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Game-based Pedagogy in the Writing Classroom

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Abstract

Games enhance writing pedagogy because they are multimodal systems with their own active genre ecologies. However, not many writing teachers use games to teach writing possibly because there are currently no textbooks on teaching writing with games and most scholarship on game-based pedagogy consists of case studies conducted by individual teachers. To provide writing teachers with a broader perspective on how to teach with games, I conducted interviews with writing teachers within the fields of rhetoric and composition and technical communication about how they use games to teach writing and what their rationales were for doing so to build a scheme of approaches. I found that writing teachers used game-based pedagogy in order to help students rhetorically analyze the procedural and multimodal affordances in games and to foster rhetorically sensitive multimodal design. They also used games to concretely illustrate theories, especially theories about new media design and critical theory. They used games as an interactive way to illustrate how paratexts and game design documents circulate within their discourse communities. Teachers also used the networked genre ecologies of games as an active writing and research space. Finally, along with reflection, teachers used games to foster critical thinking and transfer about writing.

Keywords: game studies; multimodal; pointsification; procedural rhetoric; transfer; writing pedagogy

1. Introduction: Using Games to Teach Writing

Games, both video games and non-digital games such as card and board games, offer many pedagogical opportunities for writing teachers because they are multimodal systems with their own active genre ecologies. However, the evidence of teachers using games is limited to the few published studies by the practitioners who use games in their own classrooms to teach writing (Alexander & Losh, 2010; Hodgson, 2013; LaVaque-Manty, 2013; Shultz Colby, 2013; Bianchi & Bohunicky, 2014; Colby, 2014). This lack of evidence might be because there are currently no textbooks or other direct teaching materials on teaching writing with games and studies on game-based pedagogy consist of case studies conducted by individual teachers on their classrooms. To provide writing teachers with a broader perspective on how to teach primarily with video games but also to a more limited degree non-digital games such as board games, I conducted interviews with writing teachers within the fields of rhetoric and composition and technical communication on how they used games to teach writing and what their rationales were for doing so. I discovered that writing teachers used games for multimodal rhetorical analysis and design, to illustrate and embody critical and new media theory, to illustrate how game paratexts and game design documents circulate and are used within their discourse communities, as research and writing spaces, and, when coupled with reflection, as a way of facilitating writing transfer about aspects

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of the writing process. Finally, I discussed the pedagogical implications of the study, arguing that games need to be used to illustrate and embody specific learning goals and not for their own sake.

1.1. Reasons Games Enhance Writing Pedagogy

There are several powerful reasons to teach writing with games such as using games to explore the affordances and constraints of multimodality, the modeling capabilities of their rule-based systems, and the genre ecologies they and their design texts and paratexts create. All games, but especially commercial video games, provide richly multimodal spaces that incorporate visual, aural, written, spatial, and kinesthetic modes that students can then analyze and explore. It is fairly well accepted that each mode offers its own communicative affordances and constraints (Kress, 2003). However, when put together in a multimodal text, the modes remediate each other, changing how we read them (Bolter & Grusin, 2002). For instance, Gunther Kress (2003) established that on the screen, written text takes on more attributes of the visual, becoming more spatial and image-like. Because each mode remediates how another mode is understood and used, both James Paul Gee (2003) and Kress have argued that we employ different grammars in order to make meaning from each unique multimodal text. In fact, Gee argued specifically that video games are crucial for learning multimodal literacy because they create avenues in which many students figure out these multimodal grammars for themselves. Gee goes on to classify the set of practices that surround meaning making with one or more modes a domain, specifically studying video games as a set of domains or systems of meaning making.

Furthermore, video games illustrate multimodality in ways that surpass many other types of media. As Lev Manovich (2013) has argued, most multimedia is not a true synthesis of media or of multimodality, what he terms media hybridity. Instead different media made up of different modes often sit side by side, without really interacting or complicating each other as media. For instance, most websites are still designed around this model: there are pictures and possibly audio or video files, but they are all placed separately around written text. Video games, on the other hand, usually present a synthesis of modalities which, because they employ state of the art graphics and sound as well as three dimensional space coupled with kinesthetic interfaces, offer unique affordances, grammars, and logics. Lev Manovich (2001), in fact, used the video games *Doom* and *Myst* to discuss new media imagery because they use some of the same visual logics of film but incorporate three dimensional space, which players can actually move through. He examined how film imprisoned the gaze, fixing it in place with the film lens, but that in video games, the gaze becomes free to move around three dimensional space, although the gaze is usually still constrained by the perspective of the avatar or other game rules (e.g. the top-down God view).

Another way that games showcase the richness of their multimodal affordances is that their play does not necessarily entail following a strictly linear narrative as would be the case in other multimodal media such as most novels and films. Although there are games that follow a fairly fixed, linear narrative, what Jesper Juul (2005) terms games of progression, most games are instead complex systems governed by specific rule sets, which insist on somewhat different sets of textual grammars in order to navigate. As complex systems, games teach students strategic problem solving but, even more importantly in a world of increasing complexity and interconnection, systemic thinking: how one person's actions can affect the entire system (Squire, 2011). Furthermore, if the rules of that particular game system potentially illustrate or model a theory or an aspect of a theory (Galloway, 2006; Bogost, 2007), teachers can let students play with the rules of the system, letting them directly interact with and, consequently, embody that theory, an interactive embodiment which also means students are more likely to identify with the roles the game is placing them in (Gee, 2003). For instance, the auction house in *World of Warcraft* (*WoW*) allows players to purchase and set prices for goods, which can teach students economic principles of supply and demand, as the economist Edward Castronova (2001) has shown with his economic analysis of the auction house and player economy of *EverQuest*. Kurt Squire (2006) showed how the game *Civilization*, a turn-based strategy game in which players vie for world domination using historical civilizations, teaches players about how history was partially determined by advantageous geographical locations that afforded access to the most resources.

While a game system can only teach what its rules and algorithms allow, games are growing in their complexity. Some big budget video games have such complex systems that they are considered sandbox games: players can follow multiple objectives and, in some cases, repurpose their own objectives and rules, a type of play called emergent play because it emerges out of player culture and not the overt intentions of game designers (Salen & Zimmerman, 2004). These forms of emergent and potentially resistant play can be especially educational if they are placed within an ideologically laden and culturally representative game system, and in this way, can often illustrate cultural and critical

theories. For instance, having students experience what it is like to interact with other players while playing an avatar of the opposite gender in a massively multiplayer online (MMO) game like *WoW* can embody for students both queer and feminist theory.

Games and the documents that surround their play and design are also rich resources for teaching composition and technical communication. Games, the documents that surround their design, and their paratexts, the texts that surround gameplay such as walk-throughs, FAQ guides, tutorials, and online discussion forums (Consalvo, 2007; Eyman, 2008), form their own genre systems (Bazerman, 1994) or genre ecologies. Clay Spinuzzi (2000) has defined a genre ecology as "an interrelated group of genres (artifact types and the interpretive habits that have developed around them) used to jointly mediate the activities that allow people to accomplish complex objectives" (p. 172) such as playing a game. Doug Eyman (2008) has proposed that the textual ecologies that gaming and game design create form an ideal textual resource in order to learn technical communication because games go through the same development cycles and business processes as any other software and, as such, require many of the same documents needed for software engineering and maintenance such as design documents, usability testing, and FAQ sheets.

However, as a dynamic set of social actions (Miller, 1984), genres are always already part of communities that form ongoing activity systems with their own tools, expectations and social norms, purposes, and histories (Russell & Yanez, 2002). While technical communication students can learn to write through either simulating the genres of a professional activity system outside of the classroom or being placed directly into that activity system, David Russell and Arturo Yanez (2002) have argued that classrooms will always create a double bind for student learning because the classroom is also its own activity system—an activity system which is often at odds with the purposes and goals of a professional activity system. While gaming genres also form activity systems often at odds with that of the classroom, learning with games gives students who are gamers a chance to write within an activity system that they are already a part of. In this way, gamer students will already understand much of the social practices, purposes, and discourse that inform paratextual gaming genres, and, as a result, will be better able to effectively write within them. In fact, Eyman (2008) goes as far as to argue that being a successful gamer often entails already effectively writing within several paratextual genres.

1.2. Few Writing Teachers Use Games in the Classroom

Around 97% of children play video games (McGonigal, 2011b) and 49% of adults identify as gamers according to a 2015 Pew study. However, despite the fact that so many people play video games and the rich resources that video games provide for teaching rhetoric and composition and technical communication, which have been examined in edited collections such as *Rhetoric/Composition/Play* (2013) and *Computer Games and Technical Communication* (2014), few writing teachers teach with games. In 2012, Richard Colby and Matthew S.S. Johnson (2013) conducted a survey, recruiting primarily from the Writing Program Administration (WPA) listserv, asking writing teachers how often they asked students to analyze and produce various types of multimodal media such as blogs, discussion posts, podcasts, music, movies, photographs, and video games compared to written genres such as academic articles, essays, and other types of expository writing. Using video games to teach writing received the lowest scores for all questions.

However, the fact that writing teachers used video games the least in their assignments underscores curricular tensions within rhetoric and composition about what to value and privilege in writing instruction and how much multimodal composing should be taught compared to traditional academic written genres. In the survey, for instance, written genres were analyzed the most as writing assignments. On a four-point Likert scale with one being never and four being always, teachers rated academic and research articles the highest with scores both of 3.15, assigning them almost always, while multimodal texts such as blogs and podcasts received scores of 2.05 and 1.88 respectively and, consequently, were assigned sometimes and rarely. Video game analysis received a score of 1.3, revealing that it was assigned rarely or never by most writing teachers.

1.3. Potential Reasons Few Teach with Games

The interchange in *College Composition and Communication* (*CCC*) between Doug Hesse (2010) and Cynthia L. Selfe (2010) over Cynthia L. Selfe's (2009) "Aurality and Multimodal Composing" further illustrates some of the tensions still felt by writing teachers between teaching print-based writing composed for the page and multimodal assignments composed for the screen, as Jonathan Alexander and Jaqueline Rhodes (2014) have pointed out in their

book *On Multimodality*. Hesse and Selfe seem to both agree that multimodal composing should be taught, so it seems to be an argument primarily of degree: how many multimodal assignments should be assigned compared to assignments that focus primarily on written text? Hesse seems to take the side of many of the participants from Colby and Johnson's (2013) study: multimodal composing should be done but done in a way that privileges print-based assignments written for the page. Hesse writes, "Writing descries a subset of rhetoric: those productions whose mode of delivery is written language. In composition as rhetoric, a wordless cartoon or a minor-key melody may be an acceptable target. In composition as writing, they would not" (p. 603). Selfe, on the other hand, seems to be arguing that there should be significantly more multimodal composing within the composition classroom. In response to Hesse's quote above, she writes, "For me, the inclusion of multiple modes of rhetorical expression represents a simple acknowledgment that a literacy education focused solely on writing will produce citizens with an overly narrow and exclusionary understanding of the world and the variety of audiences who will read and respond to their work" (p. 606).

Neither rhetoric and composition nor technical communication can afford to cordon off print-based writing instruction as separate from multimodal composing because writing has always been a multimodal act, as Anne Wysocki (2001) argued when she examined how visual aspects of writing like fonts and textual arrangement denote important genre features. Furthermore, digital semiotic domains consisting of multiple modalities are not going away. In fact, with all aspects of computing, including playing video games, becoming even more ubiquitous with the introduction of ever more powerful smart phones, multimodal semiotic domains will also most likely become even more ubiquitous in the future—whether these digital semiotic domains exist within our personal lives, the academy, the professional sphere, or the polis.

Many in the fields of rhetoric and composition and technical communication understand the importance of the rhetorical and composing opportunities embedded in multimodal texts and in their instruction. The NCTE's Policy Brief *21st-century Literacies* and the CCCC *Position Statement on Teaching, Learning, and Assessing Writing in Digital Environments* both outline our responsibility as faculty to teach students within a variety of modes and environments. Central to my current study, then, is that the major reasons more writing teachers within rhetoric and composition and technical communication do not use games in their teaching are threefold: there are no direct teaching resources for teaching writing with games, most scholarship on using games to teach writing are based on autoethnographic classroom case studies, which do not provide a broad perspective on game-based practices within the field, and while there have been a few review articles published on game-based pedagogies that provide larger perspectives on game-based practices, they do not completely explore current emerging pedagogical trends.

First, there are very few resources for teachers within rhetoric and composition and technical communication on how to teach writing with games. As of 2015, there are no textbooks on how to teach writing with games within rhetoric and composition or technical communication. While there are game studies textbooks, such as *Rules of Play* (Salen & Zimmerman, 2004), that discuss how to teach about games, ludic theory, and game design, there are no textbooks that explore how to teach writing with games specifically. Of course, there have been conference presentations and workshops aimed at helping writing teachers use games to teach writing (Colby & Johnson, 2013). There has been a workshop aimed at helping writing teachers develop game-based pedagogies for almost every year since 2009 at the Conference on College Composition and Communication (CCCC). However, there are still few teaching materials published to support game-based writing pedagogy.

The lack of teaching materials is compounded by the limited scope of much of the scholarship on game-based pedagogy within rhetoric and composition and technical communication. While journals such as *Computers and Composition* (2008), *Currents in Electronic Literacy* (2010), and *Technical Communication* (2008) have had special issues devoted to game and writing intersections, and collections such as *Rhetoric/Composition/Play* (Colby, Johnson, & Shultz Colby, 2013) and *Computer Games and Technical Communication* (DeWinter & Moeller, 2014) have included theoretical or autoethnographic case studies of game-based pedagogies, little attention has been paid to game-based pedagogical practices from a wider perspective across the fields of either rhetoric and composition or technical communication. For instance, Jonathan Alexander and Elizabeth Losh (2010) described a year-long course at the University of California, Irvine (UCI) that brought together writing faculty with faculty across the university so that students could analyze games, write game design documents, and design games. While Alexander and Losh described a pedagogy implemented throughout an institution well beyond one teacher's classroom, the study still does not serve as a portrait of wider game-based pedagogical practices within the field at large. There have been no studies that categorize different game-based pedagogical approaches. The case studies on game-based pedagogy do contribute to a larger portrait of how writing teachers use games across fields if combined; however, by themselves, these individual case studies

provide an atomistic portrayal of game-based writing pedagogy, one which may not suit some individual teachers' teaching styles or philosophies. Writing teachers need a broader portrait of game-based teaching approaches to give more options in how to teach writing with games, particularly because there are no direct teaching materials supporting it.

Third, while there have been a few review articles examining game-based pedagogies within rhetoric and composition and technical communication which do provide wider portraits of game-based pedagogical approaches, the articles do not completely explore current emerging pedagogical practices. Marci Araki and Saul Carliner (2008) examined how virtual worlds such as *Second Life* and MMO games can be used to teach technical communication. Similarly, Max Lieberman (2010) cataloged four main ways that writing teachers use games in the classroom: as a way of learning content, as a text, through game design, and by implementing the motivational systems within games into the classroom. However, neither review article discussed the ways that writing teachers can use the textual ecologies surrounding video games to teach writing. Consequently, writing teachers need a more current study on the pedagogical strategies used when teaching with games.

This more limited research on game-based writing practices within rhetoric and composition and technical communication coupled with a lack of direct teaching materials means that writing teachers are forced to create and adapt their own pedagogies with little assistance and only a few options as examples, even though teaching with games effectively can be difficult to do. Commercial video games are often complex as they are multimodal systems that can take many hours to play. Video games are made even more complex by the fact that they are not just narrative texts to be interpreted in the same way as a book or a film but are also games, which necessitate their own rules and interpretive frameworks as ludologists such as Espen Aarseth (2004) and Juul (2005) have long since argued. In fact, Ken McAllister and Judd Ruggill (2013) have called using games to teach a "wicked problem": a problem with no perfect solution that, at best, can only be resolved again and again. McAllister and Ruggill wrote, "Computer games can be exciting, audio-visually rich, and thematically expansive tools for facilitating playful and pleasurable learning. . The unfortunate fact of the matter is that the complexity of the medium and its industry, politics, and cultures, routinely work against apprehension and the effective deployment of games in the classroom" (p. 101). Not that surprisingly, the complexity of teaching with games makes many teachers apprehensive about using them in the writing classroom, particularly if they are not experienced gamers. While I am not advocating that every writing teacher use games pedagogically, particularly if they do not enjoy playing them, the multimodal complexity that games provide still creates rich pedagogical opportunities for those teachers who are interested in using games. However, it is because games are so complex that teachers need a more complete portrait of the range of pedagogical approaches available when using them so that they can adapt game-based pedagogies to their own individual teaching styles.

To provide teacher scholars within rhetoric and composition and technical communication a more complete and current perspective on the practices involved with game-based writing pedagogies, I conducted a study in which I interviewed writing teachers within rhetoric and composition and technical communication on how they used games to teach writing. I conducted this study to map out, illustrate, and explore some of the key pedagogies that writing teachers within these fields use when they teach writing with games and what their rationales are for doing so. While my study is not exhaustive, it does offer an emerging portrait of how and why games are generally used to teach writing within these fields.

2. Methods

Via email, I interviewed writing teachers in rhetoric and composition and technical communication who used games to teach writing so that I could learn how writing teachers used games pedagogically. I wanted to determine what the general pedagogical trends were for using games to teach writing, specifically how teachers used games in the writing classroom and why. My interview questions asked how teachers used games to teach writing and what their rationale was for teaching with games. Although I asked interview questions originally about how writing teachers used video games, I broadened my research to include any non-digital game and not just video games in my coding. Similarly, I also captured pedagogy that used game mechanics, or "the use of game design elements in non-game contexts," (Deterding, Dixon, Khaled, & Nacke, 2011) in my coding even though I did not ask specific interview questions about gamification.

To gain interview participants after receiving IRB approval, I used a purposeful snowball technique, asking anyone I knew from conference presentations and journal and book publications who used games to teach writing if they knew

anyone else who used games to teach writing. I used this recruitment technique rather than posting my questions on a more frequented listserv such as the WPA or the Association of Teachers of Technical Writing (ATTW) listservs because so few teachers had used game-based pedagogies in Colby and Johnson's (2013) survey. Via email, I interviewed 18 writing teachers. To gain even more participants, I also posted these same questions on the Facebook group "Academic Gamers," from which I received responses from six more individuals, bringing my total number of study participants to 24.

I used an emergent coding scheme (Patton, 2002), locating themes as they emerged as I coded. Because my research questions were asking how and why teachers used games in the classroom to teach writing, my coding scheme centered around answering these questions, categorizing pedagogies by locating how games were used and the purposes for the games in each teacher's pedagogy. The first emergent pedagogical theme was asking students to rhetorically analyze a game. However, in my subcategories I captured the aspects of rhetorical analysis that are unique to games: procedurality and rich multimodality. The next theme to emerge was having students enact the theories behind multimodality and procedurality by having them design games that taught a concept or were persuasive. Another subcategory was using game design as a way to illustrate new media design principles. The next theme that emerged was using the simulated systems of a game to embody critical and cultural theory. After that, the next theme was using the genre ecologies that circulate around games as a way to teach technical communication. The next major theme to emerge was using the networked genre ecologies of games in order to use the game itself as a research and/or writing space. The theme to emerge after that was using the multimodal, simulated systems within games, systems that are also networked together to form genre ecologies, as a way to help students concretely visualize ways that the game could relate to aspects of the writing process. The subcategories within this coding theme included specific aspects of the writing process that games helped illustrate: an aid to engage students in reflecting on the writing process, awareness of the rhetorical situation, reading comprehension, and collaboration.

While I specifically asked about how teachers used games in the classroom and most of the responses discussed how games were used in the class, three interview participants also discussed how they used gamification or the importing of game mechanics from a game into a class without having students play the actual game the mechanics are from. Finally, the last theme to emerge was pointsification (Robertson, 2010), a type of gamification that uses a point system to motivate students to complete objectives in the class. To be considered pointsification in my coding scheme, the sole purpose of using a game or game mechanic had to be to motivate students by using a point system, as opposed to using a game or game mechanic to also illustrate a concept, theory, or aspect of the writing process. This coding, therefore, becomes a scheme for categorizing the means of teaching writing with games, and addresses a gap in the scholarship.

3. Trends of Game-based Pedagogy

In my study, teachers used video games, non-digital games, and in three cases, game mechanics, in a way that helped students think more critically and fully about theoretical concepts, writing, rhetoric, new media design, or research. As one teacher (personal communication, November 2, 2014) put it, illustrating many of the ways games are pedagogically useful, "through video games, we are able to talk about sex, gender, race, misogyny . . . visual representation, games in culture, historical interpretation, community and ethos, [and] audience-centered creative story-telling." Of course, it is reasonable to assume based on my purposeful sampling that teachers found teaching with games useful. Despite this limitation, categorizing how these teachers used games shows a greater diversity, especially within an individual class, than the literature thus far might suggest. The coding revealed seven overarching approaches: rhetorical analysis of games, composing games, games as theory, professional writing genres in gaming, games as research spaces, gaming as transfer, and gamification.

3.1. Game Rhetorical Analysis

3.1.1. Multimodality in Games

Because games offer rich multimodal texts, eleven teachers had their students rhetorically analyze games as rich multimodal and semiotic texts, one of the four game-based pedagogical approaches Lieberman (2010) discussed. For example, one teacher (personal communication, December 3, 2014) had students rhetorically analyze "the various audio-visual, ludic, spatial, and textual strategies that are celebrated as effective in specific games by the communities that play them." Because each mode not only communicates differently but also communicates a potentially different

meaning when placed together with other modes, Gee (2003) has argued that each multimodal design has its own design grammar or logic. Rhetorically analyzing video games helps students see the communicative and persuasive affordances and constraints that each mode provides as well as how the modes create unique meanings and persuasive messages when put together. Rhetorically analyzing games also helps students gain a better understanding of the underlying logic or design grammar that rhetorically shapes the messages within the game. Teachers were also careful to place rhetorical analysis of these complex multimodal persuasive messages within the context of a specific audience, noting that the way a multimodal text communicates and therefore persuades can change depending on how the community it circulates within receives it and how their values and experiences shape its meaning (Kress, 2003; Cope & Kalantzis, 2000). To illustrate, another teacher (personal communication, December 4, 2014) said that he used games "as a text for analysis, just as I would any other text (essay, story, television/film or clip, advertisement, music video). We summarize, discuss, semiotically and rhetorically analyze, close read, etc. We analyze the impact that a video game has (on the video game industry, on the wider culture, etc.)" Having students rhetorically analyze video games teaches them how meaning and persuasiveness change depending on the affordances of mode but also depending on the audiences that they circulate within.

To illustrate an assignment that asks students to specifically analyze the multimodal affordances of games, students could be asked to analyze how the three-dimensional spatial dimensions afforded by computer technology shapes the types of games and game narratives that are created by and for different audiences. For instance, multimedia theorists from Henry Jenkins (2004) and Aarseth (2004) to Alexander Galloway (2006) and Manovich (2001) all explore how the narrative of the video game is often that of the exploration of three dimensional digital space, which is also often visually represented with a map if the game is not played on the map itself, creating a story of expansion and manifest destiny or spatial questing like a Homer's *Odyssey* without end. With a multimodal rhetorical analysis coupled with qualitative interviews examining how and why *WoW* gamers play the game, students could analyze the spatial affordances and constraints of *WoW*, examining how it could be a game of discovery and exploration of a map for some players while for others the spatial exploration of the game creates a game of mastery and domination, a type of manifest destiny, as they level up their characters by killing non-player characters in order to gain access to new areas in which the killing cycle begins anew.

3.1.2. Procedurality

Rhetorically analyzing video games not only shows students how the different modes communicate and persuade, but the multimodal affordances games provide also opens up rhetorical theory in new ways, particularly as students can rhetorically analyze the ways that the game's procedures persuade because they position their subjectivities as players in certain ways. As Ian Bogost (2007) has argued, playing a game is in itself a rhetorical act. Games illustrate how procedures—the processes and mechanics involved in playing games—are always already rhetorical because the procedures involved with playing a game position players in specific ways, a positioning which elicits certain emotions, motives, and, ultimately, purposes within the player. Eleven teachers had students rhetorically analyze the procedures used within games that they have played. Often these games were persuasive games, or games designed specifically to persuade players of a social message such as the games found on the website *Games for Change*. For instance, one teacher (personal communication, April 9, 2014) wrote, "I've had students play various games on *Games for Change*, specifically with rhetorical analysis in mind. That is, how does the experience of playing the game fit into the traditional paradigm of rhetorical appeal, and how that [affects] buy-in for particular causes." For instance, to illustrate the type of procedural rhetorical analysis involved, one of the of the games on *Games for Change*, *Darfur is Dying*, tries to persuade players both procedurally and multimodally to donate money to end the Darfur conflict. Players are positioned to be a Sudanese both visually through a third-person view and procedurally by being placed as a defenseless Sudanese child trying to find water in the Darfur desert while also hiding from militants who kill players on sight. In playing the child, the only action players have procedurally is to hide, and players can only hide if they are lucky enough to run across scrub brush, which is sparsely placed within the game. The procedural mechanics of the game illustrate and embody the pathos-laden desperation involved with just surviving the Darfur conflict. The game procedures are designed to emotionally persuade the player to help end the Darfur conflict, especially when a donation button comes up after the player loses the game because his or her child avatar was killed by militants.

However, three teachers also taught procedurality by examining not only how procedurality worked within games to shape player experience but also how those procedures could be broken, thereby critically interrogating player positioning and experience within the game. For instance, one teacher (personal communication, November 2, 2014)

wrote that to teach digital rhetoric, she focused, "a lot on people breaking procedures. A bunch on how the databases try to control the play experience and recording unexpected turns in the algorithms." In having students purposefully break game procedures, teachers were critically intervening in students' learning and empowering students to analyze and critically reshape the game and their experience with it for themselves rather than letting the procedures within the game design determine their experience for them—a critical reading against the text that is unique to the procedural affordances of video games as well as a critique that has been leveled against procedurality (Sicart, 2011). Games should be taught and played with an understanding of the interplay between the coded procedures within a game and the set of potentially resistant experiences and expectations that a player brings to each game (Galloway, 2006; Colby, 2014; Moberly & Moeller, 2014).

3.2. Composing New Texts: Game Design

3.2.1. Game Design as a Rhetorical Act: Designing Games that Argue or Teach

Kress (2003) has argued that because multimodal texts are so pervasive in our culture, especially with ever increasingly ubiquitous computing, we should see that act of rhetorically effective meaning making as one that encompasses all modes, not just writing. As such, writing teachers should see composing as not just the act of writing arguments but also an act of design that involves employing multiple modes. Kathleen Blake Yancey (2004) made this same argument specifically for rhetoric and composition in her College Composition and Communication address "Composing in a New Key." In response to Yancey's call, eight writing teachers also asked their students to use the multimodal and procedural elements within games to design persuasive games or games designed to teach something about writing or literacy to a specific audience. Often, these games were not technically sophisticated as most of class time was spent on learning and applying rhetorical design and argumentation principles instead of on the technicalities of game programming. For example, some students created simple, text-based choose-your-own adventure games which integrated writing, sound, images, and procedurality. In doing this, students also had to create decision trees, thinking through what options players have to click on as they played through the game and how they could design these options to most effectively persuade players. Using the game engine AXMA, one teacher (personal communication, November 12, 2014) wrote that he required "students to make text-based games and marketing materials that highlight a specific audience in their use of fonts, colors, and images."

Another assignment was asking students to revise a written argument by redesigning it as a game, a process Kress (2003) has termed transduction, moving messages across modes. Kress has argued that in redesigning a message within a different mode, part of the old message might be lost in translation; however, there is always the possibility of transformation where trying to communicate an older message within modes with different affordances and constraints creates new meaning that might transcend the old message. One teacher (personal communication, April 15, 2015) wrote:

> Pedagogically, encouraging students to compose with games allows me to open up space for conversations about what it means to be a writer and what we mean we say 'composition.'. . . The structure of games requires students to attend to their rhetorical choices differently than they might in a traditional essay, and just talking with them about those choices really enriches the classroom, for them and for me.

Asking students to redesign a written argument as a game asks them to become savvy to the rhetorical affordances of each mode, but it also opens up a larger dialogue about the ways that meaning can be rhetorically transformed by different modes.

3.2.2. Game Design: Teaching New Media Theory

The design grammars informed by multimodality and procedurality within games means that they are good exemplars to use for teaching new media design theory. Six teachers used games in order to help students tangibly and more critically think through games studies and new media theory. For instance, one teacher (personal communication, April 10, 2014) had students read game studies theory and then analyze games, "carefully studying how scholars have tried to articulate what makes video games theoretically meaningful." By playing games, students can better understand that "meaning is made in ways that are increasingly multimodal—in which written linguistic modes of meaning are part and parcel of visual, audio, and spatial patterns of meaning" (Cope & Kalantzis, 2000, p. 5)

3.2.3. Game Design: Teaching New Media Design

However, games not only act as rich theoretical exemplars for new media, but students can learn the theoretical principles that inform new media theories by also designing video games and using those principles in their design. Furthermore, through design, students also have firsthand experience learning how to use multimedia programs, and two teachers used games to do that just. For instance, one teacher (personal communication, December 1, 2014) wrote, that he used games to teach new media design and theory because "games situate students firmly in systems and/or practices of multimedia meaning-making. . . [and] games serve well to help introduce multimedia principles and practices as well as to talk about experience design, enacting the paradigm, and/or interactive argumentation." Justin Hodgson (2013) described his course using games to teach new media design. The course used *WoW* and was set up like a game, consisting of quest lines. Each quest line taught design with a specific media such as image design and video design. For the image quest line, students created *WoW* trading cards, designed posters, and created "interactive images" which explained key ideas from the course such as multimodal design and communication (p. 51). Through visual design, students can learn how to effectively use Robin Williams' (2014) design principles of contrast, repetition, alignment, and proximity or the information value that placement gives visuals such as how in images the ideal is often at the top while the real is often placed at the bottom (Kress & van Leeuwen, 1996). To teach students iterative design and HTML code in a new media design course, another teacher (personal communication, November 12) had students create wrestling avatars, each with their own attributes such as strength, stamina, and intelligence. Students were then assigned battles with each other's avatars. Students would roll dice to determine what their attributes were and the student with the highest attribute would win the battle. In this way students learned that web design is always dynamic. As the teacher added, "Ideally, this is supposed to [teach students] not only the designing of the web page of their personas, but all the iterative design processes of HTML and how it is never static. It's always in flux, it can always be changed." Through this design exercise, students not only learned how to work with multimedia tools, but also learned principles behind new media design such as how and why multimodal images communicate and that web design is never static and constantly evolving.

3.3. Games Illustrate Theory

However, because games are not only multimodal but also procedural, they are also most often simulated, rule-based systems (Squire, 2011). These systems can model more complex theories and systems in real life, teaching students systemic thinking or how their interactions with part of the system or model affect their interactions with the whole of the simulation. One teacher had students analyze the way a procedural system in a game modeled a real life procedure: "students must complete research to see how a process or idea in the real world functions, and play a game that models that process and assess why/how it models the process successfully (or not) and why that might be the case." In this way, if teachers see how a theory could be modeled in a game, they could have students play the game to see how the theory works within a larger system, concretely illustrating the theory for students in practice.

3.3.1. Games Embody Cultural and Critical Theory

Games not only concretely illustrate theories, but for critical and cultural theory, the simulated and representational systems within games become an embodied text—a way for students to live through the experiences that shape the theory, specifically by living through the experiences of being the other. Having students play and then analyze their play can help them tangibly explore anything from queer and post-colonial theory to Marxist theory, and three teachers used games in this way. To illustrate this approach further, one teacher (personal communication, December 3, 2014) wrote:

> I approach rhetoric from a cultural studies perspective, one that asks students to consider the ways that that they are asked to compose themselves as ideal subjects (however that's defined) via consumerism and similar performances that are often not explicitly understood as a type of writing. I find that computer games are ideal for teaching this pedagogical project. Complex texts that draw on a number of discursive traditions, they often hail players as individuals, promising them the ultimate in agency, but only if they consent to consume the games in very specific ways.

In other words, as Bogost (2007) has argued using Louis Althusser (2014), the stories, the gameplay, and the visual representation within games interpolate players in certain ways, positioning them as a particular type of subject.

Within this positioning, Gee (2003) has argued that players create a projective identity onto their avatars, identifying with their avatar and their avatar's positioned subjectivity by projecting their desires of who they want their avatar to become through their play, even as this projective growth is constrained by the avatar's subjectivity and the game's mechanics and rule systems. However, the mechanics and procedures the players enact to play out the game story not only make players identify with a certain subjectivity, but the game mechanics and procedures make players enact and, thus, embody these subjectivities as well, forcing players to live through them. This kinesthetic enactment of gameplay works in the Foucauldian sense by disciplining bodies. While discussing video games, Simon Penny (2004) writes, "One need go no further than Foucault for persuasive argument and evidence that bodily training is a powerful tool in the formation of citizens" (p. 73). However, while powerful bodily enactments, games are still only imperfect simulations of real life processes that are always constrained by representation. As Penny argues, "The core of this conversation about [the embodiment within games] is in the space between pictorial representation and simulation, or rather, in the gray and murky area where they overlap" (p. 73). Nevertheless, this gray and murky area of overlap still powerfully positions students within certain subjectivities and actions.

While students may not be initially aware of the way that games position, discipline, and create their subjectivities through gameplay and visual representation, class discussion can help them become more aware of it. For instance, although not part of my study, Samantha Blackmon taught a minority rhetorics class in which she had students play *Bastion* to illustrate post-colonial theory in an embodied way. As she explained in Stephanie Vie and Kyle Steadman's (2014) podcast "Plugs, Play, Pedagogy," "you are forced to play as this . . . character that's just called The Kid, who's playing through, according to his point of view . . . What you don't realize until the very end that—holy crap! I've just played through this entire game as the colonizer, going through and killing this indigenous population that was billed to me as the bad guys, but what they were just trying to do was rebuild their world!" She explained that her students were initially angry with her because the game positioned them as colonizers and they were not expecting to feel what it meant to be the colonizer. However, because of this play experience, the class was able to have an in-depth conversation about what being the colonizer meant. So, although games can also embody for players negative stereotypes and ways of being, through reflection and class discussion, students can be prompted to talk about ways that they can critically think through and resist these negative subject positionings as well.

3.4. Writing with Game Industry Genres

Game design documents and the paratexts that support gameplay (Consalvo, 2007) form complex genre ecologies (Spinuzzi, 2000; Eyman, 2008) that, because games are also simulated systems, may also be directly interactive. This pedagogy is made even more powerful by the fact that these game genres also form activity systems (Russell & Yanez, 2002) that gamer students are part of as players and may even already contribute to as writers. Consequently, students can see how their paratextual documents circulate and are used within their gaming discourse communities. Because many paratextual documents are directly interactive such as walkthroughs, students can also quickly see how their audiences are responding to their texts and revise accordingly. Five teachers used game genres to teach technical communication, and two technical communication teachers specifically used walk-throughs in this way. One teacher (personal communication, November 2, 2104) used games to teach usability testing and talk-aloud protocols. "I pull up a random Facebook game with no directions and ask students to perform usability testing on it as a group. One person plays, then others ask questions. Then I have several students try to do a talk aloud protocol, and we follow up with questions. We develop a usability rubric for the game as well." In this way, game design documents can become embodied texts as students can tangibly see how audiences use and interact with them.

3.5. Games as a Research and Writing Space

The textual ecologies of games and the documents that support their play create participatory cultures with low barriers for entry (Jenkins, Purushotma, Weigel, Clinton, & Robison, 2009). Participating in these cultures also creates communities of practice in which players collaboratively negotiate and redefine what it means to effectively participate and be a member textually inside and outside of the game (Wenger, 1998). Along with being complex simulation systems that can illustrate theory, the participatory textual ecologies of games create their own networked research and writing laboratories, giving students actual hands-on experience with audiences for both their writing and research, especially for MMO games in which millions of people all over the world are networked together. As a research

space, games can position students as actual researchers, fostering a deeper identification with the role of researcher, especially for students who already love games, as Gee (2003) has also argued, and three teachers used games as a writing and research space in this way. For instance, one teacher (personal communication, November 2, 2014) had students study a game and how people learn the literacies involved in playing it. Students had to "come up with a methodology, study participants, and . . . they then [had] to write a paper discussing their findings, whatever they may be." Another teacher used *WoW* as a research space in which students conduct qualitative and quantitative research within the game world as well as textual analysis of the game itself. For instance, students have conducted qualitative and quantitative observations in order to find out if female avatars really make more money begging than males while others have conducted quantitative analysis to determine the supply and demand of jewel crafting materials in the auction house. Students have conducted textual analysis of the visual graphics within the game. One student examined the degree to which *WoW* stereotypes Native Americans with their visual representation of the Tauren race, a race with bovine features, by comparing it to the culture of certain Native American tribes. Students also engaged with the *WoW* community on gaming forums by posting about their research and getting feedback from this community about their research at some stage of their research or writing process (Shultz Colby & Colby, 2008). Finally, one teacher (personal communication, April 9, 2014) used *WoW* to teach a technical communications course in which students studied and "engaged in the game (creating a community) and then in teams made texts and artifacts to support various audiences for the game."

Using games as a research and writing space takes teaching out of the classroom as students can directly interact with and learn from gaming communities of practice. In other words, students can also learn the social purposes these texts serve within an activity system outside of the classroom, which may give them more insight into how texts function within professional activity systems beyond the classroom as well. As Melissa Bianchi and Kyle Bohnicky (2014) write, seeing these genre ecologies in action "enables students to engage genres as complex, generative clusters of communication artifacts and activities that modify and are modified by the player community" (p. 239). For instance, by posting about gaming research on gaming forums, students can receive feedback about their research methods, their research findings, and their writing from the gaming community. By writing artifacts to be used by the gaming community, students can also gain direct feedback on their writing, as well as gaining feedback by learning about how their audience uses and circulates (or not) their writing within the community.

3.6. Games Enhance Writing Transfer

Games, as multimodal, simulated systems that are situated within textual ecologies, can also be used to facilitate learning transfer, or the ability to effectively apply learning from one context to another context (Yancey, Robertson, & Taczak, 2014). While all of the previous game-based pedagogies used games to facilitate transfer, whether it was using game analysis and design to teach how multimodal texts persuade or using game communities to teach research methods or ways that textual ecologies operate, these learning objectives were at least somewhat related to their gameplay. However, games can also be used to help learn abstract concepts about the writing process—concepts which may seem more removed from playing games—and nine writing teachers used games as a way of doing this. This type of abstract, conceptual transfer is considered "high-road" transfer, as opposed to "low-road" transfer in which learning situations might be quite similar to each other, as they were in the other game-based pedagogies (Salomon & Perkins, 1989). To facilitate high road transfer, students would often play a game and then reflect on what they learned through their gameplay and how they could apply their learning through the game to real-life writing and design contexts. As Kathleen Blake Yancey, Liane Robertson, and Kara Taczak argued in *Writing Across Contexts*, transfer occurs best when students are prompted to reflect because reflection helps students consciously articulate connections from what they have learned in one context to another context. This ability to connect learning experiences is especially important in contexts that might vary a lot from each other because the connections often only happen on an abstract, conceptual level, such as writing situations that often vary significantly depending on the audience, purpose, and rhetorical affordances and constraints within available genres. Yancey, Robertson, and Taczak further explain that reflection helps students develop self-awareness or metacognition about their learning and that "metacognition focused on similarities and differences—across rhetorical situations, across genres—is a critical component of transfer" (p. 32). Because learning about theories of writing in a game might seem markedly different from learning about writing in a writing context outside of the game, reflection is a key component. Through reflection, students can become aware of the theories and abstract concepts they are learning about in the game and also how their learning can be

used effectively in other contexts outside of the game. However, in some cases, playing games was used as a type of reflection on learning in and of itself. One teacher (personal communication, April 10, 2014), for instance, used a type of *Dungeons and Dragons* (*D&D*) inspired character sheet to have students diagnose their writing process in order to get them to meaningfully reflect on what their writing process actually was and how to improve it, making the *D&D* character sheet design a type of reflection.

3.6.1. Writing Process Reflection

As simulated, rule-based systems, games can become an embodied and situated way to learn abstract concepts about the writing process, especially if coupled with reflection. Gee (2003) has argued that "video games encourage and recruit situated, experiential, and embodied forms of learning and thinking" (p. 76), and four teachers used games strategically to create learning experiences about the writing process. For instance, one teacher (personal communication, November 3, 2014) had students play *Minecraft* and then asked students to reflect on the similarities between composing in *Minecraft* and composing their papers, which helped them transfer what they learned from their *Minecraft* design situation to a more traditional writing situation.

3.6.2. Rhetorical Situation Awareness

Three teachers used the networked, participatory nature of games' textual ecologies to help students engage with a real audience in order to specifically examine how rhetorical situations are constructed. One teacher (personal communication, April 10, 2014) used the *Minecraft* community as a context for students to learn about audience analysis. Specifically, students learned about kairos as they saw how issues came up within the community and were subsequently addressed in writing on the community's forums. Another teacher (personal communication, November 3, 2014) asked students to play a *Facebook* game and then analyze the privacy policies and service documents that they were presented with in order to play the game. This helped students "consider the rhetorical nature of those documents and think about how they are written with an audience in mind (or perhaps written to not be read!)." In both these cases, students could then use game paratexts to reflect on how and why gaming audiences are both addressed as existing communities outside of the text but also invoked, as the rhetorical techniques within writing still shape readers' views and levels of textual participation to an extent (Consigny, 1974).

3.6.3. Reading Comprehension

Two teachers used games to teach reading comprehension, especially as reading comprehension is a rhetorical act. For instance, one teacher (personal communication, April 9, 2014) used *Apples to Apples* to teach how the meanings of words change depending on the rhetorical context in which they are used. Through class discussion and writing, students could then reflect on how and why meaning is rhetorically situated and socially constructed as experienced in their play. Another teacher (personal communication, April 9, 2014) used *Scattergories* to collaboratively unpack difficult readings in class discussion. "Teams have to collaborate and name off key words and phrases from the reading (justifying their choices); and earn points based on the quality of the explanation." In this way; playing the game served as a type of reflective class discussion that helped students better articulate and understand the concepts in class reading.

3.6.4. Collaboration

Finally, games can also be used to teach the collaboration that often happens within the writing process. Two teachers used *WoW* to teach team and community building. For instance, one teacher (personal communication, December 3, 2014) had students play *WoW* and *League of Legends* in groups. After playing, he would then direct the students to discuss any possible group dysfunction and how it could be avoided or better handled by the group in the future. Finally, the teacher led the discussion toward reflecting on the connections between their collaborative gameplay and how they could use that experience to better complete group writing projects. Through collaborative gameplay students can learn the social practices inherent in working within teams, collaborative practices which they will need in their professional lives. In fact, Bianchi and Bohunicky (2014) have argued that the collaborative social structures in *WoW* are "analogous to the knotted organizational networks that technical writers inhabit and feature specific gaps or challenges." Just as technical writers must find solutions to organizational problems through communication, "Players must find solutions to address these challenges through their gameplay, which is shaped by and shaping inter-player

communication" (p. 241). Through reflection and class discussion, teachers can help students make the connections between the communicative practices involved in the collaborative problem solving of play and professional work.

3.7. Gamification: Pointsification vs. Game-based Systems that Foster Learning

Three teachers used gamification, or the use of game-like mechanics in non-gaming contexts, in their classroom (Deterding et al., 2011). Gamification can be a powerful form of teaching, especially if the gamification design is what Jane McGonigal (2011a) terms "gameful": design that poses an intrinsically motivating problem, that fosters social bonds and positive emotions, gives a sense of accomplishment, is inherently a meaningful pursuit, and positively transforms a process, a tradition, or an institution, or in an educational context, student thinking. Hodgson (2013) turned his class on new media design into a gamified space in which students completed quests which consist of asking students to put new media theory into practice with their designs. Another teacher had students use a *D&D*-inspired character sheet mechanic to level-up their writing process; however, in designing their writing process character sheet, students had to meaningfully reflect on what their writing process actually was and how to improve it. In both these cases, students were engaging in design, an activity that is intrinsically motivating for its own sake, learning meaningful course objectives by participating in the gamification, and, as a result, transforming their thinking.

In only one of my interviews did I receive a response that could be considered pedagogical pointsification, a type of gamification in which the only game mechanic added to a non-game activity is the addition of points, which exist only to create extrinsic motivation (Robertson, 2010). The pedagogy attached the pointsification that is already part of the structure of school, using points for grades, to an avatar, although the pointsification became more embodied with an avatar. On the website and mobile app Habitica (formerly called HabitRPG.com), anyone can design an avatar and assign tasks or quests to achieve. In an educational setting, a teacher can assign homework or in-class assignment tasks and can also attach point values to these tasks. If students lose too many points, the avatar dies and comes back as a ghost. While I would not consider assigning points to an avatar a game, using an avatar who either loses points and dies or gains points until he or she gains another level is a common role-playing game mechanic. This teacher (personal communication, December 3, 2014) indicated that for students, seeing an avatar die because of low homework scores, helped minimize the midterm apathy that sometimes happens when students get so involved with projects and tests from other classes that they forget their writing homework: "there's kind of a visceral response to seeing this character that represents you 'die' on screen."

While pointsification was only one small aspect of this teacher's game-based pedagogy, a pedagogy that also included using *WoW* to teach collaboration, Jane McGonigal (2011a) has critiqued pointsification because it relies purely on extrinsic motivators to motivate players. She points out that extrinsic motivation is the poorest form of motivation. Educational research on the effectiveness of extrinsic motivation in the classroom is mixed. However, in a meta-analysis of previous research on motivation in education, Edward Deci, Richard Koestner, and Richard Ryan (2001) found that extrinsic motivation can undermine intrinsic motivation. Research on the effectiveness of extrinsic motivation in gamified spaces in the form of points has also been mixed, with some research indicating that the addition of points and leaderboards do increase site participation (Thom, Millen, & DiMicco, 2012). However, users decreased their activity after the point system was removed, indicating that extrinsic motivation undermines intrinsic motivation, particularly once the extrinsic motivation is removed. For instance, another study of a gamified mobile-phone app that used an achievement system showed that students stopped using the app once they had accomplished the achievements (Fitz-Walter, Tjondronegoro, & Wyeth, 2011).

4. Pedagogical Conclusions and Implications

From this study (see Fig. 1), teachers interested in using game-based pedagogies in both rhetoric and composition and technical communication can see the range of game-based pedagogies that are used, enabling them to have more options in the game-based pedagogical strategies that they employ. The most teachers (11) used games as a springboard to teach multimodal and procedural rhetorical analysis. This could be because rhetorical analysis is a defining pedagogical enterprise within rhetoric and composition, as is constructing persuasive arguments, which can be done multimodally through persuasive game design, and consequently was the was the next most used pedagogy with eight teachers using it. Six teachers also used games as exemplars to teach new media theory and five teachers used game-based genres to teach technical communication, which also could be because both learning and applying new media theory and writing

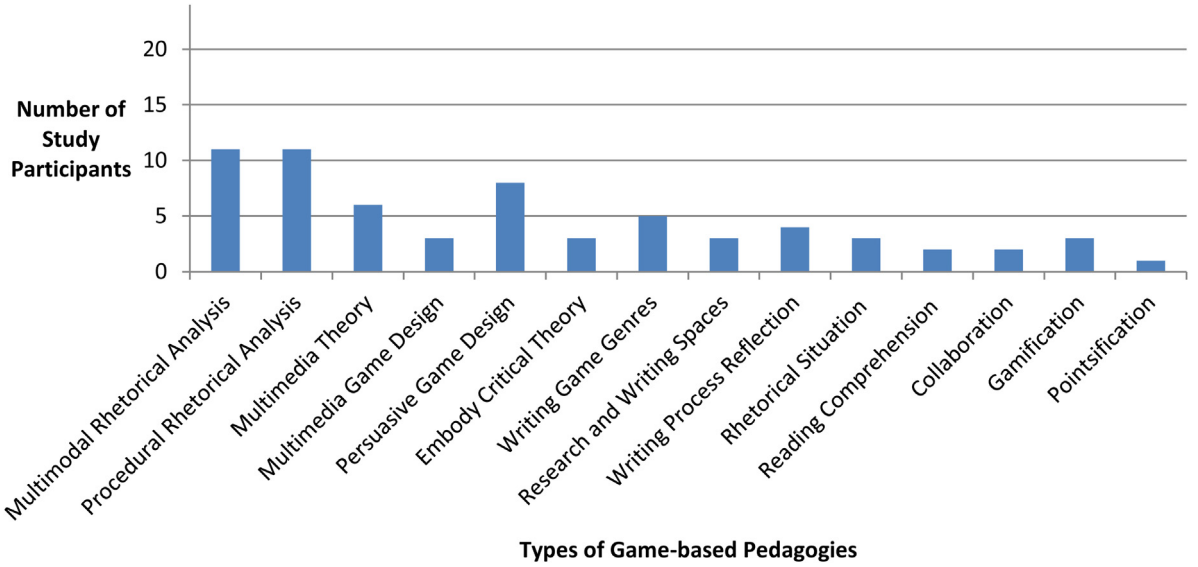

Fig. 1. Types of pedagogical approaches used by study participants.

within multiple user-based genres are pivotal objectives in teaching technical communication but could also be used to teach writing in rhetoric and composition as well.

However, the least explored game-based pedagogical finding in the study for either technical communication or rhetoric and composition was using games to facilitate transfer about aspects of the writing process, although Gee (2003) has discussed how students can transfer what they learn from gaming to other contexts. While sometimes the game operated as an example of aspects of the writing process, which teachers then coupled with reflection in order for students to see the connections between the game and their writing process in other rhetorical situations, a useful pedagogical practice for most writing instruction, gameplay can also operate as a type of reflection in itself, particularly when design became a type of reflection as in the *D&D* writing process character sheet, or when playing a game fostered reflection in class discussion, as when *Scattergories* was used to help students unpack difficult concepts from the reading. As I will discuss further in the limitations, the porousness of any coding scheme suggests that there is overlap here. Some of my participants were teaching for implicit transfer, just not the conscious articulation forwarded by the transfer scholarship.

To teach with games well, whether it is importing game mechanics into the classroom or teaching with a commercial video game, teachers need to not only clearly understand the learning goals they are trying to teach but also exactly how the game or game mechanic illustrates or helps teach these goals as Wendi Sierra (2013) has argued. Consequently, teachers must be familiar with the game or game mechanic they are trying to teach with because, if a game or game mechanic does not fit with the goals of the class, preferably illustrating these goals well in some way, using that game or game mechanic will not work pedagogically. One study participant (personal communication, November 12, 2014) put it best: "I believe video games are best used to accentuate elements of an instructor's pedagogy and reach specific outcomes, and shouldn't be there just for the sake of it." In order to effectively teach with games, teachers not only have to be able to isolate the game mechanics or parts of the game that will illustrate or enact the objectives they are trying to teach, but they also have to frame that game mechanic or aspect of the game with readings and class discussion clearly, showing how that particular game mechanic or part of the game relates to course objectives, so that students understand how and why playing the game will help them learn. And the use of game mechanics in gamification should be pedagogically integrated in the same way.

Games are complicated to teach with, which makes many writing teachers apprehensive to use them in the classroom, particularly if they are not familiar with games or do not identify as gamers. This apprehension is compounded by the fact that some students, especially female students, also often do not identify as gamers and, as a result, may feel alienated by game-based pedagogy. However, many female students and teachers alike actually still play games. In fact, according to a 2015 Pew study, 48% of women reported playing video games, but they often do not identify

as gamers with only 15% identifying as such (Duggan, 2015). One of the reasons few women identify as gamers is most likely because the games they play are often casual games or board games (Shultz Colby, 2013; Heyman, 2014). Casual games are still games though, and teachers can both validate female gaming identities and leverage their gaming experiences as part of their pedagogy. For instance, writing teachers can ask students to rhetorically analyze and design persuasive board games as well as persuasive casual games.

Furthermore, minority students may feel alienated from more privileged white male students who traditionally identify as gamers (Good, 2009), a problem potentially compounded by economic issues of access to technology (Moran, 1999). Most big title commercial games such as the latest *Grand Theft Auto* game need the latest computer hardware components in order to run. However, most persuasive games such as the games on the *Games for Change* website are not big budget games that take the latest hardware. Most persuasive games are fairly simple indie games that can be played with minimal memory and graphic card requirements and can be played on multiple browsers. Furthermore, persuasive games often bring up social issues that may be more pertinent to minority students' life experiences. For instance, students could design a persuasive game that procedurally showcases the institutional racism that makes it harder for economic under-privileged African Americans to have fair legal representation, especially compared to their privileged white counterparts who are charged with the same crime. International students can rhetorically and procedurally explore issues such as global sweatshop labor in the persuasive game *Sweatshop* or the global issues of famine and water scarcity that are represented in games such as *Darfur is Dying*.

5. Study Limitations and Future Avenues for Research

Because game-based writing pedagogy is still an emerging pedagogical practice within rhetoric and composition and technical communication, my study was limited to teachers who I knew or learned actively used games in the classroom as previous research has revealed that not many writing teachers use games pedagogically (Colby & Johnson, 2013). However, as an emerging pedagogical practice that hopefully more writing teachers will embrace, a broader study consisting of a larger sample size should be conducted in the future. Interview questions should be posted on forums frequented by a large portion of both the rhetoric and composition and technical communication professional communities such as the WPA or ATTW listservs.

My purposeful, snowball sampling of teachers who used games neglects those teachers who use games but who do not otherwise associate with those who do, particularly if they use non-digital games, gamification, or create their own games. There are examples from conference presentations, articles, and anecdotally of those who use game-based assignments or examples that are not represented here. As the scholarship game-based writing pedagogy continues to evolve, we might capture more of those who use such games, looking to where their experiences might contribute further evidence of or challenge the classification scheme I have determined here.

Future research should also specifically explore how games create avenues for transfer as well as how and why students apply this game-based learning in other contexts. Examining how transfer occurs within game-based pedagogy was outside the scope of my research as I was only noting pedagogical strategies that relied on reflection and, consequently, were a type of teaching for transfer (Yancey et al., 2014). Furthermore, further attention should be paid to how playing games or designing games can actually act as a type of writing reflection.

6. Conclusion

Despite the complexities teachers face when using game-based pedagogy, it is this rich complexity within games that makes them compelling pedagogical tools as Jennifer Bay and Samantha Blackmon (2014) have argued. Games are complex, multimodal systems that, as such, help students see ideas in new ways. As many of the writing teachers who use games demonstrate, coupled with reflection, games become a powerful pedagogical tool precisely because, as Ian Bogost (2011) has written, games "can inspire a different kind of deliberation than we find in other forms of media, one that considers the uncertainty of complex systems instead of embracing simple answers." As complex systems, games consist of interactive, multimodal environments in which students have to do something in order to play the game. If these interactive actions involved in playing the game are thoughtfully coupled with learning an abstract concept, learning this abstract concept can become richly embodied as it has to be experienced viscerally by students—not to mention that, if the abstract concept is coupled well with play, students often also have to apply and enact the concept as they play instead of simply memorizing it. Similarly, if interaction in the game is coupled with writing a paratextual

genre such as a walk-through, students can concretely see their writing enacted by their audience as well as ways that their audience circulates and uses the genre within their discourse community. In this way, writing with games also becomes an embodied action. Similarly, design also becomes an embodied way of learning multimodal persuasion as well as new media theory.

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