

1 Introduction to Section I

Kurt Squire

This section, “Games as Designed Experience,” is the result of years of conversation among game developers, educators, media theorists, and indeed most of the authors (at times all three) at venues such as the Games+Learning+Society (GLS) Conference. This section features game developers theorizing about their practice and the social changes suggested by it. Much of this work is motivated by game developers trying to understand their practice in real time. As designers, these authors are mostly outside mainstream educational research discourse. However, they all do educational activities, including teaching university courses on game design, leading workshops for game developers, or just training team members informally on the job.

Many of the essays that make up these chapters have appeared in other venues ranging from *Game Developer* magazine to academic journals on digital media and learning. As such, their primary audiences include professional game designers, educators, and media theorists. Rather than revamp the pieces for this audience, we chose to leave them relatively intact, hopefully providing a window into the language and value systems that each author brings to his or her work.

A goal of this section is to invite educators who might be unfamiliar with game-developer discourse into this world and provide a window into how some leading developers theorize their practice. Hopefully, this section also lays a foundation for educators to understand how games are constructed, how potential meanings are encoded into them, how players learn to think in games, how game cultures operate, and what the implications of this medium are for learning and society writ large.

Several essays first appeared in venues directed toward game developers, and each has become a classic within certain circles. David Sirlin’s “Yomi: Spies of the Mind” certainly fits these criteria. Sirlin uses *Virtua*

Fighter 3, a 3D fighting game to illustrate the concept of *Yomi*, which is for a player to get inside another player's mind and understand his or her thinking. The discussion might get esoteric unless you are familiar with *Virtua Fighter*, but hopefully it communicates to skeptics just how complex a "mindless, button-mashing" fighting game can be. More broadly, Sirlin's work is interested in competitive games, games that are clearly skill-based (as opposed to games in which success comes from luck or simply time spent playing, which many have argued is true for too many contemporary video games – including Sirlin himself (see Sirlin, 2006). Ironically, it may be fighting games such as *Virtua Fighter* that hold the key to games for education.

Soren Johnson's series of articles on theme, mechanics, and meaning, which were first published in *Game Developer* magazine, asks a question of central importance to educators: How do games convey meaning? Johnson, who has a background in history, computer science, and historical modeling from Stanford, has worked on *Civilization* and *Spore* (among others), which are two touchstone games for educators. Johnson articulates why criticism of *Spore* as a bad evolution game were the result of focusing on theme rather than mechanics and how meaning arises at the intersection of mechanics, theme, and player experience (for a similar but different framework, see Hunicke, LeBlanc, and Zubek, 2004). Johnson also critiques the *Civilization* series from this perspective, concluding that games more firmly rooted in a particular time period may be best for encouraging historical thinking. Johnson's distinctions are crucial for educators, media theorists, and game designers who hope to better understand what meanings youth may be taking from games, why they play what they play, and what the potential of the medium is for more formal learning.

Nathan McKenzie uses another touchstone game, *SimCity*, to outline the contemporary game-development ecology in "Nurturing Lateral Leaps in Game Design," suggesting how a game-development environment that could encourage the kinds of games that educators would want might very well look like. McKenzie is a veteran game developer in both the mainstream AAA (game title) community, where he worked on such games as *Soldier of Fortune*, *Hexen*, and *Quake4*, and the independent community, where he has launched a number of ground-breaking games through his own development studio, Ice Cream Breakfast. McKenzie reflects on these experiences to show how the modern game-making environment, as a heavily industrialized, sociotechnical enterprise, is deeply shaped by the kinds of games that have been made, with software tools, techniques, and developers' skill sets co-evolving with such games. To

create *new* kinds of games, we will need new tools, methodologies, and skill sets. McKenzie also calls our attention to the importance of competing *values* – something that most educators who have partnered with game developers well understand. Particular visual 3D programmers, for example, may tend to value beautifully rendered water, whereas educators may value accessible game play. Developing a robust, mature educational gaming market will require an interplay between innovative games and more derivative games that consolidates proven design innovations and brings them to broad markets. McKenzie surveys entertainment games, modding communities, student projects, and quasi-commercial spaces (such as Multi-User Dungeons [MUDs]), providing both a useful analysis of games culture and a blueprint for how educators might create a thriving business sector.

“Uncharted 2: Among Thieves – How to Become a Hero” emerged out of the *Well Played* (aka *Gaming with Drew*) series at the GLS Conference. The idea behind this series is to feature game players and game designers discussing a given game in real time in ways that “close the loop” across game players, designers, and the designed object. The resulting chapter is a collaboration between Drew Davidson (who directs Carnegie Mellon’s Entertainment Technology Center in Pittsburgh and is both an academic and a former developer) and Richard Lemarchand, who is a lead game designer at Naughty Dog. The chapter is an inside look at both how the game was designed, on the one hand, and how it is experienced by skilled players, on the other. Understanding how skilled players experience games is central to Davidson’s work in the *Well Played* series (see also Sirlin’s *Yomi*, Chapter 6 in this volume). How can scholars “keep up” on the wide range of experiences available to gamers, particularly when participating in a forty-person *World of Warcraft* raid, a competitive *Quake* clan, or a *Civilization* modding community each can be a nearly full-time job? By engaging developers in a dialogue around the game, this chapter illustrates one crucial theme within the field: Academics must study game-development techniques so as to understand how they shape and influence the medium and therefore gamer experiences.

In “Interview with Harmonix,” Sarah Chu and I interview Greg LoPiccolo, vice president of product development for Harmonix Music Systems, to better understand how Harmonix approaches game design. Its music games, which include *FreQuency*, *Karaoke Revolution*, *Guitar Hero I* and *II*, and the *Rock Band* series, are revolutionary, launching a multi-billion-dollar sector of the games industry and, in the case of *Rock Band Pro*, likely candidates for transforming music instruction as well. LoPiccolo

describes how, through constant iteration and user testing, Harmonix develops games that produce particular *emotional experiences* such as the experience of making and performing music in a group.

Finally, my contribution to the volume is a study of Apolyton University, an online community within the Apolyton.net affinity space. This piece began with a conversation with Soren Johnson, lead designer of *Civ4*, who suggested that I use Apolyton as a model for how to organize an after-school gaming club. I was frankly shocked by the depth of thinking in Apolyton, and as I shared the story, James Paul Gee suggested that I study the community's structures more formally. Ethnographies of social practices (including institutions) surrounding media build on the tradition of cognitive ethnographies in the learning sciences (see Hutchins, 1995; Lave & Wenger, 1991) but seek to understand how the nature of participation in social life may be changing in a digital age (cf. Gee, Hull, & Lankshear, 1996). In truth, the broader GLS community has become a refuge of a sort away from institutional and political pressures for research that narrowly responds to the immediate needs of teachers or increases standardized test scores (Stokes, 1997; Shavelson et al., 2003).

Taken together, these chapters suggest new directions for thinking about games as an expressive medium both for how learning takes place within them and for how they might be leveraged for more formal instruction. A few key themes are especially important for educators seeking to design game-based interventions for education.

The first is that making a good game for entertainment, let alone for learning, is a nontrivial task and one that, as a field, we have yet to do particularly well. McKenzie's challenge is the appropriate one, although with games such as Douglas Clark's *Surge*, Filament Games' *Resilient Planet*, and Education Arcade's *Labyrinth* (to name a few), we now have some *new kinds of games*, to use McKenzie's terms, to generate energy in the field. Still, we are in no position as yet to answer the question posed by many educational researchers and institutions: "Is there evidence that games work?" (cf. Tobias and Fletcher, forthcoming). Aside from the fact that this question is always temporal (the effective game-based curricula may be one that doesn't exist yet), we still need more rounds of iteration and experimentation. A challenge for the field, however, is to devise ways to develop and share this knowledge. Ultimately, that elusive killer app may be something like *Guitar Hero Pro*, which comes entirely outside the educational establishment.

Johnson's chapter, "Our Cheatin' Hearts," reminds us that although we can look at games in the tradition of earlier media, there are unique

affordances to games to which educators will need to respond. Games value different forms of thinking and suggest different modes of interpretation. Given educators' widespread difficulties "getting" the meaning of *Spore* (or, otherwise put, their difficulties "reading" the game), it may be a while before an education community is sufficiently literate with the medium to produce (i.e., to "write") innovative games that wed content, thinking, and game play. Sirlin and Davidson remind us that to understand games, we need to get personally good at them on some level and understand the game that is in the player's mind. My own thinking has been profoundly shaped by conversations with each of these designer-authors, although it's also worth noting that these conversations have happened *despite* academic and educational institutional structures, not because of them. These designers take personal days off of work to attend the GLS Conference and other events in order to engage in conversations with us, and academics from social sciences traditions are largely disincentivized from digging deeply into design.

Indeed, if, as McKenzie suggests, educators of the sort to be writing in this volume are akin to the AAA game publishers, then perhaps the more effective task would be to stop making games and to instead create tools and resources for communities of developers to make a lot of games, most of which will be spectacular failures. Perhaps funding agencies such as the National Science Foundation (NSF) and the Department of Education need to realize that games coming from academics may never even get the 100,000 players that one of McKenzie's beloved failures gets on Kongregate. However, if academic communities can manage to function like these independent developer communities, in which they create a lot of games, steal ideas from one another, and build on one another's successes, they could build enough novel games for a highly specialized and skilled group to create a polished instance of a game that truly could have mass appeal.

Even then, we must be sure not to focus on the game but rather to focus on the *game-playing context* as the real driver of learning. Learning through game-playing communities is frequently interest-driven, multi-generational, specialized (i.e., people learn different things), productive (i.e., you make complex artifacts), and authentic (i.e., learners often engage in activities with consequences beyond the classroom). These conditions, which are found in many alternative schools or "experimental" programs such as Montessori, have values that fly in the face of mainstream education – indeed, even in the face of so-called gold standard educational research methods. If a precondition to good learning is that a student

learns something new, something unanticipated that goes beyond what the teacher knows (which is, after all, how much of learning works in the real world), then we will have to invent new research methods that are able to capture such genuine production rather than continue to haphazardly adapt methods from agriculture or medicine (as though learning were like optimizing crops).

My own hunch is that in the upcoming years, great games of this sort will get built and played and that, as devices such as iPads proliferate, students will play those games regardless of educators' intentions. As any parent of young children in the past decade is aware, there is a robust, highly profitable multi-billion-dollar home edutainment market for young children. It is not difficult to imagine parents spending similar amounts on older children – especially if designers can create ways for parents and youth to play together. It is also not difficult to imagine attending a museum exhibit on evolution with my children and then playing a multiplayer evolution game with them at home afterwards. The ultimate question, then, is equity. Who will have access to these experiences, be resourced in ways necessary to take advantage of them, and have the intellectual, social, and technical tools needed to participate in something such as Apolyton University? Current educational rhetoric from Washington nearly ensures that public schools will cater to the lowest common denominator, allowing in only those curricula that “work” as defined by antiquated and narrow measures, whereas the educated and affluent will continue to enrich their children through designed experiences such as games.

References

- Gee, J. P., Hull, G., & Lankshear, C. (1996). *The new work order: Behind the language of the new capitalism*. Boulder, CO: Westview.
- Hunicke, R., LeBlanc, M., & Zubek, R., (2004). MDA: A formal approach to game design and game research. *Proceedings of the Challenges in Game AI Workshop, Nineteenth National Conference on Artificial Intelligence*, San Jose, CA. Last retrieved October 1, 2010, from <http://www.cs.northwestern.edu/~hunicke/MDA.pdf>.
- Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: MIT Press.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Shavelson, R. J., Philips, D. C., Towne, L., & Feuer, M. J. (2003). On the Science of Education Design Studies. *Educational Researcher*, 32(1), 25–8. Last retrieved October 4, 2010, from <http://www.jstor.org/stable/3699932>.
- Sirlin, D. (2006). *World of Warcraft* teaches the wrong things. *Gamasutra*, February 22. Last retrieved October 5, 2010, from http://www.gamasutra.com/features/20060222/sirlin_01.shtml.

Introduction to Section I

9

- Stokes, D. E. (1997). *Pasteur's quadrant: Basic science and technological innovation*.
Washington, DC: Brookings Institution Press.
- Tobias, S., & Fletcher, J. D. (eds.) (forthcoming). *Computer games and instruction*.
Charlotte, NC: Information Age Publishers.