Games in Higher Ed: When Halo 2, Civilization IV, and Xbox 360 Come to Campus

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August 15, 2005

Introduction: What Do Thumbs Have to Do with Pedagogy?

If in the next 500 years anthropologists wonder why the 21st century human species evolved with enlarged and powerful thumbs, they might trace this physical trait to the ubiquitous use of handheld controllers. Artifacts from the period might also reveal that to most humans, the words computer and games were usually coupled.

Without looking too hard, we see that the computer game evolution is already altering reality and fantasy, fostering social interactions, impacting leisure activities, influencing learning styles, widening the gender gap, and driving up costs for maintaining state-of-the-art technology.

In 2003, the Pew and American Life Project studied the growth of our students’ metaphoric thumbs. “Let the Games Begin: Gaming Technology and Entertainment Among College Students” revealed weighty statistics:

- All students surveyed¹ had played video/computer or online games
- One out of five said gaming helped them with friendships
- Most said gaming was part of their leisure activities
- Nearly half said gaming did distract them from some of their studies

This white paper is about current and future effects of the gaming evolution in higher education. We will not pass judgment on whether gaming is good or bad, or what its developmental implications on students might be. We will instead review gaming from three lenses: Academics, Technology Requirements / Costs, and Libraries. We will conclude with coping strategies.

Gaming Defined

We use the terms computer games, video games and online gaming interchangeably, and aggregate these terms into a definition of gaming – a genre signifying student use, preference and expectations surrounding multi-platform, technology-mediated, visually-enhanced interactive media. We concentrate on today’s 18-22 year old students, colloquially known as Millennials, who grew up not only with games but also with games playable on multiple devices.

¹ Surveys were sent to both undergraduate and graduate students at 27 institutions in the U.S. with 1162 responses received in the spring and fall of 2002.
Academic Lens - How is Gaming Evolving?

The most immediate impact will be upon academics, specifically Curriculum, Research, and Faculty Instruction.

Curriculum

There are several ways gaming is affecting curriculum. The most obvious is in the proliferation of degrees and/or certificates in gaming. A very quick Internet search revealed initiatives at institutions as diverse as Cornell, Parsons, Southern Methodist University, Rensselaer Polytechnic Institute, Carnegie Mellon, USC, MIT and Expression College for Digital Arts in San Francisco, which has thoughtfully paid for a Google "sponsored link" titled Video Game University. The trend is global, with courses and degrees offered at the Art Institute of Vancouver, City University of Hong Kong and the University of Bradford (UK).

What may have even more impact is the interdisciplinary nature of these programs, a fact highlighted in several articles in the Chronicle of Higher Education, EDUCAUSE Review and news publications\(^2\). The Vancouver Art Institute, Worcester Polytechnic Institute, Cornell and SMU draw upon drawing, storytelling, animation, modeling, culture and even legal issues associated with video games. Ohio University is taking this concept further with its research venue, community outreach program and economic development incubator. The university is scheduled to open its Games Research and Immersive Technology (GRID) Lab, which will include a video game arcade (yes, arcade!) open to students and the public.

Research

Coupled with curriculum, video gaming is an emerging, rich area for research. There is a peer-reviewed international journal, Game Studies (www.gamestudies.org). An association, Digital Games Research Association (DIGRA, www.digra.org), lists papers and conferences and related links. As with the undergraduate and graduate programs mentioned above, video game research can be found in a wide variety of disciplines from anthropology to artificial intelligence. In his book, What Video Games Have to Teach Us\(^3\), James Paul Gee’s extensive bibliography includes citations from behavioral and brain science, educational assessment, semiotics, cognitive anthropology, culture, as well as expected disciplines of game design and machine learning.

Another area for research is on changes in the student body. Using the terms “Net Generation” and “Millennials” interchangeably, Diana Oblinger outlines characteristics of students born in or after 1982. These include the ability to multitask and a strong collaboration style. Millennials also consider technology integral, not an add-on, to their lives.\(^4\) These student expectations may put pressure on faculty instruction.

Faculty Instruction

The potential for games to enhance, enliven, and embolden teaching is considerable. Both the Digital Media Collaboratory (University of Texas-Austin) and MIT, through corporate partnerships, are heavily involved in developing games for use by schools, businesses and governments. The application of gaming to education has been embraced by several organizations outside of academe, such as The Federal Emergency Management Agency (FEMA) and the American Cancer Society, who find that interactive games can “capture and hold the attention of people bombarded with numerous competing messages.”\(^5\) The U.S. Army even utilizes the attraction of a free and downloadable game for recruiting and training.\(^6\)

\(^3\) James Paul Gee, What Video Games Have to Teach Us (New York, NY: Palgrave Macmillan, 2003.)
The thornier issues (aside from costs) are educators’ attitudes toward games as time wasters or having value. This attitude is given credence by the high percentage of games with violent content.

We cannot gloss over violent content; it exists. We also acknowledge that time supposedly once devoted to study now seems to be devoted to video games. The Pew study reports that almost half of the college students who play games do so after 9 pm, with another quarter of respondents reporting playing between 5 and 9 pm. Diana Oblinger refers to statistics from Marc Prensky’s 2003 book, *Digital Game Based Learning*: “…by the time an individual reaches 21 years of age they will have spent: 5,000 hours reading and 10,000 hours playing video games.”

Heretical or not, research conducted for this white paper revealed there is considerable educational value in video games. One of the advocates for video-games-as-educative is James Paul Gee. Another is Marc Prensky, author of *Digital Game Based Learning*. An excellent article outlining Gee and Prensky’s hypothesis was written by Joel Foreman, in the September/October 2004 issue of *EDUCAUSE Review*, and the August/September 2005 issue of Innovate, a journal of online education, is devoted entirely to papers discussing the role of video games “in current and future educational settings.”

Possibly the strongest statement for change is a quote from Prensky. “I think that the era of listening to a professor tell you something is fast coming to an end. Lectures are just one tape recorder talking to another.” In a Google age, when information is available rapidly, and in breathtaking quantities, why sit motionless and non-responsive in a classroom? Games require interaction and involve responding to visual cues.

Simulations, certainly in the sciences but also the social sciences, are tools for teaching, particularly for subjects where the information is “difficult to understand as equations on a page.” Visual, interactive and engaging models can be used to highlight difficult concepts, bring relevance to theory, and offer alternative means of understanding. Some of the changes in faculty instruction have begun. New Ph.D.’s in their 30’s have been exposed to video games for most of their lives. Gee states, “The colleges that are going to win are going to protect the young faculty and let their culture begin to branch. Many of the young faculty see their teaching mission and their technology mission and their intellectual research mission as much more tightly related than the baby boomers did.”

**Technology Requirements / Costs Lens – How is Gaming Evolving?**

There is no way to definitively predict future costs for licensing, supporting or delivering technology solutions, and this applies to games as well. However, one can reasonably assume that any costs associated with this kind of technology will be considerable.

A deeper look, specifically *at the cost to develop games*, will strike fear into administrators’ hearts. There is ample discussion within the game developer industry itself about the rise of budgets and the increasing complexity of creating a “profitable game.” Kathy Schoback, chair emeritus of the International Game Developers Association, discussed the death of the “two guys in a garage” model during her presentation,

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8 Oblinger, “The Next Generation of Educational Engagement.” p. 3.
11 Foreman, p. 53
12 Foreman, p. 58
13 Foreman, p. 54
14 Foreman, p. 66
“The Economics of the Next-Gen Game.” In fact, a quick review of the session titles for the 2005 Game Developers Conference (GDC) reveals a staggering range of issues that developers must consider in creating such products—from financial to demographics to marketing to licensing to intellectual property issues.

While this all might sound bleak—bolstering arguments that game development in higher education is impractical—there are potential options on the horizon. First: game developers are beginning to consider partnerships with academic institutions. "...in today's changing games industry, the industry and academia are no longer as separate as some think." Second, the industry is seeing game development for education (as opposed to pure entertainment) to be part of an emerging market, as evidenced by the formation of a “Serious Games Summit” at the 2005 Game Developers Conference. An embodiment of the emerging collaborative model, it should come as no surprise than an institution like the University of Southern California (with geographic proximity to Hollywood as well as the Silicon Valley) is staking a major claim in the higher education game development and research territory.

The hardware associated with gaming is in transition, as well. Consider, for instance, Microsoft’s Xbox 360 game console, due to be released in time for the 2005 holiday season. Looking more like a Windows PC, its specifications evidence a strategic move into the broader entertainment marketplace. The unit promises to offer high-definition video output (cinematic-quality game play), 802.11b and g wireless enabled, new I/O ports (USB and memory card slots), a 12x dual-layer DVD-ROM, a detachable/upgradeable 20GB hard drive, built-in Ethernet, and support for multiple “digital media” standards. What impact will this hardware have on our campuses, either in terms of IT support, network usage or network security? How different are these machines to the PCs students already bring to campus? It’s too early to say, but IT leaders should keep these questions on their radar.

Looking beyond the physical hardware: with a network connection, Xbox 360 owners will be able to access Xbox Live. For many students, gaming has become a social/community activity. Microsoft’s management of its subscriber-based online service community is discussed throughout blogs in the gaming industry. Some speculate that there is potential for explosive growth in the overall consumer market, largely due to the wireless capabilities of the Xbox 360 game console as well as game consoles under development by competitors Sony and Nintendo. We are witnessing the evolution of standalone game consoles into fully networkable, always-on entertainment machines, communication devices and community gateways.

### Academic Libraries Lens – How is Gaming Evolving?

Gaming isn’t on the radar for most academic libraries. But soon, it may be a blip at the edge. A review of peer-reviewed scholarly publications for the field reveals that gaming is virtually nonexistent, either as it relates to academic library services or academic library collections. However, there is ample evidence of a growing discussion within blogs and deep-web resources about the social lure of games, and how some public libraries see games as one more way of drawing in teens and connecting with their communities. In these discussions, public librarians often cite examples of library-hosted LAN parties, they examine the

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information searching sophistication of “gamers,” and they debate whether the intersection of gaming in libraries is a fad or an information trend.

Meanwhile, advocates for gaming in higher education and researchers in the field point to its potential for extending the academic library’s instructional service mission. They imagine games as tools for improving students’ information literacy and suggest that games be licensed as one more type of learning/research resource within a library’s collections. A likely place at the library for delivering or providing access to such resources might be an Information Commons or other educational technology facility where students connect, create or collaborate.

Librarians are taking into account Millennials with an insatiable taste for new media, Google-style search results, shifting technology and network-ready social tools. A recent article in *Library Journal, “Meet the Gamers,”* suggests in an ominous note that librarians risk obsolescence if they don’t begin to understand and address the information needs of not only these Millennials but also the “Nintendo generation,” now turning 30. The article’s authors paint a stereotype of baby boomer library decision makers, resistant to change and ignorant of the impending demands of an increasingly digital culture.

The reality is that academic library missions reflect their own institutions’ priorities. Libraries refine their collections (both print-based and e-online) based on curricular trends within the departments and colleges they support. Librarians collaborate with faculty members and other instructors to develop educational offerings or resources designed to supplement and enhance the learning taking place either in the physical or in the online classroom. At many institutions, such offerings include, but are not limited to:

- tutorials created to explain the complexity of navigating a shifting, swelling sea of information/media available from the library;
- “live reference” online chat for just-in-time research consultations; and
- flexible electronic classrooms in the library where instructors facilitate groups of students exploring interactive simulations

It’s important to know that libraries aren’t necessarily “anti-gaming” but instead are driven by institutional agendas. Many librarians will be watching how gaming technologies unfold, waiting to see how the departments they serve might utilize these tools, and then will identify opportunities for how the diverse array of information resources and services they provide might become naturally integrated with the gaming evolution on campus.

**Challenges and Impact**

The challenges and impact facing higher education from the expansion of video game playing is, ironically, not much different than factors facing higher education in general.

Cost: The primary factor that we cannot lose sight of is cost. Cost to develop the games. Cost to buy the games. Cost to learn how to teach the games. But, this is no different than academe reeling from the impact cost of technology. “American higher education faces formidable challenges caused by changing student demographics, severe financial constraints, and lingering institutional rigidities,” writes Walter Baer, Senior Policy Analyst, RAND Corporation. He wrote this in 1998, long before broadband connectivity became widespread, game consoles became networked, and “plug-n-play” Wi-Fi became accessible enough for use in everyday, home computing environments.

Attitudes: Much has been written about the vast amount of time that gamers spend gaming and how that activity cuts into the time, allegedly, once spent on homework. Naysayers contend that video games will

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produce a generation of hermits. Yet the most popular video games are multi-player and highly social. Entire communities of players have sprung up surrounding these games. Read the communication threads related to complex simulation games like the Civilization series and you will a surprising depth of analysis, problem-solving, collaboration and fervor. Wouldn’t we rather see a group of students playing Civilization IV in preparation for an in-class discussion the next morning about the role of military power in negotiating international trade agreements—rather than throwing back a few beers with friends at the local pub?

Gender Gap and Missing Boys: Enticing girls to science, engineering and technology has been difficult for many years. In the same vein, today’s game development field does not seem to appeal to women. Nor, according to the Pew study, are women heavy gamers. The University of Derby in the United Kingdom did not have a single woman applicant for a new honors course in computer games. "The fact we have no applications from women reflects a perceived gender divide within the industry," reported faculty member John Sear.25

On the other hand, the disappearance of men on college campuses is a nationwide phenomenon. Here, the introduction of video games as an academic major or as teaching tool may begin to woo male students to campuses. A February 2, 2005 article in the Chicago Tribune makes explicit what many institutions have chosen to keep quiet for several years — that there are more women enrolled in college than men.26 Estimates are that 56% of all college students today are women. Tom Mortenson of the Pell Institute for the Study of Opportunity in Higher Education27 wants to engage boys in academics early. One possible way to engage them may be through video games. "... [a novel] can’t compel the focus or generate the kind of excitement that guys find in Halo 2, or any of the other new generation of games," writes Patrick Welsh in the Washington Post28

How Do We Proceed?

First, it is foolish to discount video games. They are not going away, any more than television is going away. After all, this is a $9.9 billion industry29 and is forecast by some to reach $29 billion in 2007.30 Second, we need to proceed both carefully and at warp speed: carefully because the technology, the method of technological delivery of video games, is changing almost daily; at warp speed because the underlying principles of video games, as defined by Gee and others, are principles of good teaching and learning.

Below are some strategies for coping with the multidimensional impact of video GAMES on our campuses.

Get knowledgeable: Learn to play a game or two, or at least watch as others are playing.

Adapt teaching and research: Consider students’ expectations. This does not mean selling out to fast-paced or dumbed-down coursework. It does mean considering the interdisciplinary found in video games and building curriculum and/or class-work around it. It means allowing new (read: untenured) faculty members the elbow room to try different pedagogies and more visually-based research projects.

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Manage: Manage the technology required. Review your institution’s Acceptable Use Policy. Understand, from a technological point of view, what increased use (legitimate or otherwise) of video games will and can do to the residence halls, classrooms, computer labs, education technology facilities, collaborative spaces, and institution networks.

Experiment: Find faculty who are willing to introduce games into their teaching. Do this for several disciplines. Some games are available for free or manageable prices. http://www.twitchspeed.com/site/companies.html lists companies that are advocates of game-based learning.

Strengthen use of video games in student and staff development, and in library instruction. Advocate its inclusion in tenure and promotion decisions.

Summary – Game Over?

Will video games change higher education? Skeptics may ask, “Did television? Did radio?” And the obvious answer for those technologies was no. We assert video games are different. They are not a passive medium. They are interactive and, yes, social. So, the better questions are whether gaming can change higher education and whether the increasing use of video games by this and forthcoming generations will actually force those changes.

Frankly, it is going to be up to us, the real higher education faculty, librarians and administrators, to foster a learning environment where our current and future students will give our institutions the “thumbs up.”

Related EDUCAUSE 2005 Sessions

The following EDUCAUSE 2005 sessions complement the topic of Gaming in Higher Education.

Beyond Chalk: Determining Faculty Needs for Instructional Technologies
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/SESS026

ECAR Study of Students and Information Technology, 2005
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/SESS041

Constituent Group: Instructional Technology
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/CG12

TomorrowLand: When New Technologies Get Newer
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/SESS043

Poster Session-Teaching and Learning: Intelligent Agent Assistants
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/PS043

The Next Wave: Findings from a Biennial Institutional Assessment of Educational Technology
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/SESS080&ITIN=False

Constituent Group: Multimedia
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/CG21&ITIN=False

Pachyderm 2.0: Multimedia Authoring Made Easy
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/SESS087&ITIN=False

The Lehigh Lab, One Year Later: Increasing Faculty Involvement
http://www.educause.edu/E05/Program/5085?PRODUCT_CODE=E05/SESS110&ITIN=False