

Critical Education in an Interactive Age

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This article is to appear in Diane Keller, Zvi Bekerman, Henry Giroux and Nick Burbules (Eds.) "Mirror Reflections: Popular Culture and Education" (Peter Lang, 2008). Please cite and circulate. For any questions contact Kurt Squire kurt.squire@gmail.com

Chapter 8

Critical Education in an Interactive Age

Kurt Squire

Over the past few years, video games have transformed from the pariahs to darlings of academic, with a host of academic journals, conferences, and even entire organizations dedicated to the academic study of video games. Video games are now being taken seriously as art, culture, and commerce, as academics, industry, and government leaders recognize that video games are pushing the boundaries of interactive narrative, consumer-grade simulation, artificial intelligence, and cultural practices with technology. Educators have posited *economic* and *social/cultural* arguments for including video games in curricula, suggesting that ignoring video games and their role in society is akin to ignoring the impact of comics or films in the early twentieth century (Gee, 2003; Jenkins, 2006; Squire, 2003, 2004; Williams, 2004). This paper argues that video games are perhaps the quintessential site for changes in popular culture, suggesting how popular culture serves as a “leading activity” for participants whereby they have entrees into social practices that surpass those available in most schools (Squire and Giovanetto, in press; Steinkuehler, 2006; Steinkuehler and Chmiel, 2005).

Although video games are nodes in a Web of new media, technology, and social shifts, they are good sites for examining how popular culture is having an impact on contemporary social institutions. Video games are the “medium of choice” for the millennial (or Nintendo) generation and a critical site recruiting, even requiring, new literacies. Fan message forums, DIY (or do-it-yourself) media production, and blogs have many of these same characteristics, and indeed, are frequently core components of

gaming practices. However, video games can be considered the prototypical site for studying such technologies because (1) they are built on a logic of simulation, which is core to the logic of the computer, as well as the postmodern age (Baudrillard, 1994; Squire, 2003), and (2) they have been the predominant popular art form of the computer over the past twenty-five years (Kent, 2000).

To date, arguments for using video games in classrooms have been framed as “arguments of opportunity” whereby video games hold untapped promise for engaging kids in meaningful learning activities (Prensky, 2001; Squire, 2002; Squire and Jenkins, 2003). As digital media becomes more pervasive in children's lives, this *opportunity* is becoming a *necessity*; while schools remained shackled to literacies of print, media like video games offer pedagogies of *interactivity*, where players can inhabit possible worlds and participate in vibrant learning communities with trajectories of participation far more consequential than those found in schools. Participation in today's popular culture—and video gaming in particular—is to participate in the design of one's social world. If we take the New London Group's manifesto—that education for the information age ought to be one where students learn to design their lifeworlds—then video games offer a powerful indictment of schools indeed (Gee, 2004; New London Group, 2000). The key question facing educators at the moment is not “are video games good or bad?” but who will gain access to these experiences? Sadly, equity questions to date have been framed around representations in media, with precious little investigation into what those who work with digital media make of it. I argue here for new critical studies, one that acknowledges how popular culture today is a powerful site for recruiting identities into sophisticated practices. These opportunities shift questions from merely *access* to

technologies, or awareness of representations to understanding how participants have differential access to social networks and social practices.¹

Video Games as Interactive Systems

For the generation raised on *Pong* (which is now over thirty years old, the same age as this author), advancements in video games and game technologies can be astonishing. Video games have evolved from primitive sports played on televisions or simplistic space-age battles into complex worlds. Today, most media scholars agree that games are capable of sophisticated expression, at least in the case of interactive fiction, the heir to traditional print fiction (Bolter and Grusin, 2000). Adventure video games from *Zork* onward have aspired to the dream of interactive fiction, a phenomenon that ten years ago was curious to many humanities scholars. Jenkins and Fuller (1995) were among the first to note that role-playing adventure video games such as *Super Mario Brothers*, which have occasionally been critiqued as being vapid, in fact share much in quality with the tradition of travel narratives, a (currently) much more highly valued narrative genre (Provenzo, 1991). What early critics of video games missed is that games are not narratives, but *worlds* to explore and inhabit. Video games are constructed according to ideologies (ideologies in the sense of systematic ideas that govern how worlds operate), but these are not necessarily ideologies that gamers are inculcated into; they are ideological worlds that players play within, experience, and reflect upon. As such, game designers such as Shigeru Miyamoto, the genius behind *Mario and Zelda*, are less authors and more designers or landscape artists. Will Wright, designer of *SimCity* and *The Sims* draws connections between traditional Japanese gardening, which is an

aesthetic of designed experience, and the worlds Miyamoto (who happens to be a gardener himself) creates.

As such, contemporary video games are truly global phenomena, drawing on artistic forms and traditions from Japan, Korea, and to a lesser extent China, as well as the United States and Europe. One of the most intriguing convergences spurred by gaming is the mixing of Japanese role playing video games such as *Dragon Quest* or *Final Fantasy* with American culture (for an excellent description of the phenomena, see Kohler, 2004). The narrative structure and internal logic of such games draw on both popular and traditional Japanese art forms and games (such as beetle collecting, a popular Japanese children's past time that became the basis for *Pokémon* [Tobin, 2004]).

Although media franchises such as *Pokémon* are adapted for Western audiences (in the case of *Pokémon*, to create more defined “good guys” and “bad guys”), *Mario*, *Pokémon*, *Yu-Gi-Oh!*, *Final Fantasy*, and *Dragon Ball Z* are all Japanese media that bring non-Western assumptions with them, including assumptions about humanity's relationship with nature, ideas about “good” and “evil,” and nonlinear plot structures. As communities of game, comic, and Anime translators flourish over the Internet, participation in these cultures also extends over cultural lines and frequently leads to opportunities for learning second and third languages (Black, 2005; Kohler, 2004).

As those who have “invested” in *Pokémon* cards, comics, and DVDs will attest, many contemporary video games are not “video games” in any isolated sense; they are transmedia properties (or worlds) designed with multiple points of entry, access, and routes for expertise. *Pokémon* and *Yu-Gi-Oh!* are constructed around an ethos of collecting, and as such remediate earlier forms, such as collecting cards and the comic

book. *Pokémon* in particular (which designer Satoshi Tajiri modeled in part after his childhood fascination with insect collecting) is built on the logic of expertise.² To be a good *Pokémon* trainer (the child's role in the world) is to learn about *Pokémon* (including their names, types, and so on), and to develop an expert knowledge of them. *Pokémon* is an extreme example of this multimodal expertise, but far from the only one. *The Sims*, *RollerCoaster Tycoon*, and *Railroad Tycoon* are all video games that are akin to hobbies, rewarding the participant for insider knowledge and expertise within the domain.

Management simulation video games such as *Railroad Tycoon* come with a suite of *digital tools* and resources that allow players to try their hand at running a company. In fact, the sophistication of management simulation video games such as *Railroad Tycoon*, which include not just accurately modeled trains but realistic geographical maps, historically accurate scenarios, robust spreadsheet tools, complex charts and graphs, and even a stock market simulation where players can create dummy shell companies, frequently astonishes educators. *Railroad Tycoon* contains ships with historically accurate maps, scenarios, and of course, trains. The fact that teenagers willingly pay \$50 for a game that allows them to relive the industrial era, building railways across the northeast United States should be of interest to educators, given that American History is routinely listed as the least favorite among thirty-two academic subjects for American high school students. As such, *Railroad Tycoon* poses an interesting challenge to educators: although we argue the role of spreadsheets or calculators in classrooms, outside of school kids (with access) can play with sophisticated simulations where they learn history by entering historical eras.

Video games (and, by extension, gaming cultures) are designed and organized

around *functional epistemologies* of doing. By this, I mean that gamers learn about the game world literally through their controller, testing out what can be done in the gameworld. Watch any game player with a new game, and usually he or she will skim the manual briefly for an overview of the game (with the manual serving as a preorganizer of sorts), and then the gamer will proceed to press buttons, learning what the player can and cannot do, as well as the rules by which the world is constructed. In *America's Army*, for example, it is not uncommon for players to shoot their commander upon first receiving their rifle, which results in the player being sent to jail.³ It is no wonder that Miyamoto (quoted in Sheff, 1994) describes his video games as being designed around verbs: what the player can do in the world, which stands in stark contrast to the organization of schools, which are organized around academic subjects as they were constructed in the medieval period (Shaffer, 2004; Squire, 2005). In a preliminary analysis of game FAQs, extensive guides written by gamers for gamers, Squire finds that many are unique designed around players' actions, designed as texts to augmented and enhance their experiences of the gaming world. Indeed, most all video games are constructed this way, with information provided just in time and on demand, in the service of (as opposed to preceding) the action.

As players learn by doing, they also learn through failure. In studies of students learning *Civilization III*, Squire (2004) describes how players learn through cycles of trial and error, as limitations in their understandings of history bump up against the rules of the game world. For mature gamers, failure conditions are learning opportunities, challenges to be overcome, which constitute opportunities for developing expertise. In fact, many video games—particularly strategy video games—record players' actions

allowing players to chart performance over time and compare choices across video games. After a game of *Civilization*, it is common to pour over game logs, charts, and graphs looking for patterns in game play in order to improve performance in subsequent video games. Video games provide constant formative feedback so that players can improve. When they do not, they are panned as being too difficult.

If video games are constructed around players' actions, then game rule systems are designed through *cycles of choices and consequences* (Crawford, 1982; Salen and Zimmerman, 2004; Squire, 2006). In the game *Deus Ex* (released in 2000), for example, players are in the role of JC Denton, a government agent who comes to learn that his brother (a former agent himself) has left the government and is working for a group of terrorists who were formerly backed by the U.S. government. Through the course of the game (and particularly in the sequel *Deus Ex 2*), the player chooses particular events (such as whether to kill hostages or set them free) that create consequences in the game world. The game experience is designed to challenge the player to think about social allegiances, particularly whether he or she will align with family, nationalist, religious, or political groups. A core feature behind this and many other role-playing video games is that the player has opportunities to make significant choices that affect the unfolding of the world, which can be contrasted with the lack of effect that students have on the domains or "worlds" via participation in their classrooms Gee (2004).

Although video games have a reputation for being "mindless" button mashing, most video games require quite sophisticated, creative practices. In *Black & White*, the player is a god who trains a creature (using a curious combination of conditioning and social modeling), who interacts with people. The world evolves in response to the

player's actions as a god, as well as the creature's interactions with the people. The entire world evolves in response to players' actions; the player literally designs how the flora, fauna, towns, and villages unfold via the video games rules. The *Tycoon* video games operate under a similar logic, allowing the player to design theme parks, malls, schools, ski resorts, and companies—almost any sort of social structure imaginable—albeit within a set of constraints (of varying realism). Many video games now ship with the tools by which they were made, allowing the player to design their own levels, characters, teams, or obstacles (Squire, 2003). Will Wright describes how for advanced players, *The Sims* and its accompanying Web site, are essentially a story-generating engine. Players use the game's artwork and development tools as building blocks for creating stories.

The stereotypical image of “the gamer” is a lone teenager, sitting in his or her basement. In reality, video games are a highly social, collaborative exercise for many of their participants. “Violent” games such as *Quake* are highly competitive athletic endeavors with players competing for hundreds of thousands of dollars in cash prizes (Kushner, 2003; Squire, 2003). Most modern video games, such as *Counter-Strike* or *Battlefield 2* are both collaborative and competitive, with gamers joining teams (or clans or guilds). Although there are few existing ethnographies of game-playing communities, the few that do exist emphasize the social aspects of video games. Single-player video games such as *Zelda* are designed to be unsolvable by one person, leaving multiple hidden, unlockable features and paths of advancement, providing children something to look for onscreen and something to talk about on the playground.

In her studies of massively multiplayer video games, Steinkuehler (2004) argues that video games are new third spaces, spaces that are neither home nor school, allowing

us to try on and inhabit new identities. Steinkuehler argues that such video games offer spaces for *retribalization*, spaces where players form lasting bonds and allegiances around social values in an effort to shape the virtual worlds that they inhabit (cf. Castronova, 2005; Jakobsson, & Taylor, 2003). Persistent, online video games—video games that are available and online 24/7—offer alternative social systems for participants to inhabit, social systems that are built around social values of meritocracy. One might problematize gamers’ notions of meritocracy, but as Steinkuehler argues, such games are possibility spaces for their participants, possibility spaces where physical looks, social class, or even national origin matter less than one’s in-game behavior.⁴

The last quality of video games explored here are their qualities of rhythmic immersion. Video games are a deeply rhythmic medium, one where the precise timing of actions generally matter greatly, and where cycles of action build on one another to create complex practice. This phenomena may be best illustrated through today’s action video games, where players begin learning through relatively simple actions (jumps, kicks, punches) that are ramped up to be complex multibutton sequences (Squire, 2005). The result is a game experience where players become immersed in the rhythm and pacing of the game, which is frequently managed (and communicated) through the arrangement of space. The most vivid example of this phenomenon may be *Harmonix Frequency*, a rhythm action music game where players manipulate controllers in order to capture notes as they fly by onscreen. In effect, the game turns the PlayStation controller into a musical instrument, as symbols on screen are matched to sounds and notes in the song. Lead designer Alex Rigopulous notes that gamers are adept at coordinating rapidly moving visual stimuli with fine motor control muscle movements with a high degree of

precision—exactly the sort of skills that playing musical instruments requires. He views the game as an effort to build on gamers' skills but open up the world of music performance. Through the game's editor, players can also remix and republish songs for others to play.

In describing the impact of simulations, particularly *SimCity* on education, Paul Starr (1994) writes,

For better or worse, simulation is no mere fad. Indeed, to think of simulation video games as mere entertainment or even as teaching tools is to underestimate them. They represent a major addition to the intellectual repertoire that will increasingly shape how we communicate ideas and think through problems... We shall be working and thinking in *SimCity* for a long time. Moreover, as computer video games become more elaborate and widely used, their sheer multiplication and increasing plasticity may promote a healthy skepticism about their predictive power. Playing with simulation is one way to see its limits as well as its possibilities.

Writing a full decade before the blossoming of the Serious Games movement, Starr paints a vivid portrait of the impact that computer and video games might have on our thinking. Today's video games offer more than just an untapped resource for educators; they represent a powerful new medium, the entertainment medium of the computer, which is shaping (and being recursively shaped by) popular culture.

Achievements in game design over the past decade illustrate how video games fundamentally are about *simulation*, possibility spaces where we can explore ideas, including who we are and who we want to become. However, part of what makes video games so successful is how they organize our experience through trajectories of

participation that usher players from novices to expert. Will Wright describes how, from the moment the player picks up a game box, the game designer is building a model of the game in the player's head. Video games do more than just create a cognitive model, however; opening cut scenes depict compelling situations the player will be in. Voiceovers challenge the player or ask who it is that she will become. Everything about the experience of playing a game—from the moment a player picks up the box to the moment she logs out is tailored for immersion. As such, video games are much more than just simulations; they are worlds that provide *designed experiences*.

As designed experiences, video games employ features that modern learning scientists have theorized to be important in learning but have often struggled to realize in curricular enactments (Gee, 2003; Squire, 2003; Shaffer, Squire, Gee, and Halverson, 2005). Learning is driven by personal quests for meaning. Learning is a deeply embodied experience, arising through doing with complex digital tools. Knowledge that is presented on time and in demand functions as a tool for doing. Learning occurs through cycles of choices and consequences, and failure is an occasion for preparation for future learning. Learning itself is deeply social, occurring through participation in global media networks. Finally, and perhaps most critically, competence means to act creatively within the boundary conditions and parameters set by the game system.

These game systems—or *ideological worlds*—are complete rules and systems of thinking set up for players to inhabit. *Grand Theft Auto: San Andreas* (GTA: SA) is exciting to kids not just because of its content, but because it sets up an entire world based on 1990s hip-hop popular culture that kids can inhabit and make their own. Studies of *GTA: SA* game players suggest that what is interesting to most players is not the

content per se, but what the game allows them to do with it. *GTA: SA* allows for the pastiching of an array of cultural representations—from the leftist radio talk shows to “pimp my ride” automobile customization opportunities. “Literate” game play, from this perspective, is performance, having a deep enough understanding of the game system to act creatively within its constraints (Squire, 2006; in press). What counts as “expert” gaming performance is of course, socially constructed, varying according to one's values, goals, and systems of taste; whereas a Christian gaming guild might emphasize one's ability to recruit (and convert) members (a surprisingly common goal of guilds of all sorts), others might emphasize competitive performance by a set of fixed game rules (such as honor points in *World of Warcraft*).

Games cultures (as reflective of contemporary popular culture) are sites where we develop competence in specific domains and self-organize into affinity groups where that expertise is valued and developed. To be proficient in today's gaming culture is to develop a design-type knowledge of game systems. More importantly, affinity spaces within popular culture—some of which operate as self-organized learning communities—present trajectories of participation where people can not only develop skills but engage in social practices and take on leadership roles in organizations with consequences that extend beyond the gaming context. The following section examines one such community, Apolyton University, in depth, using it as a context for theorizing changes in contemporary popular culture and suggesting their implications for schooling.

Interactive Learning Systems

Contemporary technologies (and routes for participation in popular culture) offer

an implicit critique of the traditional organization of schooling. Any student with a \$100 cell phone can not only access, but contribute to, knowledge forums like Wikipedia. Whereas schools have traditionally been set up around a model where expertise is funneled to students through secondary texts and teachers, technologies like Google Earth, print, and video make the world's texts and communities widely available. Within a few years, these technologies will be available on portable computing devices, making them nearly ubiquitous as students use communication technologies to connect with their friends or access popular culture (i.e., downloading videos, reading news, or playing games).

Today's popular culture, driven by entertainment technologies, has made information cheap and access ubiquitous. What are less ubiquitous are the conceptual understandings to make sense of that information, and access to the sociotechnical networks that open trajectories of experience for broader participation in complex, socially valued practices. In other words, every student may have a cell phone, but a student's ability to make sense of the information on screen differs wildly, as does the types of contacts in that phone book. These technologies and issues reframe equity issues from ones of access to information to access to socio-technical networks. Just because every student has access to *SimCity* does not mean that every student has the background of literacies to make sense of the interpretations on screen, or access to the social networks (parents, peers, experts) that turn an interest in *SimCity* into an interest in programming, urban planning, or complex systems theory.

Affinity Spaces: Sociotechnical Networks for an Interactive Age

If we are to design educational systems appropriate to the digital age, it is critical that we understand both the technologies that fuel them and the modes of social organization that accompany them. Restated, if digital games are an emerging medium ushering in an array of emerging literacy practices, then one strategy for understanding the design of educational systems for the interactive age is to study how learning systems are indigenous to the digital age function. Just as cognitive psychologists and ethnographers have studied traditional tailors, Alcoholics Anonymous, or Weight Watchers communities to understand how learning occurs through participation in communities of practice, researchers are studying digital learning communities to build models of how digitally mediated learning communities function. The argument is that educators might seek to discover what a learning system for the interactive age looks like by studying how such communities function in popular culture.

Gee (2004) argues that social systems in the digital age are organized into affinity spaces, spaces where learners of any background or skill level can explore areas of interest and develop expertise. Forums, Wikis, and blogs are not just technologies, but *sociotechnical networks* that carry with them particular values. In the case of affinity spaces such as the Web sites built around games like *Rise of Nations*, these values include accessibility and democratic authorship, and individual customization. Participants can contribute to any forum regardless of age, gender, or national origin. Nine-year-old American children interested in American and Roman history contribute as readily as European graduate students in computer science with an interest in computer-gaming artificial intelligence. In practice, the discourses that emerge from such spaces is not always democratic, but compared to other forms of social organization, affinity spaces

are marked by their accessibility regardless of geography, social class, and ethnic cultural/background. Rules for participation are not only unusually open but are also made transparent. Many communities actively solicit moderators or leaders and make explicit the qualities of good posts and participation.

Such affinity spaces have permeable boundaries not just in terms of membership but also in terms of their relation to other social structures. In *Next: The Future Just Happened*, Michael Lewis (2001) documents several high-profile cases where teenagers participated in online spaces, giving legal advice, making financial decisions, or programming software, showing how today's popular culture is deeply *participatory* when compared to the popular culture of the past. Lewis documents how the Internet and its accompanying social structures are blurring insider/outsider status, making it possible for any highly motivated person to participate in a variety of social practices and industries.

For what it is worth, I owe some of the success in my own career to this emerging social model. While teaching a course on video games at Indiana University, Jon Goodwin and I noted a lack of good games journalism and critical game discussion, leading us to start a Web site Joystick101.org, dedicated to the "in-depth" study of games culture. A few months after the site's launch, I wrote an article chronicling my experiences trying to purchase a PlayStation2 on launch day, closing with a few late-night observations about games culture and its relationship to broader social issues.⁵ This article, written by a graduate student, was picked up and linked by Slashdot.org, drawing 120,000 readers. Eventually Wired.com linked to the article, drawing thousands more readers (Manjoo, 2001). (For a discussion of this case, and the Slashdot effect in general,

see Chan, 2002.) At last count, the article had about 250,000 hits, making it by far the most widely read piece this academic has written.

Whereas classrooms are notoriously “cleaved” from other social processes, erecting tall boundaries between practices occurring within them and the outside world, affinity spaces (not limited to, but typical of games) increasingly blur them, providing opportunities for participation in social practices far beyond what is otherwise possible. The proliferation of sites like Slashdot makes it possible for anyone with Internet access to participate in journalism practices that lead to participation in mainstream journalistic practices. Sites like Wired function as facilitators of this boundary crossing providing exposure, legitimacy, and professional experiences to bloggers and amateur experts. In the political realm, Ana Marie Cox (Wonkette), Marcos Zuniga (dailykos.com), and John Aravosis (Ameriblog) have parlayed their Web writing into opportunities inside and outside of journalism. Within gaming, this kind of practice is somewhat commonplace; bloggers such as “Lum the Mad” and “Old Man Murray” are among the most respected commentators and journalists. At Joystick101.org, for example, Kyle Orland, a high school student when he started writing, became one of our most popular writers (and had several pieces Slashdotted), and parlayed his experience in writing through sites like Joystick101.org into a freelance career including publications such as *Electronic Gaming Monthly*, *Gamespot*, *The Escapist*, *Next Generation*, *Happy Puppy*, and *GameCritics*, as well as becoming a founding member of the International Game Journalists Association.

The examples of Kyle, Joystick101.org, or other bloggers suggest that today’s popular culture provides opportunities not only for developing expertise but also for participating in practices with broader social significance. In the case of Joystick101.org,

writers like myself designed, promoted, and used Joystick101.org to connect with academics like Henry Jenkins (from MIT Comparative Media Studies), game designers like Raph Koster (*Star Wars Galaxies*), or industry leaders like Nolan Bushnell (the founder of Atari). It is instructive to think of the case of Kyle Orland, who as an undergraduate is writing papers simultaneously for English classes and the World Wide Web, knowing full well that his English paper at best will lead to an “A” and maybe a letter of recommendation, whereas a good gaming piece could lead to more readers, prestige, and perhaps some pocket change. In my case, interviewing academics like Henry Jenkins led to a career in game studies.

As suggested by the New London Group (2000), these examples suggest that literacy within this kind of media context means designing one's environment for personal gains. In other words, it is not just that students know how to access or navigate such affinity spaces—the real value results in their knowing how to leverage them for personal ends. Just as a generation of parents took their kids to libraries and museums in past generations, we can imagine a generation of parents teaching their children to use popular culture wisely, seeking out affinity spaces that draw on their children's interest in popular culture and allowing them to extend their expertise into new domains. Such a stance toward popular culture signals a very different stance toward popular culture for critical educators. It suggests not a “prohibitionist” stance toward popular culture but one where children are encouraged to seek out arenas where they can develop expertise, and then redesigning those spaces in accordance with their goals for learning.

Self-Organized Learning Systems in Apolyton University

One of the most potentially powerful forms of online learning connected to games and popular culture are self-organizing learning systems, learning organizations created by and for users to learn more about a particular phenomenon. In many respects, Joystick101.org can be thought of as a self-organizing learning community in the sense that participants intentionally designed a community for the purpose of studying games culture. Such sites are commonplace on the Web, most commonly occurring around rapidly evolving topics such as technology, news, and the media (Wiley and Edwards, 2002). Many such communities have arisen around gaming cultures, which is perhaps not surprising given the interactive nature of games; if games are worlds for performance, exploration, and developing expertise, perhaps it is not unusual that communities surrounding them have a particular emphasis on learning.

Over the past year, Levi Giovanetto and I have been conducting a cognitive ethnography of one such community, Apolyton University (AU), an online, self-organizing community of game players forming around Civilization III (Squire and Giovanetto, in press, a). AU is a subset (or subcommunity) of Apolyton.net, an affinity group of strategy game players. AU currently consists of twenty-five courses designed to help players hone strategies while simultaneously perfecting the core game. Each course is based around players who share a common game, play through the game and take detailed notes on their progress. Several times throughout the game, players gather these notes into “During Action Reports,” which are detailed, think-aloud protocols of their game play that they subsequently post on the AU Web site.

The “meat” of the course is the During Action Reports, detailed conversations about the game, where players examine one another's thought process and make

suggestions on their game. The typical DAR exchange starts with a one- to three-page explanation of one's game, including a discussion of how the player is interpreting the state of the game (or simulation), what future plans the player has, and what questions he or she has about future steps. Other players contribute their posts, sometimes reframing how their game ought to be read, calling out data in the game the player was not attending to, and reframing players' questions so as to be "better" questions. For many students, a highlight of AU was one thread when Soren Johnson, the lead artificial intelligence programmer, joined the discussion to challenge the communities' understanding of a particular game mechanic. Through these interactions, more and more sophisticated readings of the game space emerge. Players contribute their readings based on their particular expertise; whereas some players may be experts in military conflict, others are masters of the game's economic system. The end result is a type of *design knowledge* of the simulation, a flexible knowledge of the game system as a simulation, where players understand the game system as more than just a particular set of strategies and as a coherent rule system with particular emergent properties (and biases).

How such a university materialized may be something of a mystery. One participant posted the following piece, describing his interest in creating AU.

For several reasons I want to get a lot sharper at *CivIII*. First, I just enjoy it. Second, I've really liked some of the tourney and tournament discussions, have learned a bunch, and have been waaay impressed by some of the strategies and tactics employed. Third, multiplayer is coming and while I never participate in that way, I intend to this time around.

Also, although I still enjoy playing the stock game, it definitely could be more of a challenge.

Several themes in this post illustrate the unique nature of high-end participation in gaming cultures. First, learning and pleasure are closely connected, with many

players believing that learning is naturally fun, and learning enhances the gaming experience. Second, learning is (and gaming) intrinsically a social experience. This player both enjoyed learning from other players and wanted to play more players. In this way, learning was tied to a particular goal—a desire to play competitively with other players. Finally, the player enjoyed the “stock” game but wanted more of a challenge. As many educators studying games culture have noticed, a particularly curious nature of gamers is that they desire challenges, becoming frustrated or bored with games that are overly simplistic or “dumbed down.”

The player ended the post by acknowledging the social nature of learning, writing, “So what I want is a combination boot camp and war college leveraging a varied group of players and a variety of techniques, to polish collective skills.” For this player, learning is inherently a social process consisting of two equally important parts: first is the “boot camp” aspect, suggesting the desire for being enculturated into a particular community of practice to hone specific gaming skills. The space this player desired demands a consistently high level of interaction toward honing game skills, unlike affinity spaces (such as the encompassing Apolyton site) where players are free to enter and participate at whatever level they choose. Second, the player desired a “war college” type of community where players could develop new skills, exploring cutting-edge techniques. In this case, the community functions more like a research community than a traditional classroom. It is particularly interesting that this player valued a diverse set of play skills in order to improve a *collective* end.

Here, the player is expressing a desire not just to improve his own skills but

to improve his skills as part of a collective body, one that brings together diverse backgrounds and perspectives toward creating an improved collective. This phenomenon of “collective intelligence” is common among Web communities, a phenomenon that Henry Jenkins (2006) ties to Pierre Lévy's (1999) notion of collective intelligence. The core idea here is that it matters less what any one individual person knows, but rather what the community as a whole can do. In today's networked, interactive age, it matters less what any one person can do, but more of what someone can do when situated within a community. A mark of intelligence, then, is knowing how and when to leverage participation in such communities (including designing them) in order to achieve one's ends. These communities are common in gaming, but as Jenkins (2006) describes, they are part and parcel of today's media landscape and can be found among television, film, and other fan communities.

As a self-organizing community, participation in AU routinely waxed and waned, eventually dying down to a mere trickle. As we observed this dying off, we asked a variety of participants why they were withdrawing, and we heard a variety of responses. Some had learned all that they needed to learn. A few moved on to other games. One participant, the dean, wanted to resign because he felt that the role of a dean—providing direction and making decisions was sufficiently being conducted by the community itself, and he was redundant. Analysis of forum posts revealed that a large lurking community still existed at AU and was accessing the forums much as one that would access course notes.

Indeed, as it turns out, participation in AU did not end entirely, but Soren

Johnson, the artificial intelligence programmer, had begun using the community as a testbed for the next installment of the game, *Civilization IV*. Johnson had been so impressed with the sophistication of discourse at AU that he recruited key members to make the next installment a better-designed game. Although this case is somewhat unique (how often are hundreds of fans recruited to contribute to the sequel to a popular media franchise?), it does mirror the kinds of phenomena described in affinity spaces more generally; participation in spaces such as AU allows for the development of expertise and trajectories for participating in social systems transcend the game space and have an impact beyond particular game communities. As such, AU serves as a powerful model of a self-organizing learning system indigenous to the interactive age of simulation. Driven by participants' desire to learn as a natural extension of pleasurable play, participation in AU requires "students" to start thinking like designers. In fact, writ large, participation in AU is to participate in a culture of a design, and as such, an informative example of how contemporary popular culture operates.

Conclusions

In this chapter, I have used the lens of gaming cultures to argue that the nature of today's popular culture requires a new kind of critical approach to education. In the past, popular culture has been somewhat polarizing, putting critical educators in the uncomfortable bind of having to acknowledge and understand popular culture as the "people's culture" and those concerned with the hegemonic effects of popular media (Giroux, 1996). Distinctions between high and low art have largely been acknowledged

to being little more than issues of social class, concerns still prevail that video games perpetuate oppressive ideologies (cf. Provenzo, 1991). Games do in fact carry ideologies with them, but as I argued here, these are not narratives as much they are as ideological worlds—worlds build according to particular rules that come together into world views.⁷ It is critical that educators see beyond simply the representations in games (or on box covers) and examine how game worlds themselves are experienced. This chapter and others emerging discussing game studies suggest the importance of a critical analysis based not just on the text but on interpretations of players' experiences and the modes of production as well.

To date, concerns about the “bad effects” of games have perhaps caused educators to miss the real message behind the medium. Core to the logic of games is that they are far from simulations of the world—they are spaces designed to provide specific forms of experience. Games, as an interactive medium, create ideological worlds, possibility spaces for their players, spaces where they can learn via cycles of choices and consequences; we have the opportunity to develop skills, engage in creative practices, participate in virtual organizations, and otherwise explore identities unavailable to them other places, such as in schools. As such, games offer a deeply experiential form of learning, a form of learning that occurs through thinking, doing, and *being* in a space.

There are many qualities of these experiences that should be of interest to educators. I want to briefly retouch on one of those qualities here: that of popular culture in general (and games in particular) as spaces for valuing and developing expertise. It is interesting that amidst all the concerns about *Pokémon* as wasting children's time, promoting competitiveness, consumerism, or even causing epileptic seizures, most critics

failed to comment on the underlying logic of the game world: it is through becoming an expert *Pokémon* collector and caregiver that one develops status within both the *Pokémon* game and within *Pokémon* fan communities (cf. Tobin, 2004). From the moment the player creates a character (or *Pokémon* trainer) and meets the “professor” (one of the many games where PhDs and professors are positioned as heroes and/or sages) to the final battle, expertise and knowledge of the gameworld are given a premium. For all of the concern about games as a competitive medium (as if our children would graduate from schools into a “noncompetitive global economy,” we seem to have ignored the potentially positive flipside: children have a space to hone and value expertise, having a place to become “little experts” in areas of personal value,⁸

If contemporary popular culture is indeed built around “building expertise” then critical educators face a whole new set of questions about the value and role of popular culture in education. In short, if popular culture is offering opportunities to develop, hone, and extend expertise in complex areas, then we need to take popular culture seriously (cf. Johnson, 2005). Perhaps more critically, if popular media like games offers opportunities for legitimate participation in social systems that transcend the classroom, then we may need to rethink the organization of schools, lest they become even less relevant to students than they already are. Popular media increasingly allows us not only to develop specialized skills but to participate in practices that have a real impact on the world.

Today's popular media landscape raises new critical questions of equity for educators as well. Whereas some students have the past resources, experiences, and self-efficacy to leverage these technologies and media for personal and professional

development, others may not, raising new equity questions particular to the digital age. First, issues arise as to who has both the traditional literacy skills to survive in such an environment. Such communities are potentially democratizing in that they create new demands and new niches where expertise can flourish, but they may also be limiting as networks; they tend to follow power laws where hubs and nodes have inordinate influence, which one might anticipate carry with them their own inequities. Second, they reframe questions of access from ones of technological access to sociotechnical access. Just because a student has access to the Web does not mean that he or she has access to the right affinity spaces—or even that looking for the right affinity spaces to leverage is what one ought to do.

Although sites such as Slashdot.org, Joystick101.org or AU do not exclude participants on the surface level, they do exist as discourses that effectively privilege some ways of knowing while excluding others. The importance of such communities has scarcely been recognized, let alone studied, but Slashdot at least has a well-deserved reputation for privileging a combative, male-gendered discourse with a technoutopian libertarian bent. Such affinity spaces may act as accelerators for participants with the propensity for such discourses while systematically excluding those without such affiliations. If gaming discourses are in fact valuable for their ability to engage their players in academic practices, then educators might be well served to design alternative programs and spaces that with discourses might attract a broader array of participants. Given the nature of games as a male-gendered play space, women in particular may be systematically shut out of new media literacies.

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- 1 These ideas were developed in conversation with James Paul Gee and Constance Steinkuehler, to whom I'm indebted for their insights on social learning practices.
- 2 For a description of the Pokemon universe and the design ideas behind it, see <http://pokedream.com/pokemon/infocenter/tajiri.php> For a good introduction into the Pokemon universe, see Tobin (2004). Gee (2004) makes a similar argument to that provided here.
- 3 In what has been generally hailed as a brilliant design move, the game actually does not end there; the player will sit in a jailcell (free to move about) until he or she decides to hit escape and restart the game.
 - 4 This is not to suggest that race, gender, and ethnicity are not played out and remediated online, both through the iconography and representations in game systems, as well as through player generated content and talk. It is to say, however, that most gaming cultures are deeply committed to these notions and that *for their participants*, they tend to function as such meritocratic spaces.
 - 5 <http://web.archive.org/web/20010412205321/http://www.joystick101.org/?op=displaystory&sid=2000/10/26/4840/3876>
 - 6 While games certainly demand more critical study than they are currently given, most serious critiques of games as ideological worlds have resulted in accounts of games that are far more sophisticated and nuanced than perhaps most educators have thusfar given them credit for. Examples of this include games such as Deus Ex, described in this paper, or the ironic commentary on capitalism that can be found in The Sims.
 - 7 As educators, we might wish that children focused this desire for expertise in areas that aligned more closely with our own, whether they be literature, mathematics, or science. However, as literacy scholars (c.f. Gee, 2003; Steinkuehler, 2005) point out, the literacy tasks alone demanded by such forms of popular culture are far from trivial; in the case of Massively Multiplayer Gaming, they actually recruit and require skills that meet, if not exceed national literacy standards. As Steinkuehler argues, what the emerging popular culture teaches us is that it is not whether kids are reading that concerns parents; it is *what* they are reading. While these concerns may indeed pose some merit, it is worth also considering the prevalence of these concerns across the history of media – from the early comics onwards, which Jenkins (1999) and others have argued relates much more to one generation seeking to impose its morals and tastes on another than any qualitative difference in “quality” of media.