areas where TV reception existed but schools did not.

Computer technology has taken over where television left off, bringing even more changes to the way children and adults learn, both in terms of what is available to study and how they can acquire the knowledge they need and want. Tablet computers are revolutionizing the notion of what a computer is, increasing technological capabilities while downsizing scale and price. The tablets that are on the market today and those new and improved versions that will arrive tomorrow can potentially level the education playing field for students of all socioeconomic backgrounds while simultaneously expanding what and how students learn. Tablet technology is certainly a moving target, but it is one worth following.

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