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Playing video and other electronic games to learn—especially to learn well and deeply—is not an obvious academic approach. Therefore, some background may be required to understand why games may, in fact, be used as appropriate ways to help educate our children at the beginning of the 21st century.

While many agree that our ability to prepare our children well for the future has been declining, there is no consensus on the reason or reasons for this. Teachers complain that their students pay less and less attention; students complain that their teachers are boring them. Critics blame the testing, the administration, the curriculum, and the teaching methods. Solutions are proposed ranging from vouchers, to smaller schools, to charter schools, to more qualified teachers, to more technology; yet again, there is no consensus.

The problem is most acute for our middle students: those neither in the top 10%, who will almost certainly do well in spite of what we do or don't do, nor at the bottom, where special education cares for their needs individually. We really have little idea of *what* and especially *how* to reach and teach this middle group, and this is not just an American phenomenon. Students around the world, in every developed country that tries, as America does, to educate all its children are complaining and struggling.

Video Games as a Solution?

Educational computer and video games have recently emerged as a potential solution. The first book on this subject, my own *Digital Games-Based Learning*, was published in 2001. Since then, numerous books have been published, and a serious games movement has emerged, which is daily gaining advocates. In 2001, I was able to cite roughly 50 games for learning in a variety of areas and subjects. By 2005, it was possible to find more than 500 games. At the rate these games are now being created, I would guess that one will be able to find several thousand of them by 2010. This book will discuss a number of these games and the reasons for their success.

Games alone, of course, certainly will not solve all our current education problems. But can they help? Can they be used as teaching tools to help reach and teach the currently unreached and untaught? Almost certainly.

Making the Case

To make the case for why video and other electronic games can and should be used as teaching tools in our schools—and elsewhere, such as in home schooling and in the myriad forms of after-school learning activities—we need to examine four evolving and interrelated trends:

1. The incredibly rapid technological changes that are taking place in all our lives—and especially in our children's lives—as we begin the 21st century and the expectations of where these changes will lead

2. The changes that are taking place in our students, especially in their intellectual readiness, their technical fluency, and their attitudes (which are, to a large extent, a result of number 1 in this list)
3. The way our schools have reacted to these changes, including what schools have done to accommodate 21st-century learners—actually very little—and what needs to be done in order to help our kids learn what they need to succeed in the future
4. The enormous evolution that has taken place over the last 30 years—largely unremarked until recently by educators and other adults—in the phenomenon known as "games"

As these four strands come together, they define the opportunities that electronic games hold for our kids' education. We will examine each one in turn and then discuss the opportunities that games offer to educators.

Our Changing Technological Environment

Perhaps the hallmark of the developed world in the early 21st century is extremely rapid technological change. Already, in the first years of this fledgling century, a great many people in developed countries have radically changed the way they phone, bank, shop, make political contributions, take photos, plan trips, and do many other daily tasks. You have likely experienced many of these changes, perhaps without even stopping to notice them.

Incredibly Rapid Technological Change …

The younger generation, however, is the age group most affected by these changes. They have experienced from birth, with the first flash of the digital camera or video and possibly even earlier (with digital ultrasound, monitors, and other digital medical devices), the power of digital technology. Many of these kids grow up totally surrounded in their homes by these technologies ("I never lived in a house without a computer," says one). While many adults experience the technologies in a more limited or secondhand way, today's youth are "digital kids." Unlike many of their parents and teachers, they are cognizant of the myriad digital technologies around them—technologies they can control and customize to fit their own lives and styles. They all use whatever they can, coveting and waiting for the rest. Digital music players are ubiquitous among young people in most developed countries; most of them have also played some form of digital games. Most have, at some point, been on the Internet, and a great many have their own cell phones. In some inchoate and typically unexpressed way, these "millennials"—or, as I prefer to call them, "Digital Natives"—understand that this technology is their birthright as the first generation to grow up in the digital world.

… Leads to Changes in Attitudes …

These young people are different in numerous important ways from their parents and teachers—ways I will discuss in more detail later in this chapter. To start, it is important to remember this: What distinguishes these "Digital Natives" from their "Digital Immigrant" elders is not so

What We Teach and How We Teach Must Change

Yet, even though updating what we teach should be made a huge priority, our current K–12 curriculum, until we change it, could be presented to students in other, different ways—ways that out students could relate to and learn from. This is another important reason for using games as tools in our schools.

Just because students drop out of school—either physically or mentally—doesn't mean they stop learning or preparing for their 21st-century lives. The 21st century provides our kids with another key learning component in addition to school—one that they often prefer.

The New School Competition: "After School"

Although up until now many have ignored it as part of the educational context, much of the future-directed education students are getting comes when school is over. It comes from a combination of their time on the Internet, their robotics and programming clubs, their exchanges with peers around the world, and, increasingly, their games. I have written an entire book about how games are preparing our kids for 21st-century success, a book that has been translated into several languages, *Don't Bother Me Mom—I'm Learning* (2005).

I label this entire combination of additional learning activities "After School." The MacArthur Foundation refers to it as "another node" in our kids' learning system. Some after-school learning is formal, but much of it is not. More and more kids are just following their interests and passions rather than a pre-set curriculum. Jim Groom calls this learning on kids' own "edupunk." Whether kids will adopt the term "edupunk" as their own remains to be seen.

Learning without School?

And how do the kids learn in this after-school environment? They teach themselves and each other, sometimes but not always with the guidance of an adult, using all the digital tools of the 21st century—many of which are electronic video games. "What do video games teach, besides violence?" you may ask. The answer is a surprising but nonetheless true, "Everything we want our kids to know." I will show why and how later in this chapter, and you will see it in much more detail, subject by subject, in the remainder of this book.

One important thing to consider about after-school learning is that it involves using digital tools—tools kids enjoy using. Using tools in education is, of course, not new. We have been using books and abacuses, for example, for centuries. Even the classroom teacher is a learning tool—one that largely replaced an earlier tool, the tutor.

Yet for some reason there is a lot of resistance from adults, especially adults who are educators, to their students' using contemporary, digital tools to learn—especially as these new tools become capable of replacing some of or some parts of the old ones.