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Pedagogy, Playstations and the Public Interest

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“Teach your children well” Crosby Stills Nash and Young

Learning, teaching, and playing

How should we teach our children? This is a timeless and all-encompassing question. From the dawn of the nation’s founding until the present day, Americans have argued over whether educational structures should be “...in the business of teach[ing] *how* to think...or *what* to think.”¹ As economic structures changed and societal norms about equity have evolved, these questions have shifted from issues such as who to educate (girls, racial and ethnic minorities) and for how long (mandatory kindergarten to high school) to how and where to teach (think of the phonics versus whole language fight and the homeschooling movement). One strength of American educational policy may well be its ability to remain ever-open to deep discussion, mirroring – at its best – the best of the democracy of which it is part.

For at least the last century educational policymakers and classroom teachers have also debated the role of new technologies in delivering content, testing comprehension, varying pedagogical practice or simply being taught and used for their own sake. The drumbeat of technological change provides a steady percussive backdrop to American schooling. The last century brought the telephone, audio recorder, film, radio, television, videogames, personal computers, and the Internet.² So far this century we’ve grown accustomed to students using iPods to store textbooks, wikis to capture class discussions, YouTube to distribute video lectures, games to learn about international diplomacy, and podcasts to share speeches and presentations. What lies ahead...? About the technology itself, we can only guess. That new technologies will spark debate about learning and teaching, we can be quite confident.

Technology evolves at a much faster rate than cultural practices or societies’ institutions. Each new technology has been introduced into society and school classrooms to great fanfare as well as to catcalls. Fundamentally, each new media - from film to MP3 players - has presented “a major challenge to the supremacy of the public schools as an influence on the minds of children

¹ Lawrence Cremin, *American Education: The National Experience 1783-1876*, New York: Harper & Row, 1980, p. 1.

² See, for example, Larry Cuban: *Oversold and Underused: Computers in the Classroom*, Cambridge, MA: Harvard University Press, 2001 and Larry Cuban, *Teachers and Machines: The Classroom Use of Technology since 1920*, New York: Columbia University Press, 1986.

and as a source of a common culture and shared values.”³

While technology heads ever forward to the “next new thing,” social theories about learning, the political frameworks guiding education policies, and schools themselves move in syncopated, arhythmic fashions. The challenge at each new era of technological accomplishment is whether and how the polity as a whole should act to assure that new technological resources are made part of our public compact to educate our youth.

Ever since Gutenberg’s printing press first made print widely available, and again since the rise of broadcasting, media, culture, schooling, and learnedness have grown ever intertwined. Whereas once a school curriculum, religious practice and parenting norms were the major forces directing a child’s development, the pervasive power of media forces has been rising steadily – and increasing exponentially - in recent years. As Thomas de Zengotita writes, “The mediated world is capacious. Its middle names are Diverse and Inclusive. There’s room for everybody and everything.”⁴ Media is on the rise. Its impact and influence is everywhere. As media have changed from analog to digital the meaning of content, originality, ownership, distribution, and access are also changing. All of our extant systems for using and managing media – from copyright law to advertising to game playing to business planning to teaching and learning – are also undergoing profound changes.

Four fundamental assumptions about media are shifting. First, all of what we recognize as knowledge and culture can now be transmitted via multiple media sources. Second, the means of that distribution is electronic, instant, global and pervasive. Third, the nature of the media is that it is not only transmittable but malleable. Finally, the infrastructure that moves, stores, and transmits the media was built by – and continues to be owned and regulated by – both public and private investments and institutions.

These four shifts intersect in powerful ways. They raise three key questions for educators, media watchers and producers, parents, and young people.

1. How do digital media influence what and how youth learn, and what they should learn?

³ Joel Spring, “Schools, Movies, and Radio: The Battle for Control of Children’s Minds and National Culture,” in Spring, *The American School: 1642- 1990*, New York: Longman Publishers, 1990, p 284.

⁴ Thomas de Zengotita, *Mediated: How the Media Shapes Your World and the Way You Live in It*, New York: Bloomsbury Publishing, 2005, p 11.

2. What, if any, public responsibility do we have to provide these media as tools for learning?
3. If there is such a public purpose, how can it best be met?

These three questions are at the core of this paper. Within the first question, however, we will narrow our focus from all of digital media specifically to games. Games are one of – if not the most – controversial media type. They spark perennial debates about violence, media exposure and control, and/or lazy kids. At the same time, computer and video games (which we will refer to simply as games) now make up an industry that rivals Hollywood in size and influence. Games are played across the demographic spectrum with women ages 18-45 making up a larger part of the “gamer” population than boys under the age of 17.⁵ They can be played on dedicated consoles, on cell phones, on computers, televisions, and iPods. They are everywhere. What, if anything, can be learned from them?

As we focus on the impressive rate of adoption and the pervasive nature of video games, we must keep in mind the broader context of technological adaptation. The interoperability of all digital media – music, text, video – and the proliferation of machines designed to give consumers control over when and where they watch, listen or play has profound implications for thinking of video games as a learning tool. The lines between “screen” and “media” are blurring rapidly.⁶ Software makers such as Microsoft are now selling hardware devices (the Xbox 360) that will play games as well as share internet connections between household computers and televisions. Cell phones are rapidly becoming the platform of choice for music, games, video, and still photography (as well as phone calls). Broadcast control over schedules, advertising, and markets has been upended as devices such as Tivo, RadioShark, Slingbox, and YouTube shift control over when, where and how much of a program they watch to the viewer.⁷ Even the lines between digital worlds and reality are blurring, as an increasing number of players who participate in online communities are making offline money trading in the 21st century version of

⁵ The Entertainment Software Association, “Essential Facts about the Computer and Video Game Industry, 2006” page 3. Available online <http://www.theesa.com/>

⁶ The newest challenge to old conventions is the simultaneous release of major motion pictures to theaters, television and DVDs. See Xenia Jardin, “Thinking Outside the Box Office,” *Wired*, December, 2005, p. 257 and Jardin, “The Cuban Revolution,” *Wired*, April, 2005. Online access to videos (amateur and professional), as well as copyrighted material from networks and cable television channels are now widely available via YouTube and other online video distribution sites. As of October 2006 analysts’ estimates were that more than 50 million people were users of YouTube, a number that was used to justify its purchase by Google, Inc.

⁷ Bruce Einhorn, “This is the Face of Broadband TV,” *Business Week*, February 13, 2006, pp 56-57; Thomas Goetz, “Reinventing Television,” *Wired*, September 2005, pp 103-105; Josh Mchugh, “The Super Network,” *Wired*, September, 2005, pp 107-113; Frank Rose, “ESPN Thinks Outside the Box,” *Wired*, September, 2005, pp 113-117; Duff McDonald, “Hollywood to E.A.: Bring it On,” *Wired*, August, 2005, pp 76-81;

“Monopoly” money.⁸ As platforms and media are becoming interoperable, and time and place are subject to personal shifting, we find ourselves in need of expansive new concepts to understand, manage, study, learn from and improve digital media. The existing bounds for our research, regulation, and recommended actions – are typically sorted by the type of delivery system (broadcast), intended use (game, show), place of consumption (home, portable), or corporate structure of the provider (commercial, noncommercial). As the media themselves blur, these categories are correspondingly less relevant in framing the field.

Even as we focus on the relationships between video games and learning, we must keep one eye on this changing digital horizon. As televisions, movie screens, game console and cell phone screens become interchangeable options for searching the internet, watching programs, or playing games, we must consider games in light of the broader possibilities of digital media and with an eye across platforms.

Video games have been part of youth culture for more than three decades.⁹ In the last few years, however, an explosion in broadband access, exponential advances in computing power, a revolution in portable computing, and decreasing production costs have made possible intensely realistic, socially interactive, globally aware game platforms that explode old stereotypes of lone teens in dark basements. The kids who grew up playing Pong[®] in the rec room are now the adults playing in SecondLife[®] and the parents of the children playing in Neopia[®].

How should we teach our children? Do today’s newest technologies – digital media writ large and video games in particular, change what or how young people learn? If so, what responsibility does the polity as a whole have to deploy these technologies and to ensure broad access to and use of them? Can they, and should we as a populace use them to, change our structures for teaching and learning?

What’s learning got to do with it?

New game structures involve multiple players, working together and independently to solve complex tasks. They navigate many layers of context and critically manipulate as well as create

⁸ Chris Suellentrop, “The Virtual World Gets Real,” *Wired*, August 2005, p 30.

⁹ Atari introduced a home version of the game Pong in the early 1970s.

content and narrative.¹⁰ These skills complement the set we claim our school graduates to need in our globally competitive economic climate.¹¹ Employers and colleges increasingly point to the need for critical thinking, group work, and the ability to handle complex computations. Some researchers argue that these are the very skills that young people master through video games.¹² However, the current policy landscape for public schools, with its emphasis on high-stakes testing, is much less of a fit for the kinds of learning that games may facilitate.¹³

Play and work, learning and doing have long been understood as related educational concepts. Ever since Maria Montessori developed her early childhood education methods in the late 19th Century, schools and teachers have built on her observations and recommendations about “following the child,” working across ages, cross-disciplinary learning, and the importance of letting the child learn directly from his/her environment by manipulating it.¹⁴

The debate about video games and learning is largely a 21st century extension of these same pedagogical issues. Do games teach skills? Content? Both? Do the interactivity, structured environment, mastery challenges, and visual magic of video games make them fundamentally different teaching tools than small wooden dowels, beads, and other “classroom manipulatives”? Even the question of games is not new. For centuries games (and sports) have been used to teach team work, sportsmanship, and leadership. Starting in the late 1980s and early 1990s, videos and computer games for children, ranging from the *Reader Rabbit* series to *MathBlaster* to *Baby Einstein* began to provide educational material to even the youngest

¹⁰ Several of the most popular include World of WarCraft, EverQuest, SecondLife, and RuneScape.

¹¹ See, for example, the American Diploma Project and its findings on what high school students need to know to succeed in college or the workplace. (www.achieve.org)

¹² Research on videogames and learning is an evolving field. One oft-cited meta-analysis of the research published in 2005 reviewed 4000 articles, although only 19 of these were recognized by methodological standards as empirical. The study, O’Neil, H.F., Wainess, R., & Baker, E.L. (2005, December) Classification of learning outcomes: Evidence from the computer games literature. *The Curriculum Journal*, 16 (4), 455-474 recently provoked a three-day, online debate involving more than 50 comments and responses on a listserv sponsored by Serious Games [Serious Games] digest <seriousgames@listserver.dmill.com] Digests for October 2-4, 2006. Major research efforts regarding learning and videogames are underway at the University of Southern California, Massachusetts Institute of Technology,

University of Wisconsin-Madison, and FutureLab (list is not comprehensive). Other sources include Peter Lyman, *Literature Review: Kids’ Informal Learning and Digital-Mediated Experiences*, September 2004 and Gros, Begoña. 2003. The impact of digital games in education. *First Monday*. Available from www.firstmonday.org/issues/issue8_7/xyzgros/index.html

¹³ The No Child Left Behind Act (2001) is the most pervasive example of high stakes testing. <http://www.ed.gov/nclb/overview/intro/execsumm.html>

¹⁴ Maria Montessori, *The Montessori Method*, New York: Schocken, 1988. (originally published in 1912)

children. Much of this material served as our society's version of the 'coal mine canary,' building on the groundwork laid by Children's Television Workshop to convince a skeptical generation of parents that children could learn from these new media formats.

Research is ongoing, and given the politically fraught nature of American public schools and school research it seems unlikely that a single, incontrovertible truth is out there waiting to be discovered. A base of research is developing that demonstrates connections between video games and skill development.¹⁵ This work takes time, and is running counter to the more widespread popular opinion and stereotypes about games and gaming.¹⁶ The existing mainstream opinion about videogames – that they are sedentary options that exacerbate childhood obesity and promote teen violence – is a major challenge in developing a strategy of public interest and support for videogames. Unlike earlier media types, where general opinion was more neutral, promoters of video games must counter a widespread and strongly held negative view of the medium.¹⁷

That said, meta-analyses of the literature on videogames and learning do show cognitive changes in game players such as the ability to process information in parallel rather than linear fashions, a focus on graphics first and text second, active learning styles rather than passive, and the ability to access information randomly rather than step by step.¹⁸ What is less clear is whether or not any of these differences matter.

There is a rich debate in the literature about what people actually learn from playing video games and whether or not what is learned is transferable or relevant to environments other than the game itself. Some argue that the future of learning will require building game environments that are grounded in learning theory and designed specifically to mirror and convey skills,

¹⁵ James Gee et al

¹⁶ Images of video games and gamers are often associated with violence, laziness and/or obesity. Tragedies such as the massacre at Columbine High School in Colorado often include coverage about the youths' involvement with video games and other media. Joaquin Navarro and Karyn Riddle of the University of California, Santa Barbara have collected multiple examples of public opinion polls following such tragedies – these are available online at http://www.uweb.ucsb.edu/~ker/public_opinion.htm. Major media outlets such as *The New York Times* and National Public Radio are beginning to run stories on games and the gaming industry from the perspectives of their business, arts and even sports coverage.

¹⁷ This is not to say that there was not opposition to earlier media types, although it tended to come more from organized religious groups or education associations and specific campaigns to control movie content, radio broadcast rights and cable television legislation. However, many current adults (over the age of 40 who did not grow up playing video games) lack any personal experience playing video games and so are more influenced by media-driven images of games and gamers, the general tone of which are negative.

¹⁸ Alice Mitchell and Carol Savill-Smith, *The Use of Computer and Video Games for Learning: A Review of the Literature*, London: Learning and Skills Development Agency, 2004, p 15.

information and social concepts found in the real world.¹⁹ Others argue that because games “force players to learn complex rules, follow dozens of variables in real time, and prioritize among goals,” they are good for you and good for learning, regardless of venue.²⁰ And there are early adopter teachers who will find ways to use games productively in classrooms and then seek broader adoption or expansion of these methods.²¹

Scholars and game designers who favor the use of games for learning are now working on the design and development of games that would be specifically used in classrooms. This is challenging, not only from a game design standpoint but also from the perspective of how schools are structured, mastery is tested, and success rewarded. As James Gee of the University of Wisconsin notes, “The real issue for the future will be: Are we going to use games just to get schools better at skill-and-drill, or are we going to use them to get students to think deeply about the meaning of knowledge in different domains?”²² Still, there has been and is research on using games in classrooms, notably in a partnership between the Massachusetts Institute of Technology (MIT) and Microsoft (called Games-to-teach) and in a current project hosted by MIT and the University of Wisconsin called the Education Arcade.²³

Our contemporary challenge for understanding the best way to integrate new technology into learning includes the dimensions from earlier eras, specifically how to make sure all children have access to resources that improve learning and how to make sure that public assets (airwaves, schools) are equitably provided and distributed. But the new media raise new questions as well. The ability to change digital media, to edit, “mash up” and remix, requires new production skills, raises new questions about authenticity and credibility, and requires students to learn new reference and presentation skills.

¹⁹ David Williamson Shaffer, Kurt R. Squire, Richard Halverson and James P. Gee, *Video games and the future of learning*, Madison, WI: University of Wisconsin and Academic Advanced Distributed Co-Learning Laboratory, December 2004.

²⁰ Kenneth Terrell, “Bone up at Video Game U,” referring to Steven Johnson, *Everything Bad is Good For You: How Today’s Popular Culture is Actually Making us Smarter*, New York: Riverhead Books, 2005, in U.S. News and World Report, January 2, 2006, p 68.

²¹ James Gee, a leading author on these subjects, points out that part of the challenge here is the lack of good games based in learning theory. See James Gee, *What Video Games Have to Teach Us About Learning and Literacy* New York: Palgrave Macmillan, 2003.

²² Panel Discussion with James Gee, hosted by The Chronicle of Higher Education on August 27, 2003 and accessed online at <http://chronicle.com/colloquy/2003/08/video/>

²³ The Games-to-Teach project ran from 2001-2003 at MIT and influenced the creation of the current MIT-University of Wisconsin partnership known as The Arcade. <http://www.educationarcade.org/> Video of teachers using games in classrooms can be downloaded from the Games in Education Conference 2005 website <http://educationarcade.org/files/videos/conf2005/10-teachersusinggames.mov>

We are on our way, due to significant investments in research, to knowing more about what digital media and games can teach and how they can be used for learning. That is not to say that there will be immediate public acceptance of what is learned, or that the heated debates about the appropriate use of games in school will come to an end. Even the most incontrovertible research findings (which are not yet available on this subject, nor are they even expected) will end the public discourse and disagreement about educating our children. But it is possible to make better informed decisions, to introduce nuance into polarized positions, and to learn from both research and practice.

The Public Interest

These new media require that we re-frame the familiar questions about public interest and responsibility. In considering if and how there is a public role to play in promoting the use of these tools for learning, we must draw from the media and learning analogs of the past. However, we do so knowing that these lessons will take us only so far, for these new media offer markedly different approaches, platforms, contexts, and even types of learning. The past provides a guide, but no answers, for thinking about the future of learning, teaching, and schooling.

There exists a complex infrastructure of issues ranging from media ownership to interstate commerce to market incentives that influences both communications and educational policies. The debates about the public benefit and obligation for learning and teaching have moved beyond the school walls and into discussions of radio, television, movie and game content, library computer policies, fair use for copyrighted works, and parental controls on computer software. Media is everywhere. Learning happens anywhere. The decisions and policies that we make about the intersection of the two are increasingly part of the public's business.

The boundaries between and the relationships among commercial enterprise and public institutions are an important dimension of discussions about the creation and availability of tools for learning. A sustainable approach to developing and delivering high quality, engaging, educational media to all students and schools requires a considered system built from the strengths of the private, public, and independent sectors. Analogues from educational broadcasting to independent film are useful in thinking about how systems of media creation and distribution can or cannot be catalyzed to look a certain way or accomplish certain outcomes.

Given the pervasiveness of video games, the converging digital media environment, and the growing public awareness of gaps between what schools teach, how well they teach it, and what people need to know how to do, we find ourselves at an important inflection point for thinking about the role of video games in learning.²⁴ Research, advocacy, experimentation, and product development is all underway. Some of this is happening under the auspices of major research universities and with the support of industry leaders such as Sony and Microsoft. Other work is happening at the community level, led by independent game designers, developers and publishers who want to see a different set of choices for game players. And a great deal of experimentation is underway by youth groups and educational programs outside of schools that are interested in developing leadership, civic engagement, youth advocacy and media literacy.²⁵

From the perspective of potential investors in learning games, a category which includes both profit and social-minded investment bodies, schools and school districts, youth organizations, and, indeed, parents, the pace of change in the development of games is a particularly vexing variable. Of those investor types just listed, only profit-minded financial investors are particularly structured to forecast trends or take advantage of ambiguity.

Promoting and protecting the public interest

But what, if any, is the public responsibility to all this? There are at least two starting points from which to consider a public responsibility to ensure that learning technologies are widely developed and available. First, we have a public obligation to provide equal educational opportunity for all. As such, new tools, even those in the experimental and testing stages, that hold the potential for educational application or pedagogical change must be developed in ways that will be broadly applicable and available. Second, the underlying infrastructure on which all of this digital media development happens – from the internet to the airwaves – is a public resource with at least some element of common ownership. Public investment made possible the internet and public agencies, especially the Federal Communications Commission and the Federal Trade Commission exist to protect the public's access to these resources and to a diversity of media and opinion.²⁶

²⁴ New resources are emerging that may help. Online resource databases of game innovations can be found at [game innovation database website]. GameLab and SeriousGames are also building an online database of games, media, experts, developers, and academic resources that is intended to provide a single source of information for the many constituencies with an interest in digital media and learning.

²⁵ In addition to Food Force, produced by the United Nations World Food Programme, partnerships abound between such groups as GlobalKids, GameLab, NetAid, Persuasive Games and others.

²⁶ *Digital Futures*, p 33

The impact of digitization is a transformative shift in the way all media – including video games – are made. “This new digital code has changed media making forever. Why? Because this code has transformed the four most important processes for media makers—production, replication, distribution, and presentation.”²⁷ This is as true for video games as it is for filmmakers, the audience to which the above statement was initially directed. Rules and regulations about their use must provide for non-commercial applications and fair access.²⁸

Public awareness of video games as a media form is both the reason for and the result of the industry’s sheer size. In 2004, to much fanfare, the video game industry surpassed Hollywood in gross revenue, crossing the \$10 billion mark. One major game release (Halo 2) grossed more in its first 24 hours of availability than the box-office record for a major motion picture release (Spider Man).²⁹ Industry research makes clear how widespread gaming has become. For example, research from the major game industry association notes that – on average - game players are in their 30s and have been playing games for 12 years; 65% of game players are over age 18 and 75% of American heads of households report playing video games.³⁰ These numbers are in line with findings from the independent Pew Internet and American Life project, where research has found that “65% of college students report being regular or occasional game players.”³¹ The Pew Project also found that 66% of U.S. teenagers play or download games online and while teenagers are reported to play video and computer games for nearly 4 hours a week, some researchers have found that college aged men report playing these games over 15 hours per week.³² Clearly, America has reached the point where video games need to be seen as true mass media.

²⁷ *Digital Futures*, p 4.

²⁸ The converging media and platforms of games, the internet, television, and film are creating profound policy and regulatory challenges. Copyright and intellectual property rights are being redesigned, spectrum licensing, universal coverage and service requirements are in all flux. The systems in place for ensuring public support for arts, culture and education were all created in the analog age. These are being challenged by new digital technologies, spectrum, and transmission possibilities. For more information see *Digital Futures: A Need-to-Know Policy Guide for Independent Filmmakers*, Independent Television Service and Center for Social Media at American University, 2004.

²⁹ Mathew Yi, “They Got Game,” *The San Francisco Chronicle*, December 18, 2004. Accessed online at <http://www.sfgate.com/cgi-bin/article.cgi?f=/chronicle/archive/2004/12/18/MNGUOAE3611.DTL>

³⁰ *2005 Sales, Demographics and Usage Data: Essential Facts about the Computer and Video Game Industry*, Entertainment Software Association, accessed online <http://www.theesa.com/files/2005EssentialFacts.pdf>

³¹ Steve Jones, *Let the Games Begin: Gaming Technology and Entertainment among College Students*, Pew Internet and American Life Project, July 6, 2003 accessed online at http://www.pewinternet.org/pdfs/PIP_College_Gaming_Reporta.pdf

³² Lenhart, A., Rainie, L., Levis, O. *Teenage life online Pew Internet and American Life Project, 2001*. Accessed online at: http://www.pewinternet.org/reports/pdfs/PIP_Teens_Report.pdf

Games for the Public Good

In developing a strategy to act on this public interest, we must return to the formative question of this paper, how to teach our children. As the game industry grows, so will its advocates and its detractors. At this time, the strongest advocates for games come from within the industry itself.³³ Those opposed to games – or who propose limits on their sale and content – are generally concerned about violence in gaming. The “anti-gamers” have called for more regulation of games, investigations of the companies and content, and a stricter ratings system. Prominent legislators from across the political spectrum have issued clarion calls for greater control over game content.³⁴ Both sides have fine-tuned their arguments and both positions can point to research that bolsters their positions.³⁵ For the most part what has been lost is meaningful public or political discussion of games that doesn’t devolve immediately into a discussion of violence.

There are nascent advocacy efforts underway to shift the public discourse. As the gaming industry consolidates and becomes dominated by a few large corporate leaders, independent developers and producers emerge who want to focus on producing alternative fare, much of it educationally, socially or politically motivated.³⁶ Efforts such as Serious Games and Games for Change, both of which promote nonviolent, socially productive game development, content, and use are slowly making progress within the world of gamers themselves. These efforts are only

³³ Major industry organizations supporting games include the Entertainment Software Association, the International Games Development Association, Games Technology Association, and the Games Manufacturers Association (which has a special interest in Games in Education).

³⁴ Prominent “anti –game” advocacy organizations include Parents Action for Children which worked with Senators Clinton, Lieberman and Bayh to introduce the Family Entertainment Protection Act of 2005. New efforts are now underway to bolster support for The Children and Media Research Advancement (CAMRA) Act, which aims to allocate federal research funds for examinations of electronic media on children. See <http://center.parentsaction.org/campaign/CAMRA> for more information.

³⁵ One evaluation of the psychological research can be found at <http://culturalpolicy.uchicago.edu/conf2001/papers/freedman.html>.

³⁶ The largest American publishers of video games are Electronic Arts, Activision, Take-Two Interactive Software, and THQ. The largest companies publishing online video games are based in Asia or Europe and include World of Warcraft, a division of Vivendi Universal (France), NCsoft (Seoul, South Korea) and Shanda (Shanghai, China). For more information see Seth Schiesel, “A Bright Spot in the Dim Video Game Picture,” *The New York Times*, February 2, 2006, p C8. Other major interests in video games include media giants Viacom and Comcast, both of which have major initiatives focused on early childhood television. See Jon Birger, “Munchkin Mindshare: Comcast and Viacom Battle for the Kids,” *Fortune*, December 12, 2005. These two companies, along with Disney, Vivendi Universal, News Corporation and Time Warner currently control more than 80% of prime-time television programming. *Digital Futures: A Need-to-Know Policy Guide for Independent Filmmakers*, Independent Television Service and Center for Social Media, 2004, p 22.

now becoming broadly visible to the general public.³⁷ Another major factor in shifting public opinion is simple demographic change: for the first time, adult decision makers in their 20s, 30s, and even in their 40s include people who grew up playing video games and so tend to be more open to their potential as tools for learning.

The prevalence of games and gaming, the need to better understand if they foster learning, the history of public and private investment in distribution mechanisms that now play such a prominent role in gaming, and our societal obligation to provide educational opportunities for all children form a compelling rationale for a public interest in games and learning. How, then, might this interest be acted upon?³⁸ How can public and independent sector institutions work within the marketplace and with commercial producers to ensure credible research, informed advocacy, and, if appropriate, broad and deep access to the types of games that are determined to have not only some value but potentially critical capacity for teaching the skills needed in a world dominated by digital media?

Market Strategies

The confluence of public interest and a private marketplace for games necessitates investment strategies that draw from both sectors as well. This will require support not just for the research into gaming and learning that explicates where and how positive relationships are most likely. Additional investments are needed that support “translational research,” or processes and structures that can take what is learned from pedagogical research and marry it to market needs, production capacities and distribution channels.³⁹ Experiments that allow new types of partnerships across sectors, that take advantage of University Technology Offices, and that try a variety of business models to find what will sustain the commercial innovators are all needed.

Whereas traditional game markets have focused on producing experiences that appeal directly to the end-purchaser, efforts to deliberately expand the utility, evidence-base for, and availability of games for learning will need to satisfy the market interests of additional customers, namely parents, teachers, youth workers, and other adult intermediary purchasers. This implies that the

³⁷ Perhaps the most widely known serious game is Food Force, a project of the United Nations World Food Programme, which claims more than 3 million downloads and has received major press attention, Tina Rosenberg, “What Lara Croft Would Look Like if She Carried Rice Bags,” *The New York Times*, December 30, 2005, p A 24.

³⁸ David Rejeski, of the Woodrow Wilson International Center for Scholars, has written a provocative piece on these possibilities called “Why we need a Corporation for Public Gaming.” It is available at http://www.wilsoncenter.org/index.cfm?fuseaction=about.profile&person_id=5814

³⁹ The term “translational research” comes from the field of medicine, where new investments are being made to match laboratory discoveries to disease prevention and treatment efforts.

marketing and distributing strategies will need to convince at least two sets of decision-makers: the adults who may focus on results of use and the youth who are more likely to focus on the game-playing experience itself.

Segmenting the market will allow some of these factors to be disaggregated. At the highest level, important segmentation markers include:

Age of youth on which to focus

- Pre-buying independence (parent as market)
- Independent buyers (youth as market)

Institutional structures on which to focus

- In schools as a part of academic system
- Outside of school as adjunct to school-based learning

Role of games in learning

- Using games for skill building
- Using games to deliver factual content
- Designing and producing games as a medium through which to learn skills and content
- Embedding existing games in broader pedagogical systems and producing/using methods of assessing their contributions to learning

In addition to these considerations, investments designed to ensure all children access to these developing learning conduits must be made in ways that can be maintained over time. Given the rapid rate of technological advancement, the fickleness of public funds, and the temporal nature of philanthropic support, early investments will be catalytic.

Content Creation

One of the great needs at the moment is enough good games designed to teach that we can build a better understanding of how and when these games can be effective learning supports. One key point of entry to address this need is to invest in content creation. Another, complementary set of investments at this end would focus on research regarding existing games and the translation of that research into 1) more games and 2) public understanding and building a common, consumer-oriented, evidence-based frame of reference for what games can and cannot help teach.

There are many game designers and developers to make engaging, high quality games. They need upfront investment in the costs of creation and then multiple platforms to distribute their works. Technological advances are making online downloadable games (also known as casual games) a viable option for several reasons: the production costs are lower, more product diversity is possible, multiple platforms (PCs, game consoles, and, eventually, mobile phones) can be targeted, and they can be sold for a low per-unit cost. There is also room to invest in translating successful teaching and learning games from previous platforms to today's systems.

Content creation is the first step, distribution is the second. In addition to needing more and better games, parents, teachers, community groups, and youth need ways to find the games. Game publishing and distribution is shifting right now from a retail-store model to online, downloadable games. This allows players to use PCs and game consoles with internet connections to try the games first and then load them directly to their machines, lowering the costs significantly and allowing many more game titles "virtual shelf space." There is still a need to create online distribution hubs for learning games. The potential exists through several functioning and well-capitalized game portals (MSN Gamespace, Yahoo Games), educationally-oriented sites (Sesame Workshop, PBS), youth community sites (MySpace, Bolt), and youth-entertainment sites (Nickelodeon). What is missing from all of these sites – and what needs to be built – is consumer-oriented credibility schema or "Good Housekeeping Seal of Approval" that will allow both the site hosts and the downloading public to assess, compare, and contribute their insights and experiences to the reviews or demo download options once users find the site and are actively choosing game options. Analogs for this exist in such areas as movie review sites and book reviews (both for the general public and those focusing on institutional purchasers such as libraries and bookstores).⁴⁰ An opportunity that exists widely today is the chance to "employ" actual users as the raters, critics, and reviewers – a process that serves to reduce costs, involve varied constituents, and allow far more reviews and input than could be actively employed. Models for this approach of finding and rating information include wikipedia, digg.com, and YouTube.⁴¹

Focusing on content and distribution will also encourage youth and community organizations to engage their current participating young people in creating, using, distributing and testing games as learning tools. This is already underway through organizations as varied as GlobalKids, NetAid, YouthGive, and the Bay Area Video Coalition. These developments are

⁴⁰ See, for example, www.commonensemedia.org and www.bookhive.org

⁴¹ www.wikipedia.org, www.digg.com, www.youtube.com

important not only to test the quality and effectiveness of the games as learning tools but to test the potential for viral marketing. One potential route to attract large numbers of teen players (who do their own buying) will be by building (or having them build) learning games that embed content or skills into issues they already care about and that can be passed along online under the auspices of their existing networks (of peers and institutions – schools, community groups, sports teams, church groups, etc).

To catalyze creation and distribution, financial support is needed. Filmmakers can turn to foundations and individual investors but game makers are by and large still tied to either fee-for-service contracts or publishing houses. An independent “trust fund” for game creation that would cover development costs (game design, pedagogy, and subject matter content) would seed the market with new products. Just as in film production, teams would coalesce on a project by project basis, reducing the need for large investments in long-term partnerships that may or may not bear fruit. The game industry has a chance here to capitalize on some of the infrastructure already built for filmmaking, specifically the festival circuit and the ubiquity of competitions and prizes to spark new work and to bring it to the attention of distributors. Some major film festivals (Sundance, SlamDance) as well as policy conferences (World Economic Forum at Davos, World Social Forum, Clinton Global Initiative) and educators meetings (Australian Computers in Education Conference) are beginning to incorporate games into their programs. Museums (of images, art, and technology) are also showing new interest in games. Given advertisers’ developing interest in embedding product pitches in games, corporate support to underwrite competitions for learning games would be a path worth pursuing.

A strategy for schools

Video games are, by their very nature, a highly distributed media. They are not broadcast on television, they can be purchased in many ways from many places, they are designed for multiple platforms, and while they may be highly engaging for a period of time, they are designed to be mastered and then moved on. All of these characteristics, plus the essential distributed nature of digital media, makes it difficult to fit a familiar, centralized or institutionalized model onto games. In particular, this makes it difficult to fit schools and games together.

However, there are still many reasons to think of schools as partners in developing games for learning. As the cornerstone institution for learning in our society, schools are largely

responsible for education, they are funded to fill this role, and they hold the recognized content and means of assessment as well as having the attention of children ages 5-18 for the better part of most days. As such, academic institutions studying the role of games and learning, as well as companies with an interest in potentially serving this market, are well-invested in learning what games work and how they can be used in classroom settings.⁴²

Schools will be critical partners for learning games if, over time, the research now underway shows that the culture of classrooms and the efficacy of gaming as pedagogy can be brought together in mutually reinforcing ways. In the meantime, however, the nature of school adoption for new media and technology is entirely personnel-based – some teachers will take hold of the opportunities and run with it. For others, it will be neither a welcome nor useful tool. Another important consideration when thinking of schools as partners is the history of how technology has been adapted to these settings over time. Some would argue that the track record reveals a set of decisions based on expediency and efficiency – low cost solutions – rather than on evidence of teaching and learning efficacy.⁴³

Given this, and the history of schools and technology, the more fruitful course for learning game development right now is outside of school hierarchies. That said, there is a need to ensure that independent game development tagged as learning or educational is aligned with broader developmental or academic goals. The methods that develop for assessing the instructional value of games also need to draw from the expertise that exists in the academy in terms of testing and evaluation, game design, art and literary criticism, and cognitive theory.⁴⁴ There are several key opportunities here: the most direct of which might be to invest in reformatting the more successful educational software titles from previous generations as games. This could be done through partnerships with educational publishing houses (Broderbund) or reputable children's media companies (Sesame Workshop, the Discovery Channel) and game companies. By reusing established titles and brands, only the gaming element will be new to parents or teachers, the characters and brand names will be familiar and trusted.

The opportunity at this point in both approaches, distributed or school-based, is for content creation. By stimulating the development of numerous, engaging, technologically advanced

⁴² Professors James Gee at University of Wisconsin, Madison and Henry Jenkins of MIT are two leaders in this field.

⁴³ See SeriousGames.Org Digest for October 3, 2006.

⁴⁴ How to assess the learning value of games is a rich topic of debate among academics – from all disciplines. See, for example, the listserv thread “Are games effective teaching tools” on SeriousGames.Org, October 2006.

games, with clear learning goals and supported by valid pedagogy and subject matter expertise, the potential for games as a learning tool will be better articulated as researchers have an increasing number of 'good games' to evaluate. Where there is a fit, market forces may draw commercial investment to ensure continued development and distribution. The field as a whole will benefit as these investments will help identify quality teams of developers and educators. An independent fund - and the partners it could enlist - can continue to develop independent projects as long as creation funds are available. Returning a portion of net profits to the fund will allow it to play an ongoing role in the marketplace.

Strategies to sustain the change

One of the challenges to designing the right system of supports for innovation in games for learning is the pace at which the games, users, and distribution channels change. There are no set standards, and there are multiple platforms – from standalone, proprietary systems such as Sony's Playstation and Microsoft's XBox, to downloadable, casual games for the PC to internet-based, multiplayer games to small games intended for use on cell phones. The financial supports provided to the system should not try to solve these problems, flexibly investing across opportunities and seeing what works – in terms of learning, access, use, and engagement – may be the only viable strategy at this time.

That said, the cost of producing top quality video games for commercial sale is now well into the ten million dollar range. Given limited resources and – more importantly – limited expectations about return on investments, it is logical to focus on creating low cost, downloadable games with educational purpose.

A public fund focused on sparking innovation in learning games should think big and include structures that encourage cross-disciplinary creation and assessment, cross-platform use and at best test the unique capacities of digital, interactive, and global media. The fund can support various competitions, each looking to answer questions about specific variables, such as platform adaption, relationships to other curriculum materials, the role of communities and social networking around the game, and various methods for assessing the learning of content or skills facilitated by the games.

The public fund also might be used to catalyze new relationships with existing distribution channels. One competition within the fund might be used to spark a community rating system

and social network around learning games, effectively “marking off a corner” of a game site for access to, discussions about, and ranking/reviewing of learning games.

Given the hybrid returns sought by these investors, ownership and intellectual property issues should be attended to at the front end of developing the investment strategy. To allow the greatest access, greatest input, and broadest use of the games – as both games for playing and platforms for user modification – an open source and/or Creative Commons approach to ownership, re-use, and modification is advised. In some cases this might involve working with the copyright owners of existing learning games that need to be reformatted for today’s platforms. By repackaging and republishing older titles that had some success in teaching skills or content in previous incarnations, the fund would be able to stretch its resources further.

Depending on the size and flexibility of the investments, big infrastructure opportunities also exist. As television and the internet converge into home media systems, and content is increasingly created for both platforms, there is the potential for distributing games over cable, satellite or network television. This draws the field back into the purview of broadcast rights and cable licenses. It could unleash a powerful distribution channel based on public access requirements.

Conclusion

Digital media are new to us, but may very well be the only kind of media our children ever know. Games are now a distinct form of media entertainment, but as platforms and media types merge it is not hard to imagine a world where gaming skills are embedded in everything from remembering your innumerable passwords to presenting research in twelfth grade physics class to interviewing for a job. What skills games teach, how they might be used to build content expertise, and how to use them effectively in both formal and informal learning and work environments is a series of questions to which researchers are approaching answers. How games matter – framed as a more complex issue than merely their relationship (or not) to violence – is a conversation that we can move toward, both in the general public and among policymakers. Games that are both fun and educational – either in the creation of them and/or while playing them – may be successfully introduced into the marketplace, if certain deliberate investments are made.

There are both public and private interests at stake in this work. Commercial game creators and

distributors are actively pursuing their interests. The public interest, at its most basic and most important, is how do we teach our children? Strategies to promote the public interest must include the support of research, advocacy, experimentation and policy analysis. But they must move beyond those issues to include efforts to work within the marketplace, to inform it, contribute to, benefit from it, and, perhaps, even to regulate it. The malleability and accessibility of media in the digital age has challenged the boundaries of all of our legal and market structures. Our strategies for promoting public goods – such as educational opportunity – will also need to cross boundaries and move beyond the familiar frame of the independent sector to direct action in private markets and public policy.

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