“Critical Interactives”: On the Origins of a Concept

Duncan Buell and Heidi Rae Cooley, University of South Carolina

Abstract: In June 2010, the University of South Carolina hosted a NEH-funded Institute for Advanced Topics in the Digital Humanities focused on serious games in the humanities. The three-week summer intensive proved pivotal. It established an interdisciplinary team that has [or who have] obtained subsequent NEH funding for the development of a social history game, *Desperate Fishwives* (DF), inspired by HGI participant Dr. Ruth McClelland-Nugent (Augusta State University, GA). A functioning prototype of DF will be play-tested in McClelland-Nugent’s classes in Spring 2012. Work on DF has proceeded in tandem with a cross-College team-taught course called “Gaming the Humanities,” and a second project, called “Ghosts of South Carolina College” (GSCC), has emerged from this pedagogical experiment. The authors present the worked example of DF and GSCC as distinct moments in a process that has led to rethinking “serious games” in terms of “critical interactives.”

Context: Humanities Gaming Institute [HGI] at University of South Carolina

As representatives of he University of South Carolina, Columbia, South Carolina, we, along with faculty colleague Simon Tarr, were delighted to hold an intensive three-week institute on gaming for the humanities held 7-25 June 2010 and sponsored by a National Endowment for the Humanities Institutes for Advanced Topics in Digital Humanities grant. Called the Humanities Gaming Institute (HGI), the institute aimed to reduce the technical barriers to the adoption of gaming as a research and teaching platform by: (1) educating participants about the theoretical and methodological issues of gaming; (2) providing hands-on experience in existing games; and (3) designing new games based on participant ideas. Solicited from a national call listed on the NEH Office of Digital Humanities website, a total of 22 participants were selected from twelve states representing diverse disciplinary backgrounds. The participant pool, which included graduate students, junior and senior faculty, and community members, were guided by HGI personnel and three invited expert speakers/discussion leaders, each of whom served as a week-long consultant.

The Institute was structured around three themes. The first week’s theme was “making and playing” and had, as guest consultant, technohumanist and cultural theorist Anne Balsamo from the University of Southern California. The second week’s theme was “designing play,” with game designer Tracy Fullerton, also from the University of Southern California, as the speaker-consultant. The third speaker-consultant was game designer and theorist Ian Bogost from Georgia Tech, who headed a week geared toward “effective play.” Readings and subsequent discussions drew from the guest experts’ scholarship and practice and were intended to benefit the proposals put forth by participants. In the first week, presentations for a non-specialist audience were made by USC students and faculty on Flash programming for gaming, on iPhone programming, and on Android programming, with the intent to familiarize participants with the three major technical trends in gaming development. Likewise, the three weeks offered--both formally and informally--opportunities for a variety of play across diverse medial platforms (e.g., cards, board games, hopscotch, videogames, etc.).

Prototype: *Desperate Fishwives* [DF]

In week three, Institute participants presented concepts for developing a humanities-oriented game. We assessed the various proposed projects to determine which could be advanced. We were committed to identifying those that were at a proper stage of conceptualization, had realistic expectations, and looked to be most suitable, in terms of investment of substantial time and energy, for further development. Of all the projects presented at the Institute by the participants, Dr. Ruth McClelland-Nugent’s *Desperate Fishwives*, an early modern British social history game, stood out as the most likely to succeed. We secured NEH Level Two Start-up Grant funding and concentrated efforts with graduate student John Hodgson, involved in programming, and Grace Hagood, former participant and USC doctoral student in Composition and Rhetoric, involved in scripting. Dr. McClelland-Nugent has provided the discipline scholarship in history, while we have coordinated the efforts.

Desperate Fishwives is a social history game (see Figure 1) designed for one to eight players at the college and advanced high school levels. It intends to introduce students to the kinds of social and

cultural practices that would have been "in play" in a 17th century British village. The game's aesthetics rely on two-dimensional woodcut images, appropriate to the period, and intended to make familiar to students the visual codes that correspond to the game's historical setting. The point of the game is for students to learn about early modern British living by enacting historically-informed social interactions and cultural rituals through gameplay. By means of individual and collective game play, students attempt to resolve one of a variety of social ills common to the time (e.g., spouting heresy, abusing apprentices, premarital pregnancy); this ill threatens the communal life of the village--and is best addressed by the village citizens to forestall what is referred to as "the Big Bad"—the formal intervention of either church or state. Resolving the problem of the social ill is accomplished by successful accumulation of resources (goods, information, reputation) across a collective of characters, and the successful completion of a pertinent social ritual (e.g., gossip, economic non-cooperation, shaming). At the conclusion of gameplay, students are presented with a chronology of their individual and collective gameplay so they might translate their gamic experiences into a prose account of "what happened" and thereby learn about the nature and complexities of historiography.

By exploring the dynamics of order and disorder in early modern England, students begin to understand how community dynamics are key to understanding in a very concrete way the social history of the early modern world (c. 1500-1750). Most English people lived in small communities, with the parish as the most important administrative unit. Their world had no police force, no standing army, and a judicial system that visited these far-flung villages only occasionally. In spite of the absence of authority, most communities prospered, paid taxes, and remained obedient to the crown. Order was maintained largely from the bottom up, not top down, via daily social interactions and interdependent dynamics that some historians have dubbed "neighborliness." By participating in historically grounded social exchanges and rituals, students become better equipped to make claims about how their present pertains (or not) to the lived past.

Realization: "Critical Interactive" and not "Serious Game"

We are currently finishing work on *Desperate Fishwives* and will have a functioning prototype in April 2012. As we have pursued DF—especially in the context of team-teaching a "games" course (Fall 2011) that brought together undergraduate and graduate humanists and computer scientists—we have come to realize certain limitations attributable to the term "serious games," and more broadly, "gaming." Quite simply, the word "game" and its derivatives—of habit—connote fun. But the projects we are interested in pursuing do not promise fun. While *Desperate Fishwives* and the projects we saw at the HGI take a more game-like approach to their content, they do not intend to be fun *per se*. Their use of gamic elements functions to impart educational content but in ways that are not rote skill-building activities disguised as games. As such, they push beyond more conventional modes of scholarly endeavor that tend to position their audiences as passive recipients of knowledge. We have begun to use the term "critical interactive" to emphasize this shift.

Informed by Mary Flanagan's scholarship on "critical play" (2009) and Ian Bogost's work on "procedural rhetoric" (2007), the term "critical interactive" proposes that there is another viable way to impart knowledge, build awareness, and provoke thinking and raise questions. Specifically, we imagine a mode of scholarship that invites people to imagine themselves to be active participants in conversation with the materials of intellectual inquiry. What computers and their mobile and desktop interfaces offer is the possibility for more dynamic access to knowledge. In this regard, critical interactives are an alternative to the scholarly monograph, which continues to be the privileged vehicle for the dissemination of knowledge in the humanities. Certainly, critical interactives do not dispense with critical inquiry into socially-, politically-, and/or philosophically-charged questions. But unlike traditional scholarly practice, they take advantage of ludic methods in order to invite an audience to engage critical—by which we mean, theoretically-informed and ethically-oriented--questions and/or problems that affect a community of individuals.

In this regard, we contrast our notion of critical interactive with more familiar consumer- and tourist-oriented applications and programs, such as museum and historical site tours, which generally proceed in linear fashion. While they may have the display afforded to mobile devices and screens, they tend to be restricted to a narrative and often didactic treatment of content. Our notion of critical interactives includes the ludic devices of dialogue trees and multiple paths by means of which participants are afforded the capacity to move through content in diverse ways. Much of the attraction of games is the experience by the participants of a variety of options that can be selected and the uncertainty of the outcomes, because the outcomes depend on the nature and the quality of the

"play." These features are essential to our conception of critical interactive. The potential for surprise or discovery that play engenders is what we endeavor to achieve. But our goal, in the case of DF, for example, is to facilitate discussions about the contingency of historical accounts. By inviting participants to engage a variety of historically-informed "play" scenarios, we propose to encourage more complex understandings of history as a construction; that is, that any history is written by someone according to a certain perspective, and that differing interpretations of an event are possible.

We acknowledge that *Desperate Fishwives* offers a first but limited example of the kinds of thinking that "critical interactives" might invite. First, we are very aware that to date much of what we have endeavored to accomplish with DF is hypothetical (because it has not been demonstrated in final form). Moreover, the "game" suffers from an overly rigid or deterministic "play" structure. Players have few play options, which constricts the kinds of experience that might generate diverse "histories." Likewise, the "win" state or final outcome, i.e., to accomplish a social ritual that keeps the State/Church at bay, is heavily prescribed. Nevertheless, we maintain that *Desperate Fishwives* holds promise: the fact that students are invited to be in conversation about their approach to resolving a specified "Big Bad" and, subsequently, that they have an opportunity to provide a written account of how that feat was accomplished based on a chronological list of events that is generated at the conclusion of a round of play. We hope they might discover that their accounts of their "game play" experience will resonate with but also counter (or provide a contrast to) the kinds of histories they are accustomed to studying.

A First Generation Critical Interactive: *Ghosts of South Carolina College*

Our thinking about "critical interactives" has evolved substantially as *Desperate Fishwives* has been developed and as we have examined the developing game. Responding to our understanding of the limitations of DF, we have begun work on a second prototype, one that better demonstrates the features and functionality of what we would consider to constitute a critical interactive. An Augmented Reality (AR) application called *Ghosts of South Carolina College* (GSCC), this second project endeavors to bring into view—literally, on mobile micro screens (e.g., iPhones and iPads)—the largely unknown history of slavery that made materially possible the physical site of what is now the University of South Carolina. Its deployment of ludic or gamic mechanics and architectures aims to generate awareness and questioning about what might otherwise seem status quo. It features the University of South Carolina's historic Horseshoe, which is and has been "central" to campus and to campus happenings. As a site, it is rarely (if at all) questioned by students or visitors who traverse its grounds. We can change this perception by inviting those who are on-site to "see" the site through a different "lens"—one that provokes and reminds visitors, students, scholars, administrators, laborers, and members of the surrounding community of the institution's complex history. We take as our point of departure the robust scholarly website, "Slavery at South Carolina College, 1801-1865" (Weyeneth, et. al., 2011), which is the product of public history investigations by faculty and graduate students of USC.

At present we envision three distinct "layers" that address overlapping and complementary points of departure for thinking about and engaging with the historic Horseshoe: a) the historic campus Wall that still today delineates the boundaries of the original South Carolina College; b) the "disappeared" slave quarters and kitchen buildings that historians can document and map but that modern visitors to the Horseshoe can no longer see; and c) the story of slaves and slavery at South Carolina College that links the extant and missing buildings into a comprehensible "landscape of slavery." Those traversing the site with Wi-Fi- and GPS-enabled screen technologies, such as the iPhone, will be invited to download the AR application. Likewise, we foresee the University's Visitor's Center, the University's freshman orientation course (UNIV 101), and [public] history courses directing people to the application. Those who elect to participate will be able to activate one or more of the three layers.

As currently planned, the activation of any one of the application's layers will mobilize AR and WiFi functionality as well as location awareness. Activating layer "a" will draw attention to the character and legacy of the USC Wall. As one explores the historic Wall in real-time, she will have access to an accruing combination of narratives that suggest the ways in which places acquire identities. The narrative will evolve in relation to a participant's real-time physical exploration of the Wall as it is imagined to function variously as perimeter, boundary, threshold, barrier, etc. The point is to encourage participants to consider how binaries such as inside-outside and inclusion-exclusion have functioned to define the institution of the University as a site for the organization and management of

people. Layer “b” will represent on mobile micro screen virtual reconstructions of, for example, once extant antebellum outbuildings in the context of the many still-standing buildings (see Figure 2). One of the intentions of this architectural “ghosting” is to draw attention to the ways that a history of place requires an “eye” for how institutional landscapes take shape in the context of politically-motivated (matters of funding, leadership, etc.) physical transformation, and that such transformation always results in material loss of some sort. Finally, layer “c” focuses on people, i.e., on fictionalized versions of interactions between slaves and students in the antebellum period at South Carolina College. As one walks the Horseshoe ground, she will have opportunities to interact with “ghosts”—historically-based, creatively-imagined personages—whose histories have largely been forgotten or erased (see Figure 3). Thus, layer “c” makes visible how slaves and racial slavery underpin the growth and expansion of an institution such as the University of South Carolina.

Unlike DF, which deploys a gamic architecture to focus student-players’ attention on modes of sociality particular to a 17th century British village, GSCC challenges its participants to engage with a history that has made possible the current institution that is the University of South Carolina. As a critical interactive, it charges its participants to acknowledge their relation to this history and embrace a responsibility to a legacy that has been obfuscated—and continues to be so. In other words, *Ghosts of South Carolina College* aims to intervene in how people approach, “see,” and experience the physical grounds of the Horseshoe as a site of historical erasure. It does so in order to counter what has been a persistent and unacceptable social blindness.

The authors present *Desperate Fishwives* and *Ghosts of South Carolina College* as representative of two moments in a trajectory of thought about “serious games.” They provide evidence of a process that produced the concept of “critical interactive.” In positing this concept, we do not intend to dismiss the potential work of serious games. Rather, we want to consider how interactivity as made possible by ludic methods might facilitate an appreciation for potentially controversial material. In comparing and contrasting the two projects, we hope to generate an examination and discussion of the shifts in their thinking about how ludic methods might provoke critical engagement with sensitive content.

Conclusion

The authors propose the neologism “critical interactives” as an alternative to the [more familiar] term “serious games.” Our purpose is to call attention to the complexities involved in gamifying sensitive (even controversial) content. We offer two projects, both currently under development, that in tandem offer an opportunity to think about the critical, in this case socio-theoretical, work that ludic methods might accomplish. Drawing on a variety of site-specific projects--the NEH-funded Humanities Gaming Institute, the resulting *Desperate Fishwives* prototype (also NEH-funded), the collaboratively taught Gaming the Humanities courses (fall 2011), and the recently imagined *Ghosts of South Carolina College* augmented reality application--we intend to initiate a discussion about how gamic logics might invite critical engagement in, for example, socio-cultural or socio-cultural phenomena.

References

Balsamo, A. (2009) *Designing culture: The technological imagination at work*. Durham: Duke University Press.

Bogost, I. (2007) *Persuasive games: The expressive power of videogames*. The MIT Press.

Flanagan, M. (2009) *Critical play: Radical game design*. The MIT Press.

Fullerton, T. (2008) *Game design workshop: A playcentric approach to creating innovative games*. 2nd ed. Fore. Eric Zimmerman. MA: Morgan Kaufman Publishers.

McClelland-Nugent, R, Hagood, G., & Hodgson, J. (April, 2011) Desperate Fishwives: From board game to video game. Paper presented at the Popular Culture Association/American Culture Association National Conference, San Antonio, TX.

Weyeneth, R., Baker, A., Betsworth, J., Bush, R., Conlon, S., Kutzler, E., McIntyre, J., Oswald, E., Wilson, J., & Zeise, J. (2011) Slavery at South Carolina college, 1801-1865: The foundations of the University of South Carolina. Retrieved from http://library.sc.edu/digital/slaveryscc/index.html.

Acknowledgements

We thank the National Endowment for the Humanities whose funding of awards HT-50025-09 and HD-51230-11 have supported our efforts and encouraged further collaboration. Not only do we thank John Hodgson (Computer Science and Engineering) and Grace Hagood (Composition and Rhetoric), our two graduate student research assistants who have been developing the Desperate Fishwives prototype, we also extend our thanks to Dr. Ruth McClelland-Nugent, who has generously entrusted us with translating her game concept into digital artifact. Likewise, we thank the "Gaming the Humanities" project teams. Finally, we thank the Colleges of Arts and Sciences and of Engineering and Computing for their continued support of our collaboration.

Figures

***Figure 1*: *Desperate Fishwives* interface**

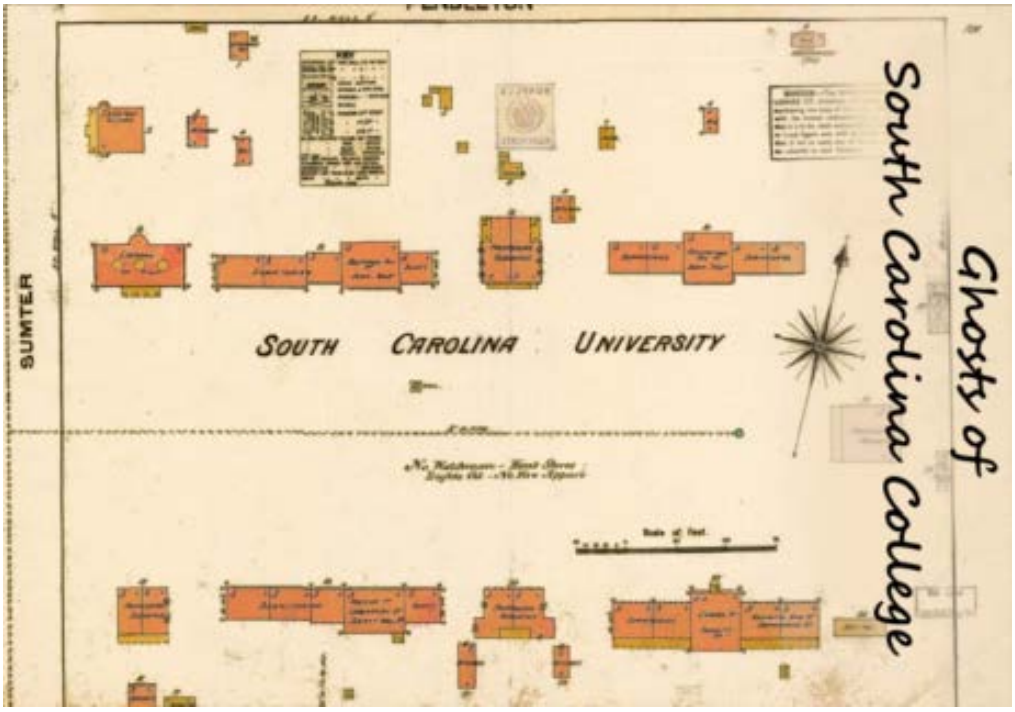

Figure 2: Buildings/Outbuildings of South Carolina College

Figure 3: An AR Layering of the Ghosts of South Carolina College

Designed Controversies: Creating teachable moments about research ethics through games

Ben DeVane, University of Florida, University of Florida, P.O.Box 115810, 101 Norman Gym, Gainesville, Florida 32611-5810, ben.devane@ufl.edu
Margeaux Johnson, University of Florida, Marston Science Library, PO Box 117011, 444 Newell Dr., Gainesville, FL 32611-7011, margeaux@ufl.edu
Michelle Foss-Leonard, University of Florida, Marston Science Library, PO Box 117011, 444 Newell Dr., Gainesville, FL 32611-7011, mleonard@uflib.ufl.edu
Amy Buhler, University of Florida, Marston Science Library, PO Box 117011, 444 Newell Dr., Gainesville, FL 32611-7011, abuhler@ufl.edu

Abstract: In this "working example" paper, we argue that designers and researchers need to reflect more on the way controversy and transgression can create teachable moments and memorable experiences in learning games. In doing so, we present a "worked example" (Gee, 2009) of our design choices related to controversial and transgressive play in a game series about research ethics, called Gaming Against Plagiarism (GAP). Employing data from usability trials, we argue that building controversy into learning games can force students to think critically and deeply about ethical issues.

Introduction

The experiential learning paradigm embodied in many games makes them more powerful learning tools than skill-and-drill tutorials because it offers learners the opportunity to make meaningful decisions and enact compelling experiences. The experiences found in games are compelling in part because games offer players psychosocial moratoria (Gee, 2003)—safe spaces where they can experiment with a simulated system that has lessened real-world consequences. But few learning games take advantage of this feature commonly found in commercial games by providing players with opportunities for transgressive play. Fewer still mobilize the "safe space" of games to force players to confront "designed controversies" that make them think critically about a given issue.

In this paper, we argue that designers and researchers need to reflect more on the way controversy and trangression can create teachable moments and memorable experiences in learning games. In doing so, we present a "worked example" (Gee, 2009) of our design choices related to controversial and transgressive play in a game series about research ethics, called the *Gaming Against Plagiarism* (GAP) project. Furthermore, we present data from usability trials to ask whether building controversy into learning games can create a space for students to think critically and deeply about ethical issues.

Background

As the saying goes "good research is ethical research." But what is the definition of ethical research? Based on a study conducted at the University of Florida, results show that Science, Technology, Engineering and Mathematics (STEM) graduate students have varying degrees of understanding the basics of what makes good, ethical research, especially with regard to falsification of data, fabrication of data, and plagiarism (FFP) (Leonard et al., 2010). The push to make American STEM education initiatives more successful lead to a search for new curricula, pedagogical techniques and learning technologies that can aid in this endeavor.

As a learning technology with the potential to engage students, computer games stand out at the forefront of this push. (Gee, 2003; Shaffer et al., 2005). This project, supported by a National Science Foundation Ethics Education in Science and Engineering grant, employs a series of interactive, digital "mini-games" to educate and inform graduate STEM students about the dangers of research misconduct and cheating. It seeks to not only teach students the facts of what constitutes research misconduct, but to also educate them about the values associated with ethical scientific research conduct and procedures.

Theoretical Framework

The past decade has seen a tremendous proliferation of research on learning games and virtual worlds. From this scholarship, a number of worked examples provide researchers with general lessons about how to create successful social learning environments around games (Squire et al.,

2008; Steinkuehler & King, 2009). Seeking a better understanding of the social learning and literacy practices embodied in gaming, basic research investigated commercial game-based learning spaces (Steinkuehler, 2006) and identified characteristics of gaming spaces that make them productive learning spaces. This basic research has informed the design research projects that seek to create intentional game-based learning spaces. However, one finding of basic research that has not been translated into design practice is the relationship that controversy and "transgressive play" have to learning.

For the purposes of this worked example, we call transgressive play that which goes against the grain of expected social conduct—an act or series of acts that would be considered taboo, unethical, immoral, or otherwise inappropriate in the real world. We hypothesize that transgressive play may prompt a player to reflect critically, because of the cognitive dissonance or projective identification associated with a given game context, on her real world actions. Other studies of game-based learning communities have found that the desire to playfully transgress often drives the pleasure and engagement derived from a game. Squire (2007) found that transgressive play often heightened players' engagement with *CivWorld*, a history-focused game-based learning environment centered on the Civilization game series. This transgressive play drove students to explore and experiment with the game's model of world history, and propelled them further into an identity transformation from a user of popular media into designers of world history simulations (DeVane et al., 2010).

Other research has drawn similar conclusions. Consalvo (2009) found that "cheating"—the use or development of walkthroughs, hacks, tips, etc.—drives players acquisition of "gaming capital" in gamer communities. Kafai & Fields (2009), drawing on data from cheat sites for the *Whyville* virtual world, argued that cheat sites help players build their competencies as designers. In a study of youth who played *Grand Theft Auto: San Andreas*, DeVane & Squire (2008) found that the opportunities for play-based transgression, ranging from silly to violent, were key motivators for players. Play that pushes back against the defined structures of a game, or against defined social norms, can heighten player engagement.

Some evidence suggests that ethically-ambiguous situations, and transgressive role-play, can help players build metacognitive models of a given moral context. Simkins and Steinkuehler (2008), for example, contend that controversial role-playing scenarios foster critical and experiential engagement with ethical systems and values. This research indicates that trangressive play can heighten player engagement, and promote learning through experimentation, critical thinking and design. In this spirit, the *Gaming Against Plagiarism* project seeks to create "designed controversies" and opportunities for transgressive play in order to foster engagement and critical ethical thinking.

Methodology

Methodologically, this paper draws from the project's in-progress usability testing and evaluation. Other in-progress evaluative research not reported in this paper focuses on assessing learning gains. The game design and development team employed the iterative framework of *agile development* for our development processes, which emphasizes incremental and iterative organizational solutions to deal with that uncertainty (Rajlich, 2006). Using a design document as a flexible guidepost, the agile development process allows for easier adjustment of the virtual game environment as the content and design teams refine their understanding of how to fit pedagogy and playability together through rapid prototyping and usability testing.

Game design context

The data presented in this paper comes from usability tests of two game prototypes, the first and third mini-games of a three-game series. The design metaphor of these two games, titled *Cheats and Geeks* and *Murky Misconduct* respectively, were crafted to allow the player opportunities for transgressive play. Designed to appeal to casual game players by drawing on classic game design metaphors, the player inhabits two distinct roles in these games. In the first game, *Cheats and Geeks*, players inhabit the role of a desperate graduate student who competes with his colleagues in a race to garner funding for his graduate career by publishing papers. As players sprint towards their goals across a "chutes-and-ladders" style board, they can plagiarize, falsify or fabricate their positions, all while trying to keep campus authorities off their trail and testing their own knowledge of research misconduct (see Figures 1 & 2). In short, the players of this game can build their basic knowledge of research ethics by strategically committing research misconduct in-game. The opportunity to learn by doing is also the opportunity to play transgressively.

Figure 11: **Cheating one's way to research funding**

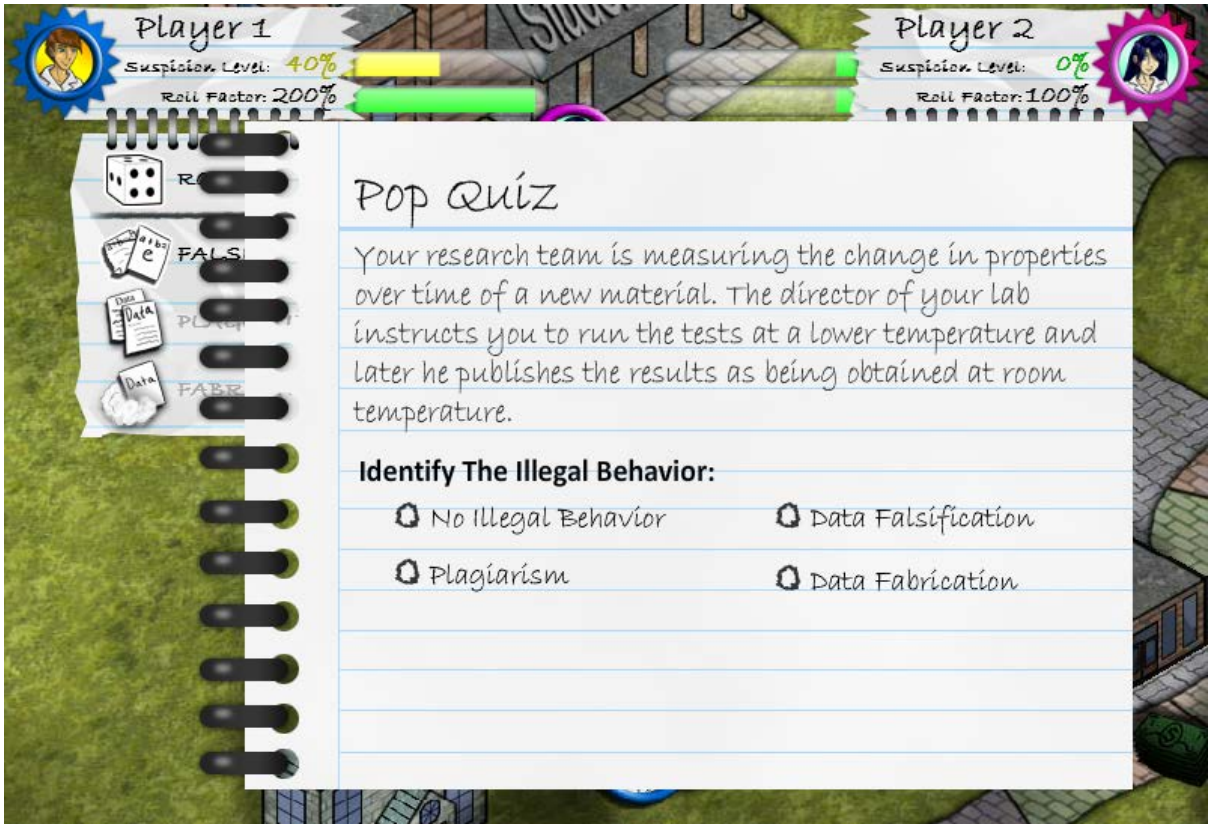

Figure 12: **Peer reviews panels inquire about research ethics**

The third game, *Murky Misconduct*, finds the university in near-chaos because research misconduct is rampant. After the first game, the player is drafted into the Research Ethics office as a detective, the fictional agency of the university dedicated to tracking down research misconduct. Now the player's character is out to find and convict the unethical researcher whose sinister work is threatening the university itself. In doing so, the player untangles a series of cases in which they have to analyze materials, make arguments, and provide supporting evidence (see Figure 3). The misconduct mastermind the player must confront, it turns out, is a distinguished professor who has been mistreating his graduate students (see Figure 4). Research misconduct, it turns out, is not only *done by* graduate students. It is also *done to* graduate students.

Figure 13: **Argumentation & evidence interface**

Figure 14: **Confronting the serial cheater**

Usability testing & protocol analysis

As part of the iterative design process, usability testing forms the core mechanism for acquiring player feedback on virtual environment design and player experience. Our usability testing centered on interface design issues, content refinement and level of playability for each game prototype.

Depending on the game prototype's format and the feedback needed, the usability team conducted "think-aloud" protocols of game play. The overall test cycle lasts fifteen days (three work weeks) and consists of testing initiation, participant recruitment, protocol development, user testing sessions, and a usability report.

From these testing sessions we gathered and analyzed verbal reports from players using "think-aloud" protocol analysis (Ericsson & Simon, 1984; Jourdenais et al., 1995), and then used that data to inform and refine the game design and content development. Using the "think-aloud" method, we asked two groups of four users to verbally and continually report what they were thinking as each group played one of two games in the series. Consistent with standard protocol analysis methods, researchers gave each participant the same introduction to the usability testing procedure, and audio-video recorded their verbal report and game play. As Ericsson & Simon (1984) note, these recorded utterances and actions provide us with a glimpse players' knowledge schema and problem strategies.

Results

The game's designed controversies provoked very different reactions amongst the usability testers, but usability test results suggest that it may be a means to create "teachable moments" about research ethics issues. In usability tests for Game 1, *Cheats & Geeks*, players decided whether or not to cheat to advance their fictional research career. Likewise, players of Game 3, *Murky Misconduct*, confronted a professor, who had falsely blamed one of his graduate students, with allegations of research misconduct. These designed controversies created openings for some testers to engage with and discuss the game's fictional situations and material.

Discovering models of cheating

The portrait that emerges from the usability data gathered to date suggests the issues surrounding ethics and learning in play are complex. In *Cheats and Geeks*, the first game, most players availed themselves of the ability to cheat in-game, but it appears these choices had little to do with their ethical stances. Instead, most players framed their choices in terms of experimentation with the game's underlying model of the rewards of cheating and the risks of getting caught. Two of four usability players cheated repeatedly throughout their game play, and complained that the games' chance to catch cheating was high. To the detriment of their chances to win, these two players frequently attempted to cheat despite frequently being "caught" by the game and penalized. One remarked that there was a high chance in-game cheating would be caught, which probably did not reflect the real-world risk. These players were focused on investigating the game's model of the risks posed by cheating.

Cheating, however, was not universal amongst the play testers of the first game. Two other players cheated once and twice in the game respectively. Only in the case of one player did this seem to be tied to an ethical stance. This player cheated once, was caught, and then cheated no more. She said that "the option to cheat was not an option" for her, and that she had only cheated the one time to see what would happen. The other player cheated twice, got caught both times, and remarked that there "seems to be a higher chance of winning if you don't cheat." For one player, cheating in-game seemed to be a moral issue, while the other player thought not cheating provided a pragmatic advantage in-game.

Accusing the professor

In order to complete the third game, *Murky Misconduct*, players had to track down a serial cheater who was tarnishing the university's reputation with his research misconduct. This cheater turned out to be a distinguished professor at the university, whom players had to confront with evidence of his misdeeds. The four play testers of this game had differing views of the controversy designed into the game. Upon realizing, after 25 and 33 minutes of game play respectively, that the professor was the wrong-doer, two play testers reacted positively. One remarked that he liked that the professor falsely accused the student when the professor was actually to blame. The other let out a loud and extended laugh at the moment of discovery, and proudly exclaimed, "I like this—[I'm] going straight to the top!"

Two other play testers, however, reacted differently. One expressed discomfort accusing a professor for research misconduct and wanted more sympathy for the character. The player indicated that many people "have issues with not knowing the basic definitions [of research misconduct]" and discussed how he would try to help Professor Gibbons rather than accuse him. Another, in an after-game

reflection, seemed dismayed that a professor might be involved in wrongly accusing a subordinate student.

Conclusion

We here make an argument that creators of learning games, especially designers of games for ethics education, need to confront issues of transgression and controversy in game design. Thus far design research has mostly ignored them, which is a disservice to the experiential affordance of games. We believe, as do Simkins & Steinkuehler (2008), that simulated dilemmas provide players with a space to engage critically with ethical issues.

But at the same time these design choices provoked strong reactions from institutional stakeholders, who sometimes worried that graduate students would learn to cheat from the game. For example, one stakeholder, a researcher interested in ethics education, worried that experimenting with research misconduct inside the game might lead students to try to cheat outside the game. Another stakeholder was concerned with the constrained choices players faced in these controversial game-based situations. These concerns are founded in a belief that a game should produce outcomes and not starting points for discussions.

For many play testers, the designed controversies appeared to engage them and stimulate their interest in exploring the games' model of research ethics. Others, conversely, seemed offended that there were even options to cheat and commit research misconduct. We hypothesize that these points of excitement, or distress, open up "teachable moments" for discussion of the complex ethical issues that face graduate researchers.

But questions remain about how we understand transgressive play relative to learning in games. For example: How does transgressive play enter into dialogue with the ethical and educational intentions of learning game designers? Does transgressive play change the way that players construct knowledgeable identities in game play? Are some players intimidated or disgusted by design paths that incorporate transgressive acts? These and other questions related to controversy, transgression and ethics remain open in the learning games literature. We hope this "working example" can spark more discussion on, and investigation into, these important issues.

References

Consalvo, M. (2007). *Cheating: Gaining advantage in videogames*. Cambridge, MA: The MIT Press.

DeVane, B., & Squire, K. (2008). The meaning of race and violence in Grand Theft Auto. *Games and Culture*, *3*(3-4), 264-285.

DeVane, B., Durga, S., & Squire, K. (2010). "Economists who think like ecologists": Reframing systems thinking in games for learning. *E-Learning and Digital Media*, *7*(1), 3-20.

Ericsson, K., & Simon, H. (1984). *Protocol analysis: Verbal reports as data*. Cambridge, MA: MIT Press.

Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. New York: Palgrave Macmillan.

Gee, J. (2009). Digital media and learning as an emerging field, part II: A proposal for how to use "worked examples" to move forward. *International Journal of Learning*, *1*(2).

Jourdenais, R., Ota, M., Stauffer, S., Boyson, B., & Doughty, C. (1995). Does textual enhancement promote noticing? A think-aloud protocol analysis. *Attention and awareness in foreign language learning* (pp. 183-216). Honolulu, HI: National Foreign Language Research Center.

Kafai, Y. B., & Fields, D. A. (2009). Cheating in virtual worlds: Transgressive designs for learning. *On the Horizon*, *17*(1), 12-20.

Leonard, M., Johnson, M., Buhler, A., & Royster, M. (2010) "Perceptions of plagiarism in the academic environment." Unpublished report: Gainesville, FL.

Rajlich, V. (2006). Changing the paradigm of software engineering. *Communications of the ACM*, *49*(8), 67-70.

Shaffer, D., Squire, K., Halverson, R., Gee, J., & Academic Advanced Distributed Learning Co-laboratory. (2005). Video games and the future of learning. *PHI DELTA KAPPAN*, *87*(2), 104.

Simkins, D. W., & Steinkuehler, C. (2008). Critical ethical reasoning and role-play. *Games and Culture*, *3*(3-4), 333.

Squire, K. D. (2007). Open-ended video games: A model for developing learning for the interactive age. In K. Salen (Ed.), *The ecology of games*, The John D. and Catherine T. MacArthur Foundation series on digital media and learning (pp. 167-198). Cambridge: MIT Press.

Squire, K. D., DeVane, B., & Durga, S. (2008). Designing centers of expertise for academic learning through video games. *Theory Into Practice*, *47*(3), 240-251.
Steinkuehler, C. (2006). The mangle of play. *Games and Culture*, *1*(3), 199.
Steinkuehler, C., & King, E. (2009). Digital literacies for the disengaged: creating after school contexts to support boys' game-based literacy skills. *On the Horizon*, *17*(1), 47-59.

Acknowledgments

This material is based upon work supported by the National Science Foundation under Grant No. 1033002.