

Gameplay socialization : meaning-making, player-computer and player-player interaction in digital games

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2014

David Kirschner. (2014). Gameplay socialization: meaning-making, player-computer and player-player interaction in digital games. Doctoral thesis, Nanyang Technological University, Singapore.

<https://hdl.handle.net/10356/61618>

<https://doi.org/10.32657/10356/61618>



**NANYANG
TECHNOLOGICAL
UNIVERSITY**

**GAMEPLAY SOCIALIZATION: MEANING-MAKING,
PLAYER-COMPUTER AND PLAYER-PLAYER
INTERACTION IN DIGITAL GAMES**

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2014

GAMEPLAY SOCIALIZATION: MEANING-MAKING, PLAYER-COMPUTER AND PLAYER-PLAYER INTERACTION IN DIGITAL GAMES

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A thesis submitted to the Nanyang Technological University
in partial fulfilment of the requirement for the degree of
Doctor of Philosophy

2014

ACKNOWLEDGMENTS

I would like to thank first and foremost my supervisor and friend, Patrick Williams, for the invaluable guidance, opportunities and experiences over the years. None of this would have been possible without him or the other wonderful teachers and students I have had the pleasure of learning from. My girlfriend, Allison, has been a constant source of support, entertainment, diversion and love. I can't imagine having completed this without her. I thank my brother, Danny, for being a constant inspiration to follow dreams and be a better person. I also thank my parents and my grandparents, Nanny, Mimi and Grandpa for always being interested in what I'm doing and making sure I keep doing it. I dedicate the thesis to Grandpa, who gave me, among many other things, a very thoroughly marked and obviously well-loved copy of Shibutani's *Society and Personality* from his college days. To the friends I've made in Singapore and the ones I've kept stateside, I owe immense gratitude. I thank my research participants for sharing this experience with me. I think about them nearly every day and am convinced I had the best participants in the world. Last but certainly not least, I thank the three anonymous reviewers for their insightful comments and criticisms.

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ABSTRACT

New media technologies are ubiquitous. Among these, digital games continue their rise in significance, constituting a visible domain within which people learn and develop specific sets of skills and practices. This study addresses a lack of research into the socialization experiences of new media technology users. I explore how participants experienced socialization into two digital games that they had never played before, World of Warcraft and Portal 2. Using a symbolic interactionist approach and an array of qualitative methods such as observations, talk-aloud protocols, audiovisual recordings of gameplay, “gameplay reviews” and in-depth interviews, I extracted rich data from the gameplay and interpretations of eight university student participants who each played approximately 20 hours of each game. Players engaged in micro-level meaning-making processes through which they made sense of the virtual environments. I outline a process of gameplay socialization that organizes the development of meaning-making over the course of their participation, and show how players had varied socialization experiences. A significant portion of their gameplay was spent interacting with digital objects, some of which became significant others. Such human-object relationships can be complex and social, and digital objects are major agents of socialization into digital games. Complexity in digital games rises with the potential addition of human interactants, and I analyze player-to-player interactions in cooperative and conflictual situations to show how players socialized one another in terms of game rules and social norms. Finally, I discuss some methods players developed to pragmatically handle increasing complexity in terms of outcomes of gameplay socialization. Analyzing gameplay socialization provides insight into the significance of user experience with new media technologies, which has

implications for media creators and users. Being attentive to user experience increases reflexivity in media development and use, as well as enhances communication between creators and users.

CHAPTER 1 – INTRODUCTION

BACKGROUND

Modern societies in the early 21st century are characterized by mediated culture (Jenkins et al. 2006). Developing such a mediated culture, where people spend a bulk of time interacting with and through media rather than the traditional face-to-face channel, seems to be considered a hallmark of technological, social and personal progress. In heavily mediated societies, media are ubiquitous. They are “differentiated, dispersed and multi-modal...pervade our bodies, cultures and societies...enable direct communication...[and] offer greater possibilities for capturing, recording and transmitting images and sound as we move through different worlds” (Featherstone 2009:2-3). Ubiquitous media affect nearly all aspects of modern life. For this reason, new media literacy has become an important concept (Alvermann, Moon and Hagood 1999; Potter 2012). Media’s ubiquity in everyday life has introduced a shift, which continues as technology advances, in sets of skills and practices that are required, or advantageous, for people to possess and to be able to utilize in diverse situations. Henry Jenkins argued against the “black box fallacy” (2006:13-16), which supposes that all major technologies will converge into one delivery system. Rather, technological domains continue to proliferate where instead of the monolithic black box in the living room, hardware diverges. At this moment, for example, I can check my email on two different desktop computers, a laptop, an e-book reader, my smartphone, a video game console, and any one of my roommates’ similar devices. It is beneficial for me to know how to use each and every one of these media technologies. With technological expansion and media ubiquity comes the need to become literate in more media(ted) domains.

In 2013, it is no longer news that gaming is a popular form of media that is also becoming ubiquitous. A study by the Pew Internet & American Life Project in 2008 found that 53% of American adults and 97% of teenagers play video games, defined as “any type of computer, console, online or mobile game,” with 21% of those adults playing every day or nearly every day (Lenhart, Jones, and Macgill 2008:1). Two of the six promising technological areas identified in the New Media Consortium’s *Horizon Report: 2013 Higher Education Edition*, tablet computing and games and gamification, are explicitly gaming-related. The shortlist from which the six were chosen also included mobile apps, augmented reality, and game-based learning. The rest, massively open online courses (MOOCs), learning analytics, 3D printing and wearable technology are of course rich tools which can benefit people in education, business, entertainment and other aspects of daily life. Significantly, people will have to learn to use each of these technologies to the extent that they become commonplace, much like personal computers, smartphones and digital games are today, and as people integrate technologies into the various arenas of human life, they will become commonplace. Further, people who have learned to leverage these technologies will likely benefit in terms of securing jobs requiring technological skill, navigating information systems, communicating electronically, creating and participating in digitally mediated cultures and so on. It is for this reason that it is imperative that researchers study not just media technologies, their forms and content, but how people use them, make meaning with(in) them, and are socialized to understand them in various domains.

Digital games and other technologies are increasing in breadth and complexity. Breadth refers to the fact that games, for example, come in more forms and genres than

years past, more people spend more of their time playing games, and games are larger in scale than ever, especially virtual worlds and massively multiplayer online games (MMOGs). People play on home consoles (Wii U, Playstation 4, Xbox One), PCs or laptops, handheld gaming devices (Nintendo 3DS, Playstation Vita), and other mobile devices like Android/iOS smartphones and tablets (Williams and Smith 2007). Alternate reality games utilize multiple digital media and the “real world” as a platform for gameplay (McGonigal 2011). These platforms increasingly offer opportunities for connected play and social interaction. Games are also being implemented in numerous areas of life beyond the living room, such as on-the-job training, healthcare and rehabilitation (Thompson et al. 2010), and formal education (e.g., Squire et al. 2004).

Complexity refers to both technological and social dimensions of modern gameplay. Games and gaming platforms are increasingly socially complex, facilitating relationship formation and allowing people from diverse locations and backgrounds to interact in real-time. Technological complexity provides affordances for social complexity, and also means games themselves allow more and different types of interaction with them and through them than ever before. Players can engage in intricate cooperative and competitive group activities in MMOGs, experience Hollywood-quality special effects, customize avatars with fantastic strokes of realism or fantasy, and perform ranges of actions, animations and interactions previously infeasible. The more complex that technologies become, the more elements people can (or need to) learn in order to interact with(in) them effectively.

The increasing breadth and complexity of media technologies is part of a broader trend in modern life wherein people are exposed to, expected to know how to, and

increasingly need to be able to participate in ever-upgraded socio-technological systems. For example, there has been a trend toward “gamification,” which refers to “the use of video game elements in non-gaming systems to improve the user experience and user engagement” (Deterding et al. 2011:2425). Many businesses and organizations are capitalizing on the trend to integrate “points,” “achievements,” “leader boards,” and other typical elements of modern digital games in order to spur user engagement with a product or to make a dull task more exciting. An old example is that of credit card reward programs, where lenders tempt consumers to charge purchases in exchange for points to accrue sky miles, book hotel rooms and earn other goods and services. Newer examples include Nike+, a jogging app which monitors users’ physical activity, lets them set training goals, compete with others, and earn rewards, a crowdsourced implementation of gamification called Google Image Labeler, where users are randomly paired and awarded points for matching labels on the image they jointly see in order to improve the quality of Google’s image search, or Foursquare, a mobile social app that rewards users with badges, points, and discounts for discovering and frequenting restaurants, theaters and other hot spots. Noticing the steady integration of digital games, game elements, and other new media technologies into multiple spheres of daily life, it becomes obvious that digital games are not isolated events; learning in the contexts of digital games shares in aspects of other daily experiences, and understanding learning processes involved in gameplay helps us understand those in related, and increasingly salient, activities.

I have explained how people need to keep up with technological innovations in the 21st century because their evolution marches onward whether or not people are caught up. For example, consider the rising calls for “programming literacy” (Wright, Rich and

Leatham 2012). Such scholars, educators and programmers argue that computer programming will become a basic literacy like reading and writing in the near future as more and more interaction becomes necessary between humans and computers, and many advocate for public schools to incorporate computer programming in their curriculum (Prensky 2008). I argue in this thesis that understanding and being able to manipulate digital games is another invaluable literacy for people to develop. Designers of games, programming courses, and other media technologies, on the other hand, must be informed about how to design for people, taking the users' interpretations and subjective understandings into account. They could benefit from what this study offers, which will shed light on the meaning-making processes and subjective socialization experiences that media users have through interacting with technology.

MOTIVATIONS FOR RESEARCH

In this section, I will couch the motivations for research in a story presented in biographical fashion. I have long taken a sociological interest in the intersection between education and media, and as such this research is quite personal. My fascination with games of all kinds developed as far back as I can remember and I was raised on sports, especially soccer, basketball and baseball. When I was four, my uncle gave us his old Atari 2600. The next Christmas, my parents bought a Nintendo Entertainment System with Super Mario Bros. and Duck Hunt, the only game my dad would ever play. A few Christmases later presented a Sega Genesis, and my brother and I spent the morning playing Sonic the Hedgehog. A Sony Playstation arrived a few years later. I still have some of my favorite old games from that system like Twisted Metal, Destruction Derby and Final Fantasy Tactics. The first console I bought for myself was a Playstation 2 in

college, which I still own, in addition to a Playstation 3 and an Xbox 360. We had desktop computers in my house growing up, beginning with an old IBM green screen that had no games, as far as I recall, but I learned how to use my dad's Quicken financial management software by the time I was in elementary school to make spreadsheets and input statistics from my baseball card collection, which was like a game to me. We later upgraded to a Windows machine, which came with classics like Ski Free, Minesweeper and computer Solitaire. One of my most memorable moments was when I was 10 and my brother was 7, and my dad brought home a copy of Doom, a gory first-person shooter about Hell and demons that was probably highly inappropriate for children our age. Even though my dad never played digital games, except Duck Hunt, he found them interesting and supported my fascination with them. My mom was not pleased about Doom being in the house. I immersed myself though, and Doom led to my first digitally-mediated multiplayer experience. A friend of mine also obtained the game, and we used to play together on our dial-up modems. Online gaming, then, has been a hobby of mine for over 20 years. The family computer was replaced again and again (as my brother and I, naïve young Internet users that we were, rendered them inoperable with viruses), and I bought my first computer when I went to college, having been extensively trained in particular by Blizzard games (Warcraft 1, 2 and 3, Diablo 1 and 2, Starcraft) and my then-favorite series, Final Fantasy. I have since delved into just about every genre of digital game there is, the most significant being MMOGs, especially World of Warcraft (WoW), which I spent five years on and off playing (2006-2011), and which I am still engaged in research.

I learned to think sociologically as an undergraduate and in particular became interested in micro sociology. I took all the courses I could in social psychology and

cultural studies. For my final paper of my final course in college in 2005, I discovered that people did research on digital games, which seemed incredible to me at the time, and I wrote a paper on how players conceptualized and acquired cultural capital in the MMOG Everquest 2. I became interested in how different people experienced digital games, and as I got into playing MMOGs later, how different people experienced them as social environments. During undergraduate, I also developed an interest in teaching and learning sciences. My fascination with how people experienced digital games fit into this, as I later realized that it is difficult to understand experience without understanding learning processes. Additionally, I realized that a good way to understand experience is to interact with people who are experiencing the phenomenon.

I spent a year after undergraduate being a substitute teacher in local high schools before I committed to a teaching path. Seeing students experiencing high school life from a (substitute) teacher's perspective was intriguing enough that I got into an M.Ed. program where I refined my thoughts on teaching and learning. The program was very constructivist-oriented, which fit well with my background interests in social psychology and interactionist sociology. The most illuminating part of the M.Ed. was the practicum, where I spent one semester in charge of three Current Issues classes at a high school. Current Issues was an interesting subject because as an elective it had no state curriculum. That was exactly the kind of environment I needed to play with my pedagogical ideas. Instead of teaching being a strictly top-down process, I attempted to grant agency to the students to determine their own course of learning. The idea was, why should I impose my definition of important current issues onto students when they also have valid opinions on what counts as important issues in the world? I desired that they learn about

what they wanted, that their experience in my class was driven by them and guided by me. So, I polled all my students to create a list of topics that we would learn about for the semester. Students voted on the list and the top three topics defined a chunk of the course for the semester. We spent two weeks each exploring fast food, popular music and gun control issues, culminating in creative projects for assessment. Students overwhelmingly enjoyed the course, and the three student-driven topics in particular, and I noticed the contrast in their attitudes between when they engaged with what interested them from a self-directed perspective and when they were asked to engage with material externally chosen and imposed. I began to wonder how education might be experienced differently if socialization were structured differently, such as if learning was a more student-driven process.

At that time during my M.Ed., I was heavily involved in the game World of Warcraft. Like the classrooms I was teaching, observing and learning about, it too was a rich social environment with interplay between top-down structures and player-driven activity. And like my students experiencing the social worlds of high school and current issues class, I wanted to know how WoW players experienced the virtual world in-game. To this end, I wanted to know about WoW's player base, and was initially influenced by Nick Yee's studies on MMOG players' demographics, motivations, identities and so on as part of his Daedalus Project¹. I began to think of MMOGs as "living laboratories" (Ducheneaut 2010), microcosms of the "real world." With guidance from my long-time gaming partner and future thesis supervisor, Patrick Williams, I developed initial research

¹ <http://www.nickyee.com/daedalus/>

questions about motivations and user experience in MMOGs as I applied for a Ph.D. program.

RESEARCH QUESTIONS

Instead of focusing on why people play, or outcomes of their play, I focus on the social processes occurring during and around play itself, the processes that comprise social interaction with(in) digital games. Fundamentally, I am concerned with *how* people play, how they learn what to do, where to go, how to think, how to work together, how to accomplish complex tasks and develop theories of performance. This research aims to improve understanding of how people are socialized into technology use, particularly how they engage in (inter)subjective meaning-making processes to make sense of things and act. It focuses more specifically on digital media, utilizing digital games as research sites. Understanding (inter)subjective meaning-making processes around the gameplay phenomenon illuminates the relationship between meaning, socialization and game design, and helps us better understand digitally-mediated interaction in general. Armed with such an understanding, we can better create and use digital technology. Whatever one designs technology for, it must be capable of teaching users. Rosario and Widmeyer (2009) noted, for example, that “very few MMOGs are *designed* to provide learning opportunities, even though many of these MMOGs may offer opportunities for learning by motivated individuals” (289). By analyzing the gameplay experience in terms of learning and socialization, this thesis contributes to design efforts that would enable people to learn more effectively from games and other technological systems. To do this, we need to study learning and socialization from the perspective of the players themselves. Since we are just entering an age of ubiquitous media, people need this

understanding, to develop literacy in these domains. According to the New Media Consortium's Horizon Report (2013), academics and teachers are not using new media in teaching and research to its potential, nor are academics, teachers, and administrators trained to properly recognize or act upon the rise in the need for digital media literacy. As I have suggested, digital media literacy is increasingly significant as a key skill in daily life, and digital games are a part of that complex whole.

The research questions drive at understanding an increasingly common and shared kind of learning experience for people. As discussed further in Chapters 2 and 4, this study uses two popular digital games, Portal 2 and World of Warcraft, as sites into and around which players are socialized. The overarching research question of the study is "how are players socialized into digital games?" To answer this, four major research questions are as follows:

R1: How do players engage in meaning-making processes to make sense of digital games?

R2: What is the course of gameplay socialization?

R3: To what extent is gameplay a social activity?

R4: How do players handle rising complexity in digital games?

As described in more detail in Chapters 3 and 4, I take a symbolic interactionist approach to answering these and other questions. Interactionists emphasize the meaning-making process comprising human interaction (Blumer 1969). Action is predicated on meaning, so to understand why one does something, we need to ask what meanings they attribute to

elements in the situation, and how they engage in attribution. The meanings people assign to things are largely learned in social contexts. This interpretive endeavor is designed to understand the lived experience of the gameplay phenomenon in terms of learning and socialization: how players thoughtfully and practically engage in the gameplay itself, how they learn to create meanings from the experience, how they reflect upon their engagement, and how these processes are informed by interaction. This approach addresses the dialectical relationship between the individual and the social in shaping (the meanings of) experiences, and informs both the research's theoretical and methodological frames.

THESIS CHAPTER OUTLINE

The thesis is divided into nine chapters, including the introduction. What follows is an outline of the rest of the thesis with brief descriptions of the chapters.

Chapter 2 – Digital Games as Semiotic Domains + A Primer on WoW and Portal 2

This chapter is intended to provide the reader with a quick guide to the two games, which I describe in terms of semiotic domains. I provide essential vocabulary and explanations of each game. I also provide a brief discussion on the relationship among games, play and fun.

Chapter 3 – Literature Review

This chapter is intended to make subsequent chapters more accessible. It provides the theoretical orientation of interactionism and introduces core concepts, such as semiotic domains and socialization.

Chapter 4 – Methodology

In this chapter, I provide a background of relevant previous studies and explain the rationale behind choosing the two games. I discuss the methodological position of the thesis, and then outline in detail the data collection and analysis processes. A major purpose of the chapter is to convey to readers how I was able to arrive at and conduct the present study.

Chapter 5 – Meaning-Making in Semiotic Domains

Chapter 5 focuses on Research Question 1. It is concerned with subject-object interaction between a player and game elements, and focuses on solo play. Framed in terms of domain literacy, the chapter aims to show how players developed their literacy in the semiotic domains of digital games through meaning-making processes. Utilizing Fine's (1979) elements of cultural objects, I provide three examples showing how players filtered information through their ongoing experiences and understandings in order to determine how to make sense of game elements. The examples show how players moved from making simple distinctions among things to locating things within larger systems of meaning, and then attributing meaning to relationships among systems of meanings. The meaning-making process is thus fundamental to socialization.

Chapter 6 – Gameplay Socialization

The main purpose of this chapter is to address Research Question 2. It outlines the process of “gameplay socialization” into the semiotic domains of digital games that I observed. It also discusses socialization into roles, as part of semiotic domains. I provide empirical data showing how players experienced two stages of gameplay socialization, entrance and

individualization. This chapter addresses the tension of socialization as both a top-down and bottom-up process, and as such, discusses the design structures of the digital games, including the intent of the game designers, for teaching players how to play. It discusses how players learned to interpret structural design elements, and as they became more proficient in gameplay, how they became more confident and able to manipulate rules and personalize their experiences.

Chapter 7 – Digital Objects as Significant Others

This chapter predominantly answers Research Questions 3 and 1, and focuses specifically on players' meaning-making in terms of interactions with digital objects as significant others. Using Cerulo's (2009) characteristics of actors and Owens's (2007) concept of "doing mind," I show how players' interactions with digital objects were fundamentally social, and that gameplay is a social activity. By doing mind for digital objects, players were able to perceive them as actors, granting them agency, and respond to them accordingly. This meaning-making process was fundamental to gameplay. The chapter considers different types of digital objects, some of which were more likely to be perceived as agentic. It also includes a discussion of players taking the role of game designers as the generalized other.

Chapter 8 – Rising Complexity and Gameplay Socialization in Semiotic Domains

This chapter answers Research Question 4. The chapter expands from the earlier focus on solo play to include multiplayer gameplay, arguing that the additional human element has the potential to greatly increase the complexity of games and the gameplay socialization process. Building upon systems of meaning that emerge from player-object relationships

in solo play, players must understand where other players fit into these systems of meaning. I use two examples to show how players intersubjectively make meaning and create roles and how players violate and uphold social norms that emerge through play. Using these examples, I also show how different modes of communication are significant for digitally-mediated collaborative activities, and argue that players are additionally socialized into using, and socialized by, communicative modalities.

Chapter 9 – Literacies and Socialization

This chapter discusses some outcomes of gameplay socialization, suggesting that one feature of progression within digital games is that they become increasingly complex. A major outcome of socialization then is that players learn to pragmatically handle such increasing complexity, such as by leveraging information systems, creating role-based divisions of labor, doing mind for nonhuman objects and finding novel ways to approach problems, each method of which may become routinized over time. Over time, players develop theories of task performance that guide their successful interaction in semiotic domains. In concluding this chapter, I tie together major concepts and theoretical points, expand the significance of the study outward from digital games, and discuss implications of treating research participants as experts in their own understandings.

CHAPTER 2 – DIGITAL GAMES AS SEMIOTIC DOMAINS + A PRIMER ON WOW AND PORTAL 2

I explore throughout the thesis how players experience socialization into the semiotic domains of digital games, including learning associated rules and roles. This chapter serves to explain games in terms of semiotic domains in which people can develop literacy. I describe how games can be analytically broken down into subdomains. This chapter functions as an introduction to general game terminology and a primer on the two games used in this study, World of Warcraft and Portal 2. Its purpose is to equip the reader with an understanding of basic grammars and language of games. I describe each game and define essential vocabulary that I use throughout the thesis. Important terms are bolded and additionally located in the glossary for quick reference. Before concluding, I provide a brief discussion on the relationship among games, play and fun, and comment on the function of frustration and failure in learning to play games.

SEMIOTIC DOMAINS

Everything people learn, and people are always learning something, is connected to one or more semiotic domains, which conceptually bound the meanings that people make in everyday life. A semiotic domain is “any set of practices that recruits one or more modalities (e.g., oral or written language, images, equations, symbols, sounds, gestures, graphs, artifacts, etc.) to communicate distinctive types of meanings” (Gee 2003:18). Semiotic domains both comprise and are comprised by roles and groups or organizations. As they act within semiotic domains, people perform roles, which involve knowing and performing sets of practices through “communicative modalities” to convey

meaning. Groups and organizations similarly may place expectations on members where a certain set of practices is appropriate or not for participation, and groups may be defined by a set of practices. But sets of practices are not necessarily confined to one group or one role. One set of practices may define a domain that cuts across multiple groups or roles that are concurrently nested within other domains.

An example Gee used to describe semiotic domains was a sentence about basketball: “The guard dribbled down the court, held up two fingers, and passed to the open man” (15). The sentence makes little sense if the reader knows nothing about the game of basketball. The words, “guard,” “dribbled,” “passed” and so on signify different concepts in different contexts, and in different semiotic domains. In this sense, semiotic domains are “finite provinces of meaning” (Berger and Luckmann 1966) because within a domain signifiers refer to specific signifieds. So while a person may understand that “dribble” means a little bit of drool coming out of someone’s mouth, “dribble” does not signify drool in the semiotic domain of basketball. Neither does the court refer to a legal body nor the guard to protection from bodily harm.

A necessary part of one’s socialization into a domain is acquiring an understanding of its symbolic environment, “learn[ing] not only the accepted categories and their symbols, but also the unstated assumptions about the ways in which these units are interrelated...The comprehension of this perspective requires learning the language” (Shibutani 1961:486). Shibutani’s symbolic environment is the language of a semiotic domain. Hall (1977) studied professional ballerinas and observed that “[t]he use of ballet language to denote body movements serves to set them apart from similar mundane actions which are defined in the native language in other contexts” (198). The symbols

that people use in a semiotic domain then may be the same symbols as used in other domains, such as the word “court” in basketball versus judicial systems versus romantic relationships or the same body movement in ballet versus in “mundane” life versus in yoga, but a different language describes them and attributes to them different meanings.

When a person possesses some socialization experiences into a semiotic domain, the range of potential signifieds will be delimited by the context provided for by the semiotic domain and the person can choose the appropriate signifieds associated with the signifiers. Choosing appropriate signifieds is part of the meaning-making process. Taking “dribble” again as an example, if an individual only knows the meaning of dribble as signifying drool, attempting to call that cultural information into practice in the context of Gee’s basketball sentence is not functional. It would not help in figuring out the meaning of the sentence. Reinterpreting the word and trying an alternate signified for “dribble,” assuming the connotation “to repeatedly bounce the basketball off the floor” is known, results in the individual quickly finding that alternate signified functional, appropriate and triggered by the meanings of the other words in the sentence (assuming those were also known) with which “dribble” is in a relationship.

My argument here is that people learn the language of semiotic domains as they are socialized into them. Since domains both comprise and are comprised of roles, then the sets of practices that one learns in a domain may be applied to multiple roles in multiple contexts. Gee noted that “We gain resources that prepare us for future learning and problem-solving in the domain and, perhaps, more important, in related domains” through knowledge and skill transfer (2003:23). Such knowledge and skills that comprise sets of practices are like building blocks for role-making. Socialization, then, is learning

the “underlying *structure* or grammar...Our capacity to use grammar (even if we don’t know the underlying rules) enables us to form sentences and entire complexes of meaning that make sense...” (O’Brien 2011:175). Learning this “social grammar” locates the socialization process squarely within semiotic domains.

The building blocks that form the underlying structure of semiotic domains are called internal and external design grammars. Like the underlying structure of language or of the socialization process, learning the grammar of semiotic domains allows people to participate effectively in them, to combine and rearrange elements to construct (systems of) meaning and develop requisite skills and practices. The internal design grammar of a semiotic domain is the “principles and patterns in terms of which one can recognize what is and what is not acceptable content,” while the external design grammar is “principles and patterns in terms of which one can recognize what is and what is not an acceptable or typical social practice and identity in regard to the affinity group associated with a semiotic domain” (2003:30). An affinity group is simply the group of people associated with a particular semiotic domain (i.e., basketball players, fans and coaches in the semiotic domain of basketball). The choice of the word “design” in design grammar serves as a reminder that semiotic domains are socially constructed. What counts as acceptable content and social practice is defined, maintained and modified by the affinity group. Thus experiencing socialization into a semiotic domain is to learn what is and is not acceptable.

Regarding games, the internal design grammar consists of the game’s content, especially the rules, and the external design grammar of social practices, including norms. These are interrelated. For example, in basketball, players are sometimes awarded a “free

throw,” in which the player stands at a specified distance from the basket (at the “free throw line”) and attempts to throw the ball into the basket, worth one point, unmolested by the opposing team. The rules themselves are part of the internal design grammar. Norms surrounding following the rules are part of the external design grammar. When I was a kid playing on a community basketball team, it was common and acceptable practice among players to try to “psyche out” the opposing team’s free thrower by whispering to him or “accidentally” sneezing or coughing, causing him to lose concentration and miss the basket. People comprising affinity groups do not always agree upon the design grammars, and more specifically, do not always agree on how to interact in relation to the design grammars. For example, the referee often blew the whistle when we sneezed at a free thrower, signaling an infraction of the internal design grammar. We knew we were bending the rules by sneezing at the free-thrower, but taking our teammates’ perspectives, this action was consistent with our external view of the domain. Thus there may be multiple perspectives within a domain’s affinity group, the other perspective in this example being the referee’s, to whom the sneeze was unacceptable content in the semiotic domain of basketball. The referee acts as an agent of socialization who attempts to maintain the integrity of the domain’s design grammars.

Experiencing socialization into a semiotic domain not only involves learning sets of practices, rules and norms, but also learning the communicative modalities that convey meaning within a domain, what meanings different modalities communicate, and learning which modalities are most appropriate for which meanings and in which situations. For example, the referee has a special communicative modality through which he expresses meaning – the whistle. The shrill sound it emits demands attention. In experiencing

socialization into the semiotic domain of basketball (and the larger domain of sports in general), players learn to associate the signifier, the sound of the whistle being blown, with the signified, the referee, and generally interpret the sign as a signal to halt activity and await further communication from the referee or to commence activity depending on the context. Players also utilize communicative modalities of the domain to convey meaning. The colors of the jerseys they wear split players into two teams, plus a third uniform for the referee. Vocal communications and hand signs trigger certain set plays to commence. Nonhuman objects in the domain like the scoreboard and time clock, the baskets and so on convey meaning through various audio-visual modalities.

An additional characteristic of semiotic domains is their divisibility. From any level of analysis one can distinguish domain strata (Gee 2003:18). Any domain contains a number of semiotic subdomains that share key grammars with the larger domain and related subdomains, but that also contain grammatical differences that may result in special knowledge and skills required to participate (Figure 1). When one is literate in games, she likely understands the dual collaborative and competitive frames, the concepts of “teams,” “penalties,” “points” and so on. But these concepts take on specialized meanings to varying degrees depending on the subdomain. The semiotic domain of digital games, for example, is a subdomain of games, and “points” have special but related meanings in WoW versus basketball. Digital games is also a subdomain of digital media, and when one is literate in digital media, she likely is familiar with common inputs like a keyboard, mouse or touch screen, digital menus and interfaces and so on, the specific uses of which may vary among domains. The semiotic domain of digital games may be split into subdomains of game genres, each with certain conventions for internal and external

design grammars. Each individual game is also a semiotic domain with singular rules, terminologies and symbols, and may leverage aspects of multiple genres. Notice that Portal 2 contains grammars of both FPS and puzzle genres. The NBA 2K series of digital basketball games contains grammars of non-digital basketball and digital sports games. Finally, where each game constitutes a semiotic domain with its own distinctive types of meanings, sometimes different play modes or activities have meanings distinct from other modes or activities within the larger game, such as WoW raiding and PvP. So, as people experience socialization into semiotic domains, they likewise are learning sets of knowledge and practices applicable to related domains and subdomains. When using the term semiotic domain I will be clear on which analytical level I am talking.

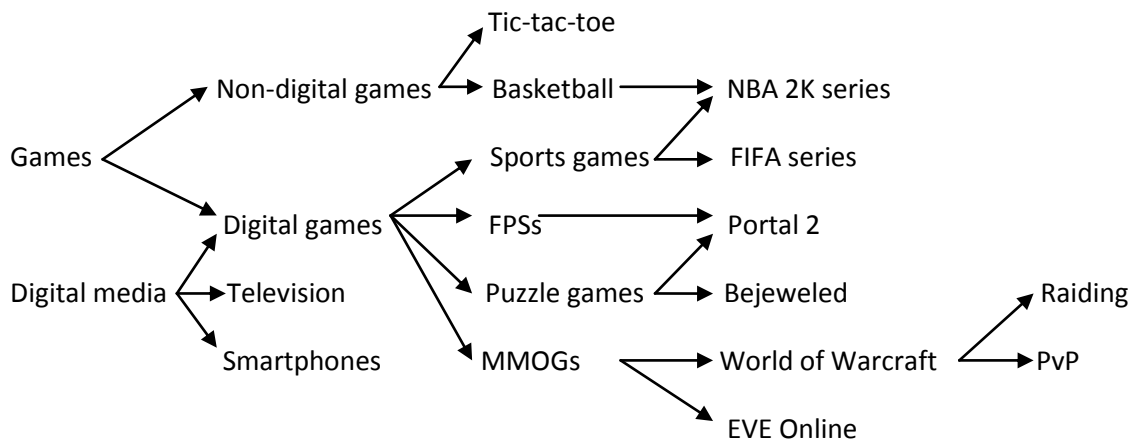


Figure 1. A simplified representation showing some subdivisions of semiotic domains.

DIGITAL GAMES AS SEMIOTIC DOMAINS

In order to discuss the significance of the meaning-making process in understanding socialization into and experiences with digital games, it is useful to first describe some nuances of digital games as semiotic domains. The design grammars of digital games are often strictly defined, at least in part due to their nature as virtual worlds

operating according to hard-coded rules and associated narrative fictions and other “world-like” characteristics. The language of digital games may sound something like, to take an example from one of my participants playing WoW, “We were in one of the elf zones. This other draenei character was leveling up and we were actually on our way to fly on the hippogryph to explore around. We asked if she wanted to tag along with us, and she did, so there were three of us in the party. Then after that, I think I got into the battleground and so sort of dispersed from the group.” Evident in the quote are aspects of the domain’s internal and external design grammars, the building blocks forming its underlying structure. The internal grammar, the content of the domain, including elves, hippogryphs, multiple players and battlegrounds, structures the world and its fiction and exists according to its internal rules and logic. The external grammar, the social practices in the domain, is often oriented around rules and includes playing cooperatively together, forming groups, exploring and so on, and both guides and is guided by social norms in the world. The affinity groups of digital games may include designers, players and games researchers. The participant just quoted utilized the communicative modalities provided for by the domain in order to interact with the other players, such as text chat and visual character animations. Throughout the thesis, I will explore these elements of digital games as semiotic domains in greater detail, but have provided an introduction here. In the rest of this chapter, I will provide practical definitions relevant to the larger domain of digital games and then describe the two games used in the study, their languages and design grammars, so that the reader may develop the domain literacy required to participate further.

The first term generic to digital games to define is “game” itself. Salen and Zimmerman (2004) conducted a review of eight interdisciplinary definitions of the term, integrated them, and defined a **game** as “a system in which players engage in artificial conflict, defined by rules, that results in a quantifiable outcome” (80). A system is “a set of things that affect one another within an environment to form a larger pattern that is different from any of the individual parts” (50). I will use the term **systems of meaning** to emphasize that the “set of things” is defined through a meaning-making process. Games contain objects, which may be physical or abstract elements. I will use the term **game object** to refer to elements within or emanating from the digital game, such as a robot or a sound effect. Game objects are essentially the material and immaterial cultural objects within digital games. Game objects are necessarily related to one another in systems of meaning.

Digital games have four additional traits according to Salen and Zimmerman. First, they have immediate interactivity, meaning that digital games allow for quick responses between player input and computer output. Such interactivity is also narrow compared to non-digital forms, with player input generally being limited to mouse and keyboard. Kinesthetically engaging digital games are still relatively rare, notable exceptions being rhythm/music games like Rock Band where players engage with “embodied interfaces” and play modified instruments (Tanenbaum and Bizzocchi 2009) or Dance Dance Revolution where players dance on an electronic floor mat (Behrenshausen 2007), although as these and other technologies like Microsoft’s Kinect, Nintendo’s Wii Balance Board or Oculus VR’s Oculus Rift evolve, the range of interactivity in digital games will continue to expand. Second, digital games are

characterized by information manipulation, meaning that the game and the computer through which it is played handle and represent vast amounts of information, internally at the level of code or expressively through communicative modalities. Games provide or withhold from players specific information at specific times according to the particular interactions occurring at any given moment. Third, digital games are automated and complex systems. They represent sequences of action, quickly perform complicated rule-based calculations and so on that provide experiences players could not have with non-digital games. Fourth, most digital games provide networked communication in some form, such as between game clients through the internet, or by facilitating player-to-player communication through text or voice chat. This trait has become exceedingly significant in recent years as game developers leverage and improve upon social networking technologies like Facebook, Steam and Xbox Live to connect players.

Games are “designed experiences” (Squire 2006) “to be encountered by a player, from which meaningful play emerges” (Salen and Zimmerman 2004:80). The process of creating designed experiences for games is called **game design**, a term which also refers to the purposeful design elements of the game (i.e., the game design may allow for the use of mouse and keyboard). **Players** are people who play the game. I frame play as an element of games because I am only discussing play in the context of games. Salen and Zimmerman defined **play** broadly as “free movement within a more rigid structure” (304). The game provides such a structure, and therefore **gameplay** refers to interaction that occurs as players engage with the rules of a game. Gameplay is not only a designed feature of games, but is “an emergent aspect of interaction between the game system and the player’s strategies and problem solving processes” (Jørgensen 2008:n.p.). The

emergent property of play and meaning through interaction makes gameplay especially meaningful. I will use play and gameplay interchangeably. The **rules** of a game comprise its internal design grammar, determining what the player can and cannot do, and both facilitating and constraining player action. I refer to social rules that comprise a game's external design grammar as **norms**. Game rules and norms determine what is (un)acceptable content and practice in the particular semiotic domain. Rules and norms shape the types of conflict within and around the game and shape both possible outcomes of interaction and players' goals. Having defined essential game-related terminology, I will now turn to describing the two games used in this study.

PORTAL 2

Portal 2 is a single-player and two-player cooperative first-person puzzle game. **Single-player games** involve one player interacting with the game. **Cooperative games (co-op)** involve two or more players cooperating together in the game. Each of these player configurations is a semiotic domain within Portal 2. First-person refers to the player's perspective in the game world. In a first-person game, players see the game world as if through the eyes of the character they control. In puzzle games, the primary activity is figuring out solutions, which often involve spatio-temporal navigation, learning how to use different tools, and manipulating or reconfiguring game objects (Wolf 2002, chapter 6). There is one solution to each puzzle in Portal 2. The goal of the single-player mode, in fundamental terms, is to progress sequentially through the 62 puzzles, called "test chambers" according to the game's narrative. The same applies to the co-op mode with its 41 test chambers. Each **test chamber** is a segment of the game, referring to "how [the] game is broken down into smaller or shorter units of gameplay" (Zagal, Fernandez-

Vara and Mateas 2008:178). Specifically, segmentation in Portal 2 is spatial, meaning “the gameworld is presented...as distinct subspaces that are navigated separately and that may even have their own special rules” (182) and challenge-based, meaning that “the player [must] resolve a series of self-contained challenging situations, their most salient feature being that they are perceived by the player as separate tests or trials” (187). These two types of segmentation are intertwined in Portal 2, are set within the narrative framework, and provide a linear experience. The test chambers become increasingly complex, adding game objects and additional challenges as players progress.

There are two related narratives, one for single-player and one for co-op, that are rooted in the semiotic domain of science fiction with their robot characters, dystopian setting and teleportation technology, that take place after the events of the previous Portal game. It is only important to convey to the reader some understanding of the single-player narrative for this thesis. I will refer to the embodiment of the player in the game world as the **player-character** because the player plays the role of an on-screen character. The player-character is the object through which she interacts with the game world. In the single-player story, the player plays as Chell, a human female; in the co-op story, the players play as robots. The other two main characters are named **Wheatley** and **GLaDOS**. They are artificial intelligences both within the game’s narrative and within the game’s code. Artificial intelligences in games are called **non-player characters (NPCs)**, computer-controlled “virtual entities endowed with response patterns enabling them to respond flexibly and with *apparent* intelligence to game conditions (particularly, the actions of the player)” (Egenfeldt-Nielsen, Smith and Tosca 2008:130).

The game takes place inside the Aperture Science facility. It was there in the previous game where GLaDOS, the sentient computer who oversaw the facility, forced Chell to complete test chambers for her own amusement (or “for science,” as she would claim) until Chell eventually figured out a way to destroy GLaDOS and flee the facility. However, as soon as Chell escaped, she was dragged back in and put into a deep sleep. After a brief tutorial section, Portal 2 begins with Chell awakening to Wheatley banging on the door of her room². Wheatley hurriedly informs her that she has been asleep for a very, very long time, that the Aperture Science facility is in crumbling disrepair, and that he is making an escape before the whole thing comes crashing down. In order to find an exit, they need to navigate through test chambers, and Wheatley temporarily leaves Chell with instructions to find a portal gun to help her along the way, which she must accomplish to move beyond the tutorial.

The player carries and shoots a **portal gun** to create **portals** (Figure 1), holes that function as doorways, in the surfaces of walls, floors and ceilings within each test chamber, in order to navigate around obstacles and reach the elevator which takes her to the next test chamber. The player can shoot a **blue portal** with the left mouse button and, beginning in test chamber 10, an **orange portal** with the right mouse button. Only one blue portal and one orange portal may be open at any given time. This is because the portals are connected. When a player goes into the blue portal, she comes out of the orange portal. When a player goes into the orange portal, she comes out of the blue portal. The player-character and any other manipulable game objects may pass through portals. In co-op play, *each* player creates two portals. One player creates **yellow** and **red portals**

² See one of the many clips of this introduction on YouTube:
<https://www.youtube.com/watch?v=HEERQGT65N0>

and the other player creates **light blue** and **dark blue portals**. Each pair of portals has the same relationship as the orange and blue have in solo play, so for example, when a player walks into the light blue portal, she comes out of the dark blue portal. Either player can enter any of the four portals, but they will only come out of the particular portal tied to the one they entered (light blue/dark blue or yellow/red).



Figure 1. Blue and orange portals and a first-person perspective

Chell and Wheatley reunite after Chell finds the portal gun and solves initial puzzles. Wheatley believes they have found the exit from the facility, but on the way out they discover GLaDOS, still incapacitated after the events of the first game, and accidentally reactivate her³. GLaDOS is upset with Chell for destroying her, but happy to resume her testing protocol. She puts Chell back to work solving test chambers as she

³ See Wheatley, GLaDOS and her accidental activation on YouTube:
<https://www.youtube.com/watch?v=CoGjBibPWk0>

begins to rebuild the dilapidated facility. Wheatley guides Chell along as he develops a plan to destroy GLaDOS once and for all and orchestrate another escape. Eventually, in test chamber 36, Wheatley and Chell confront GLaDOS, an event which results in the two artificial intelligences switching roles in the story. Wheatley is transplanted into GLaDOS's body and takes control of the whole facility. He becomes power-mad and decides he would rather design test chambers for Chell to endlessly endure rather than follow through with their escape plan. GLaDOS's personality is transplanted into a potato battery and Chell attaches her to the end of the portal gun. This dynamic lasts until the end of the game, with the addition of two more story NPCs who are not relevant to any later examples. The single-player story's conclusion is a surprise that I will leave unspoiled for the reader.

Throughout the 62 single-player and 41 co-op test chambers, the player-characters encounter a variety of game objects, tools used for solving the game's puzzles. I will briefly explain the game objects that I rely on for later examples, in the order in which they are introduced in the game. In test chamber two, players are introduced to **buttons** and **switches**, each of which has a variety of potential functions. Players interact with switches by simply approaching them and pressing "E" on the keyboard. "E" is the "use" command and allows players to press switches and pick up game objects. Buttons are like switches except they must be depressed by a weight to remain active, either the player-character standing on them or placing something else on them. That something else is almost always a standard weighted **cube**, introduced in test chamber four. Test chamber 23 introduces sentry **turrets**, which are stationary robots capable of killing the player-character by firing bullets. Turrets, like other types of hazards introduced throughout the

game, serve as obstacles or discourage the player from performing certain actions. Portal 2 has a light penalty for death. The player simply revives from the last point at which the game was saved. Players may disable turrets any number of ways, including physically knocking them over or dropping a cube on top of them. In test chamber 43, the game introduces **propulsion gel**. Players can spray this and the other types of gel around a test chamber. The propulsion gel, as the name suggests, makes player-characters run extremely fast on surfaces coated with it. On level 59, players have to deal with another obstacle called a **crusher**. This machine's roof is covered in spikes. The roof slowly raises then slams down, crushing anyone caught underneath.

Aside from game objects, there are a number of other things to which players attached meaning and used in their solutions. These meanings largely arose situationally and were subsequently called upon in specific circumstances. I will avoid describing them here and instead locate them in the contexts of the examples in which they are found, not least because they were built up from an understanding of relationships between the game objects introduced above.

WORLD OF WARCRAFT

World of Warcraft (WoW) is a **massively multiplayer online game (MMOG)**⁴, a large-scale online virtual environment where thousands of players can play together simultaneously. Chan and Vorderer (2006) described six characteristics of MMOGs. They have physicality, meaning that the game occurs in a representation of a detailed physical

⁴ Technically speaking, WoW is a massively multiplayer online role-playing game (MMORPG), but I use the easier-to-say and broader term, massively multiplayer online game (MMOG) because I rarely focus on role-playing conventions. MMORPGs exhibit elements of the semiotic domains of MMOGs and role-playing games (RPGs).

world that may be real or imaginary (i.e., a World War 2 MMOG taking place in Europe or WoW's fictional world of Azeroth). MMOGs provide communicative modalities for player-player interaction, such as text or voice chat. Avatar-mediated play is another characteristic of MMOGs. Like with Portal 2, players interact with the digital world through the player-character, and in WoW, this is almost always from a third-person perspective so the character is usually visible on the screen. MMOGs tend to be persistent worlds, meaning that the game is always available 24 hours a day, 7 days a week, and continues to evolve whether or not the player is online. There are elements of vertical game play, which refers to a player's progression through the game and may have multiple indicators. Finally, MMOGs are perpetual, meaning that they do not "end" in the conventional sense of the word. The digital worlds continue to evolve and there are endless game-given goals for players to reach.

WoW, like many MMOGs, is set in a Tolkienesque high fantasy environment and follows various fantasy domain conventions in narrative, style and rhetorical devices in order to engage players in its mythology (Krzywinska 2008). There is an overarching narrative in which the game immediately places the player. The game also follows domain conventions of classic tabletop RPGs like Dungeons & Dragons, particularly in terms of internal design grammar, linking players together with one another, to characters and to the fantasy world (Fine 1983; Waskul and Lust 2004), with the notable exception that in MMOGs interaction is digitally mediated. When players first log in to the game, they are presented with the character creation screen (Figure 2). This screen is rich with narrative and other basic information sensitizing players to the fiction of the game and to the possible roles they will enact. It provides lore about the game's two warring factions,

Alliance and Horde, and their respective races, as well as information about character classes. A **class** is “an archetype such as warrior, priest, or hunter, each of which may specialize in one of several areas of expertise that define the character’s primary role-identity” (Williams and Kirschner 2012:343). Such role-identities become especially salient later in group play. Players may create their own characters before they enter WoW’s virtual world of Azeroth.



Figure 2. Character creation screen.

Upon entering the world, players see the game’s basic **user interface (UI)** (Figure 3). Note that Portal 2, in contrast, has a minimal UI. The UI mediates communication between the player and the game and is comprised of a host of symbols that players must learn to interpret. I have labeled some fundamental things in Figure 3 and briefly describe each. (a) is the player-character. (b) is the **character portrait**. The character’s **health** is

represented graphically by the green bar and numerically by the ratio on the character portrait. When health reaches zero, the character dies and may revive at a nearby graveyard. The small number along the circumference of the character portrait (1 for the player-character and 10 for the NPC in this image) represents the character's **level**, which is a quantitative measure of its strength or difficulty. (c) points to three different NPCs. The player-character is interacting with the NPC directly in front of him, named Agatha, as indicated by the text above its head. The green circle beneath the NPC signifies that the player has **targeted** the NPC. Once a player targets an NPC, he can interact with it. Targeting is also signified by the NPC's portrait in (d). Agatha is offering the player a quest, which is described in the quest window (e). **Quests** are discrete tasks provided by **quest givers**, identifiable by the exclamation marks and question marks above their heads, and are one means through which WoW exhibits challenge-based segmentation (see Rettberg 2008). The quest window contextualizes the quest through narrative provided by the quest giver, states the quest objectives and rewards for completing it. The quest log tracks the progress of current quests (f). Players can use the **minimap** (g) or open a larger map to navigate the world and find quest givers and other things represented symbolically on it. (h) is the **chat window**, a modality into which players can enter text to communicate with others, and through which the game system and NPCs textually communicate with the player. (i) is the **action bar**, which consists of a series of icons that represent actions the character can perform. The arrows are pointing to four such icons, one on the left and three on the right. The icon on the left, for example, represents the hunter (this character's class) ability Arcane Shot. The slots on the action bar correspond to the top row of keys on the keyboard (1 through =). Players use the mouse to click on an

icon, or press the corresponding key, in order to activate the ability that the icon represents. There are a number of other UI elements visible in Figure 3, and I could add pages of detail about the ones I did identify. The UI becomes increasingly complex as players progress throughout the game, and I elaborate and describe new elements where necessary in later chapters.



Figure 3. Elements of the UI.

Another significant aspect of the early UI is the tutorial window (Figure 4). A **tutorial** is a structured segment of gameplay that serves to teach an intended set of meanings (see chapter 6, “Entrance,” for further discussion). The goal from a design perspective is to break down the game into teachable concepts and methods, convey those to the player, build the player’s confidence, and usually to make sure she finishes having had fun and with a sense of achievement such that she is ready and willing to continue

(Sun and Jones-Rodway 2008). In WoW, tutorial windows present key information and appear on screen when and where that information is deemed contextually relevant by the designers. WoW's tutorial has evolved since the game's arrival on the MMOG market in 2004. In the early days, a series of exclamation marks appeared on the bottom of the screen as players began the game. They could click on the exclamation marks for additional textual information about whatever just happened. The tutorial system in WoW was last updated, in the context of this study in December 2010.



Figure 4. Quest giver tutorial window.

Player-characters first enter Azeroth in relatively safe areas. The world itself is spatially segmented into **zones**, which are discrete areas of the game world each with its own aesthetic, story lines and level of difficulty. Throughout the game are many types of hostile and friendly NPCs. Hostile NPCs are called **enemies**, and in beginner zones range from about level one to ten. Important types of friendly NPCs include quest givers, spirit healers, vendors, class trainers and flight masters. Spirit healers reside in graveyards and return characters to life when they die. Vendors sell all manner of provisions, pets, gadgets and so on that players may want or need. Sales transactions are made using in-game currency. Players seek out **class trainers** in order to learn new skills and abilities

when their character increases in level. **Flight masters** charge a small fee to transport characters to specific destinations throughout Azeroth. Players may also run on foot, ride boats or zeppelins, and at level 20 may purchase a **mount** like a horse that increases movement speed.

In WoW, players may engage in a variety of play styles and activities, and set any number of goals for themselves. However, to adhere to the introductory nature of this chapter, I will describe the basic path players navigate through MMOGs that characterizes the semiotic domain⁵. Such a structure is laid bare by the game design and provides overarching and repetitive goals for players to achieve. Rettberg (2008) described this path as akin to corporate training because it primarily involves climbing ladders of status and power. Arguably the fundamental goal of the game is to **level up** one's character because without reaching the maximum level, two popular and challenging avenues of group activity – endgame raiding and the most competitive player-versus-player – remain sealed off. By earning enough **experience** points from completing quests and other activities, characters level up from 1 to 90. When characters level up, their attributes (strength, health, intellect and so on) increase, making them more formidable fighters. As characters level up, they learn new and powerful skills and abilities from class trainers, often class-specific attack moves and other special actions. Another goal of the game is to earn more powerful **equipment** by completing quests and killing enemy NPCs, which allows players to tackle more difficult challenges and obtain still better equipment in cyclical fashion. As players travel the world completing quests and leveling up, they may come across opportunities to interact with other players. They may form a temporary

⁵ See Chen (2012:11-49) for an ethnographic account of aspects of progressing through WoW.

group and chat, complete quests together or go exploring. The game eventually pushes players toward social interaction: “as a player gains in levels, quests become increasingly difficult to accomplish alone, reaching a point where a coordinated group of players is required to move further” (Ducheneaut 2010:135). Players may attempt to complete five-player **dungeons**, which are self-contained areas of the game world containing difficult quests and enemies. At higher levels, **raids** become available for players to attempt, which are the most difficult dungeons in the game requiring 10 or 25 players acting cooperatively and provide the most sought-after rewards. Players may also choose to join organized fights against other players of the opposite faction called **player-versus-player (PvP)** battlegrounds. They may join **guilds**, which are persistent groups of like-minded players (see Williams et al. 2006), and may draw on the resources of guild mates in order to do dungeons, raids, PvP and any number of other activities. Participating in these endgame activities at the highest level is what many players consider to be the “real” game.

A NOTE ON GAMES, PLAY AND FUN

Before concluding this chapter, it is necessary to briefly explore the complex relationship between games, play and fun, and to comment on the relationship among these concepts, not just generically regarding digital games, but specifically pertaining to the research reported herein. I have purposefully provided practical, broad definitions of game (a system in which players engage in artificial conflict, defined by rules, that results in a quantifiable outcome) and play (free movement within a more rigid structure). I chose broad definitions because I discuss play as embedded within players’ interactions with games. Players are always moving with some degree of autonomy within the

confines of a game. Since digital games are semiotic domains, play is an activity occurring within those domains. Narrower, traditional definitions of play may cause the reader to wonder what exactly players (if that is a viable term either) were doing. For example, consider Roger Caillois's refinement of Huizinga's (1938 [1971]) definition of play as having six qualities: free (not obligatory), separate (bounded in space and time), uncertain (as to the outcome), unproductive (creates no wealth or goods, ends in a situation identical to which it began), governed by rules, and make-believe (reality as against "real life") (1961). My participants did not always satisfy these qualities. Since they were participating in a research study, their interaction with the games was always to some extent obligatory. Sometimes they felt this very acutely when they were especially busy with school or were frustrated with a game, and sometimes they felt as if engaged in free play. Because they were participants in a research project, their interactions with the games were always productive, producing data for analysis. They were often aware of this as I observed, recorded and talked with them as they played. I also paid them money for their participation when the study concluded. Further, MMOG play creates virtual wealth and goods, and the end state of a person's gaming session may be quite different than when they began. Does this mean participants were not playing when interacting with these games? I hardly think so, and therefore apply Salen and Zimmerman's definition of free movement within a more rigid structure.

Play and games are also associated with having fun. Indeed, Caillois says that if play is not free, that is, if it is obligatory, "it would at once lose its attractive and joyous quality as a diversion" (9). It would cease to be much fun. Even though my participants did play out of obligation, they still experienced fun. They also had varied experiences

that readers may not label as fun, and these perhaps form the bulk of the examples in the thesis. After all, this thesis is about learning to interact and make meaning with(in) digital games, which is often a daunting task. Because of this, I would like to take a moment to dispel a general assumption, namely that “games are fun.”

Of course games can be fun, and games are often fun, but in truth *games and play are not always fun*. Nothing in the two definitions of games and play necessarily implies fun. Sometimes, playing games is like work. Nick Yee writes, “There’s a cultural premise that work and play are an inherent dichotomy. When we talk about video games, it’s easy to frame them as sites of play and entertainment. The staggering amount of work that’s being done in these games is often gone unnoticed...” (2006:68). Yee is talking about people engaged in “playbor” (Nardi and Kow 2010), such as those, like gold farmers, who play digital games to earn a living (Dibbell 2006). Power gamers are another group who “play in ways we typically do not associate with notions of fun and leisure,” (Taylor 2006:72). They often have great dedication to a game or group of players, and gaming can become an obligation such that it is not uncommon for (former) players to report sentiments like “It became a chore to play” or “My fingers ache me, waking, in the middle of the night. I have headaches from the countless hours I spend staring at the screen. I hate this game, but I can’t stop playing” (quoted in Yee 2006:69-71). Players who raid in MMOGs like WoW most often fall under this category, and my own personal experience of becoming a hardcore WoW raider, alternately loving and hating the game, sometimes playing for leisure, sometimes for work within the game and sometimes for my job outside the game as a researcher, exemplifies tensions of gaming as an obligation. Other games researchers may have similar experiences negotiating the tension between

work and play. Silverman and Simon (2009) note that not only do games become more work-like, but work becomes more game-like: "...the strongly seeded cultural values associated with play such as freedom, autonomy, and joy have now become values associated with 'good' work..." (354).

Sometimes games can be boring. One of Taylor's Everquest respondents recalled, "...certain aspects of the game were SO GODDAM DULL and downtime was SO EXTENSIVE that people were doing things like laundry and watching television while they waited to hunt, level, cast spells, travel to meet friends...in short, to play EQ" (2006:85). Sometimes games are not meant to be much fun in the first place, such as many so-called "serious games," "games that do not have entertainment, enjoyment, or fun as their primary purpose" (Michael and Chen 2006:21). Examples of serious games may be job-training simulations, games to promote health or physical training and games about current political elections. The proliferation of serious games at or about jobs exemplifies Silverman and Simon's (2009) arguments about the disintegration of the boundaries between work and play.

Sometimes games can be frustrating. Jesper Juul in particular has written about the function of failure in digital games (2009; 2013). Juul found that when players are stuck in games, they often feel lacking and inadequate, but that players understand that games implicitly promise them that they can overcome obstacles if they continue playing. On the one hand, players do not want to fail or feel inadequate, but on the other hand a positive aspect of failure is one reason players redefine situations and explore various lines of action. Experiencing failure and frustration may be motivating, sweeten future success and contribute to experiencing joyous fun of the sort that games are assumed to provide.

Players are more likely to continue working, yawning and failing at a game if they believe the game will reward them for their efforts (Consalvo et al. 2010). During data collection for this study, I sometimes had to reassure participants that there would be rewards (personal, financial, social) if they would keep playing. They all, at various times, experienced playing WoW and Portal 2 as work, obligation, boredom, frustration and failure. Throughout the thesis, examples show participants experiencing each of these feelings, as well as fun in a variety of forms. Where appropriate, I have attempted to highlight moments when participants experienced rewards for their hard work and hard play, when they were playfully experiencing joy, wonder, creativity and freedom, in order to do justice to the medium of digital games.

CONCLUSION

This chapter has provided an explanation of semiotic domains. It defined digital games as semiotic (sub)domains and showed how domains are analytically divisible. It provided a brief introduction to Portal 2 and WoW, including descriptions of gameplay and narratives, as well as outlining key terminology, bolded words which can be found in the glossary. The chapter closed with a discussion of the relationship among games, play and fun, positing that failure and frustration are significant aspects of gameplay. Players learn aspects of the underlying grammars of the domains presented here through the socialization process and increase their domain literacy as they learn the games' languages. It was necessary to first describe the games before presenting a full review of the literature in chapter 3 and discussing their merits as research sites in chapter 4 in order to contextualize those subsequent chapters.

CHAPTER 3 – LITERATURE REVIEW

The purpose of this literature review is to introduce core concepts from the interdisciplinary literature that I have drawn upon. Such fields, including interpretive sociology, game studies, education and qualitative inquiry, intersect at many of these conceptual crossroads. I show where this study fits into existing research. Beginning with a discussion of meaning itself, I show how meaning relies on interaction, which may take different forms. Socialization into technological domains often involves digital objects, and therefore I show a way of redefining the social to include objects as social actors. While human-object interaction is fundamental to socialization, semiotic domains become increasingly complex when the potential for more human interactants is greater. I then outline the socialization process and suggest that people come to semiotic domains with more or less relevant previous experience and literacies, and then experience entrance and individualization stages, each of which are characterized by three aspects of socialization (formal, informal and personal). This literature review focuses on the core concepts of the subsequent chapters from a sociological perspective.

INTERACTIONISM AND MEANING

Interactionists emphasize the meaning-making process comprising human interaction (Blumer 1969). Action is predicated on meaning, so to understand why and/or how one does something, we need to ask what meanings they attribute to elements in the situation, and how they engage in attribution. The meanings people assign to things are largely learned in social contexts and conceptually bounded by semiotic domains. Human experience is a constant stream of interpreting symbols, attributing meaning to things, and

acting on the basis of meaning. Meaning emerges through interaction and is internalized through socialization, such that we generally agree with one another about shared meanings and relationships among things (Hewitt 2007:21). Much of what people think and do in daily life is fleeting and based on surface-level interactions, where meanings are taken largely for granted (Langer 1990). Garfinkel's (1967) breaching experiments highlighted the taken-for-granted-ness of shared meaning in everyday situations by exposing norms as social constructions. The interactional accomplishment of meaning-making is worth reflecting on, as intersubjectivity is a fundamental component of lived experience, and the study of the accomplishment of intersubjectivity is a major undertaking for interpretive sociology (Prus 1996:2).

Thus, meaning-making does not occur in a vacuum; it is an intersubjective process informed by social interaction within situations where we think, feel and act. Indeed, learning to interact in a domain is to learn new rules, skills, and classification systems, or to reinterpret existing skills and concepts in terms of a new domain. These three attributes of interaction – thinking, feeling and acting – are interrelated, but an interactionist approach facilitates an analytical distinction among them, in addition to facilitating analysis of individual and social contributions to the meaning-making process.

Human beings create meaning through an interpretive process. Interpretation may be realized through engagement with oneself, other humans, nonhuman objects, or abstract ideas. Any of these things may appear to express, communicate or hold meaning. Whatever is being interpreted by interactants is meaning, and to the extent that interactants deem that meaning significant, it may be more or less *meaningful*. A passage from G.H. Mead's *Mind, Self and Society* reads, "Just as in fencing the parry is an

interpretation of the thrust, so, in the social act, the adjustive response of one organism to the gesture of another is the interpretation of that gesture by that organism – it is the meaning of that gesture. At the level of self-consciousness such a gesture becomes a symbol, a significant symbol” (1934:78). Communication is achieved through the use of symbols, which tend to “call out in the individual a group of reactions,” and symbols are significant symbols when they are “a stimulus to the individual as well as a response” (71-72). Significant symbols, like Mead’s fencing thrust, locate the interactants for whom the symbol is meaningful in conscious and pragmatic awareness of the meaning-making process. Six characteristics of meanings are worth considering that describe how they are created, interpreted and used.

First, meanings are *real*. People act on the basis of the meanings they hold. This is related to “the Thomas theorem”: “If [people] define situations as real, they are real in their consequences” (Thomas and Thomas 1928:572). If people act on the basis of meanings, of what they define as real, then meanings must be at least subjectively real, and are realized through action. Therefore, second, meanings are *interactional*, arising from and communicated through interaction. This involves not only other humans or conversations with oneself, but nonhuman others and digital interactions with and through media. Third, meanings are *modifiable*. Blumer stated that “meanings are handled in, and modified through, an interpretive process used by the person in dealing with the things he encounters” (1969:2). Although the meanings of things are generally stable in everyday life, people are occasionally faced with problems or new information to make sense of. Fourth, meanings are *contextual*. All interaction occurs in situations. Thus meanings of things may be used, modified or reinterpreted differently depending on the situation, and

across time and space. In addition to being shaped by the situation, meanings of things shape interactants' definitions of the situation (Goffman 1959). Fifth, meanings are *emotional*. Experiencing and reflecting on emotions affects subsequent meanings and actions, and meanings and actions affect emotional conditions and interpretations (e.g., Schott 1979). Sixth, meanings are *relational*. The meanings of things arise through interaction and are understood in relation to one another, forming larger systems of meaning. These systems of meaning are also understood in relation to one another.

Taken together, a relational system of meanings may become a social or cultural structure, forming or sustaining cultural creation within which meanings are interpreted and shared. Recall from chapter 2 that digital games are such structural systems of meanings. Material and immaterial aspects of culture may be called cultural objects, which refer to “shared significance embodied in form” (Griswold 1987:4). The meanings of cultural objects are validated inasmuch as those meanings are shared within a semiotic domain. The chance of meaning being shared partly depends upon the extent to which such meaning is favorable in a situation. Fine (1979) ordered five elements of cultural objects that act as a filter for which objects will become part of a group's culture. He said that “cultural forms may be created and continue to be utilized in situations if they are *known* to members of the interacting group, *usable* in the course of group interaction, *functional* in supporting group goals and individual needs, *appropriate* in supporting the status hierarchy of the group, and *triggered* by events which occur in group interaction” (733). The more of these elements a cultural object is perceived to have, the more likely it is to be relevant in interaction.

The six characteristics of meanings outlined above are characteristics of meanings themselves. Fine's five elements of cultural objects are about creating and selecting among meanings, or meaning-making. The two can be interwoven. Consider an example of a basic game rule from the semiotic domain of MMOGs like WoW. When a player-character imbibes a health potion, her health becomes full. Before a piece of cultural information like this rule, or the game object, a health potion, can be perceived as real and acted with respect to, it must first become known. Perhaps the player-character must first possess a health potion. According to the interactional characteristic of meanings, the player formulates a response to the question of the health potion's usability through interaction with it. Perhaps the player learns that clicking the right mouse button causes the character to drink the potion. The modifiable characteristic of meanings allows people to reinterpret them if the cultural object is not functional or appropriate. For example, if the player-character drinks the health potion when her health is full and her magic power is low, she will see no effect on either health or magic power and will likely modify the potion's meaning as "not for using when health is full" and "not for increasing magic power" because drinking the health potion did nothing and therefore those meanings were not functional. Since meaning is contextual, a cultural object may be inappropriate in one situation, but appropriate in another. For example, if two players are in a group, and one of their characters specializes in casting magical healing spells to increase health, then spell-casting may become the preferred and appropriate means of restoration rather than health potions. However, if the spell-caster runs out of the magic power required to use healing spells, then health potions may become situationally appropriate. A person may have an emotional response to a meaning, which may serve as a triggering event to call a

cultural object into practice. This is quite often observable in games when a player is in a tough battle. The panicked feeling when an enemy's strong attack decreases one's health is usually enough to trigger players to use a health potion (or some other restorative ability). Finally, any cultural object must be considered in terms of the system of meanings within which it is being invoked.

Through social interaction, people learn, if not consciously, the characteristics of meanings and to filter and choose among relevant meanings in daily life. This is essentially the process of socialization, where the meanings people learn and learn to make are those required to participate in social groups and within various semiotic domains. Since meaning-making is predicated on shared understanding, so too is socialization. Making meaning is a generic social process, a "transsituational element of interaction" (Prus 1996:142) transcending domains. Significant meanings include, but are not limited to, rules, norms, beliefs, skills and expectations, and the outcome of learning such shared meanings is geared toward the successful performance of roles and identities (O'Brien 2011). As I have shown, meaning relies on interaction. In the following two sections, I examine the nature of social interaction, particularly in digital games, by discussing two different forms, subject-object and subject-subject. I then discuss how semiotic domains are characterized by different interactional forms, and thus how people develop different literacies through the course of socialization into domains.

SOCIAL INTERACTION

In any semiotic domain people encounter significant others that act as agents of socialization. Agents of socialization are integral in people creating, interpreting and

modifying meanings, as well as filtering cultural information in situations to help them choose lines of action. They teach the rules, norms and the sets of knowledge and skills required to fill roles and participate in domains. Fundamentally, people experience socialization through social interaction. When looking at digital games, or human relationships with nonhuman objects in general, it is imperative to define what counts as social interaction, because it has been a hotly debated subject.

The popularity of massively multiplayer and other “social” games pushes the advancement of communication technology, yet the use of the word “social” has remained rooted in pre-mediated times and remains therefore misleading. In everyday language, people tend to associate “social” solely with interaction among human beings. This meaning drives the development of social games, and perhaps soon, games in general. Games business stalwart Nicholas Lovell asked over two dozen game developers, designers, and entrepreneurs to define “social game” in early 2011. He reported their responses on his blog (www.gamesbrief.com), which by and large reiterated the belief that social games are games played with other people, especially through social networking sites. Game designer and academic Brenda Brathwaite emphasized an inherent social (player-player) nature of games when she said, “The single player games that came into prominence during the late ‘70s, 80s, and 90s were an aberration, really, when you take into account the whole history of games.” The point is valid to the extent that single-player games as they have existed since the 1970s were only possible because of the computer. Although the aberrations she referred to, with no player-to-player component built in, still exist today, such single-player projects are increasingly pushed aside or developed to align with the taken-for-granted definition of social games.

Brathwaite's sentiments were supported in games academic Jesper Juul's interviews with designers, and can be summed up, "social game design...is about making sure that the game, in turn, creates interesting interaction between players" (2010:121). More recently, this narrow focus on social games has come under attack by writers and users of various gaming sites after game development giant Electronic Arts's President Frank Gibeau, explaining a statement in which he said that he would not approve of any game being developed solely as a single-player experience, told gaming news site Kotaku.com that "You need to have a connected social experience where you're part of a large community" (Narcisse 2012). While many game players have voiced their disagreement to such development trends, this philosophy nonetheless has become commonplace, as nearly all big-budget titles today have multiplayer modes, Facebook integration, and so on, and are increasingly nested inside the larger social gaming networks of Steam, Xbox Live, or Playstation Network.

Online multiplayer games, especially MMOGs like World of Warcraft, are arenas of social activity, as commonly defined. These games are explicitly designed to support cooperative and competitive play, as well as to facilitate sociability (Christou et al. 2013) through environmental design (Ducheneaut, Moore and Nickell 2007), communication interfaces (Wadley and Gibbs 2009), or reciprocal role creation (Williams and Kirschner 2012). When developers change a game's design during the course of its life, the dynamics of social interaction shift as well (Chen, Duh and Renyi 2008). Ducheneaut and Moore (2005) showed that MMOG players learned important social skills through player-to-player interaction, such as how to meet people and manage small groups. Group play in MMOGs has also been framed in terms of community, or among networks of like-minded

players called “guilds.” Chen (2012) provided an ethnographic account of a guild engaged in a complex group activity called “raiding,” which required group members to meet online “twice a week...for roughly 7 months and then just once a week for 3 months...[with] each session last[ing] about 5 hours” (17). The high levels of commitment and trust that guild members built over time is even more impressive because this 10-month sustained social activity was oriented toward achieving one massive goal – killing a powerful enemy named Ragnaros.

While it is clear that multiplayer games are designed for social activity, in actuality many players in virtual worlds exist “alone together” (Ducheneaut et al. 2006). For example, in a study of pick-up-groups in WoW, which, as opposed to guild raid groups, are short-lived bands of strangers assembled for interested parties to quickly accomplish a particular task, Eklund and Johansson (2010) concluded that interaction “is mainly instrumental, something not often discussed in relations to these types of ‘social games.’ The game design does not encourage sociable interaction and gives no opportunities for creating lasting relationships” (6). These studies show the paradox of sociability in massively multiplayer games, where spaces designed for player-player interaction do not necessarily sustain it and sometimes work against it.

All digital games are social games if we use a more accurate definition of the term. Calling only one type of game social restricts the range of meaningful interactions provided by the medium. Research has debunked the stereotype of the pimply teenaged male gamer, isolated and alone in his parents’ dark basement except for the glow of the screen (Entertainment Software Association 2013), but it still persists in common perceptions of gaming. Without any other human-human interaction in-game, is it easy to

understand why single-player games are still often considered (especially by non-gamers) non-social experiences in everyday discourse; however, like the idea that online multiplayer games are bustling with human-human communication, the idea that single-player games are non-social is a misconception (Stenros, Paavilainen and Mayra 2011) that supports and inverts the paradox of sociability. But, considering alternate definitions of the social resolves the paradox. Salen and Zimmerman (2004) point out that “When we frame a game as social play, we consider the relationships between elements in the game system to be social relationships” (462). Social play pertains both to human-human and human-computer interaction, where such interactional elements may be a computer-controlled opponent or one’s own high score.

SUBJECT-OBJECT AND SUBJECT-SUBJECT INTERACTION

Typically, human-human interaction is framed as subject-subject interaction, while human-nonhuman(computer) interaction is subject-object interaction, where humans are acting subjects and nonhuman (digital) objects are things being acted upon. However, in addition to the conception of humans as significant others and acting subjects, people routinely treat objects in daily life as such, so that human-nonhuman interaction may at times become subject-subject interaction. This is especially true in digital games, in which the majority of interaction includes digital objects, where games are framed as social play and the relationships among elements of the game system are social relationships. This aspect of human life is taken for granted due to the dominant paradigm of social interaction that Cerulo (2009) calls the “human-only tradition,” where human actors possess five capabilities that are absent in nonhumans: (1) consciousness, or engaged awareness; (2) intention; (3) self-identity, or reflexivity; (4) other-orientation;

and (5) symbolic communication. Symbolic interactionism emphasizes meaning-making and human agency in social life. Humans act purposively to develop intersubjective understandings of the world. Thus, meanings are not intrinsic properties of things, but are constructed through interaction. George Herbert Mead, a forefather of interactionism, stated that “it is possible for inanimate objects, no less than for other human organisms, to form parts of the generalized and organized...other for any given human individual, in so far as he responds to such objects socially or in a social fashion” (1934:154). Mead himself maintained a distinction between humans and nonhumans in line with the human-only tradition of interaction, but he clearly laid the groundwork for conceptualizing objects as significant others through the process of role-taking. He said that although people take the roles of objects to interact with them, the objects are not actors: “Physical things are objects implicated in the social act, whose roles we can take but which cannot in turn take our roles” (xxii). Of course, he did not have the power of modern computing to fit into his theory, and human-nonhuman interactions have generally remained framed in terms of a subject-object dichotomy. While people tend to distinguish in everyday life between themselves as active agents and nonhuman objects as mere manipulable things, they actually achieve perspectives of themselves as both acting agents and as objects through the process of role-taking. For Mead, objects lacked mind, which is essential to role-taking and achieving actor status.

In recent years, some sociologists have expanded the concept of mind to nonhuman objects and rendered interactions between the two classes as subject-subject (e.g., Latour

2005⁶). People place nonhuman objects into active roles when attributing to them aspects of mind and self in interaction. By “doing mind” for nonhuman objects, people are able to perceive them as actors in situations (Owens 2007). Owens outlined four contingencies through which an object may become an acting subject:

- (1) We see the object as capable of independent action
- (2) Its potential actions threaten our goals
- (3) Our goals are of such importance that we must address the threat
- (4) The object is critical to achieving our goals

Attributing actor status to an object involves more than just taking the role of the object, but imagining that the object takes our role and attributing, at least temporarily, goals, motives, aspects of self and identity, or any of the other prerequisites for actor status that Cerulo (2009) outlined. It is through the mental acrobatics of doing mind for an object, perceiving it as a subject, that we are able to respond to it as an actor.

⁶ Latour is and has been a major figure in the development of Actor-Network Theory (ANT), a material-semiotic method with a specific terminology that maps relationships among things and concepts in networks. ANT holds that nonhuman objects, such as scallops in the sea (Callon 1986) or automatic door openers (Latour 1988) may be actors (or “actants”) in actor-networks. It treats meaning and relations as emergent and shifting and considers all actors to have agentic symmetry with the potentiality to become analytic focal points. The heterogeneous elements of networks may form assemblages, or hybrids, such as the driver-car (Dant 2004) that open up new forms of action. ANT has clear relevance to the study of digital games, since players enter into a socio-technical network comprised of the self, gaming hardware and software, gaming communities and innumerable digital game objects, mods and other online artifacts (Giddings 2005; Taylor 2009). Taylor, for example, provided fascinating insight into a WoW raiding modification’s participation in a socio-technical system, describing how it “comes to stand as a kind of autonomous agent, the 41st member of the raid. The collective use of the mod seems to evoke a new member of the group” (2009:334-335). Readers familiar with ANT will recognize its influence in the thesis, particularly in Chapter 7; however, I generally avoid relying on it. Especially when discussing ideas where ANT and symbolic interactionism share similarities, I write from the latter perspective, it being the major theoretical perspective of the thesis, and avoid using ANT’s specialized language. I break from ANT in particular by considering the agency of objects only as granted through the human player’s perceptions of them, thereby locating the human as the central agentic figure in interactional networks and systems of meaning.

Interactionists studying human-animal intersubjectivity (e.g., Sanders and Arluke 1993) report that pet owners often insist that their pets drive interaction to achieve particular ends and experience, express and perceive emotions. The documentary film, *Gates of Heaven* (Morris 1978), about pet cemeteries and peoples' relationships with their pets (in the present and continuing into the ever after), provides lengthy interview excerpts of people talking about, for example, how their pets responded to the mood of conversations, understood Christmas morning gift-giving protocol, and would be admitted into Heaven as creatures equal to human beings. Indeed, these kinds of attributions are normal for many pet owners. Sanders suggests then that "mind is an interactional accomplishment" (2003: 418) between humans and animals. Similarly, in his "technography" of the sinking of the ferry, *Queen of the North*, Vannini argues that personhood is an interactional accomplishment: "On the basis of [the *Queen's*] agency and material appearance, she is assigned meanings, roles, a personal identity, and even a status as a person" (2008: 171). This personhood emerges over time through interactions with people and the environment, creating technoculture, comprised of "what people do with things" (156). These descriptions of mind and personhood as interactional accomplishments underscore the interactional accomplishment of the social that emerges through associations with nonhuman others.

Treating objects as actors in social situations creates a fundamental social unit that in the human-only tradition does not exist in subject-object interaction called the dyad (Simmel 1950). Although Simmel theorized specifically regarding human actors, technically speaking, the dyad involves two elements in interaction which need not be human actors. As Salen and Zimmerman (2004) pointed out, social play involves

elements of a game system, which may involve abstractions such as a high score or a future self against which one competes. The social psychological conceptualization of the self as the interplay between the acting subject (“I”) and the object, the internalization of the generalized other (“Me”) is such an abstraction that may be considered a dyad. The acting self takes itself as an object (Mead 1934:135-144). Even though there is only one individual, that individual possesses two elements, the I and the Me, that are in a social relationship representing the dialectic between self and society in the mind and that are sustained through social relationships with others. Doing mind for objects places them in dyadic relationship to the self, as again, even though there may be one human individual, humanness is attributed to the other such that social interaction can be accomplished.

Carl Couch (1986) theorized eight forms of elementary social activity built upon the dyad: autocratic, the chase, conflict, competition, panic, accommodation, mutuality and cooperation. For interactants to do anything together in any form, they must engage in an opening, moving "from a condition of behavioral independence to one of interdependence" (Miller, Hintz and Couch 1975:479). They are “confronted only by the other, not by a collectivity above [them, and] the cessation of either would destroy the whole” (Simmel 1950:123). Thus the opening requires that interactants establish six basic elements of sociation in the production of each form of activity: co-presence, attentiveness, responsiveness, functional identities, focus and objective that maintain the integrity of the dyad. In the course of doing mind for objects, again, there may be only one human actor present, and in such cases she must both establish and perceive the object as having established the six elements for social interaction to proceed. Drawing on Couch here marries the interactional or behavioral forms of social action with the

perceptual or psychological process of doing mind. Both aspects of social interaction co-occur and affect one another. While establishing an opening, people may simultaneously attribute Cerulo's characteristics of humanness (consciousness, intent and so on) and meet Owens' contingencies for doing mind. Consider an example of a player and a digital game object, an NPC, encountering one another. This interaction may take a number of potential forms. If, while establishing an opening, the player perceives that the object is expressing incongruent functional identities (perhaps it appears hostile to the player-character), has an other-oriented focus (as opposed to sharing the player's focus) and a personal objective (such as intention of killing the player-character), then the human actor may characterize the social interaction as a conflict and perceive the NPC as a conscious actor capable of independent action preventing the person from achieving her goals. The co-occurrence of doing mind and establishing an opening may lead the player in this situation to label the NPC as an enemy, because it certainly appears that the NPC has labeled the player an enemy, which further structures her action with respect to it.

As the number of interactants increases, potential complexity in semiotic domains rises. Simmel (*ibid.*) described other quantitative social configurations, the one most fundamentally distinct from the dyad being the triad. The major characteristic of the triad (and of any greater number) is that if one element is removed, the social group persists. This allows for the concretization of norms and social structure. Berger and Luckmann's (1966) example of the adult dyad on a desert island who decides to have a child captures this and other characteristics of the move from dyad to triad. Norms solidify and become external to the individual, leading to a greater adherence to them, yet at the same time specialization of roles leads to a proliferation of different ways of doing things. Because

the group exists outside of the individuals in relation to one another, members can break rules and norms, or develop new norms within subgroups, and not destroy the group, although cohesion may be strained and deviance sanctioned. In the triad and larger groups, people also establish the elements of sociation for interactional forms, but one person not establishing them does not necessarily lead to a breakdown of the group, social order or form of activity. Like the dyad, the triad need not be comprised of three human actors, but may include humans doing mind for objects.

The move from individual to dyad to triad and onward indicates a rising complexity in social interaction and potentially in the semiotic domain itself especially as more human elements are included. This move is also represented by the addition of digital objects and especially by the potential for more players in multiplayer games. More interactants equals more (perceived) minds, and opportunities arise for ever more varied forms of social action. The more norms, rules, roles, forms of action and so on that are constructed and sustained within a domain, the more grammars are available for participants to become literate with respect to. One particular type of literacy that people develop is in relation to communicative modalities in semiotic domains, and this becomes increasingly important as the number of interactants and semiotic complexity rise. Basic communicative modalities include speech, text or sound.

In all situations, constructing shared meanings is an interactional accomplishment, but doing so through computer-mediated communication in an unfamiliar situation is a particular challenge. The cues of face-to-face interaction, which people typically take for granted, are absent or reconfigured. This hampers the smoothness of social scripts, but in the gaps media users can become proficient in other modes of communication, such as

digital text messaging and software scripts (Waskul & Martin 2010). Waskul and Martin showed in their ethnographic study of sex in the virtual world Second Life that the range of meanings users held for virtual sex were on the one hand limitless through the representation of imagination communicated textually, and on the other hand limited by the (still astoundingly broad) software scripts that animated their avatars. Different communicative modalities provide for different types of meanings in certain situations. The interplay between agency and constraint in creating and conveying meanings and choosing among communicative modalities in the sexual semiotic domain of Second Life is reminiscent of a similar interplay in the digital games I studied. Just as Second Life users had to become literate in the knowledge and sets of practices necessary for participation in that virtual world, WoW and Portal 2 players had to become literate in the sets of practices and proficient in various modalities required to communicate with digital and non-digital others in those games.

For interactants to collaborate and do things, they must become socialized to communicate through such modalities, and learn to read and write meaning through appropriate channels. People establish co-presence and other elements of sociation with social actors through communicative modalities. The characteristics of meaning (real, interactional, modifiable and so on) and Fine's elements for cultural objects (known, usable, functional and so on) are conveyed through such modalities. Communicative modalities are the channels through which interaction occurs and interactants share meaning, and I discuss them in more detail in chapter 8.

People develop a multiplicity of literacies in any given semiotic domain throughout the course of socialization, from learning the relationships of signifiers to

signifieds to recognizing rules and norms to effectively utilizing communicative modalities to share meaning. In the next section, I turn to a discussion of the socialization process, describing formal, informal and personal aspects of it, and outlining the entrance and individualization stages.

SOCIALIZATION

George Herbert Mead developed a theory of socialization and a host of related concepts that became highly influential in sociology, particularly interactionist thinking. He identified four stages of socialization: imitation, play, game and generalized other. Mead located the first three of these in primary socialization before adulthood. The generalized other develops over a lifetime. The latter three are important here. In the play stage, children “play at something,” meaning they take a role, pretending to be a mailman, parent, police officer and so on (1934:150). A child may arrest himself as a police officer and then switch roles in part because he does not know what other activities are involved in the role of police officer. The roles children play at are significant for them, but remain relatively vague because, although children have begun to internalize roles, the roles are not wholly organized within them. This type of activity in the play stage has a whimsical tendency and Mead attributes this to its relative lack of rules. Caillois categorizes this type of play, most common in children, as “paidia,” characterized by free improvisation, a carefree attitude and uncontrolled fantasy (1961).

As children move from playing at a role to playing a game, Mead said that they “must be ready to take the attitude of everyone else involved in that game, and that these different roles must have a definite relationship to each other” (1934:151). Like in the

game stage, people participating in semiotic domains may play multiple roles. The expectations and obligations of the roles being played are experienced as real inasmuch as role performance is regulated by virtue of being in reciprocal relationships with other people in other roles. People learn to “take the role of the other,” which is essentially “imagining how one looks from another’s standpoint...making inferences about the other person’s inner experiences” (Shibutani 1961:48). In the game stage then, a person can effectively play the role of a warrior in a group of players in a digital game like WoW because he is able to perceive himself (and/as his character, or the player-character) as an object from the perspective of his group mates playing the roles of priest, rogue and hunter, and from the perspectives of members of an opposing team, simultaneously, and is thus able to act in concert with those other roles in various situations. He is also able to imagine how the rogue takes the role of the priest, the priest of the hunter, and so on. This increase in the structure of play through taking the roles of multiple others moves activity along a continuum from *paidia* to “*ludus*,” characterized by rules, discipline, convention and “gratuitous difficulty” (Caillois 1961:27).

People discern the ability not only to take the roles of multiple others, but to organize those roles into the “generalized other,” which is the “attitude of the whole community” (Mead 1934:154). The person playing the warrior can act as he imagines that his allies or his enemies, as larger social groups, expect him to. The generalized other is a broad concept, it being the abstracted “whole” set of associations. Shibutani (1961) built on the generalized other, using Mead’s concept of significant others, and developed the concept of “reference groups.” A significant other is typically defined as an individual in close association with a person, and who is influential in the development of the self (i.e.,

mother, husband, good friend). In terms of semiotic domains, significant others may be part of the domain's affinity group, people who participate in the domain and regulate its design grammars, socializing the individual into the domain and associated roles, and shaping the individual's self as a participant in the domain. Through close association with significant others, people develop identities, shared meanings, are able to take others' perspectives and understand role-relationships. The particular utility of the reference group concept is its fluidity, being able to handle the fact that "different persons approach the same situation from diverse standpoints [and] the same person in different transactions may utilize different perspectives" (257). Significant others may function as reference groups, which are "real or imaginary, whose standpoint is being used as the frame of reference by the actor...There are as many reference groups for each person as there are communication channels in which he participates" (ibid.). People attribute to each reference group a set of attitudes and expectations that they bring to bear on their interactions. People internalize the attitudes and expectations of reference groups as part of the objectification of themselves and as part of the internalization of their realities more generally (see Berger and Luckmann 1966, p.129-147). The internalization of reference groups facilitates interaction and socialization into semiotic domains.

As I have discussed, socialization is a process of cultural learning where people learn particular shared meanings required for successful participation within a semiotic domain. Significant others and reference groups play an important role in the socialization process, and those entities may be called agents of socialization. We encounter any number of such agents throughout our lives with whom we jointly create, interpret and modify meanings through interaction. Agents of socialization may be integral in our

filtration of cultural elements in situations, whether or not a cultural element becomes known, usable, functional, appropriate or triggered. People and objects may act as agents of socialization and comprise reference groups. This is especially significant during socialization into digital media, such as games, because people tend to spend a large amount of time interacting with nonhuman objects that often become significant others.

Scholars have endeavored to delineate stages through which people pass as they are being socialized. Having used Mead to discuss the genesis of the self throughout primary socialization and its continued development by internalizing the perspectives of reference groups and taking the roles of others, I will show how the self continues to be constituted by acquiring and interpreting roles and identities through two stages of socialization: entrance⁷ and individualization. These stages of socialization are comprised by relative amounts of formal, informal and personal aspects. These three aspects were introduced by Thornton and Nardi (1975) as stages of role acquisition, but they are more useful here as descriptors of stages, partly because of their close relation to the eponymous formal and informal types of learning. The entrance tends to be formalized and characterized by scaffolded instruction, becoming more informal over time, while the individualization stage gives way to more informal and especially personal aspects of socialization. Despite these tendencies, all three aspects may be present and overlap in any given situation in any stage. Thus the formal, informal and personal aspects of socialization are best conceptualized along a continuum instead of as three mutually exclusive types.

⁷ In the literature, this stage is sometimes referred to as the encounter stage (e.g., Kramer 2010), but I will use entrance to avoid confusion with Goffman's (1961) use of encounter.

Entrance

The entrance stage involves individuals negotiating the interaction between prior expectations and initial experience. In studies of organizational and professional socialization, the alignment of previous expectations to lived experience as a member is a major factor in determining ease of adjustment, longevity in the domain, and effectiveness of role performance (Kramer 2010). The more relevant anticipatory socialization and previous experiences are, the smoother the entrance stage is likely to be. I explicitly address the relationship between previous experience and the course of socialization in chapter 6. Groups and organizations have long recognized the benefit of facilitating members' smooth transitions into roles, which has led to an emphasis in pre-service programs like internships (e.g., Dobbs 1988) and on-the-job training like orientations, mentorships and digital gaming simulations to provide newcomers with more realistic expectations in order to reduce negative surprise and contrast (Louis 1980). Another hallmark of the entrance phase is uncertainty reduction (Kramer 2010:77). Initially, newcomers to a role or organization may be unsure how to think, feel or act.

This early phase of adjustment is heavily governed by formal rules and role expectations. Design grammars are formally conveyed in the entrance stage, and such formality "restrict[s] the free operation of the role-making process, limiting its repertoire and making role boundaries rigid" (Turner 1990:86). The entrance stage narrows the range of meanings that the individual can attach to cultural elements related to the semiotic domain, and thus breeds conformity to local rules and norms, providing the tools for successful role performance and interaction. Formal aspects of socialization tend to revolve around instances of formal learning, which is objectively defined as such by the

grammars of the domain into which one is being socialized. This may include learning within a prescribed framework or curriculum, the presence of a specialized teacher, or the standardized assessment of explicit outcomes (Eraut 2000). Role expectations are similarly codified, with an emphasis on behavior and abilities, as opposed to attitudes, where individuals are expected to learn a set of “‘must’ behaviors, generally related to the goals of the system in which the particular position is located” (Thornton and Nardi 1975:876). Formal aspects of the entrance stage are explicit during tutorials in digital games, as discussed in chapter 6.

Informal aspects of socialization tend to revolve around informal learning, which is typically a byproduct of everyday interaction even in a new domain (e.g., Reichers 1987), is often spontaneous or incidental, may involve reflecting on past experience, and does not require a specialist teacher or organizational framework (Marsick and Watkins 2001). One well-known type of informal learning that often occurred in my study is called experiential learning, which is “the process whereby knowledge is created through the transformation of experience,” and focuses on learning as an adaptation to problems (Kolb 1984:38). Likewise, meaning-making in the form of culture creation is an innovative response to problems (Becker 1986), and the socialization process itself is a form of adaptation toward interactional efficiency that facilitates joint action (Shibutani 1961). Informal learning “values the knowledge of ‘nonexperts’ and places importance on the experience of individuals” as they learn from others, self-direct their own activity, and learn by doing (Grenier 2009:153). Self-directed learning involves individuals learning independently from formal agents of socialization, often following personal goals. Grenier’s museum docents, in addition to completing formal assigned readings, read

extensively on topics related to their area of expertise in order to broaden their knowledge base. Further, all the docents emphasized experiential learning in the domain and reported “a need to just get out there and do it” (151). Various teaching methods exist in any domain, consisting of formal and/or informal aspects, to socialize newcomers.

One such method prevalent in the entrance stage to teach newcomers is called “scaffolding,” which oscillates between formal and informal aspects. Scaffolding involves interaction between an expert and a novice and is generally used to teach basic skills and knowledge required for successful participation. Sharma and Hannafin (2007) described it as a two-step process: “First, the expert provides the novice with appropriate support to identify strategies for accomplishing individually unattainable learning goals or tasks. [Second,] the expert gradually fades this assistance as the learner becomes increasingly competent” (29). The expert then provides assistance in a different or more difficult task, and so on (Bonk and Cunningham 1998). If scaffolding instruction was effective, the newcomer acquires an increasingly useful repertoire of knowledge and skills that allow her to act independently in a domain. The tools gained from scaffolding enable individuals to personalize aspects of their role performances, resulting in moving toward the individualization stage. As individuals move through the entrance stage into the individualization stage, informal and especially personal elements of socialization become foregrounded over and above formal elements.

Individualization

As people longitudinally occupy roles in semiotic domains and increase relevant literacies, they become more “free from formal regulation...[T]he self- and other-role

perspective in any situation may occasionally shift” to the extent that “an actor has an infinite number of definitions of the boundaries between roles which will serve equally well” (Turner 1990:86-87). This shift is made possible because individuals have internalized formal and informal role expectations and the rules and norms comprising the domain’s design grammars. Experiencing personal aspects of socialization involves individuals realizing that rules and roles within a domain are somewhat flexible and fluid, that they are constantly made and re-made in dynamic situations. One begins to appreciate the “nuances and subtleties” of design grammars and “through the freedom allowed, one can start to formulate his own meanings for a role and its performance” (Thornton and Nardi 1975:879). Instead of simply bending to meet externally imposed role expectations and conceptualizing rules and norms as static, individuals learn to make meaning and improvise some aspects of performance to work toward their personal goals and desires. Individuals still must meet expectations and adhere to design grammars to be able to perform in concert with others, but may express creativity and realize more freedom in role-making.

The ongoing process of socialization then “comes to involve individuals imposing their own expectations and conceptions on roles and modifying role expectations according to their own unique personalities” (Thornton and Nardi 1975). The role-making in domains that is especially characteristic of the individualization stage reinforces humans’ capability to be self-reflexive and direct their own activity. Norman Denzin (2010) stated:

[A person] is able to shape, define, and negotiate [her] relationship to the external world of objects, others, and social situations. Such a self-conscious organism can

define its own reality and its own relationship to that reality. In turn, [a person] can enter into the organization of [her] own developmental sequence, bypassing certain stages, regressing to others, ignoring still others, and perhaps creating stages or phases that have yet to be imagined (10).

People are innovative. Such innovation may involve manipulating, breaking, or creating new rules and norms. Despite increasing freedom, role-making in the individualization stage is always tempered by agents of socialization that guide meaning-making and role performances. The outcome of the individualization stage is ideally that an individual becomes literate in the domain, is able to manage the tension between constraint and freedom in performing roles in coordination with others, and more or less assimilates into group culture (Kramer 2010). The individual should have learned shared rules and norms, how to think, feel and act comfortably within roles in the domain and the larger social contexts within which she is being socialized.

CONCLUSION

People interacting in any configuration in relation to any semiotic domain tend to hold and agree on dominant sets of meanings of things within the domain. Shared meanings facilitate successful interaction, which can be observed in any number of human associations from the macro to the micro and from the non-digital to the digital. Interactions may take different forms, such as subject-subject or subject-object. In all situations, constructing shared meanings is an interactional accomplishment, but doing so through computer-mediated communication in an unfamiliar situation is a particular challenge. For players to become literate in the knowledge and sets of practices necessary

for participation in WoW and Portal 2, they had to become literate in the sets of practices and proficient in various modalities required to communicate with digital and non-digital others in those games. Agents of socialization, which may be human or nonhuman, teach people how to filter meanings of cultural objects.

Players acquired expertise and developed literacy in these semiotic domains by interacting with human and digital others through the process of gameplay socialization, and experienced formal, informal and personal aspects throughout the entrance and individualization stages. The outcomes of socialization into semiotic domains vary from individual to individual, but generally involve learning the underlying grammar that facilitates smooth participation. Throughout the socialization process, individuals acquire roles, rules and norms for thinking, feeling and acting in a particular social context. Socialization is a selective process where individuals learn to create and assign meanings that work for them in particular situations, and learn to modify those that do not work. The cultural learning individuals experience throughout the socialization process repeats many times throughout subdomains.

In the following chapters, I apply the concepts in this literature review to two digital games, WoW and Portal 2, to show how players experienced socialization and acquired literacy in the domains. I will explore the meaning-making process, show how players went through the stages of gameplay socialization, describe doing mind for digital objects, and discuss rising complexity with the addition of multiple human actors. But first, in the next chapter, I describe the methodology of the study.

CHAPTER 4 – METHODOLOGY

In chapter 2, I defined World of Warcraft and Portal 2 as two particular semiotic domains. I provided descriptions of the two games and explained core concepts, terminology and rules that comprise their grammars. In this chapter, I begin by presenting a brief background of prior studies leading up to the formulation of the current one, and explain why I chose these two games out of the thousands available to answer my research questions. This discussion serves to align methods of data collection and analysis with the theoretical perspectives and goals of the study. I outline and justify the sampling procedure, provide descriptive data about the participants, and describe in detail the data collection methods and analysis. This chapter will ensure readers are able to understand how I arrived at and conducted the present study.

HISTORY OF PREVIOUS STUDIES

MMObility

In 2009 and 2010, a small interdisciplinary team called MMObility assessed the possibility of creating an educational MMOG. My responsibilities included overseeing a literature review on player motivation and immersion in MMOGs, drafting a list of games for the MMObility team to play, and providing a rationale for each choice, so that we all would share understanding about games and design from common examples, and drafting a self-reflexive gameplay experience questionnaire for us to complete after each play session. The reflexive gameplay questionnaire provided an opportunity to think critically about my own and other peoples' involvement with video games, and marked the beginning of an ongoing examination and reflection of that involvement. I have since

modified the questionnaire numerous times and used parts of it as the basis for subsequent interview schedules.

Social Interaction in World of Warcraft

From 2009 through 2012, I was a research assistant on a project studying social interaction in MMOGs, using the game World of Warcraft. The study had three phases. In the first, we recruited 20 individuals who had never played the game before to play for 10 hours over 10 days. In the second, six of those 20 participants volunteered to continue playing for 60 days. In the third, we studied players at the highest level of the game who actively participated in raids, and we became closely involved with a guild from approximately November 2009 through April 2011. This method gave us insight into players possessing three general levels of domain literacy: neophyte players in the beginning of the game, those original neophytes becoming intermediate players throughout the vast middle of the game, and a different set of expert players at the endgame. I was initially tasked with organizing and conducting interviews of WoW players in phase one, as well as facilitating their gameplay in our research space. These observation and interview duties shaped my thesis topic, both conceptually and methodologically.

We employed a variety of ethnographic methods to collect data, including in-depth semi-structured interviews, observation and gameplay diaries for the new and intermediate players, and interviews, participant observation in the game world, video recordings of gameplay, audio recordings of voice chat, text logs, and screen shots for endgame participants, including ourselves. We collected data from beginner and

intermediate players in phases one and two from fall 2009 through spring 2010, and on raiders from early 2010 through early 2011. We utilized a combination of inductive and deductive strategies to analyze interview transcripts, text, audio and video recordings, including open coding of WoW forum data.

We ended up focusing our attention on studying raiding and raiders and were interested in how raiders made sense of the array of audiovisual information represented by WoW's UI in order to coordinate their actions with other players (see Williams and Kirschner 2012; Kirschner and Williams forthcoming[a]). This interpretive element of gameplay especially intrigued me, and after focusing on experienced players, I wanted to go back to the beginners to investigate how they made sense of digital game worlds and the game objects within them. I began to think of meaning-making in terms of an ongoing socialization process instead of discrete instances of learning knowledge and skills. Having observed some outcomes of socialization with highly experienced raiders, studying beginners would allow me to analyze the process that could lead to the outcomes I had observed.

Visual Elements of Meaning-Making in Digital Game Worlds

In the fall of 2010, I conducted an independent research project, which served as a pre-test to the present study, wherein I sought to answer the question, "How do players interpret and make meaning of what they see in a digital game world?" I used two different single-player games as cases, Portal and The Elder Scrolls IV: Oblivion, and utilized some data collection methods developed during the ongoing WoW project such as observations and in-depth interviews. Additionally, I audio- and video-recorded 45-60

continuous minutes of each of the seven participants' two-hour gameplay sessions and utilized a think-aloud protocol (van Someren, Barnard, and Sandberg 1994) to probe participants' moment-by-moment thoughts and interpretations. I also showed them how to take screenshots, still pictures of their gameplay, and asked them to snap screenshots of whatever they found interesting in the game. I later used those screenshots as talking points in the in-depth interview, a method which foreshadowed the gameplay review method I developed for the present study (see Kirschner and Williams, forthcoming[b]).

The most significant finding for moving toward the thesis was that everything respondents perceived in the game world meant something to them, and meanings were (re)interpreted in contexts. The meanings players assigned to objects were based on past experiences either in-game or out-of-game with those objects, or with objects that were something like those game objects. When participants encountered an object that they were unsure of, they still incorporated it, as rationally as they could, into their current understanding of the situation. For example, *Portal*, like *Portal 2*, has big red buttons on the ground. Prior to experience with these digital buttons, players did not always know that they were buttons. Two participants said the buttons were alien space ships. Another said the building where the buttons were located (the Aperture Science facility) was actually a UFO construction site, thus making sense out of perceptions based on what they thought UFOs looked like, from seeing them on TV shows, movies, and so on. Players did not pull the idea of alien space ships out of thin air. People learn and share conceptualizations of what UFOs look like, where they might see one, what their pilots look like and what they do to abductees. People may tap into the semiotic domain of extraterrestrials and understand its grammars as they are acquired from social interaction

within a society where people share meanings about aliens and alien-related concepts. This is how multiple players labelled buttons as UFOs and reinforced what everyone “knows” a UFO looks like. It was an exploration of this sort of meaning-making phenomena that I carried forward into the thesis research in an effort to understand how players were socialized into digital games.

CHOOSING THE GAMES

There were a number of considerations to make when choosing games for this study. First, I wanted games that spanned a number of player configurations because studying only one type may provide a narrower perspective on socialization. Observing players playing alone and with other people was a necessity to answer my research questions. I would be targeting players who had never played the games before and who might be new to gaming altogether, so I had to choose games that were accessible and enjoyable. Since enjoyment is especially subjective, then in addition to my own experience, I relied on Metacritic.com, a website which aggregates press and user review scores across various types of media, to choose “officially” great and popular games. I also wanted to choose games with fully-realized digital environments with a strong sense of time, place and narrative, so that I could observe players being socialized not just into a game but into a game world. I eventually settled on Portal 2 and WoW.

Portal 2 is critically acclaimed with a current aggregate score of 95 out of 100 across PC, Xbox 360 and PS3 platforms on Metacritic.com, making it the seventh highest rated game for each platform of all time, and has won numerous industry and media awards. It is a linear science fiction puzzle game with a single-player mode and a two-

player cooperative mode, both configurations in which participants engaged. The single-player mode allowed for a deep analysis of the subjective experiences of meaning-making, gameplay socialization, and analysis of interaction with digital objects. The addition of the cooperative mode especially made the game an excellent case for the study of player-player socialization and the development of shared meaning in the gameplay experience, as they learned how to coordinate their actions to solve each test chamber. World of Warcraft has been one of the most popular MMOGs in the world since its launch in 2004, reaching over 12 million subscribers at one point (Blizzard Entertainment 2010). WoW maintains a Metacritic.com score of 93 and is also the recipient of dozens of industry and media awards, has made inroads into pop culture, and due to its success has been influential in the development of subsequent MMOGs. The purpose of studying WoW was to understand emergent player configurations, how players are socialized against a backdrop of other players simultaneously inhabiting the virtual world and with whom they may interact in various ways. With these selections, I have spanned single-player games, co-op games and MMOGs. Obviously, there are numerous other game domains using various player configurations that are not represented, but this combination is very well suited for the task of studying learning and socialization into gameplay. In the next section, I elaborate on data collection methods.

SAMPLING PROCEDURE

I recruited through snowball sampling beginning with friends and acquaintances both face-to-face and on Facebook. Through Facebook, I sent a message (Appendix 1) describing the research project and inviting participation to 52 people, most of them sociology undergraduates at NTU. Due to the research design involving 10 hours of

cooperative play, I suggested that participants sign up with a friend, and spread the message to anyone they thought might enjoy participating. 33 people responded (63%). Of those 33, 13 responded positively (39%), 15 negatively (45%), and five with “maybes” or requests to contact them again at a later date (15%). To the positive responses, I sent a detailed list of participation requirements and next steps (Appendix 2) and, after they confirmed their desire to participate and provided contact details, I arranged meetings to hold an initial screening interview (Appendix 3), explain the study further, and review the consent form (Appendix 4). Of the 13 who responded positively, nine passed the screening interview. Those nine recruited three more for a total of 12 participants at the outset. The initial 12 participants were reduced to eight shortly after data collection began, which reduced an unmanageable 60 hours of data collection per week to 40.

Eight participants, five males and three females, completed the WoW phase of the study, and six of those participants, four males and two females, also completed the Portal phases. This discrepancy arose because one participant, after completing the WoW phase, developed motion sickness during the first hour of Portal 2 and could not play the game. This stranded her Portal 2 partner, and so he likewise did not complete that phase. Of the eight participants, six were Singaporean, one Indonesian and one Chinese. Ethnically, there were five Chinese and three Malays. Four were former sociology students of mine, two were friends and former classmates, one was an office mate and the last was the boyfriend of another participant. Eight participants is an effective number for a qualitative study of this type and scope to provide abundant data. The goal of the study is to provide a detailed analysis of gameplay socialization, not to generalize to the widest possible degree – depth over breadth. Other qualitative game projects utilized similar sample sizes

to study, for example, gendered experiences of two role-players (Hayes 2007), a small guild of WoW players cooperating together (Chen 2012), or three four-player cohorts of ethnically diverse participants making meaning out of race in video games (DeVane and Squire 2008).

None of my participants had played the games used for the study, though some had played similar games in the same genres. They had a wide variety of gaming experience, from the participant who had only played one cellular phone game to the participant who was a self-labeled gamer. Table 1 below presents what participants reported to be some important and memorable games and platforms they had interacted with, what games they were currently playing, some genres they were comfortably familiar with, and the extent to which they considered themselves gamers. Generally, the participants with more relevant previous experience were more successful at each game, and their socialization experiences into the new semiotic domains were smoother. I also used this information to pair players with similar levels of experience for cooperative Portal 2 play. The teams ended up being Harry and Ian, Elliot and Frances, Ben and Gail (who also chose to play WoW together), and Diane and Corey were the two who did not play Portal co-op⁸.

⁸ All names are pseudonyms

	Gender	Important Past Games	Currently Playing	Familiar Genres	Important Platforms	Gamer
Ben	M	Counterstrike, Diablo series, DotA, Ragnarok Online, Warcraft 3	Ninja Fishing, Temple Run	FPS, MMORPG, MOBA, Puzzle, RTS	Gameboy, PC, Phone	In the past
Corey	M	Battlefield: Vietnam, Counterstrike	Company of Heroes, DotA, L4D2	FPS, MOBA, RTS	PC	Socially
Diane	F	Tetris	None	None	Phone	No
Elliot	M	Duke Nukem, FIFA series, Pokemon series, Starcraft	Blood and Glory, FIFA 2012, Frontline Commander, Temple Run	Casual, Sports	Gameboy, Phone, PC, PS3	No
Frances	F	Bejeweled, Pac-Man, Pokemon	Temple Run	Casual, Puzzle, Simulation	Facebook, Gameboy, iPad, Phone	No
Gail	F	Prince of Persia, Resident Evil, The Simpsons, Tomb Raider	Assassin's Creed series, Lord of the Rings	Action/Adventure, FPS	PS2, PS3	No
Harry	M	Counterstrike, DotA, Final Fantasy series, L4D, Ragnarok Online, Shining Force series, Warcraft series	Blackshot, L4D2, Uberstrike	FPS, MMORPG, MOBA, RPG, RTS	Genesis, Nintendo, PC, PS2, Saturn	In the past
Ian	M	Final Fantasy series, Maple Story, Ragnarok Online, L4D	Disgaea series, Infamous, King of Fighters, Kingdoms of Amalur	Fighting, FPS, MMORPG, RPG	PC, Phone, PS3, PSP	Yes

Table 1. Participants' gameplay histories.

Three phases of data collection took place over 15 weeks from February 3, 2012 to May 15, 2012 (Table 2). Players were split into two batches that determined which order they played the games in. Four began with Portal 2 single-player, then played Portal 2 co-op, and finished with WoW. Two players played WoW, then Portal 2 single-player, then Portal 2 co-op. Two players played WoW and did not play Portal, as described above.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Elliot	PS	PS	PS				PS	PC	PC	W	W	W	W		
Frances	PS	PS	PS	PS				PC	PC		W	W	W		W
Harry	PS	PS	PC	PC		W	W	W		W	W				
Ian	PS	PS	PC	PC		W	W	W	W	W					
Ben	W	W		W	W			W	PS	PS	PC	PC		PC	
Gail	W	W		W	W			W	PS	PS	PC	PC		PC	
Corey	W	W		W	W					W	W	W	W	W	W
Diane	W	W	W	W	W				W	W		W			

Table 2. Participants playing games by week⁹.

The batches played in inverse order to provide opportunity for early analysis to improve subsequent data collection. The inverse order also gave participants a chance to interact with others who already had some experience with the game they were currently playing. This was interesting in practice because since participants' schedules overlapped at times, one would arrive early for a play session and watch or talk to the other participant who was finishing up, sometimes offering one another tips or tricks. Coordinating everyone's schedules took careful planning, and I constructed the time frame of the research to allow for flexibility. The well-being of participants also took precedence. If there was conflict with school such as a paper or exams, or any other issue, we paused data collection and resumed later. We used a non-rigorous schedule so that the

⁹ For the Tables in this chapter, PS = Portal 2 single-player ; PC = Portal 2 co-op ; W = WoW

play was as relaxing as possible. To do this, I created a shared Google calendar and added the participants to it. I instructed them to sign up for play times at their convenience (Appendix 5). At any point, participants could open the calendar and check available play times (Appendix 6). This worked quite well for participants, who were usually able to schedule their required weekly hours without conflict.

Participants were instructed to play Portal 2's single-player mode for 10 hours, or until they completed the story, whichever they preferred, Portal 2's cooperative mode for 10 hours, or until they completed the story, whichever they preferred, and WoW for 20 hours, and longer if they wanted. I decreased the WoW number from the original 30 due to data saturation. Players typically fell into patterned activity well before the 20-hour mark in WoW. See Table 3 for actual play time statistics.

	Min	Max	Mean
PS	7.5	10.8	9.28
PC	7.8	10	8.57
W	16.75	28.5	22.14

Table 3. Min, max and mean play times by game in hours.

Each participant played approximately 40 hours over the course of the 15 weeks, plus interview time. Other research has utilized similar set play times for participants, for example, to engage teenagers in reading text in over eight hours of Neverwinter Nights (Commeyras 2009), to present a close reading of the relationship between narrative and game design over 10-12 hours in Prince of Persia: The Sands of Time (Davidson 2008), and to assess the impact of voice chat in WoW guilds for an average of 57 hours over one month (Williams, Caplan and Xiong 2007).

DATA COLLECTION

I conducted all data collection in a faculty office in the sociology division at NTU. Participants sat in office chairs at a large work desk and played on a desktop computer designed for gaming. When participants played together, one used the desktop and the other used my personal gaming laptop. The office was comfortable by all accounts (Figure 1).



Figure 1. Ben and Gail playing Portal 2 together in the office.

Before participants ever arrived, I arranged a system of purchasing copies of WoW and Portal 2 and sharing and keeping track of who played on which game account. The PC version of Portal 2 is played through a software manager called Steam. Because four players would be playing the game in each batch, I registered for four free Steam accounts and purchased a copy of Portal 2 for each. Steam tracks how long each user plays each game, so creating individual accounts was useful for accurate time-keeping.

After each Portal 2 phase, I recorded the time played, so that when I passed the accounts to the second batch after they finished WoW, the timer was effectively zero. The other reason multiple accounts were necessary is because the game records the player's save state automatically. If multiple participants were actively using the same copy of the game, they would constantly be erasing one another's progress. WoW requires players to purchase the game and then pay a monthly subscription fee. I purchased two copies of the game and paid both account subscriptions for the duration of data collection. I assigned four participants to each account based on who they said they would or expected to play with. For example, Gail and Ben always played together and were thus assigned to different accounts so they could log in simultaneously. The game keeps track of time per character and provides a report in response to the text command `"/played."` In WoW, characters are located on servers, which are identical copies of the game world that hold a certain number of characters. There are three basic types of server with different rules. Player versus environment (PvE) servers represent the "normal" game. On role-playing (RP) servers, players are expected to follow conventions of in-character role-playing (see Williams, Kennedy and Moore 2011). On player versus player (PvP) servers, players are exposed to attack by hostile players in areas of the game world that are safe on PvE and RP servers. I assigned all players to the Oceania region PvE server, Nagrand, so that they, as opposed to being on a PvP server, could play without fear of being harassed by players of the opposite faction, and so that they, as opposed to an RP server, could act how they wanted without violating role-playing norms.

In this study, I gathered data in part on players' subjective accounts of the gameplay phenomenon as evidence of their construction of it, including their accounts of

meaning-making and experiencing socialization. Subjective description is important here, as it foregrounds consciousness, tackling the “problem of ‘qualia’ or of ‘first-person truths,’ or of the ‘how’ of experiences, the what-it-is-like to have the experience” (Nagel quoted in Moran 2000:15). In the “attempt to describe the role of consciousness in the achievement of knowledge,” I required a way to uncover such existential positions of the player, and also an understanding of what knowledge of gameplay consisted of (Moran 2000:15). To reach an interpretive understanding of the meanings participants attributed to their subjective experiences and perceptions I needed to make visible the mental processes which comprised them. Thus I engaged players in reflexive gameplay activities that were related to gameplay outside of direct involvement with the game, such as in-depth interviews, as well as reflexive gameplay activities that occurred with or within the game itself, such as having players think aloud while solving in-game problems. Recording such expressions transformed thoughts and words into data. Revealing subjective meanings and experiences lies at the intersection of microsociological theory and ethnographic methods developed in this thesis. See Table 4 for a summary of methods used per hour of gameplay. In the following subsections, I go step-by-step through the data collection process, explaining the strategies I used.

	Pre	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Post
Self Play	PS W																					
In-Depth Interview	PS PC W	PS W									PS PC W										W	
Gameplay Review																						PS PC W
Audiovisual Recording		PS PC W	I conducted audiovisual recordings at opportune moments throughout gameplay, as well as recording the same series of Test Chambers for each participant during their Portal 2 single-player and co-op play.																			
Think-Aloud		PS PC W	I conducted think-aloud protocols at opportune moments throughout gameplay, especially when participants were encountering problems or exhibiting great creativity or insight.																			
Observation		I conducted close observations and wrote field notes for approximately 25% of each play session, and was additionally co-present for the majority of most sessions.																				
Casual Conversation	I maintained casual rapport with participants before, during and after gameplay sessions typically geared toward their gameplay and related topics.																					

Table 4. Summary of methods used for each hour of gameplay.

In-Depth Interviews

When participants arrived to the office for their first gameplay session, we conducted opening interviews, which were geared toward exploring their gaming histories. For WoW and Portal 2 single-player, I also asked about their preconceptions of those games (Appendix 7). The Portal 2 co-op opening interview was geared toward sparking conversation between the partners about their single-player experiences and about their expectations for playing cooperatively. From the opening interviews, I was able to assemble information about participants' previous gameplay experiences (see Table 1) that shed light on their level and areas of expertise related to gaming, which was useful for understanding the course of socialization each player progressed through.

For WoW and Portal 2 single-player, I conducted additional interviews after one hour of gameplay (Appendix 8). These were meant to be discussions of first impressions and to sensitize participants to reflecting on their gameplay experiences, which was an overarching goal of the interviews. I conducted midway interviews in WoW approximately ten hours into participants' gameplay (Appendix 9). I began to tailor the midway interviews individually for each participant. At the end of the final gameplay session for WoW, Portal 2 single-player and Portal 2 co-op, I conducted in-depth closing interviews that were still more individually suited to each participant (Appendix 10). Using observations and field notes, informal conversations, and prior interviews, I was able to craft each interview reflecting each participant's gameplay experiences. The basic questions and structure were shared across interviews, but I pulled specific examples and discussed things relevant to each individual, some of which I have bolded in Appendices 9 and 10.

All planned interviews were semistandardized (see Berg 2009:104-109) with interview schedules that allowed for improvisation, and were conducted in an informal manner. I was usually dressed casually for work (jeans and a t-shirt) and maintained my normal laid back demeanor. This effort made interviews feel like conversations among friends or people with a common interest in games. In part because of my attempts to informally construct the setting, and surely because the interview topic was about the participant (hopefully) having fun playing video games, I had no problems gaining trust or establishing rapport with participants. In the interviews, I sought the “establishment of a human-to-human relation with the respondent and the desire to *understand* rather than to *explain*” (Fontana and Frey 1994:366). This required active listening in order to accurately interpret what participants expressed (Ayres 2008:7-8). Sometimes I gathered that interviewees wanted to take the lead in interviews, and when appropriate, I let them see the schedule and steer the interview under my watch. Other times I sensed they were sleepy, experiencing interview fatigue, or tired of talking about a particular topic, and I adjusted accordingly. I always listened for participants to lead interviews in potentially fruitful directions and capitalized on these opportunities.

Observations and Field Notes

I regularly observed gameplay, jotting supplementary field notes in an observation journal or typing them on my laptop, detailing thoughts and relevant interactions. I used these notes primarily to develop interviews for each participant, as well as to begin writing memos. The field notes also supplemented later transcriptions of audiovisual recordings. I began with a strict schedule to observe 100% of the time, but this quickly became both overwhelming and unnecessary. By the end of the data collection, I settled

on doing focused observations for one-quarter of each play session. Otherwise, since I did spend the majority of the time in the office with participants, I always paid some attention to what they were doing, in addition to our normal informal gameplay conversations. If I caught something interesting, I switched to focused observations.

Audiovisual Recording

Audiovisual recording has been recognized in the interactionist tradition for producing rich data capturing social interaction: “Once a series of transactions between people [or person and object] has been recorded, these recordings can be analyzed repeatedly; others can listen to and observe the data...the same data set can be approached from a number of standpoints, and as the conceptualization of the problem becomes refined it is possible to return to the data” (Couch 1984:9). The qualities of the digital game medium were highly desirable for studying the socialization process occurring over time, and so audiovisual recording consisted of several carefully implemented parts. First, I recorded the players themselves. I set up a small digital camcorder in one of several locations in the office which captured both the player sitting at the computer and the computer screen. The purpose of doing this was to record the player’s environment, as well as her interactions with the computer. This refers to body orientation in the chair, facial expressions, exclamations, and so on. The dual audiovisual footage captured the player “doing,” both from inside and outside of the game, and the contexts of the immediate gameplay setting. Using this recording method, I could also see and hear formal and informal interactions, including external gameplay activities such as connecting to websites or community forums during the sessions. Other games researchers have utilized videotaping the gameplay and/or the player(s) playing. For

example, Keating and Sunakawa (2010) recorded LAN gaming sessions “to understand how the players organize activities that span diverse environments and spaces [i.e., physical and virtual],” and found in their analysis that when using audiovisual data “any randomly selected moment provides an example of rich, creative, and complex symbolic behavior” (338). The video camera technique was also useful to capture data when I had to leave players alone in the office and could not be there to observe. Second, I used a program called Fraps that runs in the background of a game to capture in-game video footage. The purpose of using Fraps was to be able to review gameplay for close analysis by myself and together with participants during their gameplay reviews, discussed below. I originally intended to record both types of video on a schedule, but this proved unnecessary and restrictive. I always recorded for the first hour of each game for each participant. For WoW, I recorded when I felt it had been a while, or when participants were doing something interesting. As I observed Portal 2, I identified what I felt to be significant test chambers where players typically had trouble or were introduced to a new gameplay element, and tried to record these test chambers for every player. Finally, I placed a small digital audio recorder on the table next to players and turned it on whenever we began talking about something interesting, or when I asked them to talk aloud, to describe what they were thinking or doing. The audio recordings were extremely useful to capture participants’ talk in-the-moment, and supplemented the video recordings, as I always turned on the audio recorder when recording in-game footage.

Think-Aloud Protocol

I utilized a think-aloud protocol during gameplay, which “consists of asking people to think aloud while solving a problem and analyzing the resulting verbal

protocols” (van Someren, Barnard and Sandberg 1994: xi). This method gives expression to cognition and treats verbal reports as data. This typically required training the participants to *think* aloud as opposed to just *talking* aloud. My aim was for them to narrate their in-game activity and describe their thought processes, not simply to express observations or opinions about the game. I developed lists of questions to focus participants on thinking aloud, and as data collection continued, I refined think-aloud questions based on participants’ individual play (Appendix 11). For example, some of the more experienced players had trouble thinking aloud because gameplay was routine and they assumed that I, as a fellow player and game researcher, understood what they said in few words. I generally did understand, but the point of me asking them to think aloud was not to test their understanding; it was to uncover the meaning-making processes behind their understanding, which I did *not* necessarily understand and could not directly observe in their gameplay. “You know what I mean” was a very common substitute for thinking aloud. When a player responded to the imperative, “Narrate what you are doing,” with a generality like “I’m doing a boring quest,” I facilitated unpacking their response with probes like, “Yes, but tell me what exactly you are doing for the quest. Why are you doing it this way? Why is it a boring quest? How do you know where to go to do the quest?” I used think-aloud protocol situationally, always for a half hour in their first session of any game, and otherwise when players were facing problems, engaging in creative solutions, when I observed something I did not understand, and so on. I was careful not to overuse this method because, unless the player is thinking aloud in the natural course of gameplay, such a prompt may be perceived as an intrusion and interrupt engagement. If players were stuck on a problem or confused, often times signified by

their expressing frustration or responding “I don’t know” to initial attempts to get them to think aloud, then pushing this method was especially useful in helping players analyze their situation and talk themselves out of a bind. Many times, participants just began talking on their own. I had a couple “talkers” who very much enjoyed doing this, and reported thinking aloud when playing games alone. I recorded many of these monologues/conversations, and analyzed these verbal reports together with video recordings and field notes for a more complete view of what players were thinking, doing and learning, or how they organized knowledge and utilized it to make sense of and act back on the digital game world.

Gameplay Review Method

All previous data – observations, initial and midway interviews, informal conversations, audiovisual recording, think-aloud protocol – were components in developing the “gameplay review¹⁰” which was conducted as part of the final in-depth interview and was customized for each participant based upon prior analysis of data. Gameplay reviews were integral in both generating and analyzing data. Here I briefly describe the background and process and go into more detail in the analysis section of the chapter. The gameplay review method builds upon Bastien and Hostager’s (1993) use of “participant informants” to help analyze complex processual data. Using a commercial video recording of an improvisational jazz concert, and recruiting one of the musicians to review the video alongside them, the researchers endeavoured to explain “how the musicians had accomplished an exceptionally complex cooperative work task...without

¹⁰ The gameplay review method is described more completely in two methodologically- and empirically-rich papers that consider the method’s relevance for engagement with (Kirschner and Williams, in review) and expertise in (Kirschner and Williams, forthcoming[b]) digital games.

knowing each other, having any plans, rehearsals, or sheet music” (206). The researchers occasionally paused the video to ask questions eliciting descriptions of the musicians’ moment-by-moment thoughts and behaviours. Jørgensen developed a similar “video commentary model” for game studies (2007; 2008) based upon methods in user research, which was an expression of the researcher and participant being “coresearchers” in interpreting and analyzing video data (2012). Similarly, I leveraged players’ expertise in their own understanding to review and discuss their gameplay footage. I selected two to four video clips of each participant’s play that I found to be significant based on prior analysis of interviews and field notes, and based on informal conversations and observations. Similar to the think-aloud protocol, I asked participants to narrate the clips and asked questions to elicit interpretations of the videos. One video was always utilized to have participants explain aspects of the UI as a way of cataloguing what they interpreted as (ir)relevant or (un)important in helping them play. The gameplay reviews themselves were recorded with both digital video and audio recorders for later analysis. Through think-aloud sessions, interviews, informal discussions and gameplay reviews, the participants and I created a space for “reflective play [that] involves the process of externalizing various aspects of intrinsic play through communication, sharing, and discussion. When reflective play occurs, players step out of the predefined game boundary and reflect upon their intrinsic play activities” (Ang et al. 2010, 364). Reflective play was not only significant for participants to engage in, but for myself as well.

Self-Play

In order to become more knowledgeable and drive conversation around the games, it was helpful to experience them firsthand. Even though I was not studying my own

gameplay per se, I conducted a close playing of Portal 2's single-player mode for the first time and re-played the beginning zones of WoW, which I had been actively playing already for five years. First-hand gameplay experience may be used as an ethnographic method because the researcher can achieve intimate familiarity with the semiotic domain within which participants are involved. Joint participation in domains "may afford researchers with invaluable vantage points for appreciating certain aspects of particular life-worlds. As well, it may enable them to access the experiences of others in these settings in much more meaningful fashions..." (Prus 1996:19). Self-play was recognized even in the early days of game studies as an invaluable method, especially in conjunction with interacting with game designers and other players. Aarseth argued, "If we have not experienced the game personally, we are liable to commit severe misunderstandings, even if we study the mechanics and try our best to guess at their workings...merely observing the action will not put us in the role of the audience" (2003:3). Therefore, game researchers must go beyond observing the digital world and become embodied (Pearce 2009:196). I tried to imagine myself embodied in the game world as a beginner, and playing with an eye toward answering interview questions that I had developed helped me further refine the interview schedules. I used two additional tools to help me turn a critical eye toward my gameplay and to refine ideas for the study's interview schedules. First was the MMObility self-reflexive gameplay questionnaire, which I have filled out in some version or another over 50 times. After developing the original gameplay questionnaire, I began keeping a gameplay diary on April 1, 2010, currently over 43 months old. I have written 330 entries for 245 games to date. The diary is hosted on a site called GameLog (www.gamelog.cl), created and maintained by games academic Jose Zagal, the purpose of

which is to “provide learners [i.e., players] with opportunities to articulate and describe their experiences with games, compare their experiences with those of other people, and allow them to compare their own experiences across time, and across multiple video games” (2008:6). The blogging process itself has been invaluable for practicing writing about games.

Overall, the importance of self-play and my reflexive exercises helped me perform roles as a researcher and facilitator, functioning as a guide, resource and occasional collaborator. My prior knowledge facilitated interviews and aided my ability to ask probing questions that I simply would have been unable to think of had I zero or limited interaction with the games. I encouraged participants to ask questions and begin discussions with me, especially if they were having difficulties playing. At the same time I sought to minimize the influence of my experiences and knowledge on shaping the participants’ thoughts, feelings and behaviours. When I provided help, it was first in the form of prompts like, “What are you trying to do?” to spur participants to think through problems. Then I moved to general suggestions like “Maybe you should look around.” In the most specific and rare instances, I guided them step-by-step through a problem, the goal being to equip them with knowledge and skills to recognize and overcome similar problems on their own in the future. I attempted to position myself and participants in an approximation of “coresearchers” (Jørgensen 2012), in the sense that we were both probing subjects and researched objects situated within shared semiotic domains that we were trying to make sense of (and make sense of one another’s sense-making). The project’s methods are especially suited for cultural inquiries, studying lived experience

and meaning-making in this case, where they facilitate “a form of ethical yet critical engagement that blurs the line between researcher and researched” (Boellstorff 2006).

ETHICAL CONSIDERATIONS

In working with human participants, there were natural ethical considerations. Participation in the research was voluntary and my role as a researcher was overt. All participants signed an informed consent form with study requirements clearly stated, we had initial meetings reviewing requirements, and participants were briefed and debriefed about procedures when necessary. Even though most of the participants knew me on some level, none of them were current students of mine or in any relationship where (not) participating had any special rewards or consequences. I assured an acceptable degree of confidentiality, giving all participants pseudonyms outside the research setting. Within the setting (i.e., in the office, on the shared scheduling calendar), it was necessary for participants to know of one another, and they all agreed to this. All data were securely stored on the office gaming computer, on my laptop and on two external hard drives locked in a cabinet at my desk.

Several additional considerations had to be made for studying participants interacting with digital games, occasionally for long periods of time. I told players to alert me to any discomfort from motion sickness, headaches, wrist pain and so on associated with sustained computer interaction. Two participants became dizzy and nauseous during Portal 2. One quit the study immediately, and the other had already played WoW, as discussed earlier. Players were free to stop at any time. It was also possible that participants develop problems with so-called game addiction, especially with WoW. I

only accepted participants who claimed they would be able to commit to the time requirements of five hours per week, routinely asked about their school performance if they were students and so on to make sure that the study was not negatively affecting their lives, and maintained control of all Portal and WoW accounts so that participants could only play at scheduled times in the office.

DATA PROCESSING AND ANALYSIS

Data collection and analysis proceeded concurrently such that early analysis informed subsequent data collection, which informed later analysis, and so on. I have mentioned an example of this in terms of individualizing and conducting interviews and gameplay reviews based on prior data analysis. Berg described this as nested within a “spiraling research approach,” differentiated from a traditional linear one: “you begin with an idea, gather theoretical information, reconsider and refine your idea, begin to examine possible designs, reexamine theoretical assumptions, and refine these theoretical assumptions [and so on throughout data collection, analysis and dissemination]...Thus, with every two steps forward, you take a step or two backward before proceeding any further” (2009:26).

Figure 2.1 The Spiraling Research Approach

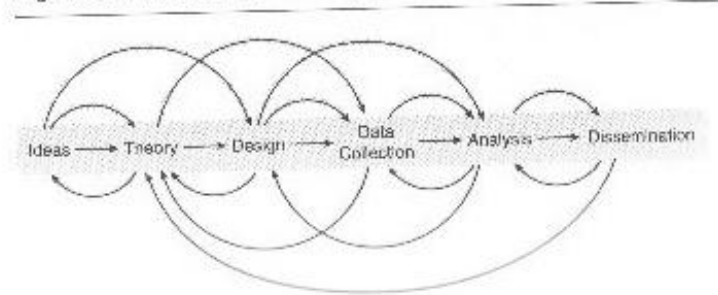


Figure 2. Spiraling research approach (Berg 2009:26).

Evolution of my research questions and data collection strategies was partly based on previous studies, theory and early literature review. Ideas formulated in these pre-data collection stages contributed to deductive analysis. Once data was being gathered, I utilized rigorous inductive methodological strategies, primarily facilitated by the qualitative software, NVivo. Nvivo is an excellent tool for organizing qualitative data and allowed me to practice techniques of grounded theory. Many components of grounded theory (Glaser and Strauss 1967; Charmaz 2006) will be apparent throughout this section, such as Berg’s spiraling research approach, constructing codes from the data, using constant comparison to make sense of conceptual relationships, writing memos, and so on. The primary emphasis in the analysis is that findings emerge from the data, and are not imposed upon it by pre-conceived ideas.

During data collection, I began transcribing interviews. I made a living as a transcriptionist for a year before entering graduate school, so this process was much less painful for me than others commonly report; however, it was not any quicker due to the sheer amount of data (Table 5).

	Number	Mean Length (minutes)	Total Time (hours:minutes)
In-Depth Interviews	51	49	41:39
Gameplay Reviews	17	23	6:31
In-Game Gameplay Videos	599	7	69:53
Out-of-Game Player Videos	45	24	18:00
Other Audio Recordings (Think-Aloud, Conversations)	137	18	41:06
			177:09

Table 5. Data type by number and length.

I focused on systematically transcribing the interviews, gameplay reviews and other audio recordings, which was an invaluable opportunity to revisit data, and proved especially useful the larger the temporal gap between interview and transcription. Some of the data co-occurred. For example, I always recorded audio when recording gameplay videos, and the gameplay reviews were a part of the final interviews. By transcribing the audio, I was then able to use the video data as a reference to see what participants were talking about. As I collected data, I clearly labeled files by participant, game, date, data type and any keyword signifying unique content so that I could synchronize them later, for example “Ian P2 01-31 Gameplay Test Chamber 6” or “Gail and Ben WoW 01-21 Talk-Aloud Hour 3.” This attention to organization made possible the creation and analysis of the various audiovisual gameplay examples utilized throughout the thesis.

I routinely made notes on Word documents or in NVivo (called “annotations”) as I was transcribing and quickly realized that some of these jottings could and should be expanded into more detailed memos (Appendix 12). Inspiration for memos came from varied sources, such as reading the literature, wrestling with making sense of codes in NVivo, developing interviews from the data and talking with participants and colleagues. Memos facilitated exploring connections among the empirical data, linking related concepts within multiple sources in the literature to in vivo codes, rearranging coding hierarchies and generally playing with ideas and arguments. After some early transcription and accumulating some useful memos, I began importing memo files into NVivo for coding. As I have said, some broad codes, the ones that structured the research proposal and early ideas, came primarily from literature and previous studies. These are what I initially wanted to find out about and went into coding looking for, and included

socialization, formal and informal learning and gameplay experience. The vast majority of codes, however, emerged through the coding process. I initially engaged in open topic coding, wherein I went sentence by sentence and asked myself “What is this about?” I coded for each topic that was an answer to that question, and over time built a large list of topics. These were far removed from the conceptual categories I had in mind; they were much more concrete, involving specific aspects of gameplay and interaction, such as accepting a quest or talking with a gaming partner. My topic list became unwieldy as open coding continued because the more codes I had, the more applied to any given piece of data¹¹. I began making clearer distinctions, refining codes and choosing which ones to focus on. Many codes were related to one another, while many codes were really multiple topics. I revised the list many times, lumping and splitting them, getting rid of codes that no longer seemed important and creating new, more abstract categories to focus on the conceptual relationships between the topics. In this way, I essentially tested my initial categories against what was emerging from the data, and began to rebuild conceptual categories as open coding gave way to focused analytic coding. I wrote memos detailing my thoughts about conceptual relationships, coded the memos as data, and continually refined definitions of and relationships among codes. This continual process of clarification through coding helped me refine subsequent data collection and analysis. For example, my initial code, socialization, became split into player-player socialization and player-game socialization. I was then able to pay attention specifically to instances of both types. I later abstracted this further into subject-subject and subject-object

¹¹ Unfortunately, in the earlier stages of coding I was not tracking coding history, and do not have access to iterations of these coding schemes to show. Coding for this project was my first experience doing it, so I will leave it up to the reader to imagine from my recollections the messy and confusing jumble of codes and categories I attempted to make sense of in early iterations.

interaction, the results of which became chapter 7. See Appendix 13 for an in-depth walkthrough of my coding process using this example.

I provide a brief example here that I will refer to in the following chapter. I used a series of interview questions to identify and track what participants found more or less significant in digital games, asked these types of questions during each interview referring to the previous gameplay session, and repeated some of them before each gameplay session, including: “What was the most significant thing you learned about the game?”, “What was the most significant game object for you?”, “What was your most memorable positive moment?” and “What was your most memorable negative moment?” I engaged in open coding of interviews to see what answers to these questions appeared most frequently, and to see what topics participants discussed most in general. As coding for WoW progressed, it became obvious that three internal aspects the game were most central to participants. I summed references in child nodes within the most frequent hierarchical parent nodes, which produced the three most significant parent nodes based on total reference frequency in NVivo at the time: user interface (252), fighting (235) and questing (224). These aligned with what seemed especially salient to participants based on my observations and post-interview notes, and aligned with participants’ answers to the above questions. I completed the same procedure for Portal 2 and participants’ answers aligned with the coding frequencies in suggesting that understanding the relationship between portals was the most necessary and significant aspect of the game. Based on these coding frequencies, I began focused coding for these categories and made them central aspects of conceptual development in their relationships with other categories (Appendix 14). I ended up focusing one video per gameplay review for WoW

on the UI and one for Portal on players learning to manipulate portals. In this way, the coding process acted back on data collection and subsequent analysis, which further impacted focused coding, as I then had more rich data specifically relating to WoW's UI and Portal's portals.

These codes and the aspects of the semiotic domains to which they refer relate to one another and to other sets of meanings within the domains. For example, the UI is a ubiquitous part of playing WoW, so its frequency is no surprise. It mediates the player's activity with nearly all aspects of the game. But it is necessary to recognize that an understanding of relevant parts of the UI is a significant factor in a player's ability to fight (e.g., monitoring character's health bar, using the mouse pointer to interact with enemies) and quest (e.g., reading the map, locating the quest log) effectively. Other codes are tightly related to these. For example, the objects of fighting are enemies, a code which contained 80 references in its hierarchy at the time. The node "death and dying" contained 48 references, which usually followed a fighting and/or enemy reference. Similarly, players usually fought enemies in pursuit of quest objectives.

The gameplay review method similarly relies on a spiraling approach and incorporates multiple interpreters. As I briefly described earlier in the chapter, each gameplay review was individually tailored for each participant and created after spending time immersed in data from their gameplay, previous interviews and informal conversations. The method is useful both for generating and analyzing data. To specify the difference, and to make sense of the data used to construct the gameplay review, I must differentiate between what Bastien and Hostager (1993) called level I and level II data.

Level I data are observable instances of social behaviours such as players' use of the UI and movements in the gameworld. Collected through video recordings and field notes, these provide empirical evidence of specific actions. In order for such data to be empirically useful, the circumstances under which the actions occurred must be properly contextualized. Understanding who a player is and what knowledge she has about what she is doing, for example, provides a contextual frame for interpreting the empirical data. Level II data are in turn collected from players' descriptions of their behaviours and events, or more specifically from the dialogue among the researcher, the player, and the video as they work together to establish a valid interpretation of the Level I data observable in the video. Level II data bring together the researchers' interpretations of the empirical account with the player's subjective interpretations. My supervisor and I developed a four-step process to describe the generation and analysis of video data (Table 6) (Kirschner and Williams, in review).

Step 1	Produce	Level I Data	Create a record of what the player is doing each analytical moment
Step 2	Analyze	Level I Data	Contextualize the record and interpret the how or why of actions
Step 3	Produce	Level II Data	Conduct gameplay review, discuss player's interpretations of gameplay
Step 4	Analyze	Level II Data	Analyze gameplay review, integrate data from multiple players

Table 6. Four-step analysis of processual video data

The first step involves generating Level I data, a record of what the player is doing at each moment during data collection. Researchers may want to focus on one or more levels or amount of detail and should decide analytically what aspects of interaction to focus on depending on the research questions. The second step involves the researchers' interpretations of the actions just recorded. I synchronized each video in the gameplay review with a corresponding audio file and observation notes. I also interpreted videos alongside other gameplay videos, interviews and additional data. The researchers then contextualize the descriptions of the empirical data and, using these new layers of data, interpret the how or why of certain actions in accordance with analytical decisions and research questions. The third step moves back again from data analysis to generation, and involves creating Level II data in the gameplay review, which focuses on players' interpretations of their gameplay. The purpose of this step is to leverage the participants' knowledge and recollections of their experiences to refine, add to, or even displace researchers' interpretations from step two. In the fourth step, I analyzed the gameplay review, which has two potential uses. First, it involves integrating the earlier steps to satisfy larger research goals. I wrote up findings based on the earlier analyses alone, but also involved participants in the process to get feedback on the validity of the claims being made (see Pearce 2009). I regularly discussed interpretations and writing with study participants who were the subjects of major examples in drafts of chapters five and six, for example. Step four eventually involved the integration of gameplay review data from multiple players as I established significant patterns of behaviour and meaning.

The gameplay review method facilitates reflexive play and creates space for insight to develop. It involves a constant process of (re)interpretation. The process of

(re)interpreting Level I and Level II data is iterative through the four generative and analytic steps. Producing and analyzing Level I data was largely a conversation between myself and the data, but during Level II data analysis, I leveraged the interpretive force of participants. Players in the study illuminated thoughts, social behaviours, and events I could not have adequately explained from Level I data alone. So in (re)interpreting, I refer not just to my understanding of the data over time, or only to the participants', but to the constant (re)construction of meaning in a spiralling approach.

CONCLUSION

The methodological discussions in this chapter served to align the methods with the theoretical framework described in the literature review. The outcomes of the methodology, both the data collection and analytical procedures, logically flow through the following data chapters. The sheer amount of time I spent with my participants, the rigorous qualitative measures used to structure much of that time, and the in-depth analysis I have described all but ensured a high level of intimacy with the data. In choosing data to present in the following chapters, I often had numerous examples primed in my mind for any given topic. The conclusions I draw emerged from and were possible because of the approach outlined here that focuses on uncovering the (inter)subjective experience of meaning-making and socialization.

CHAPTER 5 – MEANING-MAKING IN SEMIOTIC DOMAINS

In previous chapters, I described the importance of meaning-making for socialization into semiotic domains by presenting a review of the literature and a primer with basic information on WoW and Portal 2. New participants in these domains do not necessarily have such primers. Although such information is abundant online, my participants did not seek it out. Therefore, in order to discover fundamental aspects of the domains that the reader was simply told about, such as various terminologies and UI elements, participants engaged in relationships with the games and game objects and went through meaning-making processes. I am concerned in this chapter with subject-object interaction between the player and game elements, and consequently focus on single-player gameplay. This chapter focuses on Research Question 1 and will answer the question of how players engage in meaning-making processes to make sense of digital games. This chapter explores the meaning-making process and discusses it in terms of players developing literacy in semiotic domains by learning to “read” their “languages.” Languages function as systems of meaning, and I will show not only how players made sense of dialectically related systems of meaning, but how they made sense of relationships between multiple dialectically related systems.

Players learn to “read” digital games as they develop game-related practices and skill sets, and as they learn to interpret meanings of things within and around games that help them achieve their goals (which themselves are learned). A literal example of what I mean by “reading a game” is that most digital games convey some information through the communicative modality of written language. Commeyras (2009) examined the benefit of being able to interpret text in the RPG *Neverwinter Nights* by tutoring a high

school student who read at an elementary school level. In the context of their playing the game together, reading was fun and helped the student achieve in-game goals, to the extent that he developed meanings in alignment with the game's internal design grammar. As he expanded his vocabulary through learning to read in *Neverwinter Nights*, he became more proficient reading within the classroom. Improving his vocabulary and understanding of language in *Neverwinter Nights* likely benefited his textual literacy in other semiotic domains throughout his daily life by way of transfer because reading is a generic skill. The student was able to read the game and learn its language through other communicative modalities too. He learned that the sound of sword hitting shield signified that his character blocked an attack; he read the map and its symbols and navigated his character through city streets and dangerous forests; his character's health was quantified and represented as a red bar on the left side of the screen. The student was becoming literate in the semiotic domain of *Neverwinter Nights* by learning its underlying grammar.

In single-player gameplay, interaction solely with the computer resulted in players focusing on learning the internal design grammar, which for my purposes primarily consists of game rules. Rules were fundamental meanings scripted into the game design that players learned to share with the computer and with other players (see chapter 8). They were both liberating and constraining and more or less rigid. For new players, rules tended to be unknown beforehand; therefore, players engaged in meaning-making processes to learn them and align their definitions of things with the commonly held definitions, which were those held by, or scripted into, the game. By doing this, they began to experience socialization into the new domain.

This chapter provides empirical data elucidating characteristics of meaning which all players experienced. Recall from chapter 2 that meanings are “real,” interactional, modifiable, contextual, emotional and relational. The examples culminate in each section to an emphasis on systems of meaning. These characteristics of meanings are interwoven within a process of attributing meanings to things, of calling meaning into practice. Fine’s (1979) elements of cultural objects – known, usable, functional, appropriate, triggered – act as a filter for determining which meanings will become called into practice. Attributing meaning to a thing or process rests upon having knowledge of it, and acting with respect to meaning depends upon the extent to which it is situationally usable and functional. Even if the meaning one holds for an object is technically incorrect, something is still known and may be situationally usable and functional. For example, at the end of their WoW play, I quizzed participants on the meanings of things in the UI. On the minimap are a number of symbols, including a golden arrow pointing off the map in one direction or another (Figure 1). I asked Ben what the meaning of the golden arrow was. He replied “I have a feeling it’s where my inn is at, my home.” Ben knew that if he followed the golden arrow, it would lead him to his character’s home in an inn. This meaning was usable and functional to locate Ben’s character in the virtual world in relation to his home. If for no other reason, the meaning allowed him to mentally categorize that element of the UI, cognitively dealing with the icon. The arrow’s meaning was real to Ben even if that meaning was not correct according to the game’s internal design grammar. If Ben had actually tried to follow the golden arrow home, he would have found himself at his currently selected quest objective instead of his home. The meaning would have proved dysfunctional to some extent and he may have modified it.



Figure 1. Minimap with golden arrow.

WORLD OF WARCRAFT

Fighting and questing were perceived as the most significant aspects of WoW. Fighting and questing are two systems of meaning that are dialectically related. By systems of meaning, I refer to the fact that fighting and questing are each comprised of sets of meaning – game objects, rules and so on – that form a larger pattern that is different from any of the individual parts. Another way to say it is that questing and fighting are two different, yet fundamentally related, activities in the semiotic domain. Most players did not appreciate this relationship until they acquired some understanding of questing and fighting individually. They did not always understand the sets of meanings comprising questing and fighting, which implies that (elements of) these activities were problematic, especially early in the study. This was indeed the case based again on my observations and post-interview notes, as well as on coding answers to the interview questions, “What do you find difficult about WoW?”, “What do you find confusing about WoW?” and “Is there anything that was difficult before that is easy now?” I also coded 202 references for uncertainty, 59 (29%) of which were additionally coded for either fighting or questing. This means that approximately one-third of what participants expressed uncertainty about was issues related to questing or fighting. Thus,

combat and questing were particularly significant, often problematic, and provided excellent examples of sites of meaning-making.

Players spent much time and effort learning about these systems and their multiple component parts. Each player began and ended at different levels of understanding with relation to these systems of meanings. For example, three participants had previous experience playing MMOGs and approached WoW with higher literacy and domain-specific expertise than the other five participants who had never played an MMOG. I now turn to examples to document how participants' literacy within the semiotic domain of WoW improved based on their developing understandings of the sets of meanings comprising questing and fighting, culminating in a recognition of the dialectical relationship between the two systems. I will do this by examining two cases. I selected these two cases because Corey and Diane had the most prolonged and difficult experiences gaining literacy in questing or fighting, and because it so happened that these cases were complementary. Corey gained proficiency first in fighting, and only later placed emphasis on questing. On the contrary, Diane focused first on understanding the questing system, and only later determined to improve in fighting.

Corey: The Gung-ho Warrior

Corey came to WoW having never played an MMOG. His previous gameplay experience consisted largely of online first-person shooters and mobile online battle arenas (MOBAs), particularly the popular MOBA Defense of the Ancients (DotA), which he recalled playing with his friends at LAN shops for the previous five years, including approximately three to five hours per week over the course of this study. Corey's vast

DotA experience led to him operating within the frames of two semiotic domains simultaneously, DotA and WoW. The primary activity of the games he played was fighting and killing opponents in order to win. Corey described his typical gameplay style: “I am quite gung-ho, in the sense that I will just charge. I don’t care about dying.” This orientation toward gameplay was supported by his attitude toward dying in games: “I don’t mind dying because I know it’s not real. I’ll respawn [come back to life] in a few seconds anyway. Dying is normal. It’s just dying.” Without a fear of virtual death, Corey chose to play as a warrior in WoW. Corey interpreted the meaning of the warrior to align with his favored play style: “It’s a melee character so it gets up close and personal. It allows me to play the direct game that I’m more familiar with from DotA.” With the combat-heavy emphasis of his previous gameplay experience in place and his character chosen to align with being gung-ho, Corey entered the World of Warcraft (Figure 2).



Figure 2. “Who is Magistrix?” Screenshot taken seconds after Corey’s character appeared in the virtual world.

Notice the golden exclamation mark over the head of the character standing just to the right of Corey’s. This symbol represents an NPC with an available quest for the player. From the beginning, the game attempts to foreground the golden exclamation mark as a significant symbol by materializing all new characters directly in front of NPCs like Magistrix Erona. Bruder and Ucock (2000) described five factors of paintings in an art gallery that affected the “attraction” that viewers expressed about the paintings, and all five can be applied to quest givers in WoW. Considering the screenshot as a visual canvas, the exclamation mark’s bright golden *color* might draw a player’s attention, perhaps reminding him of the “idea” lightbulb and signifying that the NPC has something important to say. If a player is already familiar with this symbol, either as an exclamation mark or indicative of a quest, then the *subject matter* may draw his attention. If a player is unfamiliar with the symbol, he may be attracted to it because it is an *enigma*, something

puzzling in the environment. Finally the *technique* by which the symbol is represented may draw a player's attention, meaning that perhaps it has an attractive shape, style or form. These factors of attraction apply not only to quest indicators, but potentially to any aspect of the game that can be represented visually. One could also imagine auditory attraction or tactile attraction, or a combination of modalities through which the game communicates meaning. For example, Jørgensen (2008) analyzed game audio in WoW PvP battlegrounds and identified five audio generators, the player-character, allies, enemies, game system and gameworld. Players must interpret the variety of sounds emanating from these sources in context, and classify them along a continuum of urgency, i.e., which are proactive and demand a response and which may be safely ignored. Like the visual example, interpreting characteristics of sounds are important, such as the sound's spatio-temporal origin, volume, subject matter or enigmatic quality. Juxtaposing the visual and audio examples shows there is at least a fifth factor of attraction in games, which is *interactivity*. A quest giver NPC like Magistrix Erona may not wait for the player to notice her, but may initiate a script and approach the player-character shouting for help, attracting attention in a way that a stationary painting cannot. These factors of attraction are designed aspects of video games because the designers want to call the player's attention to something. However, these factors do not determine interaction because gameplay is emergent through an interpretive process. When Corey's character materialized in the virtual world, Corey was not attracted to the golden exclamation mark:

Corey: So who is Magistrix? Oh, it's the other player? Of the same account?

David: Is it?

Corey: I don't know. Magistrix Erona. She's not moving at all.

In fact, there is no indication that he perceived the exclamation mark at all. He did not mention it, did not move the mouse cursor over it and did not mention quests. Magistrix Erona temporarily caught his attention for enigmatic reasons, but after having expressed uncertainty about who she was based on her standing still, he ran past her to a field of level one and level two enemies, and initiated his first combat encounter.

During this encounter, as I was watching and wondering why Corey did not attempt to interact with Magistrix Erona, I realized that I forgot to turn on the in-game tutorials, which means that a tutorial window which should have appeared to alert him to the aspect of WoW's internal design grammar regarding quests and quest indicators did not appear. I reset the tutorials, immediately after which the quest indicator tutorial window appeared. However, this mindlessness on my part may or may not have mattered. Like the exclamation mark, Corey did not make any indication toward the information in the tutorial window, and closed the window 12 minutes later without a word. This highlights the spatio-temporal contextuality of meanings. Had the quest tutorial appeared at the appropriate time when Corey was standing next to Magistrix Erona, he might have perceived the golden exclamation mark and acted toward it. Ultimately then, questing, quest indicators and tutorial windows did not satisfy Fine's (1979) elements of cultural objects for Corey, which explains his lack of attraction to quest-related game objects. Quests were unknown within the semiotic domain of WoW and he later explained that "DotA doesn't have quests." Perhaps his DotA frame remained active and prevented him from making interpretations of things outside how he would have interpreted game objects in the semiotic domain of DotA. Assuming that he saw the quest indicator and

tutorial window, they were known and “readable;” however, they were not perceived as functional going forward. Whatever attraction he *might* have subjectively had toward the game objects, he did not perceive them as supporting his goals, and therefore he did not call their meanings into practice and ignored them.

One function of quests is to guide players through areas of the game world that are appropriate for their level. Typically this means the enemies in the area are neither too hard nor too easy for players to defeat alone. Without quests to guide him safely, Corey began to wander. A strait of water off the southeast coast of Sunstrider Isle, the Blood Elf beginner area, piqued his interest when he was level four, after two hours of play. He swam across it and reached an area in the Eversong Woods called the Dead Scar, populated with level six and above enemies. Out-leveled, Corey experienced multiple deaths. Rather than categorizing the enemies as too difficult to overcome, however, he developed a new strategy to defeat them. The presence of friendly NPC rangers who patrolled the roads and kept watch over Blood Elf territory gave him an idea. During Level II data generation in his gameplay review, Corey recalled:

The eureka moment was when I realized the rangers would help me. I saw this troop of three or four monsters running through the Dead Scar, and I thought, okay, even though I’ve just died a lot, let’s check out what kind of monsters these are. Experience should have taught me better, and yet again I still went too near such that one started attacking me. And I started running back, and then it suddenly occurred to me, hey, there are the rangers there. Okay, so let’s try it out. So I ran back to the rangers and true enough, the rangers couldn’t just let it pass through. [Watch the video entitled “Rangers”

at http://youtu.be/kiq_7nGXYAc to see what Corey is describing. Notice the quest giver among the friendly rangers.]

Note that Corey did not intentionally lure the enemy to the rangers at first, as I had assumed during Level I data analysis. Instead, his attraction led him to accidentally run “too near” to the pack of enemies, causing one to chase him. Corey assigned a new meaning in practice to the NPC rangers that he had seen throughout the game, and in the context of being out-leveled and chased, the previously decorative rangers became combat allies. The new meaning Corey attributed to the rangers was facilitated through Corey’s activation of an interactive network hard-coded into the game, an aspect of the domain’s internal design grammar. Just as when a player-character runs too near to enemies, triggering them to become hostile toward the player-character, enemies approaching too near to friendly NPCs trigger those friendly NPCs to become hostile toward the enemies. In this example both types of NPCs assign meaning contextually to other NPCs. Unger, Troutman and Hamilton (2005) described this phenomenon when discussing the main character in the game *Grand Theft Auto: Vice City*: “As Tommy Versetti moves through the symbolic world of Vice City, he functions as symbolic text that is read by other symbolic text in the game...Other characters in the game run away, swoon, or attack depending on how they (as symbols) assign meaning to Tommy’s current subjectivity” (94). Corey, in assigning meanings to enemy and ally NPCs that drove his subsequent behaviors, integrated an evolving understanding of their symbolic relationships to one another. He repeated this process in the *Dead Scar* for some time to accumulate experience points, and then moved to another area to kill level nine enemies

(more than twice his level!) in same fashion. Treating rangers as combat allies was both a usable and functional meaning, and thus the rangers *became* combat allies.

Another aspect of meaning-making in this situation involves how Corey determined the difficulty of enemies. Recall that character level is represented by a small number along the circumference of the character portrait. It was not until after the previous example that Corey noticed the enemy levels, which basic DotA enemies do not have. When players did not notice enemy levels, they were unsure how to accurately gauge an enemy's strength without fighting it. Thus, any encounter was a gamble. Corey engaged in meaning-making strategies to manage his uncertainty and provided an interesting explanation of how he knew which enemies were difficult or easy:

The wyrm [the first enemy he encountered] is small in size. It's located at the beginner's hut. So like okay, free frags [kills]. And then you have the cubs that are easy. But their parents are not easy. I could see that the skeleton [in the Dead Scar] would be difficult. It had that eerie feeling. It's that instinct that you see the monster and you're like okay. I guess from other games as well, you see the undead and it resembles a human form, which probably increases its attack. And something that resembles a dragon is also strongly associated with power. For the human, furthermore, there are only a few of them in the environment, which shows that those are not free frags that the game is giving away.

Corey pointed out a number of meanings he attributed to enemies in order to intuit their strength. First, he saw physical characteristics such as size. Small enemies were easier. Second, their locations in the world provided clues. Enemies in starting areas were

easier. Third, their physical-spatial relationships with other enemies were significant. Scarce enemies were difficult. Fourth, the social relationships between enemies were significant. Killing the cubs was no problem, but that angered the parents, who were formidable. Fifth, Corey realized certain associations from his experiences with prior games and popular culture. Dragons were associated with power and would be difficult. The undead were humans with extra might. Corey enacted any combination of these meanings during his fights, which influenced his combative behavior. On a subsequent occasion, after moving on from killing skeletons in the Dead Scar with the rangers, the above meanings were challenged. Corey was killed by a Dragonfly Hatchling that was level six to his four. Corey recounted his death: “And then I attacked the stupid dragonfly hatch-I-don’t-know-what, and I didn’t expect him to kill me that fast because it was supposed to be easier [than the skeletons]. But I died!” We joked that because the enemy had the word “dragon” in its name, he should have been more careful.

The relative predictive power of such signifiers waned for all players after they were able to identify the enemy level number, which became the most functional and appropriate method to determine enemy difficulty for all players. However, it is important to note that the latter method did not simply displace the former. Meaning-making is processual and prior meanings or methods may remain in pieces or wholly intact to be called into practice should new meanings prove inappropriate for a situation. For example, in the final interview, Corey recalled encountering an enemy that he called “Pudge,” a hulking abomination that resembled an eponymous character he recognized from DotA that was known for its vicious attack. Corey and Pudge were the same level, yet Corey avoided him: “I saw Pudge coming and I hid behind a tree so that he wouldn’t

see me...[Even though we were the same level] I wasn't about to attack Pudge. I knew he would kill me regardless." Corey defined a revised set of rules for engaging enemies once he knew their level, but still took into account other characteristics, thereby integrating the two methods of gauging enemy strength. Although Corey's hierarchy of the determining factors of enemy strength was technically incorrect from the perspective of the game design, it made sense to him and remained functional knowledge that he developed and utilized in practice.

A similar dominant meaning arose over time for all players regarding quest indicators. I mentioned that in the beginning, Corey did not appear to perceive the golden exclamation mark above Magistrix Erona. He later said he understood the concept of quests before playing, but did not initially see the indicators or apply the concept to his WoW play, instead opting for the gung-ho approach focused on slaying monsters. After approximately five hours, Corey was "bored of just killing the same type of monsters. It is not worth the trouble..." This was the main motive he provided for wandering from Sunstrider Isle to the Dead Scar and around Eversong Woods until he began doing quests. Throughout our early conversations, Corey repeated that he just wanted to "increase [his] level as high as possible." But after five hours, when he was level five, he was frustrated enough by his slow progress to seek my advice. He recalled, "I had the conversation with you that can I just go about killing all these monsters without having to do quests, and you told me that I probably can't, so I decided oh what the hell, let's get on with it, and let's take the first step, try it out. And then I fell for the items and the experience." I explained the quest indicators to Corey, and he teleported back to Magistrix Erona, who was standing still as if five hours had never passed. "Yeah that was the first quest I did. I

started the game over! That was when I was really level five.” Without quests as the object of his fighting, Corey eventually realized fighting was not yielding enough experience points or other rewards. The meaning he had attached to fighting was not functional for meeting his goals. The golden exclamation marks became known and he reinterpreted them to align with the dominant meaning programmed into the game such that “!” became a significant symbol signifying available quests during the rest of his WoW play.

Diane: The Task-Seeking Sneaker

Like the fighting system, the questing system in WoW is comprised of numerous components, including quest indicators, NPC quest givers, the quest log, the map, and so on. Players needed to learn how to assign meaning to the various quest-related symbols and use the mouse to interact with quest-related game objects. Whereas Corey did not deal with internal design grammar relating to quests until after he had acquired some skill in fighting well into his WoW play, quests concerned Diane from the very beginning, well before she became accustomed to combat. Diane was unique in this study in that she reported having never played a console or PC game. Her only direct experience with digital games was the Tetris-like game on her phone. Indirectly, she had heard friends talk about WoW, and one reason she participated in this study was in hopes of understanding what it was about the game that her friends enjoyed so much. She entered the virtual world in this frame and immediately began a search for meaning in an enigmatic place.

Diane’s gnome rogue character, which she chose based on desirable appearance, entered the world in front of a quest giver with a golden exclamation mark, the same way

every other character entered. The quest indicator tutorial window appeared and she read it aloud. Instead of using the mouse to right-click the quest giver in front of her, as per the tutorial, she used left-click, which only resulted in the NPC giving increasingly sarcastic one-liners (“Yes, you’re totally annoying!,” “Blah, blah, blah, blah”). Not giving indications that anything on the screen was significant, she proceeded to search for guidance. When I asked her what she was doing, she said: “I just want to find more information about the rules because I’m not familiar with it...when you play a game, it will tell you very clearly about what you will do, and if you want to continue the game, then what you should do. But now, it seems like there are so many things.” Diane was overburdened with information, little of which made sense to her. She knew that rules existed and she knew that learning the rules would guide her toward something present in the digital environment that should be usable, functional and appropriate in this situation to provide her with purpose and guide her action, but she did not know what that something was or how exactly to discover it. She found the “Help” button and spent her first hour-long session browsing the in-game customer service FAQ.

She focused on understanding a range of topics throughout her WoW play. The most salient for her in the beginning included knowing the rules, figuring out who the various characters around her were, and learning how to run, which facilitated her ability to explore new places. However, due to her lack of prior gaming experience, she began the game with less literacy, with fewer mental categories in place than other participants to help her organize the virtual world. Participants’ meaning-making efforts served to “cut up the world” into discrete “islands of meaning” (Zerubavel 1991:11). One of the first things Diane “lumped” together were NPCs, and then she “split” the category into

“friend” or “enemy” based on whether or not she could fight with them. She remembered that she read how to right-click to target an enemy in the FAQ, excitedly recounting: “Ah, I know how I targeted the enemy! I clicked the right button and then I faced him!” Other methods that players used to categorize NPCs included attempting to talk to them (if they talked, they were friendly; if they attacked, they were hostile), moving near them (if they stood still or spoke they were friendly; if they attacked, they were hostile), observing their appearance and location, as Corey did in the previous example to develop a hierarchy of enemy strength and identify friendly rangers, and recognizing quest-related symbols that indicated friendly quest-related NPCs. As participants gained more interactional experience in the semiotic domain, the color of NPCs’ names became the dominant and most functional piece of cultural information for characterizing their allegiance and general behaviors. As players assigned NPCs to categories that aligned with the internal design grammar of the game, they became able to “read” characters and predict their future responses to interactional efforts: green signified friendly NPC; blue signified friendly player; yellow signified neutral; red signified hostile. Each player went through the process of differentiating NPCs, but not all acquired the same level of understanding. Players with more previous relevant gameplay experience tended to lump and split things in the semiotic domains to be more closely aligned with the internal design grammars than less experienced players, though as each individual player progressed through the games, categories became more aligned.

Diane was more uncertain about the meaning of the color of NPCs’ names than other participants, and this had implications for her ability to interact with NPCs in both combat and questing. In a way, she began in an unfortunate area of the game world

because she chose a gnome character. Recall Corey's initial view of the world from Figure 2. There was one quest giver and an open field with a few enemies. Compare with Diane's beginning area in Figure 3. The initial quest giver is on the left. Several other friendly NPCs are present, one of which Diane has targeted, along with many more scattered objects and three irradiated gnomes (the NPCs surrounded by green haze). There are also robots skittering about the floor, and beyond the frame to Diane's right is a loud battle between friendly NPC gnomes and irradiated enemy gnomes, with gunshots, screaming, and text bubbles from the NPCs appearing all over the screen. This is a confusing array of stimuli for a new player, especially compared to Corey's relatively simple audiovisual introductory location.



Figure 3. Busy gnome starting area for Diane.

Diane's basic realization of the distinction between enemies and friends in the beginning was nominal. Colors were insignificant. Instead, she distinguished enemies by difficulty based on their locations in the world, like Corey categorizing wyrms as easy because they were in the beginner area. She referred to the underground gnome beginner's area as the "first world," where enemies were relatively simple. The aboveground gnome area directly after this was the "second world," where enemies were more difficult. During her initial two hours in the "first world," armed with nominal meanings for characters, she learned basic targeting and auto-attacking, and she did learn to run. She ran far and explored the frozen mountains of Dun Morogh, the "third world." At level six, after approximately seven hours of play, she wandered into Loch Modan, the "fourth world," a zone adjacent to Dun Morogh meant for level 10-20 characters. It was here, after many deaths to overpowering wild bears, that roads became meaningful and she split the landscape. Roads became "safe" and the areas off the roads became "dangerous." These meanings became functional for her survival. From then on she ran along the roads because enemies were less likely to attack her there.

Like Corey, Diane had no quests to guide her through level-appropriate areas. But unlike Corey, she had not developed proficiency in fighting. She had never visited a class trainer to learn new combat abilities, and never used the one attack she began the game with, Sinister Strike. So whereas Corey could survive enemies two or three levels higher than him by utilizing his range of abilities, and many levels higher with the help of the rangers, Diane's standard auto-attack, a character's most basic attack that deals minimal damage, quickly became insufficient for defeating enemies even of her own level. As Diane wandered throughout Dun Morogh and Loch Modan, her initial range of topics on

which she had previously focused narrowed to one overarching concern, which she repeated over and over again: “I don’t know what my task is. I have no meaning, no direction. What is my task? How can I find my task?” By “task,” she did not necessarily mean “quest,” but a more general direction or game-given goal to work toward. After watching Diane more or less struggle with these and other aspects of WoW for seven to eight hours, I described and explained the purpose of quests and suggested she return from Loch Modan back to a level-appropriate area in Dun Morogh so that she could find and complete a quest.

As she ran along the road out of Loch Modan and into Dun Morogh, she soon came upon the Gol’Bolar Quarry, a dwarven mining operation overrun by enemies called troggs. It was here that she successfully accepted her first quest, which involved exterminating troggs. During Diane’s gameplay review when I asked her when it was that she realized a green name meant a friendly NPC, she recalled Gol’Bolar Quarry and the quest giver she encountered there:

I remember when I entered into the third world. You told me this [the golden exclamation mark] means I can get the task from them. They are my friends because green is peace. But, I still don’t know what the blue, purple and other colors mean. But at first I didn’t know the existence of tasks. Just run, run, run. And then I got that kind of person [quest giver]. You told me you can talk with him. I just clicked it. Oh, I saw, there was a task...the exclamation mark looked like a surprise.

In part of a video used during her gameplay review called Troggl (<http://youtu.be/ho4tESPoeJw>), she accepted a quest [2:28]. She did not “just click it;” that action must be properly contextualized as empirical Level I data. One significant aspect of this video is that she first approached the quest giver with a gray exclamation mark [0:47]. A gray exclamation mark signifies that the player-character is not yet of sufficient level to be offered the quest. So despite clicking on the quest giver 15 times, she was unable to receive a quest. At 1:14, she appeared to notice another NPC in the background with a golden exclamation mark. “Oh, I see,” she said, ran toward him, right-clicked one time, and a quest window appeared. One interpretation of this scenario is that she knew that NPCs with exclamation marks were quest givers (as I previously explained to her), but she did not know the significance of splitting gray and golden symbols. The gray symbol yielded no quest and was therefore not usable, but then she perceived a golden symbol in the background, which she was attracted to because it looked like a “surprise,” and which when acted upon, did produce a quest window. The interpretations of different aspects of questing (attaching meaning to exclamation marks, to NPC name color, using the mouse to interact with the NPC, and finally, reading the quest aloud to determine the context and the objective) came together at this critical moment to connect Diane with her first task.

This scenario was not the only aspect of Diane’s interpretation of the questing system. As I have shown with Corey, questing and fighting are dialectically related, and Diane had yet to reconcile the two systems of meaning. After some troggs killed her, she exclaimed, “Oh, they are level nine! I can’t kill them. So I can’t accept the task” [3:23]. Before, in Loch Modan, enemy level simply prohibited her from running off the road and

exploring further. Now, it prohibited her from completing her task, which was what she had been striving to find for a long time. When enemy level became problematic and interfered with her overarching goal, it became highly salient cultural information, and she needed to make sense of it in a way that allowed her to overcome the problem it presented. She accomplished this through learning to fight. However, her initial auto-attacks were too weak to kill the troggs and she simply did not know how to fight any other way. We had a 15-minute dialogue where I guided her through understanding how to use the abilities on her action bar, how to learn more powerful abilities from class trainers that could help her defeat the troggs, and suggested she temporarily abandon Gol'Bolar Quarry for quests in a more level-appropriate area.

Diane followed this advice, and when she returned to Gol'Bolar Quarry at level eight, after approximately 13 hours of play, she was armed with two new abilities, Stealth and Eviscerate, which she had since practiced using during easier quests, and two additional experience levels put her on more equal footing with the troggs she needed to exterminate to satisfy her initial quest objectives. The video entitled Trogg2 (<http://youtu.be/spoDCaDQkC4>) shows her development in learning to incorporate these new abilities into the system of meaning, combat. These new abilities became known when I told her about them and suggested she learn them, usable when her character learned them from the class trainer, functional, situationally appropriate and triggered as she interpreted and interacted with game objects in her environment. They were new pieces of cultural information that she called into practice to help her solve problems. She began proudly referring to her character after acquiring the Stealth ability as “the sneaker.” The name described the overall careful strategy she began developing for

questing and fighting. She used Stealth to move undetected, avoid danger and gain the first strike in combat encounters from advantageous positions: “Because I’m a Sneaker, I can be closer to them, and especially with their backs to me, when they don’t face me, that is better.” She sneaked around the exterior of the cave, monitoring enemy movement for an opportunity to enter [1:24]. When she engaged enemies, the borders around icons one and two on the action bar flickered as she pressed them. She occasionally counted aloud: “One, one, one, one, one, TWO!” as she built up power with the first icon’s ability (represented by up to five red dots on the right of the enemy’s character portrait) and expelled it with the second. Diane summed up “the sneaker’s” approach that she continued to develop throughout her play: “Wisdom is more important than bravery. Now I don’t need to attack so many enemies. I just need to finish my task.” Whereas she previously attacked (and was attacked by) nearly every enemy in the vicinity, becoming the sneaker allowed her to attack only those enemies that stood directly in the way of her quest objectives. And, since she was able to make sense of the elements in the combat system of meaning, these battles more often than not ended with her victorious and feeling accomplished and empowered.

Corey and Diane were not alone in these examples. A few participants had played MMOGs previously and already understood questing and fighting generally, but they still had to tailor their understanding to the semiotic domain of WoW. Some experienced many of the same issues as Corey and Diane, and others different issues, all of which represented a variety of factors affecting how players made meaning of the various systems in the game. For example, like Corey, both Elliot and Frances wandered far away from their starting areas. Elliot, at level two, wandered into areas with enemies between

levels five and eight. He was stuck there for 30 minutes. I watched him until he told me he wanted to start over, citing the inherent weakness of his chosen character. I explained it was not that his character was born weak, but that its level was too low relative to the enemies he was fighting, and guided him back to the beginning of the game. He reframed his deaths in these terms and endeavored to raise his character's level. Frances experienced a situation similar to Diane's in that she also began in a less straightforward area than Corey. The second quest in the undead race's starting zone provides the player with an ally NPC named Darnell who is supposed to lead the player to the quest objective. However, Darnell's speech as displayed in text bubbles above his head and in the chat window did not attract Frances's attention. Consequently, she did not follow him or his directions. Darnell himself was known, but his purpose was unknown, so Frances did not perceive him as usable in pursuing her quest objective. Instead, she led Darnell out of the beginning area at level one and into the jaws of a level five spider. In Frances's case, the game further complicated her ability to make sense of the virtual world. In addition to strapping her with a confusing NPC who frequently obscured her view of the screen, after the spider killed them, the game resurrected her in the nearest graveyard, which was situated in an area full of level eight enemies! This made it nearly impossible for her to continue. Whenever she stepped foot out of the graveyard, she was attacked and killed.

Diane learned how to accept a quest before learning how to fight beyond auto-attacking. She realized that questing, completing her tasks, was impossible without the ability to effectively kill enemies. To reconcile these two systems of meaning, she had to recognize them as dialectically related. Alternatively, Corey became proficient in fighting before understanding the significance of questing. Eventually he realized that fighting

alone was fruitless outside the context of questing. To reconcile these two systems of meaning, he had to recognize them as dialectically related. Diane and Corey needed to make sense of the components of fighting and questing systems, and then to make sense of the relationships between the two systems, in order to level up their characters. By the end of their play time, *all* the participants' stated goals involved leveling up and becoming stronger and *all* the participants could describe with remarkable similarity "how the game works." Corey, for example, said: "Read the quest, understand the quest, get to the location, carry it out, take your reward, move on, dominate that territory, then move on to the next territory. Along the way get some extra rewards. Beautify yourself with a lot of armor..." This understanding demonstrates a level of domain literacy and suggests that quest-related symbols and meanings were regularly filtered through Fine's elements of cultural objects to become known, usable, functional, appropriate and triggered in patterned ways. Corey's outline of the game's design grammar is exactly what I outlined as a typical player's progression through WoW in the primer chapter. I will argue in subsequent chapters that players were socialized into this frame by the game and by other players. The meaning-making processes that players went through to understand (relationships between) systems of meaning occurred in different orders, and were significant processes toward developing literacy in the semiotic domain of WoW.

PORTAL 2

As a different semiotic domain within the larger domain of digital games, Portal 2 is comprised of a specific set of practices and is structured by distinct design grammars. Portal 2 involves using the portal gun and manipulating various objects to solve puzzles, the former practice having no comparison to WoW and the latter practice being an

activity which the two games share generally, but exhibit in different ways and through different modalities. At the level of the game, the meanings communicated during Portal 2 play are distinct from the meanings communicated during WoW play, yet players engage in similar meaning-making processes to make sense of design grammars and game objects.

During open coding of observations and early interviews, my attention was drawn to participants' responses to the following questions: "What was the most significant game object for you?", "Describe your most negative memorable moment," and "What is the most important thing you learned last session?" Responses largely filled categories relating to the most fundamental game objects in Portal 2, the portals themselves. The coding frequencies suggested that understanding the relationship between portals was the most necessary and significant aspect of the game and was the foundation upon which nearly all subsequent meanings were made. Portal 2 is driven by a fundamental dialectic wherein when a player enters a blue portal, she emerges from an orange portal and vice versa. Every player had to develop this exact understanding of the domain's internal design grammar or else the game would quickly become impossible.

Other salient aspects of Portal 2 tended to be those game objects or test chambers with which the participants were engaged at the time of discussions. For example, after the first hour of gameplay, it was most often the basic elements, weighted cubes and red floor buttons, which were most significant. When players reached the 23rd test chamber, the game introduced turrets, which invariably became the most significant. These other gameplay elements were embedded in relationships with one another, and this is part of the reason participants consistently reported the salience of the currently activated

element. When presented with a new game object, participants had to discern its relationships to other elements in various situations. Some of these game objects were dialectically related, such as weighted cubes and red floor buttons. If both were present, then the weighted cube always ended up on the red floor button, and the red floor button always required a weighted cube.

Whereas with WoW, I showed that players made sense of dialectically related systems of meaning and their components, I will demonstrate with Portal 2 that players not only made sense of dialectically related systems, but of relationships between multiple dialectically related systems, and indeed that the domain requires players to engage in this deep level of relational thinking to solve its puzzles. So not only are characteristics of meanings applicable to systems and their components, but also to relationships between systems. I will illustrate the meaning-making process between two interacting systems in Portal 2: the relationships between portals and the relationships between weighted cubes and turrets.

Frances: “You really have to understand why you do every single thing.”

The departure point for this series of examples is the third test chamber of the game. In the beginning of this test chamber, players acquire the portal gun, and with it the ability to open blue portals. At this point in the game, the location of an orange portal was a predetermined piece of each puzzle. The six Portal 2 participants completed test chamber three, from the time they picked up the portal gun to the time they called the elevator, in (minutes:seconds) 2:05, 2:45, 3:35, 6:56, 7:40, and 20:25. I use a segment of Frances’s gameplay (6:56) as an example, presented in the video entitled Frances1

(<http://youtu.be/KLEtXnr7jAk>). I chose Frances's example because in her average completion time of 6:56, she had a clear problem and overcame it. Frances also had a penchant for enunciating her thoughts in a logical manner, with or without my prompts to think aloud, so it was relatively easy to follow the steps she took in doing activity. In the example, Frances began by stating key uncertainties to resolve. She did not know where to go and she did not understand the relationships between orange and blue portals. I outline how she made sense of the portal system and relationships among its components.

At 0:19, Frances verbalized her present understanding: "If I shoot a blue portal here, it means...It means I'll get through to the orange portal." She interpreted their relationship as unidirectional. The meaning she attached to the portals was usable and functional to get her from point A to point B, but not from point B to point A, and certainly not to the exit door. She did not yet have a grasp on their relationship to the larger test chamber. Like Jørgensen (2008) stressed, "context is a keyword...a specific sound cannot be comprehended in isolation, but...the situation in which it is heard always decides the interpretation of the informative content of the sound signal" (n.p.). Any game object functions like sound. In this case, the environment in which the portals were located guided the eventual interpretation of the meaning of the portals. The utility of her unidirectional hypothesis was short-lived.

She was unknowingly oriented toward her spatial goal as she said she was still lost [0:36]. She gave no indication that the exit door or the signs above it attracted her attention. These objects would have to become perceived as usable information if she was to solve the test chamber. This happened soon after when she said, "I think I'm supposed to get through that door," [1:02] imbuing it with an enigmatic quality by saying she did

not remember passing through it before. The importance of the door was triggered by her validation of the “object constancy assumption,” which describes how, when presented with seemingly contradictory versions of empirical reality, people tend to assume one is real and the other is false (Mehan and Wood 1975). She wondered aloud, “I don’t know if this orange portal is the same one like I saw just now. Oh wait, yes.” One interesting aspect of Portal 2 is how the alien spatio-temporal rules that exist in the Aperture Science facility lead players to question the object constancy assumption. But upon determining that the orange portal was the same as before, she may have begun to trust her experiential judgment. If she did not remember passing through the door before, then she had not passed through the door before, and therefore she needed to pass through the door. Her understanding of the unidirectional portal relationship now had an object. She thought that the portals would become functional for getting her to the exit door.

She persisted in unidirectional thinking for some time, evidenced by her focus on wanting to open another orange portal, because she knew that if she went in the blue portal she would come out the orange, but never verbalized the opposite. I attempted to push her thinking on the problem from another angle by asking her to explain why she needed an orange portal by the door [3:44], and she again illustrated her current paradigm, but with a crucial detail included. She pointed near the door and said, “there should be an orange portal there, so *I can just open up a blue hole wherever I am*, and when I pass through the blue hole, I’ll be there. *But I can’t even get there in the first place*” [3:58]. Her understanding of the relationships between portals and the door was limited by an assumption she made about her character’s location in space. She said she could open a blue portal where she was and could not open an orange portal where she was not. This

indicated that she thought she could only shoot portals near to her location. Frances confirmed that the spatial aspect of shooting portals limited her perception of their functionality and limited the reality of the meanings she held for the portals [4:34]. This limitation was actually attributed to the portal gun itself: “I realized that the gun doesn’t have a limited range of shooting” [4:56]. So here, the dysfunctional meaning she held for the relationship between portals was at least in part founded upon an attributed characteristic of the portal gun which limited its functionality for solving the test chamber. With this realization, Frances was able to manipulate space, which became an obstacle she could cross. She modified the meaning of the portal gun, discarding the dysfunctional spatial restriction. Its ability to shoot far allowed Frances to manipulate portals to traverse greater distances. She could go through the orange portal to emerge from the blue portal she created by the door. In practice and in this instance, the relationship was complete.

Understanding the relationship between the orange and blue portals was fundamental for any player to progress much further in the game. As they progressed, the game added new elements. I have described the weighted cube and red floor button already, for example, in chapter 2. The weighted cube always ended up on top of a red floor button, but that was not the only meaning players attributed to the cube. Many objects in the game had potential relationships with other objects that players could discover. The next example builds off of the one just presented and shows the second half of test chamber 23, which introduced turrets. In the first half, Frances navigated a series of hallways populated by turrets (discussed in chapter 7). This was not easy and it took some trial and error to determine how to deal with them. In the end, she used portals to

move behind the turrets and disable them. In the second half of the test chamber she developed a new strategy to disable turrets. The short video entitled Frances2 (<http://youtu.be/yCGRie3OHiM>) shows this example.

Frances's ability to reinterpret the meaning of the weighted cubes was, firstly, dependent upon her understanding of the relationship between the portals, which she clearly understood and manipulated by this point. Second, Frances's ability to reinterpret the cubes was tied to her goal of bypassing the turrets, which delimited the range of appropriate meanings she might have assigned to the cube. Her goal temporarily sealed off potential, even prior, meanings such as "thing that depresses red buttons." In the context of dealing with turrets, depressing buttons was not an appropriate meaning to call into practice. However, like with Corey's integration of level and enemy characteristics, the cube's prior meaning was not erased and remained potentially and situationally appropriate. Indeed, she was potentially reminded of it by the red floor button clearly visible through the glass and that meaning may have been set aside for future use.

Frances could have disabled the turrets in a different manner, testing the functionality of different meanings, and some other players did. For example, Gail disabled the first two turrets with weighted cubes and, gleefully with a knowing sense of irony, disabled the other turrets by dropping the previously disabled turrets on them through portals. According to the domain's internal design grammar though, the disabled turrets were not heavy enough to depress the red button, and Gail had to retrieve a cube for that purpose. When I played this test chamber, I held the cube in front of me like a shield and ran headlong into the turrets to knock them over. I recall being amazed at my participants' creativity because they assigned meanings to the cube that were previously

unknown to me in this context. Finally, Frances understood that the portals were media through which objects passed. The portals communicated the meaning of the objects that passed through from one place to another. Frances assigned the meaning “weapon” or “weight” or “thing that can disable a turret if dropped through a portal” to the cube. Passed through the portal, the meaning of the cube as a turret disabler smacked the turrets from above in a very real sense.

This example shows that relationships among the meanings of things are not always static and that meanings are modifiable and contextual. While the red floor button and the weighted cubes existed in a dialectical relationship, that did not invalidate potential meanings in relation to other game objects. Those relationships can also be assigned various meanings as they relate to other relationships. In test chamber 23, Frances was able to think of the weighted cube outside its relationship with the red floor button and enter it into a relationship with the turrets, mediated by the relationship between the portals. The meaning of the relationship between these two systems of meanings satisfied Fine’s (1979) cultural elements. The meaning became known, was usable, functional, appropriate and triggered in the situation. The meaningful understandings that participants developed of relationships between things and relationships between relationships reflect Frances’s quote at the beginning of the section: “You really have to understand why you do every single thing.”

DISCUSSION AND CONCLUSION

People make sense of things in order to develop shared understanding so that (inter)action can proceed. In the data presented here, I focused on shared understandings

between participants and games, particularly how participants came to align their definitions of things with game rules, which comprise the internal design grammar of the semiotic domains. When the meaning-making process resulted in participants calling meanings into practice that were not functional or appropriate in a situation, interaction typically could not proceed in tune with participants' goals. Recall the barriers that Corey faced before he learned to attach specific meanings to the golden exclamation mark as part of the system of questing, or that Diane faced before learning to acquire and use combat abilities to successfully fight enemies, or that Frances faced before understanding the dialectical relationship between blue and orange portals. In Portal 2, players who did not understand the relationship between portals literally could not proceed. Portal 2's design grammar imposed stricter adherence than WoW's, where Corey and Diane could have continued doing other activities or leveling up, albeit at a slower pace. What happened in these examples is that the participants modified the meanings of game objects and mentally reconfigured their associations, calling new understandings into practice in new situations.

The meaning-making process was integral in participants learning to read the grammars of games and developing literacy in the domains. Engaging in making sense of domain fundamentals, they began to experience socialization into the new domain. Particularly, as participants interpreted the various icons and symbols that were meant to convey information, they underwent "semiotic socialization" into the domains (Zerubavel 1997:71). Portals, for example, did not have a clear referent outside of the game Portal 2. Thus players must learn or be taught within the game, even taught by the game, what the portals signify, the relationships between portals, and how to leverage that cultural

information. In WoW, the golden exclamation marks and the ability icons signified concepts which Corey and Diane were unaware of. They experienced semiotic socialization on a micro interactional level as they aligned their meanings of the relationship between signifiers and signifieds for each object to be in shared agreement with the “correct” definition held by the game. Games push players toward adhering to such correct definitions, guiding the meaning-making process. As I discussed with Corey and Frances, their previous definitions were not simply replaced by new ones, but remained known to be potentially integrated or called into practice in future situations.

The overarching aim of this chapter was to answer Research Question 1 by showing how players engaged in meaning-making processes to make sense of digital games. Successful socialization, learning the rules of digital games in this case, requires people to employ meaning-making strategies. I have shown how players improved their literacy in these semiotic domains through the process of meaning-making, not just of individual game objects, but of their relationships in sets and systems of meaning. As all the examples showed, participants built up from more basic understandings to more complex understandings as more game elements were introduced. In chapter 8, I discuss increasing complexity in detail, especially the impact of additional human players. But, the meaning-making processes that participants engaged in are part of the larger socialization process, which occurs in stages over time. The next chapter breaks down the larger process of socialization.

CHAPTER 6 – GAMEPLAY SOCIALIZATION

In the previous chapter, I emphasized the dynamic meanings that players forged through interaction with the semiotic domains World of Warcraft and Portal 2. This conceptualization suggests games are more than texts which players learn to read and write; they are complex systems with(in) which players develop interrelated sets of meanings and practices for use in the domain and related domains. Developing literacy within the semiotic domain of digital games involves learning to attach specific meanings to content and engaging in specific social practices in accordance with rules, which operate as local culture guiding interpretations. Learning these epistemological and ontological positions comprises an important part of the socialization process into the semiotic domains of digital games.

Gameplay socialization is the process of acquiring the rules, norms, skills and practices required to participate in the domain, as well as the underlying structure or grammars through which shared meanings are supported. Interactionists see the socialization process occurring for each role a person plays (Dolch 2003). When a person plays a digital game, she takes on the role of player in the domain. Other roles emerge as players interact with other players, digital objects, or imagined or abstract others (a high score or a player's past self, for example), each of which may play a role reciprocal to that of the player. These role relationships are significant to make sense of as part of the domain's design grammars and are in a constant state of redefinition. For example, in any given moment, the Portal 2 player may be placed in the role of test subject by GLaDOS, the experimenter, may be an accomplice to the robot Wheatley's escape fantasies and a research participant as she responds to my questions. She occupies those roles

simultaneously, and the complex of role relationships contains ever more elements as gameplay progresses. Players are socialized to understand these role relationships and practice performing roles through interacting with agents of socialization in and about the game.

The roles players acquire are facilitated, and in most cases defined, by the internal design grammar of the domain. They are designed into the game, yet emerge through gameplay. The test subject and accomplice roles, for example, are supported by Portal 2's narrative framework, which itself supports and is supported by the rule that the player can create portals allowing her to traverse otherwise impassable obstacles. The player is able to interpret roles and deviate from pre-defined role relationships to the extent game design allows for the possibility of deviation, such that players may devise alternate solutions to problems, use game objects in new ways, or attempt to bend rules or cheat. The player could alternatively choose not to be a test subject or an accomplice, and could instead imagine he is a space cowboy exploring the galaxy's frontiers who stumbled upon sentient robotic life in the Aperture Science facility and has been entrapped by GLaDOS. It is possible, but being a space cowboy is removed from the roles that the game design facilitates, and thus the player's space cowboy role would be quite limited. This kind of free-form role-playing is more easily handled by the game design of WoW. A WoW player who wants to role-play as a cowboy of the Wild West variety can find a lasso, mount a horse, and get together with other players in a desert-like area such as Tanaris for an impromptu rodeo. In fact, there are at least three quests in WoW where the player captures various creatures with a lasso (Wowhead.com; Wowwiki.com). The point is this: To play roles in digital games, players must know something about the rules that

constitute the roles and allow for specific role relationships. Therefore, the main object of gameplay socialization is learning the rules, which occurs alongside the development of roles. Learning rules, the internal design grammar of games, is a fundamental aspect of being socialized into the semiotic domain of the digital game, just like learning the rules of a society, group or organization is fundamental to being socialized into them.

This chapter addresses Research Question 2, “What is the course of gameplay socialization?” by outlining two stages of gameplay socialization. Before entering a virtual world, players are sensitized to some internal and external design grammars through previous experience in related domains. Games formally facilitate players learning design grammars in the entrance stage, which is usually dominated by a structural feature called the tutorial (described in chapter 2). The game’s removal of early scaffolding support and players experiencing more personal characteristics of socialization are hallmarks of the individualization stage. Each stage of socialization is comprised of relative amounts of formal, informal, and personal elements, with the former more prominent earlier in a domain and the latter two taking over later. Through the socialization process, players learned to strive for similar overarching goals, learned why to value them and how to achieve them, resulting at the same time in conformity and experimentation. Players learned the domains’ grammars through interaction with agents of socialization, which included artificial intelligences, significant game objects, tutorials, other players, online FAQs and wikis – anything outside the players that guided their meaning-making. Agents were complicit in co-creating situations in each stage of socialization.

PREVIOUS GAMEPLAY EXPERIENCE AND DOMAIN LITERACY

Participants' previous gameplay experiences provided them with a multiplicity of literacies for reading WoW and Portal 2 and affected their courses of socialization. The broader genre domains (FPS, puzzle, MMOG, RPG) served as "precursor domains" to Portal 2 and WoW. Precursor domains facilitate learning in related domains and people who master skills and practices in precursor domains have advantages in subdomains due to having already learned key literacies (Gee 2003:47-48). Some participants had extensive domain-relevant experience in terms of genre and social play that others lacked (see Table 1 in chapter 4). Self-labelled "gamers" (Ben, Corey, Harry and Ian) tended to have more previous gameplay experience playing cooperatively with or competitively against other players, which sensitized them to the domains' external design grammars. Participants with experience playing FPSs (Ben, Corey, Frances, Gail, Harry and Ian) and puzzle games (Ben and Frances) had already internalized some aspects of Portal 2's internal design grammar, while participants with experience playing RPGs and MMOGs (Ben, Harry and Ian) already possessed literacies for participation in WoW.

Recall from the previous chapter the significance of DotA for Corey's WoW play style. One of the first times he used the friendly rangers to help him in combat, he speculated, "I think they are something like invulnerable probably. I mean I get it from like DotA, you know, the life source, that area is invulnerable, and the gatekeepers and all are invulnerable." Then he used the strategy of pulling enemies to the (invulnerable) friendly NPCs, which is something DotA players do. In interacting with the rangers and enemies, literacies developed through previous DotA experience became relevant for WoW. Corey realized that DotA had taught him something useful in WoW. Interestingly

for Corey, WoW literacies also transferred back into DotA. He eventually scaled back his gung-ho approach in WoW, becoming a more defensive player, and in the final interview, said that “[playing WoW] makes me take a more cautious approach in DotA. In the past, I would keep rushing in and being more aggressive and all, but now I play more cautiously, probably more strategic.” Corey’s example shows that players continue to interpret and leverage previous domain-relevant experiences throughout gameplay.

Gameplay history and extent of domain-relevant literacies were correlated with how far participants progressed through each game. Harry and Ian completed Portal 2’s single-player mode. Ben reached the furthest after them, followed by Gail, Elliot and Frances. Diane experienced motion sickness and had to stop. In co-op, both Harry and Ian and Ben and Gail completed all test chambers. In WoW, taking character level as an objective measure of progress, Ben and Gail played together and achieved level 29, Ian 25, Elliot 24, Harry 23, Corey 20, Frances 18, and Diane level 10. Disparities between level and previous domain-related experience are easily explained in WoW, primarily because there was a 10-hour range in play time from the shortest time played (Corey, 18.5 hours) to longest (Elliot, 28.5 hours). Gail reached level 29 in part because she played with Ben, a seasoned MMOG veteran, and they levelled quickly by playing cooperatively. They also played six hours longer than Ian and Harry. Elliot, who had no previous MMOG experience, reached farther than Harry because he played eight hours longer, and also because Harry exhibited characteristics of an explorer (Bartle 1996) who valued the pleasure of seeing and interacting in the world over and above questing, causing him to level up more slowly than he would have had he more instrumentally focused on questing.

Previous gameplay experience is one source of anticipatory socialization, which is the process of preparing oneself for a future role. Goffman described it as “having already been schooled in the reality that is just coming to be real for us” (1959:72), and such a description fits within the discussion of precursor domains, wherein participants learned grammars applicable to subdomains. In the opening interviews, I asked participants what they thought the games would be like in order to gauge their knowledge and expectations. Everyone had heard of WoW. Harry, for example, had read articles about WoW online from gaming sites or that his friends posted on Facebook, and sought out machinima¹² on Youtube. Portal 2 proved more obscure. I observed an interesting interaction between Gail and Ben as they interviewed together. Gail had heard of Portal 2 from an online comic strip, but Ben had never heard of the game. Ben’s first impressions of the game were filtered through Gail’s talk as she compared it to the FPS, Counterstrike. She said, “I saw that time Elliot was playing [Portal 2] or something. And I also googled Portal just to see images. I didn’t want to read up on it yet. Then I saw like the first-person shooting.” Later in the interview, Gail said that although she had never played Counterstrike, she acquired her understanding of it from observing Ben’s Counterstrike play. Gail relied on her previous vicarious experience with Counterstrike to describe Portal 2 back to Ben. Only after she found out she would be playing Portal 2 did she recall the comic and reinterpret Counterstrike as (potentially) relevant prior experience, noticing relationships between the two domains’ design grammars, such as first-person shooting. Once she learned of her impending role playing Portal 2, she engaged in purposive action to

¹² Machinima are short animated films created, typically by fans or modders, using digital games’ graphics engines and assets. See Lowood and Nitsche (2011) for an academic treatment or spend some time on Youtube (search World of Warcraft machinima or Portal machinima and filter by view count for the most popular videos).

increase her literacy by googling images of the game and attempting to classify its genre, perhaps to determine whether she already possessed literacy in a precursor domain.

Apart from a couple of participants informally asking me what the games were about in the screening interviews, Gail was the only player to seek additional information about a game before playing; yet, she restricted her search. When she said, “I didn’t want to read up on it yet,” one gets the sense that she did not want to spoil a surprise. This sense was corroborated by other participants. Harry specifically avoided “spoilers” and Elliot said, “I could have done some research on Portal 2, but nothing really drove me to. Maybe I’m just waiting to play, to be surprised by the game.” “Reading up” on a game before playing it is based on the understanding, part of the domain’s external design grammar, that games are supposed to be fun and offer new experiences and stories. This attitude applies to other media consumption as well. People typically do not want to know the ending of a movie or TV show before seeing it, do not want to know which characters die in their favourite book series before reading, and so on. Anticipatory socialization is typically theorized as something that people desire specifically to *reduce* surprise upon entering a role or domain because surprise is often perceived as negative, a discrepancy between expectations and reality (Louis 1980); however, my participants actively *avoided* all but the slightest additional anticipatory socialization into these games before playing because they perceived surprise as positive. If an external view of the domain involves treating games as experiences not to be spoiled, then developing literacy in digital games involves active and intentional avoidance of certain information that may be antithetical to goals regarding enjoyment. The weight of (potential) information-seeking experiences then was overshadowed in significance by depth and breadth of previous gameplay

experiences, which sometimes occurred within precursor domains, that facilitated the development of domain-relevant literacies, and which affected how quickly and completely players were socialized into WoW and Portal 2.

ENTRANCE

When participants began to play for the first time, they entered the second phase of gameplay socialization, the entrance, where they experienced the domain firsthand as newcomers (see Kramer 2010, chapter 4). In gaming terminology, players in the entrance stage are typically called “noobs” or “newbies,” and such labels may persist to describe players who have not mastered a domain’s design grammars, as I will describe further in chapter 8. The intensity, duration and subjective significance of the entrance stage varied according to the constitution of previous gameplay experiences, domain literacies and game design features. The more relevant the previous experience, the smoother the entrance stage. In games, the entrance serves as an introduction, familiarizing players with controls, story, setting, aesthetics, sounds, rules and so on, and may or may not have a formally designed boundary. For example, in Portal 2, I would argue that the entrance stage lasts, design-wise, until Wheatley and Chell reactivate GLaDOS (test chamber 9) and the player becomes able to shoot both blue and orange portals (test chamber 10). Test chamber 10 marks the end of chapter one in the game’s narrative. The antagonist, GLaDOS, has been introduced and the player unlocks the portal gun’s full potential, the ability to shoot both blue and orange portals being a prerequisite for completing every subsequent test chamber in the game. More informally, the entrance stage ends when players understand the relationship between the orange and blue portals. In WoW, the entrance stage lasts, design-wise, until characters reach approximately level 10 and leave

the beginning zone. By level 10, the beginning zone's quests lead each character to a capital city, which are locations where players tend to congregate and interact, thereby integrating new players into the larger social world. Players also begin acquiring points to upgrade various skills and abilities, can join dungeons and PvP battlegrounds, and unlock various other elements of the game at level 10. Of course, dungeons and PvP battlegrounds are subdomains of WoW and players may experience another entrance. The same may apply to one's first time in a capital city, which can be rather disorienting. More informally, WoW's entrance stage lasts until players understand the fundamentals of the questing and fighting systems of meaning. Note that in chapter 5, I essentially analyzed Corey, Diane and Frances's meaning-making process in the entrance stage (excepting the second part of Frances's example) because it is generally during entrance into a domain when newcomers possess the least literacy and are faced with the task of aligning meanings with fundamental domain-specific rules, norms, skills and practices. This section examines the more structural aspects of the entrance stage. Each game's design provided relatively safe spaces for such acculturation to the new domains to occur. Players may individually experience a shorter or longer entrance stage depending on previous relevant experience and ease of adjustment, ending once they are accustomed to the fundamental rules and roles in the game.

The entrance in gameplay socialization usually contains a key structural feature called a tutorial. The tutorial is a formal teaching mechanism which appears in different forms in different games and is designed to guide players through the basics, facilitating a smooth transition into the domain and equipping them with knowledge and skills to independently tackle future challenges. Early experience in the entrance stage, especially

during the tutorial, tends to be characterized by players learning and meeting formal expectations that the game holds for the player. Players' goals, methods for achieving them, identities, and the meanings they attach to things tend to align with those allowed by the game, and therefore the tutorial teaches knowledge of and adherence to design grammars. As with the entrance stage in general, and to the extent that the game design allows it, players may progress through the tutorial slowly or quickly, or may skip it altogether. While recognizing that there are informal and personal aspects of the entrance stage, in this section I focus on examining the tutorial as a distinctly formal part of the entrance and highlight the methods and design of this directed experience.

Entrance in World of Warcraft

Each players' first task was to create a character, as described in chapter 2. I had hypothesized that participants with more MMOG experience would spend less time creating characters and less time reading the information on the character creation screen. Neither of these were the case, with the experienced MMOG players being spread among the others on both measures. MMOG players reported reading *both* more and less because they were literate in the MMOG domain. They read less because they already knew the classes' strengths and weaknesses and perceived much information as introductory and irrelevant; they read more because they were able to understand and dig into the relevant details of the information. Non-MMOG players, on the other hand, read more to get such basic information that the MMOG players deemed commonsense or irrelevant, and read less because the details were deemed confusing or irrelevant.

Players wanted the class, appearance, and name to reflect some aspect of their selves, creating a character they could identify with and a role they wanted to play. Ben, for example, discussed his character in relation to his girlfriend and gaming partner, Gail: “I chose the priest because for me, [Gail] is someone who I think needs some sort of support from me in real life. I see a lot of what is happening in the game in real life, in terms of making sure she’s alright and she’s not alone, and I’m always protecting her.” Gail, for her part, responded, “I identify with my [warrior] because she’s always active and has a need to kill something, and I always feel I have a high storage of anger and a need to express my anger. So it’s sort of nice to have an outlet where you can just attack anything and everything in your way.” The range of aesthetic options available, such as the holy light emanating from Ben’s sturdy priest and the battle stance and fierce swings of Gail’s warrior’s sword on the character creation screen supported the meanings players made for their characters and facilitated such identification (Ducheneaut et al. 2009). A number of studies have indicated the significance of character creation and customization for facilitating players forming meaningful relationships with their characters (e.g., Klastrup and Tosca 2009) and engaging in identity exploration (Huh and Williams 2010). Ian, for example, chose a female Night Elf because “it’s aesthetically pleasing. A lot of times the female armor looks better...[and] you don’t get to be a girl in real life, so it’s like seeing what it is to play an MMO from a girl’s perspective, like how people treat you differently.”

Once players created a character and entered the game world, they were presented with an opening cinematic unique to their character’s race that contextualized their character in the unfolding history of game world. Some participants paid attention to the

cinematic while others skipped it. The opening cinematic ended with the camera zooming in on the player-character and resting in a third-person perspective with a clear view of an NPC with a golden exclamation mark over its head, accompanied by a prominent illustrated quest giver tutorial window (Figure 2).



Figure 2. Gail's first seconds in WoW with initial tutorial window.

The prominent tutorial window in Figure 2 is an active agent of socialization and it does a number of things. It names a central character type, the quest giver, and a central activity in WoW, questing, sensitizing players to these concepts and to the concept of tutorial windows. It shows which symbol identifies an NPC as a quest giver, connecting signifier (golden “!”) to signified (the concept of an available quest). It illustrates how to interact with the quest giver. It gives players the option to click “next” or “previous” to read more tutorial windows, or to close the window. Finally, it demonstrates WoW’s implementation of the “information ‘on demand’ and ‘just in time’” learning principle.

WoW's tutorial windows appear "when the [player] needs [them] or just at the point where the information can best be understood and used in practice" (Gee 2005:211). Players are supposed to follow the instructions in the quest tutorial window to acquire their first quest.

After Gail, whose character is featured in Figure 2, pressed "close" on the tutorial window, she successfully accepted Megelon's quest, which instructed her to find an NPC named Proenitus. Then she pressed A on her keyboard, and her character turned to the left. A picture of the keyboard buttons, W, A, S, and D, appeared with instructions to press them in order to move. The letters disappeared as she pressed each button in turn to move her character forward, left, right and backward. She then began clicking on all the menu buttons, reading tooltips (textual descriptions of things that appear in the bottom-right corner of the screen) for skills and abilities. Gail and Ben, who played WoW together, meanwhile chatted back and forth:

Gail: Who is Prometheus [Proenitus]?

Ben: Here, here. It's the guy. You see the map on the top right. There's a question mark.

Gail: How do you know that's him?

Ben: Should be. How do I run? [Ben's movement tutorial window appears.]

Gail: How to close?

Ben: Close what? [looking at Gail's screen] No, you must press the 'x.'

Gail: Like that? Or space bar?

Ben: Space bar is what?

Gail: Jump. Aha.

Ben and Gail's informal interactions were in the context of the entrance, and occurred alongside the formal tutorial. Both formal and informal characteristics of socialization in this example oriented Ben and Gail to similar objectives, learning to move, to identify quest givers and so on. Megelon's quest sparked Gail's curiosity, and Ben answered her question by telling her that quest objectives were visible as question marks on the minimap. This information was formally provided in a tutorial window that appeared once they got closer to Proenitus, confirming Ben's suspicion. When Ben asked Gail how to run a moment later, he was swiftly answered by a just-in-time movement tutorial window. Then they taught one another some actions that there were no tutorial windows for, how to close a window and how to jump.

Tutorial windows continued to appear, guiding players' interactions in the game world. Elliot accepted his first quest to kill six animals, and then spent three minutes practicing movement and clicking on all the friendly NPCs he found. When he ran near enough to where the animals were located, a tutorial window was triggered that explained how to use the map to locate quest objectives. He ran toward one of the animals and another tutorial window appeared, instructing him to "click Attack on your Action Bar," which simultaneously glowed brightly around its border. Early in the beginning zones, enemies do not attack players unless provoked, and these relatively safe spaces encouraged Elliot and the other participants to run among enemies and practice targeting and attacking. When Elliot killed six animals, another tutorial window appeared with a

picture of the quest giver, instructing him to return for his reward. As Elliot ran back toward the quest giver, another player invited him to join a guild. A tutorial window appeared above the text chat window explaining how to respond to the player. When participants completed their first quest, the game reinforced quests' significance and players' competence: "CONGRATULATIONS! You have completed your first quest!" And in most cases, the quest rewarded enough experience for a satisfying "You've reached Level 2!," which players new to MMOGs expressed genuine excitement about, and players familiar with MMOGs expressed mock excitement about (Ian laughed: "Only 80 more – or how many? – to go!").

The previous examples showed how tutorials serve to formally guide players' meaning-making in the entrance stage regarding fundamental systems of meaning described in the previous chapter, questing and fighting. From a design perspective, tutorials ideally align players' understandings to conform to the internal design grammar of the game and walk players through the process of successfully accomplishing each activity. However, just because tutorial windows were present did not mean players read them or interpreted their intended meanings. For more experienced players, this was not a problem. Ian, for example accepted his quest and immediately ran off to complete it, closing all tutorial windows as soon as they appeared because he possessed literacy in key aspects of MMOGs already. Closing tutorial windows led to a more informal socialization experience in the entrance stage. The action removed major formal instructions and left players to interact without that agent to socialize them. For less experienced players, not reading tutorial windows was debilitating; they needed formal socialization because they did not possess sufficient literacy to successfully interact on their own. Diane did not read

them because she did not understand what they meant, and instead turned to the in-game FAQ, seeking highly structured formal means of socialization in her search for instructions and guidance. As chapter 5 described, it took her eight hours of gameplay to successfully acquire a quest. Corey was betrayed by my forgetting to turn on the tutorials before his first session and he missed the “just in time” contextual appearance of the quest tutorial window. Frances encountered a problem because the attack/action bar tutorial window was not specific enough. It read, “click on Arcane Shot on your Action Bar.” When an enemy attacked her up close, she clicked Arcane Shot as instructed, but nothing happened. This was because Frances’s character was a hunter, and Arcane Shot must be used at a distance. The game did not provide this crucial information on demand or just in time. Complicated by her experience with the companion NPC Darnell, she did not successfully attack an enemy for nearly half an hour.

These examples show that WoW’s tutorials are not all-encompassing founts of information. They convey some basic concepts, and leave the rest for players to discover. Only Ben, Diane, Elliot and Frances reported reading them. Whereas Ben had previous MMOG experience to interpret them as intended, Frances did not and was unable to draw on previous experiences to help her fill the interpretive gap between the information provided (“click Arcane shot on your Action Bar”) and the information it was assumed she knew (hunters generally attack from far away). For her, the tutorials were not specific enough. For Diane, having practically no domain-specific literacy, tutorials were extremely confusing. Perhaps the biggest limitation was that they were easily ignored. Elliot, who read them at first, subsequently ignored them because “they’re annoying and taking up the space on my screen.” He was not amused when he jumped into a lake,

immediately closed the swimming tutorial window that appeared when he touched the water, and then drowned because he did not know how to swim. Because the tutorial windows were optional, Corey did not acquire quests, Elliot drowned, and Diane chose to look elsewhere for information, which she ultimately did not find. The movement tutorial window was different from the others in this regard, as I have shown. The W, A, S, and D icons remained on the screen, immobile, until players pressed each key. Consequently, all players learned how to move. Portal 2 implements this latter idea further.

By the end of the entrance stage of their WoW play, which ranged from approximately three hours (Ian) to eight hours (Corey), excepting Diane who was in the entrance stage after 20 hours, all players oriented toward completing quests and fighting, which is no surprise since these systems of meaning are featured in tutorial windows. The first quest leads players to the second quest, and this marks the beginning of a structured and seemingly endless series of quests, an activity that can be pursued for as long as the player desires. In addition, players began to value gaining experience to level up, acquiring better equipment, and obtaining money, all of which players learned could be used to make their characters stronger and thus able to tackle more difficult quests and enemies, and characterize what Rettberg (2008) claimed amounts to submission to corporate ideology. Indeed, as Ben suggested, “It makes sense that I can only get to a higher level if I have a certain amount of experience. So tie that into work...In real life, how do certain skills you get or attain, how do they actually help you move up the career ladder? For me, the game is set up pretty much similar to how we actually deal with our working lives.” By the end of the entrance, many players had not only embraced questing, the hard work and its rewards, but actively anticipated other rewards, such as mounts to

travel faster, that would make their questing more efficient – “hard work is rewarded, and that reward is more hard work” (Consalvo et al. 2010). As players began to formulate their own goals and methods of achieving them with increased understanding of design grammars, they began to move from the entrance to the individualization stage.

Entrance in Portal 2

The tutorial is the first and mandatory segment of Portal 2. It focuses on teaching basic knowledge and practices that will allow players to solve puzzles, and conveys such information verbally and visually, often using humor to ease players into the domain (Heiss and Carmack 2011). Portal 2 begins with an interactive story event where a pre-recorded robot voice, the Announcer, instructs the player to look up, look down, and to “stare at the art” on the wall to practice using the mouse, in addition to on-screen prompts instructing the player to use the W, A, S, and D keys to move. Instructing players to stare at the art is effective because it leverages commonsense definitions of art that persist across semiotic domains. Continuing the narrative, Portal 2 introduces the player to Wheatley, who serves to ease players into the game world, both in terms of narrative and gameplay, by being virtually co-present with them and facilitating a shared focus (escape the facility). The development of a shared focus allows Wheatley to begin imparting some rules and skills necessary for the player to progress through the game, such as pressing space bar to jump when he asks the player to jump, and building the player’s anticipation to shoot portals: “you’re looking for a gun that makes holes. Not bullet holes, but – well, you’ll figure it out!” Players cannot turn off Wheatley or the Announcer, and cannot leave the confines of the beginning room until they complete the requisite task to show that they

understand a particular aspect of the design grammar and move into the confines of the next room.

Shortly after his introduction, the player is separated from Wheatley and the Announcer resumes its script, guiding the player from test chambers one through six, where the player learns about fundamental relationships among basic objects. For example, Elliot entered test chamber one, a small room with a big red button on the floor, a chute in the corner, and a door on the far wall (Figure 3.1). As with the art, buttons and doors are common objects that players quickly recognized and understood, and signage like pointing arrows, running humans, and X icons may also be readily understood. The Announcer said, “Cube- and button-based testing remains an important tool for science, even in a dire emergency.” Elliot stepped on the button and two things happened simultaneously: a cube dropped from the chute and the blue X changed to a yellow check mark (Figure 3.2). When he moved toward it, an image of the keyboard button “E” appeared on the cube alongside the text, “Pick Up” (Figure 3.3). When he moved next to the cube and picked it up, the symbol changed again to “[E] Drop.” When Elliot moved the cube above the button, the cube changed color from blue to yellow (Figure 3.4). He dropped cube on top of the button, which opened the door. Through tutorial tooltips, the game formally drew Elliot’s attention to the existence of cubes. The “E” symbols provided Elliot with knowledge of potential actions to perform on the cube. The Announcer did not tell Elliot to do anything with the cube and button. Elliot figured out the relationship between cube and button by interacting with them and observing what happened. This is a simple puzzle, and players are given significantly less guidance

moving forward. This example thus shows the interplay of formal and informal elements in the entrance stage of gameplay socialization.

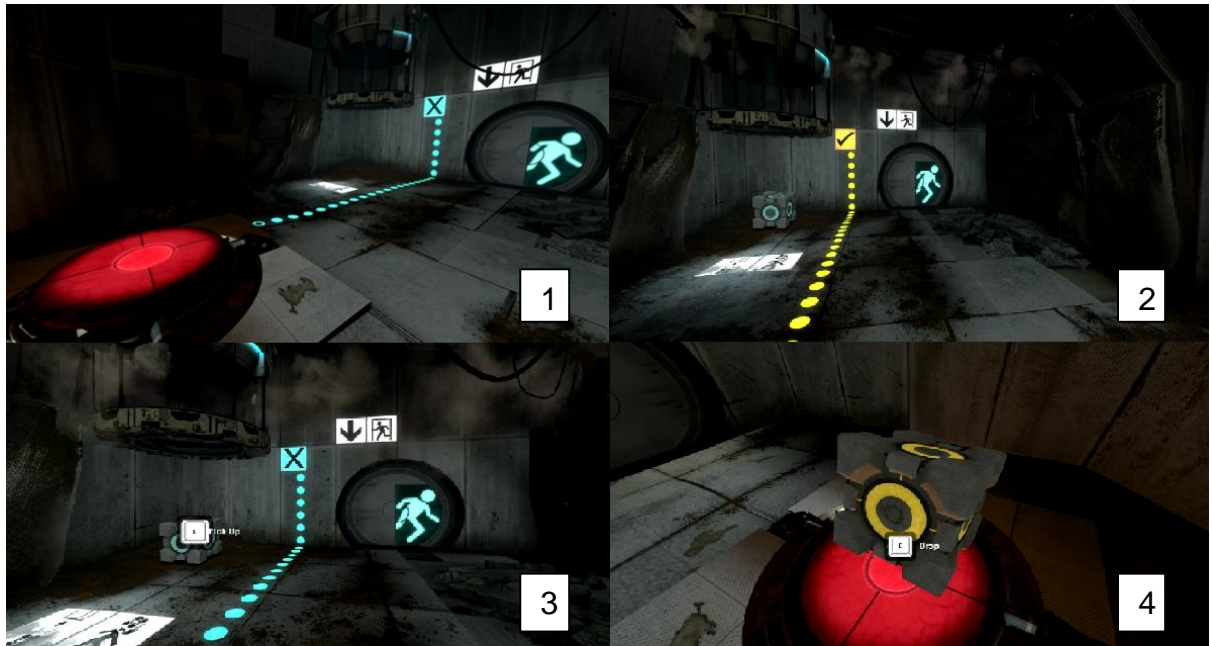


Figure 3. Test chamber one.

Scaffolding and Game Designers as Agents of Socialization

One characteristic of tutorials, and of the entrance stage in general, is scaffolding instruction, evident in both games. Scaffolding involves interaction between an expert and a novice, a significant other acting as an agent of socialization and a newcomer. The expert provides the novice with problem-solving supports, and then gradually fades assistance as the novice gains competence and expertise (Sharma and Hannafin 2007). The expert then provides assistance in a different or more difficult task, and so on (Bonk and Cunningham 1998). In my study, the ultimate expert was the game itself, or the game designers in an indirect sense, and the novices were my participants, even though some possessed much expertise. In new domains, “the newcomer’s senses are simultaneously

inundated with many unfamiliar cues. It may not be clear to the newcomer just what constitutes a cue, let alone what the cues refer to, which cues require response, or how to interpret and select responses to them” (Louis 1980:6). An additional function of the entrance stage is to reduce newcomers’ uncertainty about such cues and other aspects of the domain (Kramer 2010:77). Scaffolding, both inside and outside the tutorials, was alternatively a formal and informal method for reducing uncertainty in the entrance stage, and tended to facilitate learning design grammars and a smooth entrance into the domain. When early scaffolds were (prematurely) removed, players sometimes experienced problems. Recall what happened when less experienced players closed or ignored WoW’s tutorial windows or became stuck on early Portal 2 puzzles due to calling dysfunctional meanings into practice.

Additional examples of scaffolding in WoW generally involved some aspect of upgrading. As players explored new areas and encountered new, more difficult, or greater numbers of enemies, the abilities and equipment they had acquired became insufficient. They needed a better weapon, higher level, more useful ability, and so on, and they had to work to find scaffolds that could support them against new challenges. For example, in their gameplay reviews, I always asked participants to compare and contrast an earlier action bar arrangement from level 10 or below with their current one, which invariably had more skill icons and was more organized. Participants described their old action bar arrangements as “dated,” “default,” or “not requir[ing] much skill to use.” But as they received new abilities, they were able to take on greater challenges. Corey, who like most other participants long had trouble fighting multiple enemies, described his warrior’s ability, Thunder Clap: “When I got it, I read it’s really to do damage to everyone and to

slow down people's attack speed. Sometimes I use it depending on the numbers attacking me. So three or more, slow down their attack speed. Definitely when there's two or more, I will keep looking out [for more enemies] and once it is ready I will use it." Although Corey's warrior became more powerful as he practiced using Thunder Clap, the enemies eventually became harder, and he needed increased support, such as achieving a higher level, upgrading his weapons, and so on. However, levelling up took longer as characters reached higher levels and the frequency of acquiring new abilities slowed, showing that scaffolding support decreased over time, with a particular slowdown after level 10.

In Portal 2, scaffolding occurred primarily through the addition of new game objects usable for puzzle-solving. The initial introduction of each element was a relatively simple application, and complexity increased from there. For example, in test chamber 11, players used the Thermal Discouragement Beam (a laser) to activate panels to reach inaccessible areas. In test chamber 12, players used the Discouragement Redirection Cube to redirect the laser to activate panels, and also used that cube as a weight to place upon red buttons, just like they did with the original weighted cube in test chamber one. In test chamber 13, players used the cube in conjunction with multiple lasers, and so on. The pace of introduction of new game objects slowed considerably after test chamber 15 and players were then faced with recombining old puzzle elements in new and challenging ways without scaffolds. In the final test chambers (49-62) the game did not introduce anything new the player could use, only hazards to avoid.

If scaffolding instruction is effective, the player builds a robust repertoire of knowledge and skills that allow her to independently tackle increasingly difficult challenges over the course of the game. Scaffolding instruction illustrates James Gee's

learning principles in games, “ongoing learning” and “regime of competence” (2003:208-9). These principles state that good games continually provide players with challenging conditions under which they must undo routinized mastery and adapt and integrate new elements into new patterns of action, and also that the player has ample opportunity to operate at the edge of competence. This was certainly the case in Portal 2, but not always in WoW, as players’ actions became routinized and generally oriented toward achieving maximum questing efficiency, leading some to feel the game was at times boring or monotonous. One reason for this difference has to do with the relationship between game design and scaffolding. Kramer (2010) defined sequential versus random socialization. Portal 2 employs sequential socialization, as evident in its linearity, its tutorial and its steady introduction of new puzzle elements. This requires players to move clearly through stages of gameplay socialization, engage with the tutorial, engage with each puzzle element and more or less master one thing before moving on to the next. WoW, on the other hand, employs more random socialization as a consequence of its optional tutorial design and open world where players can engage with things and learn about whatever comes at them in relatively loose order, with some aspects of character progression always being strictly defined (levels are sequential; abilities unlock at certain levels) and others being less so (aside from quest rewards, equipment upgrades are randomly generated by enemies; characters can travel widely and progress geographically).

Behind the scenes, as always, are the game designers, who create and implement scaffolding and tutorials as methods and spaces for players to experience entrance into these semiotic domains. Since most games are products that players purchase, it is beneficial for designers to create entrance experiences that succeed in teaching players,

making them feel confident and have fun; however, as I have shown, that is a difficult task given the range of literacies players approach gameplay with. Even though the intent of designers may not align with players' actual experiences, it is a significant aspect of gameplay socialization to consider that provides insight into design grammars and the "official" functional and appropriate meanings of things. I briefly present an example showing entrance experience versus designer intent and illustrate the significance of the game designers (discussed further in chapter 7) as agents of socialization.

Take a moment to watch a couple minutes of Elliot's gameplay, entitled Test Chamber 2 (<http://youtu.be/jKyCGW8ZjRE>), to get a basic understanding of the puzzle. Elliot verbally expressed confusion, frustration or exasperation 22 times over eight minutes as he solved this puzzle ("Trying to figure out what I should do next...Is this supposed to be an easy puzzle?...Oh my god!... What am I doing?...I really don't like these puzzle games...My god, David, what should I do now?...Shit!...I'm not sure what to do to proceed...I'm pretty lost...Now I'm getting really frustrated...I don't really know what I'm supposed to do...Is there a help button or something?...I think I just embarrassed myself!). Note the same kinds of tooltips appeared in the beginning of the test chamber, such as the arrow pointing off-screen and the "[E] Activate" image [0:10], but there are no further instructions provided amidst several new game objects and elements (orange portal, red switch, portal relationship). Elliot moved about the test chamber pressing switches and buttons, looking through the glass into the three rooms, and carrying the cube around. He eventually solved the puzzle, but as he said afterward, "I was quite disoriented because when I entered another room, I was into another room. As in, I thought I was entering into a different area, but I didn't realize I was entering into

this area.” I asked him if he understood the relationship between the orange portal and the blue portal. He laughed, “No. I just was there but I don’t know how.”

In the developer commentary for test chamber two, Portal 2 game designer Alex Vlachos provided insight into the underlying grammar players were meant to learn and decisions for how to convey it:

This room is meant to teach players the fundamentals of portals connecting them to two places in the world. As the blue portal moves around the world, the orange stays rooted. In the original Portal, this room had the portals moving by themselves on a timer. This led to most people simply staring through their orange portal waiting for the blue one to end up in the right place. We felt that altering this to make the players decide where the portals came out was more instructive and meant that players who already knew how to use portals could solve this puzzle both quickly and with authority (2011).

Whereas in test chamber one, every participant quickly figured out the relationship between cube and button, the design structures in test chamber two did not thoroughly support newer player understanding. As Vlachos would have predicted, participants with greater domain literacy – Ben, Harry and Ian – quickly solved the puzzle. But the other participants were not helped by unguided observations as much as Vlachos would have hoped. Test chamber two sensitized players to portals, but did not “teach players the fundamentals” of their relationship. Some players, like Elliot, came away from test chamber two feeling more confused than when they entered. Part of the explanation may be a shift in teaching style. Whereas test chamber one had several key scaffolds, test

chamber two quickly moved to “embedded instruction,” which consists of “training exercises that fit naturally into the gameplay and are not explicitly labelled educational,” while at the same time introducing several new gameplay elements (Bainbridge 2010:89). Whereas experienced players thrived within embedded instruction, less experienced players could have benefited from more explicit instruction when dealing with several new gameplay elements simultaneously. This point is also clear in the WoW tutorial window example, where players with less MMOG literacy became disadvantaged when they did not read the tutorial text, while experienced players could safely ignore the formal guidance. Indeed, the act of questing itself exhibits embedded instruction because players learn about quests and various aspects of the game world through doing quests.

Test chamber three was arguably more important than test chamber two in teaching players the dynamics of portals because they gained access to the portal gun, with which they could learn through creating their own portals, as shown in the example of Frances’s experiences in test chamber three in chapter 5. Test chamber three contained one new element, the portal gun, and exhibited both a key instance of scaffolding in the tutorial and embedded instruction. When players picked up the portal gun, a picture of a computer mouse with the left button colored red appeared, accompanied by the text, “Create Blue Portal.” This visual remained centered on the screen until players shot a blue portal, connecting their action with the portal. This additional tool provided players with greater agency to decide where they wanted to place a portal, and thus they had greater control over their experiences. Through acquiring the ability to create her own portals, Frances realized that “You really have to understand why you do every single thing.”

Elliot recalled feeling restricted before he could create portals, and all players reported feeling more freedom the more tools they were given.

Only by first learning and adhering to internal design grammars through the entrance stage could players gain some freedom from them by learning how to bend, break or manipulate rules and tailor roles to their own play styles. Both WoW and Portal 2 passed responsibility to players to manage uncertainty on their own, more or less. The pace at which participants made huge steps in learning slowed, punctuated by moments of clarity, and they felt more adjusted, settled into routines, and continued to gain confidence in their developing expertise.

INDIVIDUALIZATION

The shift from entrance to individualization is a tip of the scales from structure to agency, from tight formal socialization to more informal and experiential learning, typically demarcated by significant understanding of fundamental rules and comfort with a role such that one begins to personalize it. After the entrance, players sustained a long-term individualization phase (e.g., Jablin 2001) as they continued learning rules, became more confident in performing their roles and more literate in the semiotic domains. Role individualization and progress were both impacted by relevant previous gameplay experience and the smoothness of the entrance. Clearly there are elements of individualization throughout gameplay socialization, but this stage is characterized primarily by role-making: “Role acquisition thus comes to involve individuals imposing their own expectations and conceptions on roles and modifying role expectations according to their own unique personalities” (Thornton and Nardi 1975). The power to

modify role expectations is a function of possessing literacy in both the reading and writing of meaning. I have said that as players master rules and role expectations, they align their meanings of things with those of the game. Bainbridge (2010) observed that “the ultimate lesson is how to teach yourself...all the earlier lessons had required me to learn the rules; this lesson concerned freedom from all rules” (83). What Bainbridge meant is the more literate in the semiotic domains of games players are, the more players can (re)construct design grammars to meet their goals, deviating from, playing with(in) or manipulating them (Taylor 2006, chapter 3).

In WoW and Portal 2, the meanings of things were found in players’ interactions with them, and in Portal 2 particularly, developed to consist primarily of their puzzle-solving functions. Once those meanings were established and routinized, it was then that players tended to use objects for novel purposes, as in the co-op antics of both Ben and Gail and Harry and Ian, who delighted crushing one another’s characters with spikes in nominal “trust building” puzzles or opened portals to oblivion underneath each other’s characters. Harry recounted the story of taking pause after he saved a turret that was riding a conveyor belt toward a furnace: “Even though it was going to shoot me, I didn’t want it to burn! I figured I could just pick it up and throw it somewhere and it could just lie on its back and not shoot me. But then when I picked it up and it said ‘Thank you,’ I said, ‘Whoa!’” Deviating from patterns of role expectations sometimes resulted in this kind of unexpected experience that served as a reflexive and memorable moment for players.

I will present below a prime example of Harry proceeding through the individualization stage. While all players oriented toward questing, Harry was the one

who most oriented toward exploration. The longer he played, the more interested he became in exploring the world and doing “unconventional side items.” Other players engaged in personalizing their experiences by moving away from the basic “combat and quest” scenario, like Ben and Gail trying to learn PvP, Elliot “cheating” by using online guides, and Ian repeatedly entering group dungeons. Harry’s story, however, does not depart from questing per se, but relies on that activity to show the push and pull of managing multiple roles and interests, as he shaped his gameplay in the individualization stage.

Harry and the Bow of the Great Hunter

Harry talked early on about avoiding “the grind,” the constant need to quest in order to level up. He contended, “I’m not an errand boy...I would much rather be a free agent doing stuff around the world than being obligated to people.” I noted in his second hour, still in the entrance stage, that he had nonetheless begun focusing on completing quest objectives, and had even categorized them, “kill stuff quest, explore quest, fetch quest, delivery quest.” However, he maintained and developed a cynical attitude toward quests. Indeed, he named his character Workforfood. Upon taking a series of quests in his first quest hub outside the beginner’s area, he joked, “Get everything! Do all the quests! Kill everything! Do everything!” He turned in one of these quests a few minutes later and exclaimed, “Money!” When another quest became available, he ran toward a vendor NPC instead of accepting the quest and shouted, “Shopping first! Shopping before saving people.” After selling his things at the vendor, he accepted that quest and chirped, “Back to work,” before heading into the field.

Harry had attached meaning to quests that aligned with the significance the game placed upon them and, with a knowing wink to his complicity, developed an affinity for their rewards. He understood the reward structure of quests and random equipment drops, and was interested in upgrading his character's power. In his pursuit of power, Harry soon got his first taste of exploration in WoW. When he discovered the Orc capital city of Orgrimmar at level 13, around hour seven, he did not know what it was. Orgrimmar looks foreboding from the outside, with giant spikes, guard towers and war banners along its thick outer walls, and catapults surrounding it. He admired Orgrimmar from afar, "What is that place? Are they going to shoot like 10,000 arrows at me or something? I'll go even though it's out of my way." He spent a moment observing players dueling outside Orgrimmar's gates before entering. Once inside, he spent three whole hours exploring the city. His overarching goal, once he realized it was a city, was to purchase a new bow for himself. While looking for a bowyer, Harry did at least the following:

- Walked through *every part* of the city ("It's immense, this place. I never know where I am.")
- Played with toys in a toy store
- Discovered an orphanage; watched the orphans and matron interact
- Discovered the bank and the auction house
- Accepted a daily cooking quest
- Found and used another player's robot to repair his armor

- Clicked on nearly every vendor (“I feel like a tourist because I’m just running around looking at everything, learning about everything in this big city, clicking on vendors seeing what do they sell”)
- Attacked the deceptively low-level NPC, Gamon¹³, after listening to my story about Gamon’s troubled history, and was subsequently annihilated by Gamon, his first death in the game
- Stumbled upon an NPC scene about the climactic narrative events of the Cataclysm, and watched the cinematic movie showing what happened after the then-boss, Deathwing, was vanquished
- Observed other player-characters, armor, mounts and so on
- Explored the entrance of the dungeon, Ragefire Chasm, accepted a quest there, attempted it alone, died and gave up
- Found a bowyer and spent all of his money on a new bow

Three hours spent exploring a city was an unprecedented amount of time in this study. The level of detail with which Harry examined Orgrimmar was microscopic. Other players spent no more than 45 minutes at a time in cities, generally entering instrumentally to complete quests or wandering haphazardly because they were lost, and only remaining long enough to find what they came for or find their way out. Perhaps if Harry had found his bowyer earlier, he would not have stayed as long. But nonetheless, he continued both these intertwining patterns of exploration and pursuing upgrades.

¹³ <http://www.wowwiki.com/Gamon>

In hour 17, at level 21, Harry found a quest in Orgrimmar that rewarded a powerful Bow of the Great Hunter. “Whoa, okay, I’ll take your quest. I’ll do that,” Harry said, then looked at his current bow. “It’s twice as powerful as this one.” There were two interesting things about this quest. First, it required a group of players to band together and complete a dungeon. Harry had carefully avoided all but minimal social interaction, declining guild invitations, declining duel requests, and expressing concern over joining player groups both because he did not want to feel obligated to the members and because he felt unconfident in his skills compared to imagined others. Second, when Harry looked at the map to find the dungeon, Shadowfang Keep, he exclaimed, “Whoa, is that on the other continent? How do I get there?” Quests, or rewards in this case, are one means through which the game draws players’ attention and interest to group content. They can also guide players across the world geographically. If Harry wanted the Bow of the Great Hunter, he was going to have to trek across Azeroth and then join a group of players to get it.

Harry’s first step was to purchase a mount for the journey, which increased his land movement speed by 60%, and was available to him since level 20. He then purchased a zeppelin ride that carried him from Orgrimmar across the sea to the Undead capital, Undercity. On the trip, Harry said in disbelief and anticipation, “I’m going all the way to the other side of the world for a bow.” Upon landing outside Undercity, he found the dungeon’s location on his map and headed south into Silverpine Forest. Along the road, an NPC scene caught his eye and he stopped and picked up a low-level quest there “just to see the story,” which featured characters he was familiar with from prior Warcraft real-time-strategy games. After this sight-seeing, he rejected additional area quests,

stating, “not here for the quests, just to get my bow,” and rode his mount further south. But yet again, he was drawn to sight-seeing. He ended up along the western coast of Silverpine Forest using his character’s Eagle Eye ability to look far into the distance at various structures and vistas. Once aesthetically satisfied, he returned to the quest, and arrived at the dungeon entrance. He never expressed doubt about his ability to complete the dungeon quest until this moment, “Uh, I don’t know if I’ll be able to do this alone. Oh well, try.” I never did ask him why he suddenly questioned his ability, but one interpretation harkens back to his discovering the imposing face of Orgrimmar. Shadowfang Keep was similarly foreboding, an eerie moonlit castle that Harry may have believed signified great danger. The great danger, at least, was confirmed. Harry ventured inside, attacked an enemy, died, tried again, died again, and said, “No, I can’t do this alone. Maybe some other time.” He opened his quest log, selected the quest for the Bow of the Great Hunter, and abandoned it. At this point he was level 22 after approximately 18 hours of play, and had spent one hour on his journey from Orgrimmar to Shadowfang Keep.

It appeared that Harry was defeated, his goal thwarted by a dungeon that was impossible to complete alone. In pursuit of the blue bow, he travelled across land and sea. His was not just an instrumental adventure though, guided by quest instructions and material rewards, but it included sight-seeing stops along the way, additional quests to reveal storylines with familiar characters, and it was Harry’s choice to undertake. The more quests Harry obtained and completed, the more literate he became regarding quests. The higher level he reached, the more powerful equipment he obtained. At level 21, he purchased a mount, which expanded his range of options because he could, for example,

travel to Shadowfang Keep in a more reasonable time than if he ran on foot. Quests are characterized by deferral, where “rewards are promised, but can only be received after waiting” (Rettberg 2008:177). Harry waited an hour for an attempt at getting the bow, and failed. But there were other rewards that quests did not promise. In Harry’s case, exploration was one unspoken reward for the quest, as well as for the pursuit of upgrading in the example of his three-hour tour of Orggrimmar (Gazzard 2011). Quests are not only “means to an end” (2008:177) as Rettberg suggests, but means to multiple ends. The quest itself defines *the* end, but the player defines *alternate* ends through meaning-making and “impos[ing] their own style...on their role performance,” which is the hallmark of individualization (Thornton and Nardi 1975: 881).

Harry was not simply defeated, dreams of bows deferred until some wishful “next time.” After resurrecting outside Shadowfang Keep, he wandered into southernmost Silverpine Forest, into the abandoned city of Gilneas, and had what he reported as the most memorable experience of his 20 hours. He studied every detail of that city, noticing the juxtaposition between “it look[ing] abandoned, but everything is still running, candles burning, everything clean. It’s weird...neat that it’s deserted but not static.” He wanted to know the story of the place, decided that the architecture was that of the humans, but that evidence showed it was taken over by the Undead. He noticed coffins and dead bodies, a cockroach with its head trapped in a grinder, a severed Undead head whose eye was still twitching, and a wagon wheel still spinning. He admired the artistry of stained-glass windows, climbed towers and scaled cliffs to get magnificent views of the city and the sea, of which he snapped numerous screenshots (Figure 4) and recorded video.



Figure 4. Harry's cliffside view of Gilneas.

Harry's emphasis on exploration was one way he exerted agency in WoW and personalized his role throughout the individualization stage. All players engaged in multiple forms of individualization, where they played in unique or creative ways to bend rules or bend the game to match their own role performances, using the grammar of the domain to construct their own meanings, and were able to some extent to shape their own socialization experiences. Harry's example exhibits the ever-present tension between socialization and individualization, the game bending the player to its will and the player bending the game to his will, which persists throughout the individualization stage.

FROM LUDUS TOWARD PAIDIA

As my participants experienced the entrance stage of gameplay socialization and moved on to the individualization stage in WoW and Portal 2, they moved along a continuum of play from ludus toward paidia. Much of the play of young children is paidia, a kind of free-flowing, open-ended fantasy unbound by formal rules. Paidia is especially characteristic of children's play activities into Mead's "play" stage of primary socialization. In this stage of socialization, children learn to take the role of the other such that they can pretend to be a police officer or play house (1934). Children may not "really" know what it is to be a police officer, but their fantasy may involve basic aspects of the role such as *arresting* themselves for tying their shoes incorrectly or pretending to *drive a police car* and take their mother to *jail* for not letting them play video games. Children taking the role of a significant other in play activities may be quite free-wheeling, fantastical and paidic because they have not internalized the role. They are unable to accurately perceive the role from multiple perspectives. Indeed, Mead notes that "the roles which the children assume are made the basis for training" (150). Adults, on the

other hand, have passed through Mead's "game" stage of socialization, where they learn to take the roles of multiple others and can take the role of the "generalized other," which is the attitude of a whole group or community of others. As children become teenagers and then adults in society, play activities, often formalized through games, become more rule-based and disciplined (Caillois 1961). Through playing games and taking the role of generalized others in various situations, the more informal roles children play at become more formal and defined as their play becomes more ludic toward and into adulthood.

When people sit down to play a digital game for the first time, they willingly engage with a set of rules and norms, the game's design grammars. Whatever expectations they hold for the digital world will quickly be modified by the reality of the digital world itself, such that when players begin a new game, their play is almost immediately characterized as overtly ludic. They must learn the domain's design grammars in order to successfully and fully participate. In the cases I have shown, WoW and Portal 2 structure newcomers' experiences through tutorials, narrative, tooltips and so on. Players cannot do anything in Portal 2 (except move around in a small room) until they follow the Announcer and Wheatley's instructions by staring at the art, jumping, looking up and down, following Wheatley and so on. Players' early moments of Portal 2 are quite restrictive, but the reason for the restrictions in the entrance stage is to teach players aspects of the design grammars that will equip them with literacies to act more independently later. In interactionist terms, players must learn to take the role of one other (the rules surrounding a particular game object) before taking the role of the generalized other (the rules of the whole digital game, the perspectives of the whole group of relevant game objects) (see chapters 7 and 8). Often times, if participants attempted to treat their

play as more open-ended and paidic before they had gained literacy in fundamental aspects of the games, such as when Elliot dismissed the tutorial window for swimming or when Diane and Corey ventured into dangerous territory, the games sanctioned them.

The independence that players gained over time, and that they especially exhibited during the individualization stage, was achieved through socialization in the more formally ludic entrance stage. Of course players were still bound by design grammars, and therefore play was not purely paidic, but to the extent that players learned to role-make, to bend and break rules, to manipulate objects in innovative ways, to play creatively and so on, their play exhibited paidic-like characteristics. Consider the myriad pieces of domain-specific rules, information and abilities that Harry had to know, to leverage, in order to accept his quest for the Blue Bow of the Hunter and make his journey to the other side of the World of Warcraft. Consider also how many times, and for what purposes, he was “side-tracked” on his journey (exploring Gilneas, taking screen shots and videos, viewing NPC skits and so on). Of course, Harry was only side-tracked from the perspective of instrumental, formally ludic gameplay where his goal was to complete the quest and acquire the bow. His exploration was a crucial part of his undertaking, and that example demonstrates him taking a very paidic approach to his gameplay. Other participants exhibited similar paidic tendencies, as I have and will continue to report in examples set within the individualization stage, such as Gail’s using disabled turrets to disable more turrets. This is not to say that all participants necessarily experienced play on a continuum from ludus to paidia in the same way, but it was the case that the entrance tended to be more formally ludic, while as players experienced

individualization, their increased domain literacy facilitated the potential for more paidic play activities to occur.

DISCUSSION AND CONCLUSION (RECURRENCE)

Over the course of gameplay, formal characteristics of socialization tended to be displaced by informal characteristics through removal of scaffolds, especially outside of the tutorial parts of the entrance stage, and an increase in experiential learning. Whereas many of these formal structural elements, such as quests in WoW and bounded space with specific puzzle elements on each test chamber of Portal 2, remained throughout the rest of gameplay, the extent to which players were able to fit their meanings to the designed meanings of the game determined the extent to which they could later deviate from, attach novel meanings to, and assert agency over such structures into and throughout the individualization phase.

Players sometimes experienced recurrence (Messersmith 2008) of the stages of their socialization as they encountered new roles and semiotic subdomains, constituted by distinct activities or associations that involved new sets or combinations of meanings and practices. There were sometimes scaffolds, formal and informal characteristics and so on relevant particularly to those subdomains. Although scaffolded instruction decreased throughout the entrance stage of WoW as players triggered all the tutorial windows, for example, the entrance stage recurred for the subdomain of WoW's five-player dungeons with different types of (especially player-player) guidance, as will be discussed in chapter 8.

Sometimes players purposively engaged in anticipatory socialization with respect to a known future role in a known subdomain. For example, all players knew they would play Portal 2 cooperatively after first playing alone. During Harry and Ian's opening co-op interview, Ian reported having earlier that day looked up information about how portals would work in co-op online and imagined potential test chamber designs and strategies he and Harry may use to solve puzzles. Ian and others had already experienced socialization into Portal 2's single player mode, which functioned as a precursor domain for co-op. While they were experiencing socialization within the larger domain of Portal 2, participants were simultaneously accruing relevant gameplay experience and developing literacies for use in the subsequent subdomain of cooperative play, which made their entrance into that subdomain smoother. Upon entering cooperative play in Portal 2, no participant expressed any problems with movement, orientation, using portals or other fundamental elements of the internal design grammar that they had become proficient in while playing solo. Cooperative play in Portal 2 may then have served as relevant previous gameplay experience for cooperative play in WoW, as certain interpersonal elements of teamwork, communication norms and so on may transfer.

Recurrence often had an emergent characteristic because players were not always aware of the subdomains and future roles the games were socializing them into. For example, when Ben and Gail engaged in playful duels early in their WoW experience, they expressed no knowledge of PvP battlegrounds, but when they reached level 10, a system message appeared that told them they were now eligible to participate in five-player dungeons and PvP battlegrounds. Ben then found the PvP menu button and the pair browsed PvP menus together. At that point, they recognized their earlier duels as relevant

previous experience that provided basic literacy for participating in the previously unknown subdomain of PvP battlegrounds, which they promptly entered. PvP is an interesting subdomain because it provides no tutorials or scaffolded instruction. The game throws new players to the wolves, and as a result every participant who tried PvP experienced intense confusion, frustration, multiple deaths, and only played one or two battlegrounds. Since gameplay is processual and comprised of multiple domains, divisible at different analytic levels, then players may constantly be anticipating new roles, developing literacy (intentionally or not) for use in future domains (which may be known or unknown), and experiencing socialization into different semiotic subdomains simultaneously, or even discovering new roles and subdomains, that each require new or altered sets of meanings and practices.

Good game design facilitates players developing a multiplicity of literacies, leverages relevant previous experiences, allows for a smooth entrance stage, and provides space for individualization to progress. As my participants learned to make sense (with)in games, they became more able to implement functional and appropriate meanings that aligned with the domains' design grammars and reached elevated understandings of relationships between systems of meanings that comprised the larger process of socialization. I have responded to Research Question 2 in this chapter by outlining two stages of the gameplay socialization process, entrance and individualization. I have also discussed the tension of socialization as both a top-down and bottom-up process by analyzing design and teaching structures in WoW and Portal 2 that facilitate the meaning-making processes analyzed in the previous chapter. The sets of meanings and social practices that players learned emerged in large part through interaction with significant

others, be they digital objects, (imagined) game designers, or other players. In the following chapter, I will look at digital objects as significant others and agents of socialization, and in chapter 8, I will show how additional human others increase the (potential for) complexity in digital games.

CHAPTER 7 – DIGITAL OBJECTS AS SIGNIFICANT OTHERS

During single-player experiences, socialization occurred primarily through interaction with digital objects, and participants spent the majority of the study in both games playing alone. The general lack of human companionship that my participants experienced in Portal 2's single-player mode and WoW allowed me to examine social play in terms of human-computer interaction, specifically, the significant role of player-object interactions for participants' gameplay. Even in situations with human companionship, like Portal 2's cooperative mode or WoW's group play, digital objects both made possible and enhanced gameplay. The introduction of other players generally co-occurred alongside rising complexity in the domain and will be discussed in the following chapter. Chapter 5 showed how players made sense of digital objects, among other things, in order to successfully participate in the semiotic domains of WoW and Portal 2, and in the previous chapter, I showed how major agents of gameplay socialization in Portal 2 (NPCs like Wheatley and the Announcer, and digital objects like cubes and buttons) and WoW (quest giver NPCs, tutorial windows, and exclamation marks) guided players' interpretations and understanding in the game world. These interactions with nonhuman others are fundamentally social, as I argued in the literature review and will show empirically in this chapter. Understanding the meaning-making process allows us to place the meanings of objects in terms of our relationships with them, and ultimately to redefine the social. We are able to treat objects as significant others, even as agent-like actors in the virtual world.

The purpose of this chapter is to address Research Question 3, "To what extent is gameplay a social activity?" I will show how players made meaning for and with digital

objects, how through interaction with nonhuman agents of socialization, players did mind for them, interpreted them as significant others, and granted them agency and actor status. Understanding such interactional work on the part of players is integral to the argument of the chapter, that gameplay is a social activity, performed primarily through interactions with digital objects, which are typically overlooked in conceptualizing gameplay as social, both in academic research, game design and everyday life.

CLASSIFYING OBJECTS

The assertion that digital objects can be significant others (Mead 1934) underlies the argument that gameplay is social and supports the idea that video games are semiotic domains involving sets of social practices. In the human-only tradition of interaction as outlined by Cerulo (2009), only human actors can become significant others and possess the five capabilities required for actor status: (1) consciousness, or engaged awareness; (2) intention; (3) self-identity, or reflexivity; (4) other-orientation; and (5) symbolic communication. What matters in interaction is not the extent to which an object “really” is conscious or reflexive, but the extent to which an actor attributes these capabilities to the other. From this perspective, we regularly attribute these capabilities to nonhuman others, such as toys (Ball 1967), vehicles (Vannini 2008) or animals (Sanders 2003). People attribute these capabilities to nonhuman others through the process of “doing mind” (Owens 2007). Owens argued that objects must be in an antagonistic relationship with humans and that four contingencies must be met for doing mind to occur. The object must be perceived as capable of independent action, which becomes apparent because the object threatens the human actor’s goals. The human’s goals must be urgent enough to

continue interacting with the object and the object must be indispensable for achieving the goals.

To find out which objects players may have taken as significant others, I asked them. For WoW, I obtained 37 total responses to the questions, “What was the most significant object for you” (17) and “What was the most significant NPC for you” (20). For Portal 2, I obtained 27 total responses (14 for the first question, 13 for the second). NPCs are technically a type of digital object, but they are so qualitatively different from other game objects, that I asked a question specifically about them. Participants’ responses illustrated some of the digital objects with which they formed relationships (Table 1). From the table, and from data that I present below, it appears that trends were forming, with specific types of objects being those that players were most likely to do mind for and perceive as agentic or that most facilitated players doing mind for other objects. Recall the brief interaction from chapter 5 between Corey and the NPC Magistrix Erona (“So who is Magistrix? Oh, it’s the other player? Of the same account? I don’t know. Magistrix Erona. She’s not moving at all”). Compared to a physical nonhuman object like a chair or a speed bump, some digital objects initiated interaction, spoke, or engaged in other agent-like behaviours. From participants’ perspectives, as well as from my observations and analysis, the distinctions between player and digital object, between active agent and passive thing, were difficult to define.

WoW Object	WoW NPC	Portal 2 Object	Portal 2 NPC
Equipment (6)	Quest giver (8)	Portal gun (4)	Wheatley (5)
Mount (2)	Class trainer (3)	Gel (3)	GlaDOS (3)
Quest item (2)	Story character (3)	Cube (2)	Potato GlaDOS (2)
Environmental Feature (2)	Graveyard spirit (2)	Light bridge (2)	Turret (2)
Map (2)	Flight master (1)	Turret (1)	Corrupted core (1)
NPC (1)	Enemy (1)	Sensor (1)	
Money (1)	Vendor (1)	Door light (1)	
Quest log (1)	Friendly NPC warrior (1)		

Table 1. “What was the most significant object/NPC for you?”

PLAYER-CHARACTERS AND EMBODIMENT

The central object of both WoW and Portal 2 was the player’s character, the most lifelike of all digital objects, because the character was the object through which players interacted with everything else in the virtual worlds. Being in some sense representative of the players’ selves, especially in WoW since players created their characters, the player-character was treated as an embodiment of the player-as-agent. However, the agency of the player-character was almost always taken for granted, and it was never reported as a significant object. Instead, the most significant objects reported (equipment and portal gun) were those that player-characters were in constant and direct relation to. These objects were always visible on the player-character. Just as the character was the primary means through which the player acted in the virtual world, equipment and the portal gun were the primary means through which the character acted in the virtual world. Equipment and the portal gun made it possible for characters to do things, and thus for

players to have agency in the virtual worlds. Without these significant objects, characters, and thus players, were impotent. Similarly, without characters, these significant objects would not be significant.

Even though the players had agency through the player-character, they did not necessarily perceive the *character itself* as agentic, as uniquely conscious, reflexive and so on, any more than they perceived themselves as such. Because of their embodiment, they perceived their own agency transposed onto the character. However, through their actions, they granted agency to their characters. Gee (2008) described how virtual characters “become the player’s surrogate mind and body...As a player, you must – on the basis of what you learn about the game’s story and the game’s virtual world – attribute certain mental states (beliefs, values, goals, feelings, attitudes, and so forth) to the virtual character. You must take these to be the character’s mental states; you must take them as a basis for explaining the character’s actions in the world” (258). Consider Corey talking about his character, Ribster’s, desire to acquire a bow: “Ribster fights just how you would see in the movies. En garde, ha! And then if you were to give him a bow, versus a gun [which Ribster currently had] – actually, I will still go back. I mean not me, but Ribster in the next session, if he ever has one, will go back for a bow.” It was common for players to alternate talking about their character in third-person, as if it had a life of its own, and first person. Corey spoke in first-person and then “corrected” himself. This perspective switching shows that Corey’s and Ribster’s goals were the same and that they shared Cerulo’s prerequisites for mindedness. Participants referred to the subject (player) and object (character) interchangeably and simultaneously, as merger of subject-object into player-character. This symbiosis between intensely proximal objects and the player-

character highlights how the player's embodiment and the character's agency arose through meaningful interactions with game objects that facilitated the player-character itself being taken for granted. In WoW, players readily understood their embodiment because they created their characters and could see them on the screen.

When players did mind for their characters as entities that acted independently, it was, as Owens suggested, because players perceived characters' actions as threatening to their goals. In these cases, players' "surrogates" seemed to rebel or otherwise fail to follow instructions. Typical instances of this included characters not responding to player input and almost always involved the character dying. Harry, for example, interrogated his character in the midst of battle for not responding to attack commands: "What are you doing? Attack, attack! [character dies] Ah, man. I was pressing the button and he just stood there!" Diane implored her character to outrun a pursuing enemy and then insulted her: "Run, Shellylisa, come on! No, faster, run, run! [enemy caught up to character and killed it] Shelly, you are so slow!") In these cases, players invoked a strict separation between themselves and their characters. Both of them were acting subjects, but any situational failure was typically attributed to the character (i.e., the character did not do what the player instructed, the character ran too slowly, and so on).

Portal 2 featured a first-person perspective and no character creation, so the character was more mysterious, an unchangeable figure in the storyline. In the early test chambers of Portal 2, there was a common scenario when players first saw their character through a portal (Figure 1). At these moments, to the extent that players realized the object through the portal was their character, they were forced to take the player-character as an object, visible for the first time. For players with more gaming experience, this was

not jarring. The very first thing Harry said out loud was “I thought the character was a droid at first, but then I saw that it was a human” I asked how he knew that human was his character. “Because there’s a portal. You step out of the initial room. You can see yourself walking out...I figured that’s me.” Ben and Gail simply stated at some point that they could see themselves. Ian did not even find it worth commenting on. Elliot and Frances, on the other hand, found it disorienting, and it served as a breach of reality. Elliot saw himself in the context of “running in circles...I can even see myself there.” I asked how he knew it was him. “Because I’m here! And I’m watching myself there! Oh my god, this is weird. Ok, where am I supposed to go? Is this a hallucination or something?” Frances also struggled with orientation. She paused upon seeing herself through a portal: “Eh? [eight seconds passed] I see myself in two different positions, and it just – I can’t really grasp where exactly I’ll be if I cross over to the other side, so I’m just going to try. I still don’t really get the concept.” Embodiment is tied up in the digital object’s relationship with time and space, as these data show. Indeed, another element of the social status of objects is their “temporal emergence” (Pickering 1995), as objects become significant others or actors through interactions over time. Both temporal and spatial dimensions of association are important to consider, especially since such abstract entities can themselves be interpreted as actors. Esala and Del Rosso (2012) provided an example of this through their studies on Reiki energy, a nonphysical nonhuman object that practitioners did mind for in order to experience as autonomous. Like Reiki energy, the player-character in Portal 2 had no physical form until players learned to experience both its effects on time, space and other digital objects, and the effects of time, space and other digital objects on it. This deeper understanding of the player-character’s relationship to

things around it facilitated players taking their characters as significant others and granting the player-character their own embodied actor status and agency.



Figure 1. Participant seeing her character through a portal.

Some objects had proximal and temporal significance. Obviously, players could not find objects that they were unaware of significant, but sometimes participants were able to anticipate significance. This occurred primarily in WoW, often because of the presence of other players. In early interviews, mounts and flight masters were mentioned only in terms of future utility. Players often complained that their characters ran too slowly, and wondered when they would be able to travel on horseback or through the sky like they saw other players doing. They were able to take the role of their future characters and imagine moving faster through the world. Diane said, “Look at him! He is going so quickly. And I just run, run, almost walking. One day Shelly [her character] will have a horse.” Harry in particular enjoyed the scenic views while travelling and

wondered, “I bet you can go anywhere once you get a flying mount. I just want to fly around, see how high I can go, go see what’s out there.” Once players left the beginner zones, began purchasing rides on griffons and bats to travel through the sky, and purchased mounts after level 20, their responses to these and other questions increasingly included these objects. Mounts in particular became like weapons and armor, extensions of the player-character through which they acted on (i.e., moved faster in) the world. Mounts and other proximal objects combined with the player-character into assemblages (player-character-mount, player-character-portal gun) that were unique forms allowing for special types of social interaction in the semiotic domains (Dant 2004; Latour 1992).

NPC ACTORS

NPCs were perhaps the easiest digital objects to observe players doing mind for. They followed a similar pattern of proximal significance, with the additional dimension of appearing to possess selves or sentience to varying extents, and served the additional role of providing purpose, all of which facilitated players doing mind for them. After their first hour of playing Portal 2, everyone except Ian reported Wheatley as the most significant NPC because they thought he was “quite funny,” “silly,” and “appear[ed] to be trying to help you,” as opposed to the antagonistic GLaDOS, who Ian chose in anticipation of “fac[ing] her later...the one I’ll be looking out for.” However, once Wheatley and GLaDOS switched roles in the story, no one reported Wheatley to be the most significant; four participants changed their response to GLaDOS in the final interview. Elliot explained that “she’s the reason why I’m escaping.” Instead of being a sinister disembodied voice as in the early part of the game, GLaDOS spent much of the later part as a helpless potato impaled on the end of the player-character’s portal gun, providing

constant companionship. Gail described the importance of this companionship: “When Wheatley took over as the master, that was interesting because then I was taking care of the potato [GlaDOS]. I particularly enjoyed that level. I’m not sure why, but it just gave me a very good feeling when I’m together with a character rather than playing alone.” Gail illustrated two important points. First, when playing with digital objects that were significant others, players were not playing alone; they were engaged in social play emergent through such interactions. Second, the shift in significance from Wheatley to GLaDOS was marked by a two constants: the significant NPC was in closer physical proximity and the significant NPC was *cooperative* rather than threatening.

In chapter 5, I provided examples of Corey reinterpreting rangers from decorative blood elf NPCs to invaluable combat allies and Diane’s challenges with and hard-earned triumph over the enemy troggs in the Gol’Bolar Quarry. In both Corey’s and Diane’s examples, the enemy NPCs they encountered were relatively straightforward “threat” type actors. They perceived them as capable of independent action (especially attacking), actions which threatened their goals (successful questing or fighting), which were of such importance that they had to deal with the threat (find a way to eliminate the enemies), and dealing with the enemies was crucial to goal completion (especially in the case of completing a quest). Both Corey and Diane also encountered friendly guard NPCs who were “cooperative” type actors that, instead of threatening their goals, facilitated achieving their goals. Doing mind for cooperative objects as well allowed players to perceive them as conscious, possessing intent, other-orientation and so on. Each of these perceptions had to ultimately be functional, appropriate and triggered to be called into practice. Over time, these meanings became routinized, allowing players to perceive

NPCs as minded and of threatening or cooperative status. Like any meaning, these statuses could be reinterpreted, as Corey did with the friendly rangers, when they moved from mundane digital objects to significant cooperative actors.

Owens (2007) treated conflict as the basis upon which people do mind for objects, yet cooperation and conflict are both elementary forms of interaction (Couch 1986). Beginning from the discussions of the player-character and NPCs above, I argue that threat is not a necessary condition for attributing actor status to an object. Consider all the human agents we interact with daily. They do not have to threaten our goals for us to perceive them as actors. One could argue that every individual object (human or otherwise) has the potential to threaten our goals, which we must work to achieve, but viewing everything as a threat seems overly pessimistic. Owens's hammer, for example, threatens her goal of pounding the nail into the wood if it pounds her thumb instead (2007:569). But it also facilitates her goal if it pounds properly. Although she did not grant the hammer actor status for functioning, consider additional examples where people did perceive cooperative objects as actors. Meeting a snarling pair of dogs on a morning jog threatens our goals of leisurely exercise and safety, whereas Sanders described canine empathy: "One day I was sitting on the front porch kind of blue about some things and he just snuggled in there – totally noninvasive. Just 'If you want to pet me, pet me. I'm here if you need me.'" (1999:21-22). According to Vaninni, the *Queen of the North* was both a threat and an accomplice. He reported an interview with a woman who said the *Queen* was for her husband "an enemy; it's what stands between him and the game on TV," and for her children their "week-end play buddy" (2008:168-9). Finally, participants in a

Reiki training course “experienced [it] as both healing and transmitting illnesses,” both cooperative and antagonistic (Esala & Rosso 2012).

In response to both my data and the literature on nonhuman objects, I have modified Owens’s four contingencies of object-as-actor to question the extent to which digital objects in games became significant others and were attributed actor status through interaction. I have italicized my changes to the contingencies, in addition to rearranging numbers two through four:

- (1) We see the object as capable of independent action
- (2) The object is critical to achieving our goals *or providing us new ones*
- (3) Its potential actions threaten *or facilitate* our goals
- (4) Our goals are of such importance that we must address the threat *posed by the object or cooperate with the object*

One of the most visible moments of doing mind for cooperative NPCs was when Corey, describing the process of reinterpreting the rangers, recalled grabbing his enemies’ attention and running back toward the rangers, who engaged them in combat because they “couldn’t just let them pass through.” This shows that Corey perceived the rangers as aware of their surroundings, and in particular, that they would attack Corey’s enemies. Their modified status as cooperative actors was only possible and emerged in relation to the enemies’ status as threatening actors. Their intention was to defend a location. By positioning themselves against Corey’s enemies, they announced the identity of ally. They oriented their actions toward the enemies and they communicated meaning through their actions. Finally, the new definition of the rangers as combat allies proved functional

and situationally appropriate, and was triggered by the enemies, and the definition became routinely invoked for the rangers to help Corey deal with strong enemies.

The main story characters in Portal 2, Wheatley and Glados, were perceived as minded as well. These two NPCs were different in many respects from the NPCs in WoW. They were integral characters in the story and persisted throughout the whole game, co-present in turn with the players for long stretches. Significantly, they were designed to be perceived as relatable actors to a degree that mundane objects in Portal 2 and no characters that WoW players encountered were designed. For example, it is clear that designers and artists went to great lengths to create the impression of sentience in Wheatley.¹⁴ Such character design for apparent sentience facilitates Couch's (1986) five basic elements of sociation required for cooperative or conflictual social activity to occur. After co-presence is established, which is a pre-requisite for the other elements, collaborating actors establish types of attentiveness, responsiveness, functional identities, focus and objectives that vary depending on the form of interaction, cooperation or conflict. Wheatley's "short, sharp head turns, rapid blinks and glancing around [that]

¹⁴ Consider this developer commentary from animator Karen Prell: "How do you make a giant mechanical eyeball express life and emotions, let alone give the impression that he's talking when he has no mouth? The animator's understanding of human behaviour came in handy for bringing Wheatley the personality sphere to life. Talking is so much more than just moving a character's mouth. You have to use body language, head attitudes and rhythm of movement and eye focus to indicate a character's feelings and motivations. Slow, smooth head moves, a steady gaze and a relaxed eye aperture indicate that Wheatley is calm. Short, sharp head turns, rapid blinks and glancing around indicate nervousness or deceit. Add a tightly constricted eye aperture and a little shiver to show fear. Tilting the body away while keeping the eye focused on the player signals an attempt at cleverness that ultimately only fools Wheatley himself. Suspicion is communicated by squinting his eyelids and handles, which function as very expressive eyebrows and cheeks. It's also fun to remind the player that Wheatley is a machine. When hacking, his eye and body segments become perfectly centered and spin mechanically, inspired by the spinning tape reels on old Univac computers. And when he wants to look far in front, he flips his eye all the way over to the other side of his head. This animation approach combined with the writing and vocals makes Wheatley quite a unique and entertaining character – part human, part machine, all eye, and no brain" (2011).

indicate nervousness or deceit” implied conflict (Prell 2011). Players were able perceive to the signs Wheatley gave off, interpret them as nervous or deceitful, determine that he held an incongruent functional identity and a personal objective that differed from their own, identify the relationship as conflictual and act on that basis.

Creating lifelike, emotional and relatable characters makes sense as a design goal because Wheatley is supposed to be entertaining for players. It is also beneficial because “it transforms the challenge of the game from a technical one to an interpersonal one, and thus may increase both the enjoyment and engagement of players” (Lim et al. 2009:108). In general, animations meant to convey Wheatley’s personality were successful, with players describing Wheatley in positive terms. Even when he became the corrupted antagonist, players did not perceive him negatively. A couple exceptions were that Ian generally regarded Wheatley as “annoying” and Elliot described him as “the lame one who is always so panicky.” Other players interpreted these traits as humorous. In conjunction with Wheatley’s designed characteristics, players interpreted him through his interactions with the environment. Wheatley led the player through a dark area of the testing facility at one point. Harry recalled being reliant on Wheatley, interpreting that Wheatley held a congruent functional identity (Wheatley shone a light; Harry followed the light), shared focus (looking ahead to get through the darkness) and a shared social objective (escape the Aperture Science facility) and would lead him safely through the darkness. Shortly after this, Wheatley made the transition from cooperative to threatening NPC. When he took over the facility, Wheatley began designing his own puzzles for the player to complete. Harry pointed out that “these levels have Wheatley’s feel to them, but he’s not very good at building tests.” For example, Wheatley proudly displayed via bright

signs the new name of Aperture Laboratories – Wheatley Laboratories – and he appeared on big screens in his early test chambers to ineffectively mock the player (“Puppet master! You’re a puppet in a play, and I hold all the strings! And cards, still. Cards in one hand, strings in the other. And I’m making you dance like a puppet. Playing cards.”), conveying his new and incongruent functional identity and personal objective of attempting to kill the player-character, reinforcing their new conflictual relationship.

Establishing the forms of social interaction in which players were engaged with NPCs was part of the process of doing mind for them, and part of the overarching meaning-making process since it helped establish and was established by the context of interaction. As I have said, cooperation and conflict were both forms of social interaction through which players did mind for digital objects, and players were more likely to do mind for objects that had greater proximal significance and appeared to exhibit sentience.

TURRETS

In chapter 5, I described how Frances interacted with portals, cubes and buttons, and placed them in various relationships to one another, to develop a system of meaning that allowed her to complete the second half of test chamber 23 by dropping cubes through portals to disable turrets. I will backtrack chronologically and describe Frances’s first encounter with turrets in the first half of test chamber 23, and show the full process of how she did mind for these objects in order to perceive them as actors. The example highlights some aspects of doing mind that have yet to be discussed. First, the example shows Frances doing mind for two objects simultaneously, which were themselves engaged in a social relationship. Second, it shows the situational co-occurrence of

cooperation and conflict. Third, it shows how one object may shift from being cooperative to threatening, or vice versa. The full video and audio for this example, Frances 3, is located at (<http://youtu.be/o3iSdQmP1h4>). The audio begins at [0:23].

The initial encounter was a fairly straightforward example of attributing actor status based on threat and conflictual social action. Frances and the enemy turret first established reciprocal attentiveness, meaning they each “acquire[d] information about the other and both [were] aware of their relatedness” (Couch 1986:116). This occurred on Frances’s end between [0:13] and [0:18] as she appeared to look through the barrier at the turret, and was indicated by the turret asking, “Who’s there?” and pointing its red laser at Frances [0:28]. Frances and the turret then established bilateral responsiveness and incongruent functional identities. Bilateral responsiveness means that each actor responded by acting with respect to the other, but did not respect the integrity of the other. This was obvious, and defined (by) their incongruent functional identities (they could not both be the victor) when the turret opened fire on Frances at [0:29]. Frances expressed slight surprise (“oh”) as the turret’s symbolic communication interrupted her sentence, and continued to describe the turrets as, “a new gadget that I found on the floor that looks like a rocket ship, and apparently it shoots people, and I’m dead because I got shot multiple times” [0:27]. With this utterance, Frances began to attribute all five of the capabilities for actor status that Cerulo (2009) outlined to the turret. The word “it” referred to the turret, which did the shooting. Frances perceived it shooting her on its own, independent of her actions, and she began to attribute (1) consciousness and (2) intention to it. By describing the turret in terms of what it did, Frances ascribed it an (3) identity, a thing that shoots people. By shooting at people, she perceived it as having an (4) other-

orientation. Frances interpreted the bullets that it shot as (5) symbolic communication that, in this case, communicated hostility and death. The last two elements of sociation, other-oriented focus and personal objectives, began to be established by the turret as it shot Frances. Frances knew she was not supposed to die, and at [0:52], she verbalized her part of the establishment of focus and objectives as she said, “I think I’m supposed to use one of these spherical things to shoot other spherical things.” Thus she outlined her focus on the enemy turret to achieve her objective of shooting it and she perceived the enemy turret had the same focus and objective, but oriented toward her. As she stated her goal and walked herself through her strategy of action, it became clear that she perceived the turret capable of independent action through her careful movements, that the turret threatened Frances’s goal to kill it and get past it, her goal (completing the puzzle, the same goal as every test chamber) was important enough such that she had to find a way past the turret, which was a necessary obstacle to overcome.

Frances began to exhibit doing mind for both turrets, one that she perceived as a threat, and the other that she perceived as an ally, and the relationship that Frances perceived between the two turrets facilitated the process. At [1:15], the turrets’ consciousnesses and intentions became more “real” through their interactions. Both turrets communicated vocally, the allied turret crying “Don’t shoot!” as it was pelted by bullets emitted by the enemy turret, which then innocently asked, “Are you still there?” after it killed Frances. The turrets’ vocalizations were responses to changes in their environment and to the other actors that the turrets perceived. Their responses to being shot by one another facilitated Frances’s perception of them as independent actors. The allied turret sometimes pleaded “It’s me!” in protest of the bilateral responsiveness,

incongruent functional identity, other-oriented focus and personal objective of the hostile turret, as if the hostile turret should recognize one of its own and cease violence. It invoked its identity as a living thing with feelings to attempt to persuade a like-minded being to recognize its personhood. This symbolic communication between turrets supported Frances's and other players' treatment of the turrets as aware, possessing intent, identities and other-orientation.

Beginning at [1:40], Frances devised and tested a strategy for defeating the threatening turret. The strategy required that she develop her relationship with and understanding of the friendly turret, and her process should be familiar from chapter 5, as she calls into practice a series of meanings and finds one after another dysfunctional or inappropriate, until eventually she reclassifies her turret altogether. As she tried to steady her turret [1:48], she said, "I just need to kind of make it aim properly, which is really hard because the laser beam keeps moving. So I'm just gonna wait for the right moment." Frances realized she was not the one doing the aiming, but the friendly turret was aiming independently of her. Following the contingencies for doing mind, Frances perceived the friendly turret as critical to achieving her goal and its potential action (shooting) as facilitating it, if only she could figure out how to control the action. At [2:12] and [2:17], the audible mouse clicks indicate she was trying to make her turret shoot when she felt its laser was targeting the hostile turret. She momentarily pursued her line of thought toward controlling the turret: "Ok, so I'm not sure which is the button to activate the shooting. It's not right-click and it's not left-click." After realizing that she could not directly control the turret's aim, she proceeded through a number of ideas as to how she could directly control its shooting. "I got it shooting just now, but I don't know what to press to

make it shoot.” At [5:04], Frances realized that if she knocked the turret over, it would shoot, and she tried to control its action subsequently by “strategiz[ing] to be able to drop it in time and in line with the sphere that I want to shoot.” Just after [7:20], she referred to the friendly turret as a cooperative thing, “the only hope that I have,” signifying the fourth contingency of doing mind, that she *must* cooperate with the object to achieve her goal. It was, after all, her only hope.

Frances realized that she could not make the friendly turret shoot the enemy. The meanings she attributed to it, in terms of it shooting the enemy turret and helping her achieve her goal, turned out to be dysfunctional, and so she reassigned it from a cooperative actor back to a potentially threatening one that prevented her from achieving her goals through its refusal to be controlled. There was a precursor to this reassessment at [6:25], when the friendly turret “refused to be knocked over,” implying that it temporarily, yet intentionally, resisted her will.

It is important to keep in mind the role of the designers behind the turrets’ and other digital objects’ features since those behaviours that conveyed conflict and cooperation, emotion and sentience, including all the elements of sociation, were designed (for players to perceive as) characteristics of the digital objects. Such design minds were not always relevant for players to call into practice in situations, but as I show in the following section, developing the ability to take the role of game designers was significant for players’ sense-making of digital objects and the games in general.

THE GAME DESIGNER AS GENERALIZED OTHER

Each digital object in a game looks and sounds specific ways, does specific things, is a specific part of the story, is supposed to convey intended meanings, and so on. Games, on the whole, are “*designed experiences*...resulting from the intersection of design constraints and players’ intentions” (Squire 2006:26). Recall the earlier discussion about artists animating lifelike and believable emotional expressions for Wheatley. It is obvious if a player stops to think about it that games are products designed for entertainment, education, or some other purpose. It is obvious that people spent long hours writing code, animating characters, defining rules, creating stories, and so on, so that players can interact in the virtual world in specific ways. But to what extent were players cognizant of the influence of designers on their gameplay experiences? To what extent did they attempt to see through the digital representations on screen into the minds of the creators? What were the impacts of the answers to these questions on their meaning-making and gameplay socialization?

To arrive at any conclusion about the significance of game designers, players needed to understand games as designed experiences. Without this meta-level insight about the nature of the games they played, meaning-making would have remained on the level of gameplay, not abstracted beyond the game. The extent to which my participants would have considered games as designed experiences outside this study, or considered the significance of game designers, I cannot know. However, at least partly due to the dialogic nature of data collection, especially my interview and think-aloud questions on design topics, participants were concerned with, and often spoke about design and designers.

The game designer was not a digital object, although it expressed itself through them (its programmed creations) as an imagined object that continuously emerged through players' gameplay, especially when they were having trouble. Players took into account what they thought game designers expected, and often directed their frustrations toward game designers. For example, when Frances felt she had exhausted all her options on test chamber 29, she was serious when she said: "Is it because the game isn't designed finished, so they just make everyone stuck at this level, so you won't finish the game?" I joked back that one participant arrived at test chamber 29 after three hours of play, and then was stuck there for the remaining seven hours of the study. Frances groaned and said: "I think this is where they differentiate the genius from the common people...it's just so frustrating because I know where I'm supposed to go and I know what tools I'm supposed to use, I just don't know exactly how to go about doing it. And in these kinds of games, I don't think there's more than one type of solution, unless you're really some smart psycho who can think better than the game designers." There was a sense that the designers were testing the player, just like GLaDOS and Wheatley tested the player-character in Portal 2. In fact, this was a common analogy that players picked up on, and in which they implicated me as well. The designers were testing them. NPCs were testing them. I was testing them. They felt, at times while playing Portal 2, as Elliot remarked, like lab rats running through mazes in a Skinnerian experiment. "The designers intentionally make it difficult by allowing only one solution," Frances said. After discovering the solution to test chamber 29, she knew that "that's what the game planners had in mind. They wanted me to uncover the secret of getting here without opening the

portal somewhere.” In a sense, then, doing mind for digital objects in a video game can implicate imagined designers.

Players do not always think in terms of designers, but there is awareness that humans programmed all the digital objects in the game, that there is a “real” mind behind the ones players construct in order to interact with the digital objects, and that somehow the game objects are proxies for designers. Players recognized that the designers purposefully structured environments and placed objects within them to elicit specific actions from players. Gail, in her final Portal 2 single-player interview, discussed a particular room with turrets and how she knew what to do: “I think it was very clear cut. That’s how you were going to solve it. And they even put the turrets in such a fashion that the turrets wouldn’t attack you first, unless you go into their line of vision.” “They” refers to the designers, who from this quote, wanted to ease the player into interactions with hostile turrets, but forced players to interact with turrets to achieve their (players’ and designers’) goal of the player completing the puzzle. Understanding how the designer arranged turrets in the test chamber facilitated Gail effectively taking the turrets’ roles (i.e., if she didn’t avoid their line of vision, they would shoot her) and successfully interacting with them. Through purposeful design, designers conveyed goals of the games. In Portal 2, it was to progress through puzzles. Often times in WoW, it was to make one’s character stronger. Elliot described the experience of finding a significantly improved axe in WoW: “Maybe the game¹⁵ wants me to find it. Sometimes I will think I found something I wasn’t supposed to find, but then I think the game wants me to find it because the monsters will get harder.”

¹⁵ Participants often used “game designer” and “game” interchangeably to stand for the generalized other.

Consider that all the different significant others and mundane digital objects that players interacted with – turrets, troggs, cubes, equipment and so on – were digital objects that players interacted with through the player-character. They were all significant elements of participants’ experiences with(in) the games and connected to the domains’ design grammars. While these objects were real to participants, the game designer was an abstraction, an imagined other. In the data presented above, participants realized that to play the games well, they needed to think like the designer. The designer held role expectations for them and they achieved the perspective of the designer, taking themselves as objects, to guide their actions. They took the role of the designer. Since the game designer designed every other digital object in, and indeed a general experience of, the games, then to be able to take the role of the game designer, participants had to have the ability to take the roles of any number of digital objects simultaneously. The game designer, then, served as the imagined embodiment of the “attitude of the whole community,” of the game as a whole, or the generalized other (Mead 1934:154). If players could think like the game designer, then they could take the perspectives of various game elements, imagine how to interact with them, how they interact with one another and so on. This complex system-level thinking is an outcome of the meaning-making process emphasized in chapter 5 and of passing through the stages of gameplay socialization outlined in chapter 6, and I will continue to discuss this outcome in following chapters.

Taking the role of the generalized other did not mean, however, that participants had necessarily become experts in meaning-making, doing mind or thinking like game designers, or that socialization was complete. Sometimes the designers’ intentions were

unclear or players felt they had seen or done something that was unintended. Harry chanced upon some allied NPC guards fighting an endless battle with some enemy NPCs and wondered aloud as he took advantage of the situation, “Is this a scripted thing or what? Hey, look at me. I’m looting bodies and getting silvers while they’re in the middle of a battle! Why would they make [the friendly NPCs] like this? It’s funny, I’m just looting the dead right next to their teammates.” Later, when he was exploring a desolate city, he asked, “Did they just build this city for fun? Or maybe it’s from a previous expansion pack. Huge tracts of empty land to do nothing.” Finally, players sometimes interpreted the generalized other as a source of encouragement as they continued their gameplay. Diane commented in WoW that “the designers of the program are smart, so smart” because their treatment of death allowed Diane to make many mistakes with relatively little punishment, which “gives me some strength, some motivation, like come on, keep going!” In this sense, again, being able to abstract taking the role of the game designer facilitated, on an emotional level, Diane’s and others’ interactions with the designer’s designs. Diane always referred to the graveyard spirit as God. One could interpret players’ perceptions of the designers in this omnipotent fashion too, being the ultimate creators of rules, creating Harry’s “huge tracts of empty land” just for fun, training players like rats in mazes on what is right and wrong, and being all-knowing since no one but a “smart psycho...can think better than the game designers.”

The ways players perceived game designers involved attributing to the designers some presence in the world, typically represented through game elements. The perceived omnipotence of the designers allowed players to perceive them as capable of independent action, or of animating game elements capable of independent action, as both threatening

(in Frances's example), facilitating (as in Elliot or Diane's examples), or even providing new goals (as in Harry's examples where he had interesting places to explore and wonder about). If the game designer as an imagined object is perceived as godlike, then its manifestations must be addressed for the player to achieve her goals, since the designer then potentially encompasses the totality of the game.

DISCUSSION AND CONCLUSION

It is important to account for digital objects in the social fabric of our everyday lives, where they comprise a significant portion of interactants. In the single-player domains discussed in this chapter, digital objects comprised nearly all interactants. Video games, digital games, virtual worlds and so on, by their very names, imply interaction with and through technological media. Thus we can speak of the characteristic of digital games that emerges where digital objects become significant others in the game environment. Players may be in close association with digital objects, go through a process of self-development, develop shared meanings through interactions with them, and act on the basis of attributed perspectives. In fact, playing games well requires that players take on the perspectives of digital objects by attributing agency and intentionality to them. Nonhuman objects may not have minds like humans, but to the extent that we attach meanings to them that facilitate our taking their perspectives, as we imagine them to be, and then realize those perspectives through interaction, we do mind for them and may attribute to them an actor status. Whether or not the object is "really" self-conscious, reflexive, other-oriented, possesses intention, or can symbolically communicate is irrelevant because humans attribute these and other capabilities to the object.

In this chapter, I have addressed Research Question 3 (“To what extent is gameplay a social activity?”) by redefining the social to account for interactions with digital objects. I outlined the process of doing mind for digital objects and showed that the process occurs through both cooperation and conflictual forms of social action. I have also provided data showing how players did mind for several different types of objects, from the player-character to fully-fledged story NPCs to enemies in WoW to turrets in Portal 2. Some of these objects were more lifelike and it was easier for players to do mind for them, while others, such as turrets tended to be only situationally granted actor status. Proximal objects were also granted actor status more readily than objects that were less situationally relevant and central to the (player-)character. Other objects that I did not discuss were more mundane, like weighted cubes in Portal 2, and were almost always perceived as inactive. But, depending on the extent to which players interpreted them in relation to their goals and the extent to which they satisfied contingencies for actor status, they were occasionally perceived as minded. For example, Harry mused about doing mind for a weighted cube after he responded that it was the most significant game object: “But if you think about it, is it the player that’s supposed to use the cube or the cube that’s using you to get to where it wants to be? Because it’s always about the cube, right? You have to bring the cube here and there, but maybe the cube wants me to. I’m giving it a kind of intelligence, but maybe that cube wants to be there and actually it’s using me to get there.” Harry attributed consciousness, intention, identity, other-orientation and communication to the cube. The communication is subtle, and only found in the cube’s relationships to other objects, since the cube neither speaks nor moves on its own. Harry effectively read into the cube’s relationship to buttons and other things on which cubes

are placed to say that the cube's proximity and relation to those objects was its way of communicating what it wanted, for the player to pick it up and put it there.

Digital objects also have the potential to be important agents of socialization. Doing mind for digital objects in the interactional accomplishment of gameplay allows players to be socialized by digital objects, to come to view things from their perspectives and share understandings of rules and ways of knowing and being in digital games. Interactions with digital objects in the single-player domains of WoW and Portal 2 discussed in this chapter prepare players for the two-or-more-player domains of Portal 2's cooperative mode and of group-oriented play in WoW. Thus these single-player experiences, and the practice of doing mind for digital objects therein, may prove to be significant for players' ongoing development in related domains.

Doing mind is both a part of and an outcome of the meaning-making process. The statuses we attribute to things affect the meanings that we hold for them, and our subsequent interactions with them, and likewise, the meanings that we hold for things affect the process of doing mind. Does this object need to be attributed mind in this situation or not? People do not just assign meaning to objects in isolation to determine lines of action, but understand objects in relationships to one another, from relatively simple to incredibly complex. Indeed, players rarely mentioned an object in isolation, but discussed them in relation to other objects as parts of systems of meaning, which themselves, along with the social practices surrounding and comprising them, make up the semiotic domains of these games. Doing mind in this context can be seen as an accomplishment of collective mind, doing mind for assemblages like the player-character-turret. In the case of game designers or other systems creators, people can may imagine

them as the generalized other, where in doing mind for and taking the roles of multiple objects, they abstract to take the role of designers who created those objects, or vice versa. This “designer mentality,” which is the ability to think about a game as a relationship among systems of meaning (Hayes and Games 2008), facilitates people interacting with(in) semiotic domains because it allows people to think about games as designed experiences or designed objects. This is crucial for effective problem-solving. As I have shown in the chapters so far, as players developed understandings of systems of meaning and developed their abilities to do mind for digital objects, they were able to deal more effectively with their own embodiment as key agents and they became more literate in each of the semiotic domains in this study.

In the next chapter, I take a look at the multiplayer domains of WoW and Portal 2 co-op. These domains feature the additional characteristic of other players, and interaction in these domains is predicated upon experiencing socialization by digital objects and with(in) the games themselves through gameplay. Multiplayer domains are characterized by an increase in complexity. As I have shown in this and previous chapters, players continuously refine meanings and integrate new game objects and other elements of gameplay into their understandings of games. As they continue to develop knowledge and sets of skills and practices, they become more able to handle multiple objects in relationships with one another, such that they not only become literate in internal design grammars, but also in external design grammars shared by other players in the domains.

CHAPTER 8 – RISING COMPLEXITY AND GAMEPLAY SOCIALIZATION IN SEMIOTIC DOMAINS

In previous chapters, I have discussed the semiotic domains of digital games almost exclusively in terms of single-player experience. The previous chapter in particular argued that games predominantly involve interaction between players and digital objects, and that those digital objects function as significant others in socializing players. This is a characteristic of all virtual environments because they necessarily involve interaction with and through the screen. Despite digital objects' significance to socialization, however, they are only part of the equation.

Digital games are increasingly designed to promote interaction among players, and are both integrated into and leverage existing social networks, often bringing additional interactional layers of digitally mediated player-player interaction to gameplay. Like digital objects, human players become significant others and act as agents of socialization within the semiotic domains of digital games. The additional human element increases the complexity of games and the gameplay socialization process, and is the core of this chapter in answering Research Question 4, "How do players handle rising complexity in digital games?" Instead of making meaning exclusively through relationships with digital objects, players accomplish meaning-making intersubjectively, along with (re)constructing rules, roles and norms. Each player is self-conscious and locates themselves in role-relationships among players and digital objects, while at the same time being identified and placed in relationships by others. Building upon systems of meaning that emerge from player-object relationships in their solo play, players must understand where other players fit into these systems in multiplayer play.

While digital objects and players can be effective in teaching the (in)formal rules and norms of games, communication of rules and norms is not necessarily smooth because it is always digitally-mediated in player-game interaction and usually digitally-mediated in player-player interaction in this study. Digitally-mediated communication is neither as rich, reducing uncertainty in a situation (Daft and Lengel 1986), nor as natural, being synchronous and full of expressive cues (Kock 2004), as face-to-face communication. Nonetheless, digital games offer multiple communicative modalities, such as text (e.g., Mortensen 2006), audio (e.g., Jørgensen 2012) or video (e.g., Kirschner and Williams forthcoming[a]) that, depending on situational factors, may more or less facilitate player-player communication, meaning-making and collaboration. Player-player communication may also be mediated by external software supporting voice or text chat (e.g., Wadley, Gibbs and Ducheneaut 2009), and in some cases may partially be digitally unmediated when two or more players are physically co-present (e.g., Keating and Sunakawa 2010). Games are “multimodal texts” where “the images often communicate different things from the words. And the combination of the two [or more] modes communicates things that [none] of the modes does separately” (Gee 2003:14). As players experience socialization, they develop literacy not only in the plurality of communicative modalities available through and around games, but also learn to combine and choose among them to match their appropriateness in different situations.

The gameplay examples in the previous chapters focused mostly on the single-player aspects of player-computer interaction. Although I discussed rising complexity with systems of meanings, I limited interactants to one player and two or three digital objects; however, the more interactants involved, particularly human players, the more

complex situations tend to arise. Consider some different player configurations I observed during data collection, where the dash-arrowed lines represent mediated communication among players and solid-arrowed lines represent direct lines of communication (Figure 1¹⁶):

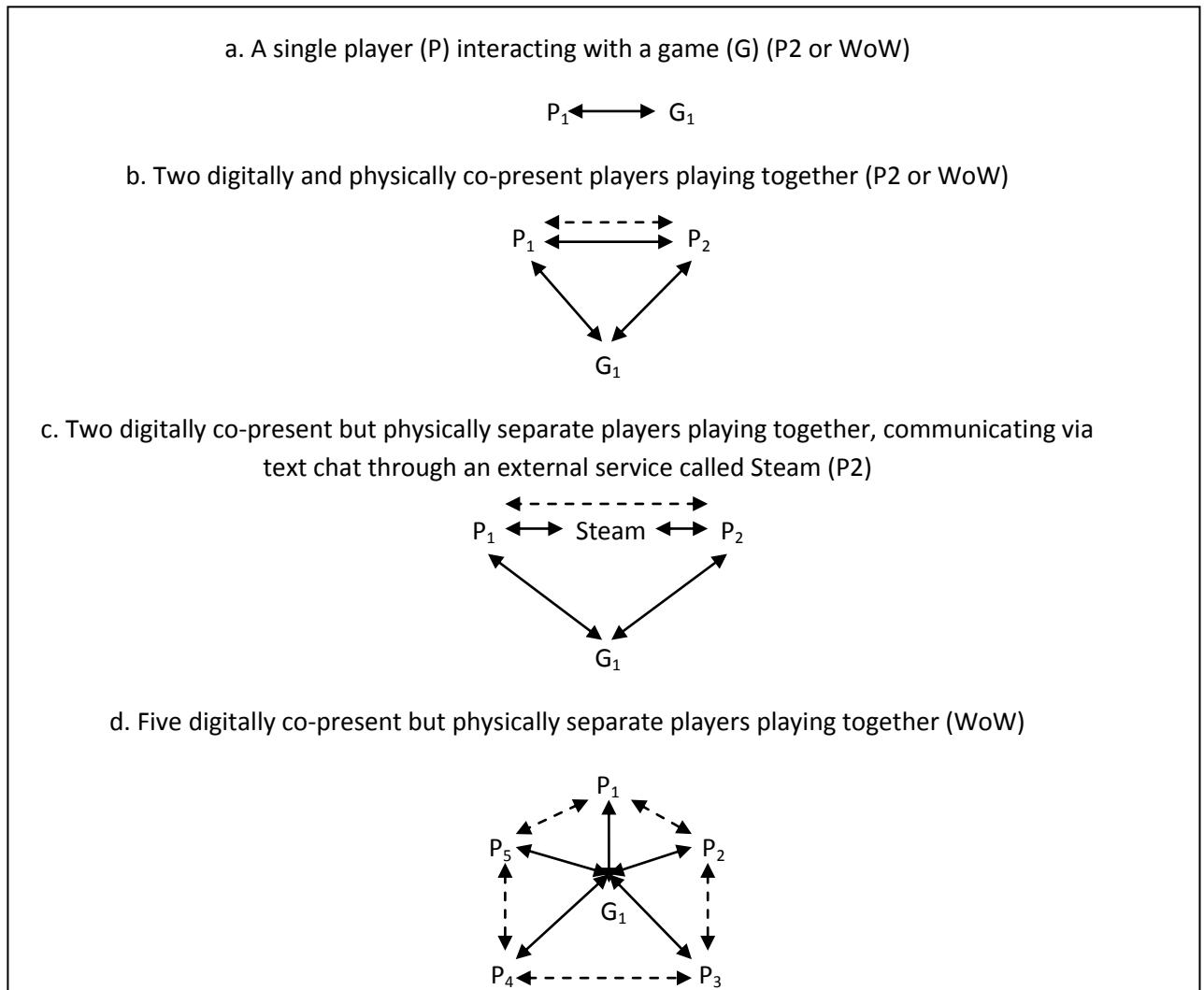


Figure 1. Player configurations.

¹⁶ The point here is to emphasize additional players, and therefore I simplified games for the sake of representation. Each G_1 node is of course further broken down into various digital objects with which players interact. For example, in Figure 1a, the Portal 2 player may be interacting with digital objects G_{1a} (GLaDOS), G_{1b} (Wheatley), G_{1c} (turret) and so on. Player(s) and object(s) may also be communicating through various modalities, such as text, audio or visuals.

Notice that in each diagram, the form of interaction is not limited to player-player interactions. If it were, then (a) would be individual, (b) and (c) would be dyadic and (d) would be quintic. Since gameplay is comprised of social interactions among game elements, including digital objects, and since doing mind for digital objects is to perceive them as acting subjects in situations, then all the diagrams have the potential to be much more than the sum of their players. Quantitatively, forms of sociation multiply and each player understanding only their relationships with the game and its objects is insufficient. Players must take one another's roles as significant others and share meaning, adhere to group norms and so on. Because the game in (d) allows for five players, it can create situations that require five players to coordinate their action, versus the game in (a) that can only create situations requiring a single player.

The configuration of different communicative modalities in each scenario may affect complexity as well. In (b) communication between players was digitally mediated and non-digitally mediated since they were physically co-present. In (c) players were not co-present and could not speak to one another. They had to rely on text chat in the digital game manager Steam to communicate with words. Depending on the situation, digitally-mediated communication may be more relevant for expressing specific meanings than even the non-digitally mediated spoken word. Finally in (d), none of the five players could communicate except via text and audiovisual cues produced by the game. The extent to which players have access to and use various modalities to communicate affects player-player socialization because these are the means through which socialization occurs.

A significant outcome of the socialization process is that players become more literate and able to handle increasing amounts of complexity. In this chapter, I use three examples of rising complexity to support this point. The first example of Portal 2 co-op play shows how socialization involves player-player cooperation that is made possible through intersubjective meaning-making. The second example of a participant in a five-player group in WoW illustrates how players learn social norms in group play. The final example of a 25-player WoW group summarizes previous work and drives the argument that socialization is an ongoing process of learning norms, roles and rules necessary for successful participation in a semiotic domain.

HARRY, IAN AND THE INFINITE LOOP

The Context

Before Harry and Ian played together, they were strangers. I provided them separately with some information about their future partner regarding gameplay history and Portal 2 single-player experience. Harry and Ian had the most previous gameplay experience of all the participants, were experienced FPS players, and Harry had even played some of Portal 1 in the past. Harry completed the single-player campaign in 10 hours 48 minutes and Ian in 9 hours 42 minutes. Ian predicted that he and Harry were already on the same page regarding cooperative play simply from my description of Harry: “Me and Harry, I think we sort of understand the lingo to talk to each other though. If he tells me to do this, I’ll be like okay. Like, we are already used to the game command of lingos, going around in cooperative gameplay. We both played shooters before. We’ve both been in LAN shops before shouting at other people what to do.” They

were initially “zero-history” partners and each of them held expectations for “a basis of commonly held structural knowledge that the actors have gained independently” (Bastien and Hostager 1992:94). They were able to draw on shared experiences of the single-player game, as well as their cooperative multiplayer gaming histories to facilitate collaborating on puzzles, and they completed the co-op campaign in 7 hours 48 minutes. They continued to be socialized into the game throughout the co-op mode, and crucially in this domain served as significant others and agents of socialization for one another.

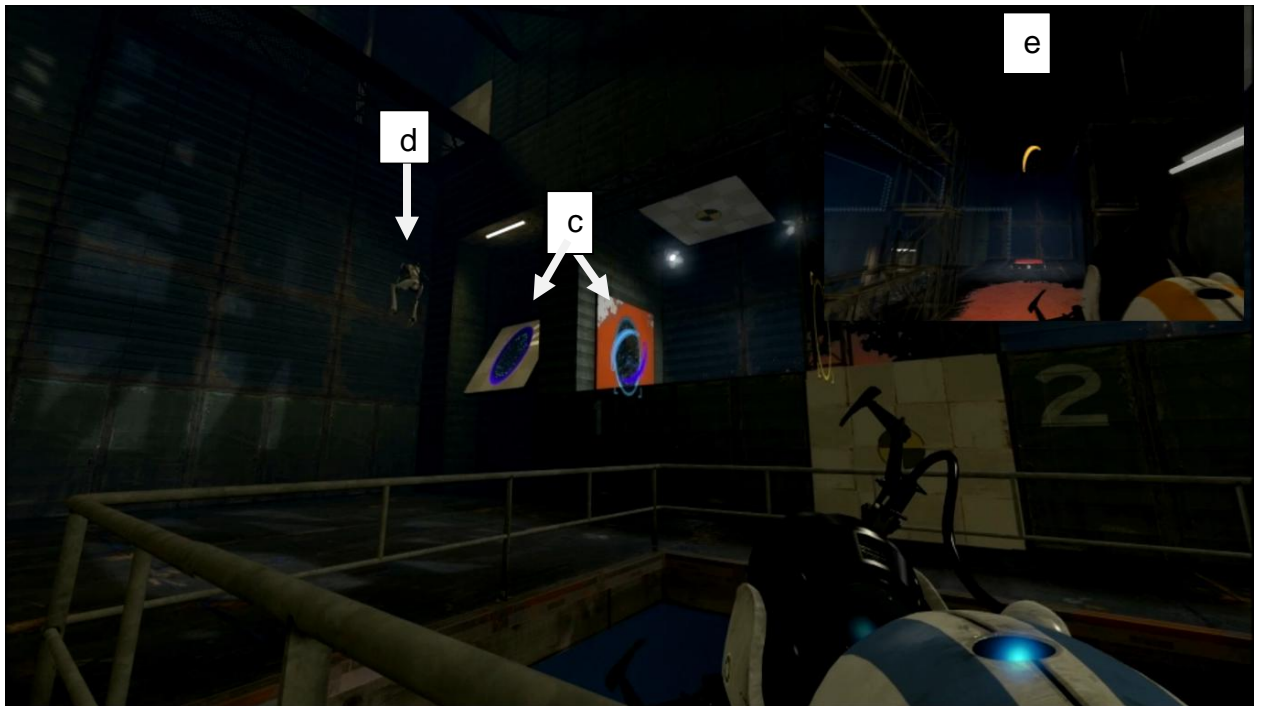
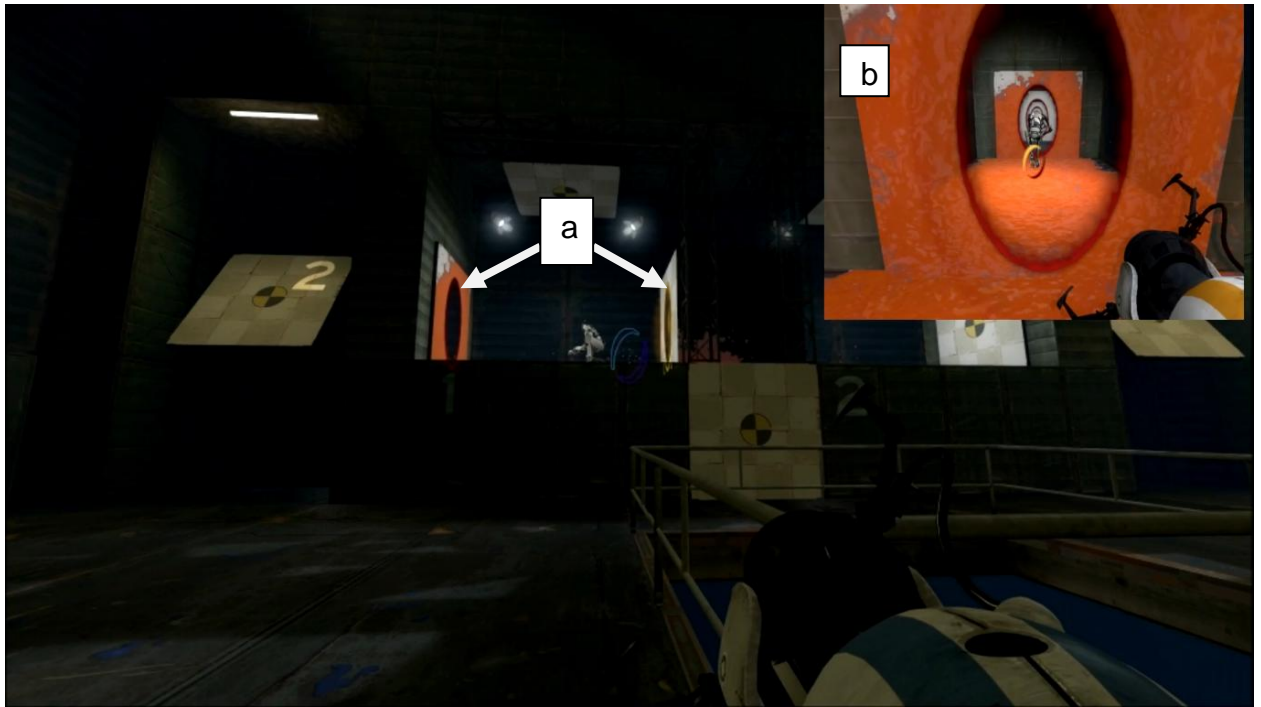
The example below is from course 5, test chamber 5 in the co-op campaign, three chambers before the conclusion. The entirety of course 5 focuses on players using mobility gels, colored paint that players can spray on the ground in order to increase their movement speed (orange gel) or bounce (blue gel). Test chamber 5 in particular introduces what Harry and Ian called the “infinite loop.” This example is about how Harry and Ian worked through an intersubjective meaning-making process, entered into reciprocal role relationships, discovered the infinite loop and utilized it to solve the puzzle. I draw again on Fine’s (1979) discussion of characteristics of cultural elements (known, usable, functional, appropriate, triggered – KUFAT) to show how the infinite loop and other (relationships between) objects in the test chamber became integral parts of their solution.

The Infinite Loop

To begin, I must briefly explain how portals and the infinite loop function in cooperative play so that it is clear what the participants were working toward. Otherwise it may be difficult to understand the significance of some of the analysis until the end. In

solo play, a player creates blue and orange portals. When a player walks into a blue portal, he comes out the orange portal, and vice versa. In co-op play, *each* player creates two portals. One player creates yellow and red portals and the other player creates light blue and dark blue portals. Each pair of portals has the same relationship as the orange and blue have in solo play, so for example, when a player walks into the light blue portal, he comes out of the dark blue portal. Either player can enter any of the four portals, but they will only come out of the particular portal tied to the one they entered (light blue:dark blue or yellow:red).

The solution that the pair eventually reached is broken down in Figure 2. The final successful attempt is visible in the accompanying video, entitled Ian and Harry Infinite Loop (<http://youtu.be/KrIphdA0rAg>), from 5:45 to 6:00. Harry's perspective is the large frame and Ian's is the upper-right frame. Ian's character is visible near the center of Harry's screen in each image. Ian has manipulated his red and yellow portals and successfully constructed the infinite loop (a). At the proper moment as Ian was running through the infinite loop (b), Harry created his light and dark blue portals (c) to propel Ian (d) across the gap and safely underneath the "crusher" (e). Also notice the orange gel coating the floor of the infinite loop (b) and beneath the crusher where Ian will land (f).



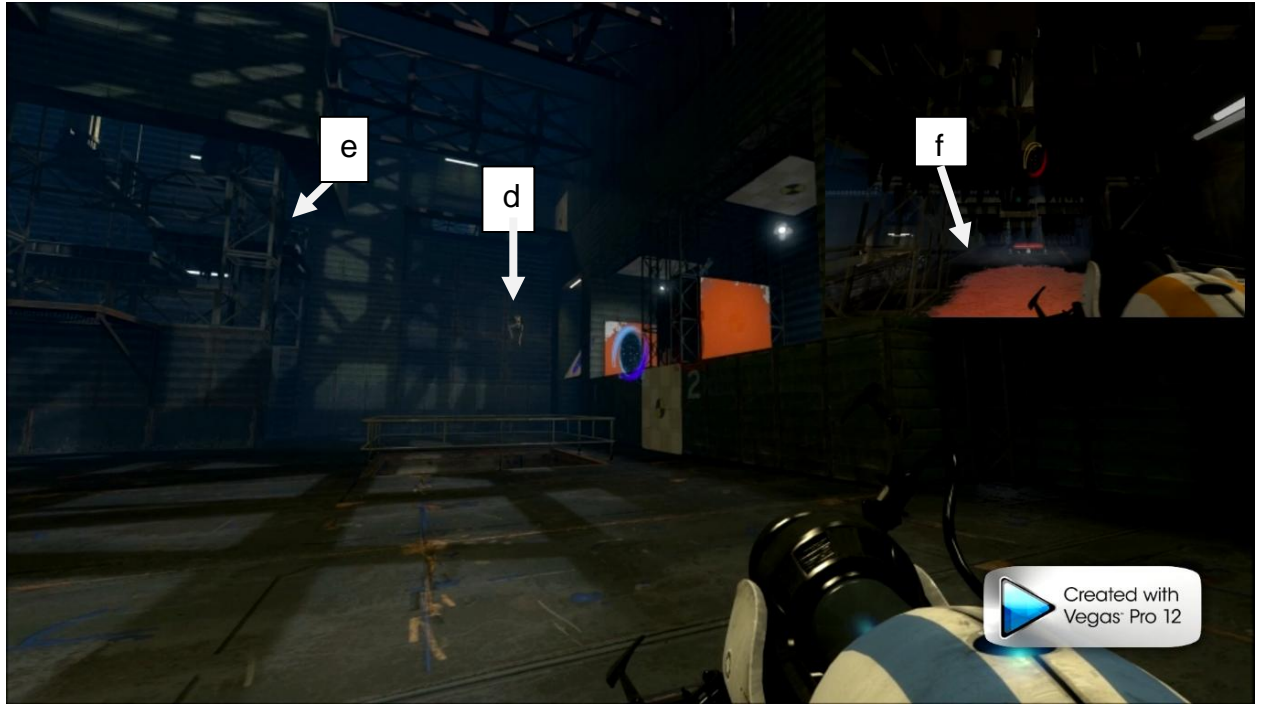


Figure 2. Harry and Ian use the infinite loop to solve test chamber 5.

As the data show, discovering and learning to use the infinite loop was a process. Harry and Ian did not “just” solve the puzzle. The pair first learned how and where to spread the orange gel. They negotiated roles and shared meaning through various communicative modalities. These accomplishments facilitated their discovery and utilization of the infinite loop. I have divided the video into three scenarios, each featuring a portion of gameplay analysis.

0:00 – 0:35 – Shared meaning-making and the appropriateness of ceiling tiles

The video begins with Harry and Ian spraying orange gel everywhere they could think of. This was a typical strategy players used with the gels in single-player and co-op: “Just spray. We are bound to hit somewhere that it needs to be!” Harry and Ian quickly reached an understanding of the purpose of the gel. Ian suggested, “I think that we just

have to run through with the gel” [0:12] and Harry responded positively with a method, “Yeah, I’m gonna spread the gel all over” [0:18]. That method eventually needed refinement. Until 0:34, Harry and Ian had been spraying gel through portals on the wall tiles; however, Harry soon realized that while the wall tiles were functional for spraying gel, they were inappropriate for spraying gel on the floor like he wanted. He later observed, “I was spraying on the wall instead of the floor...I didn’t even think about shooting [portals] on the ceiling.” Ceiling tiles were known and usable, but not yet perceived as functional in this test chamber. At 0:35, the ceiling tiles became relevant as Harry recognized the inappropriateness of the wall tiles for the situation. He perceived the ceiling tiles as almost simultaneously functional and appropriate. He shared his meaning of the ceiling tiles with Ian visually by placing a portal on one and verbally by saying “Oh, wait, wait, wait. Yeah, that’s a mistake,” referring to placing portals on the wall tiles. Ian’s response signified that Harry’s communication triggered the ceiling tiles’ relevance for him as well. He said, “Oh, it’s from the top,” created a portal on a ceiling tile and pressed the red button to spray gel onto the floor. Gel laid down, the pair next worked together to attempt a successful jump underneath the crusher.

0:59 – 2:30 – Negotiating roles for first attempts

At 0:59, Harry and Ian were both on the second story. Harry had actually just created an infinite loop (visible as if he were looking through blue-edged mirrors), though there is no indication that either realized its significance at the moment. The infinite loop as a cultural object was unknown, but as they progressed through test chamber 5, they began developing roles and meanings that helped them discover and utilize it.

An early role that developed was reliant upon a mutual understanding of, and was in relation to, digital objects. At 1:01, both players were focusing their camera angles toward the crusher on the upper-left of their screens. When the timing was appropriate, the dyadic relationship between Harry and Ian was transformed to a triad as they each took the role of the crusher and treated it as a significant other. The crusher exerted power over Harry and Ian in the relationship because it impeded their progress. They knew that they would have to get past it for two reasons. First, as a digital object, it communicated symbolic meaning. Harry and Ian both realized that by its placement and motion “it’s telling you that you need to pass through.” This meaning was not isolated from other objects in the environment because, second, they knew from past experience that the slanted tile across from the crusher “always points to where you have to go...always going to propel you somewhere.” When they saw these two objects in relation to one another in the beginning of the level, they quickly knew the significance of the relationship among portals, slanted tile and crusher. They also perceived the relationship as usable and functional, but not yet appropriate until this scenario when they began orienting their actions in anticipation of fitting themselves into the relationship. As Ian observed in the gameplay review, “You know the crusher is useful. You have to time it sometime or later, but it just isn’t now.” To recognize the appropriate time to trigger the portal-tile-crusher relationship, Harry and Ian first had to develop more specialized roles in relation to one another.

“Hey wait. I think we have to help each other out,” Ian said at 1:01. They were both on the second story attempting to run individually, and so neither could create the necessary portal on the slanted tile. Ian brought to the fore that the test chamber required

both players to understand that only one person should play the role of runner. Through identifying this role, and understanding that playing it together was not a functional form of interaction, they reinforced the development of cooperative roles. These two roles were the runner, who created and ran through the infinite loop on the second story, and the launcher, who opened the portals that launched the runner across the crusher. After Ian's previous call to help each other out, Harry took the role of the launcher and Ian the runner. Harry quickly established one of the expectations of the launcher role, that is, to achieve a wide visual perspective on the scene. He positioned himself on the first story such that he could see the whole second story, facilitating his ability to plan and instruct Ian where to shoot portals [1:15]. Although the pair recognized the reality of the two roles, they had to treat them as fluid. They refined them, and sometimes switched them, over multiple attempts to solve the puzzle, and reinterpreted meanings of (relationships among) digital objects in relation to those roles.

Roles and identities, like any other piece of cultural information in the semiotic domains, became known, usable, functional, appropriate and triggered to be called into practice. The runner role was initially not functional, but became so with the emergence of the launcher role. This scenario illustrates the interdependence of the internal rule-based and external role-based design grammars. Boudreau (2005) discussed this tension between formal and emergent roles in a study of the online game Everquest. Formal roles are strictly rule-based, designed into the game, and are part of its internal grammar. In Everquest and other MMOGs like WoW, role expectations are explicitly provided by both the game and other people. When Harry and Ian recognized that the crusher-slanted tile assemblage was telling them they needed to pass beneath the crusher, the game did not

explicitly enumerate potential roles and state how to play them; rather, through the process of experiential learning (Kolb 1984), Harry and Ian built upon their literacy of the game elements and relationships among them in order to develop and refine the runner and launcher roles. So even though the roles were necessary to progress, they were developed instead of given. In Everquest, Boudreau found similarly that as players became literate in performing formal roles, they were able to create hybrids and engage in role-making and individuation, modifications which, like Harry and Ian, were developed through social interaction with other players. Thus what may have initially been strictly rule-based understandings of potential roles were able to become reflections of “collective ideals” (2005:5). Such collective ideals, or shared understandings relating to group goals, are possible with the addition of a second (or third or fourth...) player over and above the individual. Players communicated the development of roles and norms through various modalities provided for by the game.

Communicative Modalities

Harry and Ian were able to jointly (re)interpret the meanings of things by utilizing various communicative modalities to interact. They were physically co-present and could speak to one another. They also communicated through their characters’ actions on the screen. As was typical of study participants playing together, movement across physical and digital spaces was given meaning through “participation cues,” which were indications of orientation, attention and intention (Keating and Sunakawa 2010). Players expressed participation cues through communicative modalities, which included body orientation, pointing at one another’s screen, rate and volume of speech and the “ping tool” in Portal 2. For example, at 1:20, as the pair was refining their roles and figuring out

who should place portals where, Harry used the ping tool to draw Ian's attention to two tiles where Harry wanted Ian to create portals. The ping tool facilitated the establishment of Couch's (1986) elements of sociation for cooperative activity oriented toward achieving their joint goal. Portal 2's designers created the ping tool because they realized that "tell[ing] your partner where to go, where to look or where to place a portal was going to be really hard. Even with voice chat, saying 'over there' doesn't give enough information to your partner within the 3D space." (Weier 2011). Even though Harry could have physically stood up and pointed at Ian's screen, he did not need to because the ping tool served the function to mediate his intended message. Harry and Ian shared meaning of the ping tool from previous test chambers. Harry used the ping tool at 1:20 both to underscore his verbal instructions and to illustrate a location on Ian's screen. Ian's response shows that he understood that the ping tool demanded his attention through its multimodal announcements: the auditory beep, the eye symbol (literally, "look") and the target symbol (literally, "here") [1:22]. In this case, the participation cue, the ping tool, facilitated the filtration of the cultural element, the slanted tile, through Fine's characteristics. Ian recognized the slanted tile as appropriate and triggered because Harry used the ping tool to draw Ian's attention to it.

Different modes of communication have different effects on the outcomes of interaction and development of shared meaning (Manninen 2001; Halloran, Rogers and Fitzpatrick 2003). When Harry said at 1:20, "You shoot there and there," he accompanied each location with a ping. By the time Ian had addressed the first location, the ping had disappeared from the second. In response to Ian's question, "Shoot there and what?" Harry did not say "there" again because the word, visually unaccompanied, would not

have identified a location appropriate for Ian's attention. However, when Harry responded by pinging the slanted tile three times, communication through the ping tool did specify an appropriate location. Through effective selection and configuration of communicative modalities, the pair was able to construct roles and meanings to develop a plan of action.

At 2:20, they performed their respective roles during a first attempt at getting past the crusher, but as evidenced by the outcome, the behaviours that comprised their roles needed tweaking because they were not yet functional for getting past the crusher. They had set up all four portals beforehand such that Ian only ran one length of the second story before jumping out of the slanted tile portal. "We thought that would be enough distance," Ian said, but it was not. Broadly speaking, the portals were known, usable, functional, initially appropriate and triggered. However, the particular portal arrangement was no longer viable as practice after enacting that relationship failed to send Ian safely across the crusher. It was no longer appropriate and the pair needed to reinterpret and reconfigure the relationship among portals. The infinite loop remained unknown.

4:57 – 6:00 – The infinite loop and concretization of cultural elements

At 4:57, Ian was on the second story and noticed a series of portals visible through the red portal he had just created. He recalled, "I was looking through the portal and then I stopped. I think I saw this two portal thing, the one portal in another, and I was like oh, okay." He began running and said, "huh, running infinitely." Harry watched intently: "I was like whoa, what is he doing?" The infinite loop became shared and usable knowledge at this point, but was not yet functional because it served no purpose until they figured out its relationship to other game elements. Ian placed Harry in the launcher role when he

said, “you figure it out.” Harry settled on a course of action at 5:11 and, although he almost killed Ian in the crusher, successfully launched him. However, before using the infinite loop to successfully bypass the crusher, they had to refine their interpretation of the infinite loop in a relationship of meaning with the crusher and within the contexts of their respective roles.

At 5:10, Harry verbalized his recognition of the significance of timing, but had not yet taken into account the crusher in the relationship. From the video it appears that “timing” referred to ensuring he created a portal on the wall tile that Ian could run through, launching him out of the slanted tile. Harry was not positioned to watch the movement of the crusher, and so he launched Ian without respect to it. Ian consequently did not pass underneath the crusher, and they set up to try again. Ian began running the infinite loop the opposite direction and Harry said, “Hey I can’t look at that and...” and again launched Ian unsuccessfully. Harry later told Ian, “That’s when I already knew I needed to do the timing thing. But you were running in the wrong direction and I was like, I was trying to look back and forth. I was like, I can’t see!” After Ian collided with the crusher again, Harry insisted, “Do it from the other direction. Then I can at least look at it before I shoot.” Harry positioned himself at 5:45 so that Ian, the slanted tile and the crusher were all in his field of vision, each of which visually communicated to Harry, who recalled, “I moved over here so I could see both at the same time...I was looking out, watching it, making sure the crusher is up before I hit the button.” All of a sudden being able to time the crusher, taking the roles of both the crusher and the runner, became a paramount part of the launcher role intertwined in the relationship of meaning between the infinite loop, slanted tile and runner role. At 5:55, they succeeded in their role

performances, using the infinite loop to propel Ian past the crusher, and then necessarily reversed their roles to continue. Additionally, buttons and cubes became new elements in this test chamber, and Harry and Ian served as one another's eyes to explore beyond the crusher.

There is a distinction to make regarding the filtration of characteristics of cultural elements in the joint meaning-making process between a cultural element being temporarily appropriate in a situation and the concretization of that cultural element through practice to become a normal part of interaction. The former often leads to the latter, and the process of becoming literate in a domain involves recognizing which cultural elements could or should be routinized. For example, the earlier configurations of portals that Harry and Ian tried seemed appropriate at the times they implemented them and were the most appropriate configurations they knew. However, once the infinite loop became known and its function realized, they saw the difference the infinite loop made to their efforts: "That almost worked actually. Yeah, doing the infinite thing then" [5:18]. The two players were "learning to read symbols in certain ways, and act on them, through social interaction" (Davidson 2010:391). Davidson utilized conversation analysis to show how children playing a computer game pragmatically handled complexity. In that game, the tutorial instructed players to drive a car to the correct spot by clicking the appropriate one among several directional arrows displayed on screen. They initially did not know how to determine which arrow was the correct one; however, over repeated social interaction with the game, with one another, and with their father, who was periodically co-present and helpful, the children learned to recognize previously unrecognized characteristics of the correct arrows through a process of "learning to look ahead, to see

the choices made available by the arrows and then choose the correct arrow to click” (391). Like the correct arrows’ characteristics, the infinite loop quickly concretized as *the* cultural element for solving Harry and Ian’s test chamber. In doing so, it displaced other temporarily appropriate portal configurations. Reinterpreting the meanings of various portal configurations was fundamental to Harry and Ian’s socialization into Portal 2 co-op as they could, and did, utilize the infinite loop in later test chambers. As a cultural element repeatedly works in practice, helping interactants achieve their goals, it may become routine and normative through its appropriateness. People being socialized into a domain will likely integrate that cultural element into their repertoire of potential solutions to problems because it repeatedly satisfies KUFAT. In game terms, as previously mentioned, the meanings players make over time tend to align with game rules. In multiplayer settings, the same is also true, in addition to the overlay of role relationships that players construct, *through which* they jointly (re)interpret the meanings of things. The discovery and use of the infinite loop was predicated on the development of the launcher and runner roles. Each player took unique but related perspectives on the situation that became part of the roles and that facilitated their joint construction of the infinite loop as an invaluable piece of cultural information that they incorporated to solve the puzzle.

In this example, Harry and Ian had already completed the single-player domain and had played cooperatively for approximately six hours. In this amount of time (roughly 16-17 hours each), they had learned a great deal of the game, becoming literate enough to solve every problem they encountered, and had developed a number of social norms, which help illustrate the heightened significance of external design grammar in

cooperative play with the addition of two more portals to increase complexity. Some of these norms I discussed in the context of joint meaning-making, such as negotiating roles and communicating in specific ways to share meanings of things. Others I left untouched, such as norms regarding good-natured harassment and killing one another's characters, their playful attitudes and celebration rituals at the end of most test chambers [e.g., 7:11]. All of these elements of play developed through Harry and Ian socializing one another, and other participant pairs similarly developed norms, although constructed and expressed differently. The following example focuses on the development and violation of social norms in the semiotic domain of WoW as group size and role specialization increase.

IAN AND LOOT IN SHADOWFANG KEEP

The Context

Discussing group life, Georg Simmel suggested that, “The longer public opinion has ruled, the more absolute is the authority of the majority likely to become, the less likely are energetic minorities to arise, the more are [people] likely to occupy themselves, not in forming opinion, but in discovering and hastening to obey it” (1950:133). In this example, I describe Ian's experience in a five-player WoW dungeon called Shadowfang Keep and provide an account of how, through various communicative modalities, Ian learned, and other players taught, norms regarding loot distribution in dungeons. The example represents an increase in complexity from dyad to triad, in terms of roles (healer, tank, DPS), or pentad in terms of individual players, which created new group dynamics. I will explore the tension between individuals in groups who at the same time conformed

and “easily los[t] initiative in matters of public interest,” indicative of receding from participation or adherence to norms (ibid.).

Ian was a veteran MMOG player with over two years of experience in Ragnarok Online and five in Maple Story. With his level of MMOG experience, it was initially surprising to me how much he did not know about group play, which highlights the need to study the potential and/or limitations for transferability of domain(-specific) literacies in new media usage. This example was also personally significant to Ian. In the final interview, he identified the looting system as the most significant thing he learned about the game, as well as the number one thing that was confusing to him. Ian played 17.5 hours of Portal 2, completed it, and could do anything in the game by himself or with a partner. He was effectively a master of the semiotic domain. After 15 hours of WoW play (at the time of this example), and after having extensively played other MMOGs both alone and with other players in groups much like this one, Ian was still learning basic norms and rules like how the game-based and social loot system worked¹⁷.

Ian began joining random dungeons as a means to an end. He had long anticipated reaching level 20 so that he could purchase a riding mount, such as a horse, to increase his movement speed. When the time came, he checked a World of Warcraft wiki to find the location of the mount vendor. Aghast, he was 40 silver short of the price, but recalled reading earlier that completing a dungeon rewarded 35 silver. He joined a group, completed Shadowfang Keep, and bought a mount with his reward money. His character

¹⁷ By game-based loot system, I mean how the game systematically handles loot distribution; by social loot system, I mean those social norms constructed by players that govern how players use the game-based loot system.

gained substantial experience points in the dungeon and Ian stated, “I’m going to do more dungeons. I got a ton of experience. I learned from Maple Story too. It was part of the levelling strategy so you get experience faster.” He joined another group and completed one more dungeon, The Stockade, before venturing back into Shadowfang Keep.

Violating Loot Norms

Ian’s second foray into Shadowfang Keep became especially interesting after his group defeated the third boss, who dropped a rare quality shield. When items of rare quality drop in WoW group play, a “roll window” appears on the bottom-center of each player’s screen (Figure 3). Each player can select one of four options: need (dice), greed (gold coins), disenchant (purple sword hilt) or pass (X). For this example, need and greed are important. When Ian moved his mouse over the greed icon, a tooltip displayed, “You’ll take the item, but only if nobody else really wants it.” When he moved his mouse over the need icon, a tooltip displayed, “You really want the item.” “Need versus greed,” as the looting system is commonly known, is heavily regulated by Blizzard, as the roll window suggests, and by the WoW player base, which has developed extensive social norms regarding loot distribution (see <http://www.wowwiki.com/Loot> for an overview). When a player selects “need” for an item that he does not really need or that another player needs more, this sometimes results in a breach of loot norms, which some individuals will attempt to repair through talk or sanctions. This phenomenon in online games has not often been studied, and when it has, then typically in its most extreme form called “ninja looting,” where a player purposefully takes an item that is not theirs. Although the need versus greed system in WoW makes ninja looting difficult, Ian unknowingly breached distributive norms when he selected “need” for the shield

(Verhagen and Johansson 2009). The following interaction is presented in a short video entitled “Ian lantern” (<http://youtu.be/2cT4A6KMGXQ>).



Figure 3. Ian needing a rare quality shield.

Ian repeated his loot norm violation after he needed a rare quality lantern with the “intellect” stat from the next boss [0:07]. 40 seconds later, another player-character in the group, a mage, sent Ian three private messages, in purple font in the chat window located in the bottom-left corner of the screen, asking, “mind if I have it? I actually need it lol. Its not a weap [weapon].” The mage then initiated a trade with Ian [1:05]. Ian moved his mouse over the chat window in the lower left-hand corner, indicating that he read the mage’s message, then moved the lantern from his inventory to the trade window. Just as he placed it in a slot, the trade window disappeared and the priest said in party chat, visible to all five players in light blue text and as a speech bubble above his head, “ruth

[Ian], rogues don't use intellect." Ian returned the lantern to his inventory. All the group members had moved forward in the dungeon except for Ian and the mage, who jumped at [1:36]. Ian left-clicked on the mage nine times [1:48], perhaps to try and communicate with him, and then the mage again initiated a trade. Ian put the lantern in the trade window again, and when the mage's half of the trade window turned green, indicating that he was ready to accept the trade, Ian clicked "Trade." The mage privately messaged Ian, "Thanks man :]" and ran toward the rest of the group. Ian replied, "okay..." and followed.

The group continued their trek through Shadowfang Keep, and a line of conversation ensued for the rest of the dungeon:

[2:53] Paladin: he need rolled on the shield to

[3:14] Mage: did he win it?

[3:26] Mage: he gave me the offhand [lantern].

[3:38] Mage: maybe he just doesn't know what the need roll does.

[4:14] Mage: ask him for the shield

[4:21] Paladin: no i won it

[4:43] Mage: Ruthe [Ian], unless it's an item your rogue can use, press "Greed" so you don't get kicked from dungeons :P

[6:24] The group defeats the fifth boss, who drops a dagger.

[6:31] Mage clicks greed.

[6:32] Warrior clicks pass.

[6:33] Ian clicks need.

[6:49] Paladin: i have half the mind to need

[6:54] Paladin clicks disenchant.

[6:59] Mage: lol

[7:00] Priest clicks greed.

[7:01] Ian wins the dagger.

[7:09] Ian: yeah!

[7:25] Mage: i try to cling to hope for the wow player base...i try :P

[7:42] Paladin: no hope

[7:47] Priest: lol

Communicating Loot Norms

The first question to answer is how the group communicated to Ian what he did wrong. This concerns modes and content of form. I lump the other four players into “the group” because they all appeared to possess literacy in this aspect of WoW’s external design grammar. The group in this scenario was the generalized other, it representing the commonly held attitudes (such as loot norms) of the other four players. As I will explain, Ian was unable to take the role of the generalized other because he was unable to accurately take the roles of individual group members or their character classes. This was

a large part of Ian's problem (or the group's problem with Ian) because his failure to accurately take the roles of others led to him improperly using the need versus greed system from their perspective. Further, his failure to successfully take the roles of others meant that he could not fully understand his own roles, which in the group context were unclear to him. In order to maintain successful cooperative action, the group, in communicating shared norms, essentially attempted to teach Ian how to take the roles of other players, and thereby teach him how to conform to group norms. Note that only three group members textually communicated about the looting issue – mage, paladin and priest – while the fourth member remained silent about it, although his looting behaviour suggests he was also literate.

The first indication that Ian's behaviour may have breached group norms was the mage's private messages. The mage claimed he "actually" needed the lantern and that it was "not a weap," implying that Ian did not need the lantern, that he needed a weapon instead, a dagger for instance. Ian did not see the mage's communication and was therefore nonresponsive to the mage's argument, and so the mage opened a trade window [1:05]. This act produced a noise and a visual cue on the left-hand side of Ian's screen through which the mage communicated that he wanted Ian's attention, and more specifically, through which the mage reiterated his previous (and unnoticed) argument that Ian give him the lantern. The second indication, which brings with it rising certainty that Ian violated a social norm, occurred when the priest verbally supported the mage's argument. Perhaps he purposefully typed in group chat (versus a private message) to make Ian's breach known to all group members. Action to spread awareness of norm violations moves the communication from a dyadic relationship outward where a "moral"

majority can be created (Jakobsson 2006). Ian moved the mouse cursor over the priest's speech bubble, and then over the chat window, but did not respond [1:30]. The mage then jumped, a common player action for attempting to draw attention to oneself or communicate attentiveness in a situation, and opened a trade window again [1:52]. The fact that the mage was still standing behind Ian while the rest of the party moved on was a participation cue likely indicative of the desire to communicate. Ian apparently satisfied the mage by completing the trade because the mage thanked him. Ian, on the other hand, said "okay..." which, coupled with interpretations of other data layers, suggested that he was not entirely sure about the meaning of the interaction he just had.

Ian's explanation of the scenario deals with both the formal and informal dimensions of looting. I will focus on the more informal player-player aspect, but that necessarily involves the player-game aspect. Regarding how the rule-based looting system worked (i.e., how the game determines whether a player gets an item), Ian was in the process of working out a theory. During the gameplay review, he said:

"So there's probably a system for how people will get it. I didn't know if it's random or what...I was theorizing that need and greed, both buttons, will affect the overall ratio of getting a need when you really need it. So the ratio of you rolling the higher number might be lower depending on the number of times you have pressed need, and the number of times you've pressed greed. So that might actually change your ratio because I noticed people were passing it instead of just pressing greed."

Indeed, other group members usually passed, clicked greed or disenchant. Rarely did they click need. Their behaviour demonstrated that they were taking the roles of the other group members simultaneously. Taking this shared attitude toward loot conformed to looting norms, and this was a recurring act of informal socialization that served to model proper social action for (newer) players like Ian (Steinkuehler 2004). In this example, a rare shield dropped from the third boss (Ian and the Paladin needed), a rare lantern from the fourth (Ian and the Mage needed), and a rare dagger from the fifth (Ian needed). Because he noticed other players passing on items, he thought they were strategically keeping their “ratio,” their chance to win versus lose when they pressed need, high. According to Ian, when the shield dropped, he was testing his theory of the loot system: “If I pressed need, would I get it? I was trying to see what happened.” He did not win the shield, and so when the lantern dropped next, he thought, “I don’t get anything anyway. So I thought ah, what the heck. I will just press need regardless. That’s how I got the lamp.” Ian’s misunderstanding of the game’s rule-based looting system¹⁸ facilitated his violation of the social norms surrounding it. We can interpret through his talk that Ian did attempt to take the roles of other players, but his misunderstanding prevented him from taking the roles of others in a way that proved appropriate.

The other players who pressed need did appear to “actually” need the items, as the mage argued earlier. Most items in WoW are intended to be used by (or in some cases are only usable by) certain classes (e.g., mage, paladin, rogue). Ian was a rogue. The lantern was usable by rogues, but only appropriate for magic users like the mage, as indicated by

¹⁸ What really happens when players press need is that the game system generates a random number between 1 and 100, and whoever rolls the highest number among the need rollers wins the item. Need rolls always outweigh greed and disenchant rolls, so Ian had a 50% chance to win the first two items because he and one other player pressed need for each, and a 100% chance of winning the last item.

the “intellect” stat, and as the priest said in group chat [1:26]. The mage provided explicit instructions to Ian on how to roll for items [4:43] and said that not following looting norms may result in players being forcibly removed from the dungeon by the group. The paladin made another normative statement at [6:49]. By stating that he had “half a mind to need [the dagger],” he suggested clicking need on an item that he did not actually need, like Ian did with the shield and lantern previously, in order to attempt preventing Ian, who actually did need the dagger, from winning it. This “eye for an eye” statement may have been meant to reinforce to Ian that if he continued to need items that he did not actually need, thereby negatively affecting other players, then other players may do the same to him in retaliation.

The whole group conversation itself was held partly for Ian’s viewing. Through text chat, the group intersubjectively (re)constructed loot norms, and the conversation served as a reminder for Ian that the group was monitoring his behaviour and labelling him as a particular type of deviant, a new player. Significant moments of socialization often occur after norms have been breached. This example ties directly back to the significance of different modes of communication in socialization into digital media. In the Portal 2 example, I showed how the ping tool demanded attention and conveyed specific information more clearly than speech. Whereas Harry and Ian sometimes ignored or misinterpreted speech alone, their communication was very clear when using the ping tool, especially in conjunction with speech. A similar phenomenon occurred in Ian’s WoW group. The mage’s trade window was like the ping tool in that it demanded attention and conveyed specific information (“Trade with me”) over and above text chat. The text chat had to compete with all the other information on and out of the screen, and

we can see that Ian did not notice the mage's private messages until he initiated a trade with Ian. Since Ian did not notice information in the textual modality, which mediated player-player communication in the situation, then the player-player communication did not work.

Tension existed in this situation between providing explicit and borderline threatening instructions and statements in response to Ian's breach and engaging in reality maintenance through the use of friendlier emoticons and humor. When players violate group norms, particularly regarding looting, a common sanction is removal from the group. Such breaches can ripple through the social fabric and even destroy groups altogether, as was the case in a story recounted by Williams, Kirschner and Suhaimi (2012) where it was not a regular guild member who violated loot norms, but the guild leader. This deception by a trusted authority figure caused the guild to disband within 24 hours. Having ruined his reputation among the entire server as word spread of the norm violation, the ex-guild leader transferred to another server. Why was Ian not subjected to such harsh sanctions?

A similar tension existed in Ian's group where his attributed identity teetered between being a new player and a ninja. One is definitely more forgivable than the other. The ninja knowingly violates norms for personal gain. This act is *perceived* by others as intentional, and the identity may be attributed to someone even if they unknowingly violated norms, which is what happened to Ian. In this case, his unintentional violation was, in the end, attributed to his lack of knowledge of the game's design grammars, to his being a new player. It is unclear which of these two identities was placed upon Ian initially, perhaps a combination of both. The mage provided Ian with the chance to repair

the situation and reject the potential of being labelled a ninja by opening the trade window. The early group conversation called into question the intent of Ian's infraction, and then the mage definitively treated the infraction as caused by Ian's lack of knowledge and attributed to him a new player identity by explaining loot norms at [4:43]. Such emergent teaching when a more experienced player observes another player violating a norm or appearing to have trouble is often indicative of attributing a new player identity on the other, as many studies have shown (e.g., Steinkuehler 2004; Boostrom 2008; Hung 2009). Boostrom (2008) discussed this helping behaviour: "[the more experienced player] recognizes that she was once a newbie, too, and that if the newbie is 'nice,' she will help the newbie as she was helped when she was new" (13). Just like the group took Ian's role as a rogue, and was thus able to determine the appropriateness of the shield, lantern and dagger for him, the group also took Ian's role as a new player. This helping norm was also reinforced by the other players, including the mage who explained his actions as clinging to hope for the player base and the paladin who did not sanction Ian by needing on the dagger in the end.

The twist ending to this story is that Ian reported not reading a word of text chat after his initial exchange with the mage. The potential sanctions that the group discussed were unknown to Ian. However, just because a player does not appear to have learned what was being "taught" (i.e., social loot norms from players), it does not mean he has not learned anything (Hung 2009). Ian was focusing on improving his combat, trying to refine his loot theory, and figuring out group members' roles, all aspects of group play he was simultaneously being socialized into by a mixture of other players and digital objects. The fact that he did not read all of the text chat does not render this example of socialization

meaningless for Ian because he was being socialized through other modes to hone a variety skills, practices and understandings in the semiotic domain of WoW. The other players, who were reading chat, were being socialized through a mode of communication that Ian was not paying attention to for the majority of the example. Some players in the group may have learned something from the mage about how to deal with new players unfamiliar with rules and norms in a positive way. Partly because the text chat was not a very demanding communication channel, in terms of the audiovisual alerts it produced, as compared to the trade window or the Portal 2 ping tool, Ian was able to ignore it and focus on things he perceived as more relevant to his goals. Ian did learn about loot rules and norms though. He learned through early interaction with the mage via text and the trade window, through the practice of rolling on items and developing his loot theory, and he learned outside this example in other dungeons with other players as he repeated interactions similar to the ones in this example.

Increasing Complexity

This example is different in many ways from the Portal 2 example. WoW is socially a more complicated semiotic domain than Portal 2 due to the number of players WoW's design allows to interact together. The game also supports different types of player-player interaction than Portal 2. For example, Portal 2 players cannot win loot and never enhance their characters' attributes in any way, whereas winning loot and upgrading one's character is a core aspect of group play in WoW. The more complex the domain, the more literacies players tend to require to participate successfully. The other four players in Ian's five-player group appeared to be literate in WoW dungeon play, and therefore Ian, who had completed only two dungeons previously, was in an unequal

relationship with them in terms of expertise, compared to his prior equality with Harry in Portal 2. The varied level of players' expertise is an important consideration in player-player socialization because, as in this case, it established other players primarily as teachers and Ian as a learner (Steinkuehler 2004). In Portal 2, Harry and Ian were physically and digitally co-present and known to one another, while in WoW, each group member was digitally copresent and unknown, a zero-history group, and had no ability to verbally communicate. The extent to which players have access to, and the ways in which they use, different communicative modalities affects establishment of elements of sociation and player-player socialization.

WOW RAIDING

The fact that Portal 2 co-op is built upon Portal 2 single-player and WoW dungeons upon WoW solo play indicates rising complexity as one becomes increasingly involved in semiotic domains. The scale of each domain is even broader, and to discuss them further requires a host of other new concepts. I will avoid much additional game detail here and instead summarize some prior work on raiding in WoW¹⁹ to show yet another increase in complexity within the domain.

My co-researcher and I collected ethnographic data as part of a multi-year study from a group of players who had reached the maximum available character level in WoW (80 at the beginning of data collection in November 2009; 85 by the end in April 2011), and who regularly engaged in “raiding,” an activity comprised of 25 players who got together in the toughest dungeons in the game and learned how to defeat powerful

¹⁹ Some of this section has been previously published in modified form in Williams and Kirschner (2012).

enemies in order to obtain powerful rewards (see Chen 2012). We wrote about one battle in particular against a boss named Lady Deathwhisper and used Couch's (1984; 1986) theory of coordinated action to discuss how players engaged in cooperation and conflict both with other players and enemy NPCs, how players interacted with the UI itself, and how players' interactions with each other were mediated by the UI. Our findings exhibit advanced player groups that have progressed far in the socialization process into the semiotic domain of WoW, and are an extension of what I have talked about in this chapter so far regarding rising complexity.

First, in WoW raids, each player was responsible for learning and having internalized a huge amount of information, and for being able to deal with relevant audiovisual stimuli at any given moment in order to align their actions with teammates. Compare a screenshot of an encounter with Lady Deathwhisper (Figure 4) to the earlier screenshot of Ian in the five-player dungeon, Shadowfang Keep (Figure 3). Notice the difference in the UIs, the visual effects on-screen, the proliferation of characters, and so on, not to mention the invisible auditory layer of information from the game and the 25 players.



Figure 4. A 25-player raid encounter against Lady Deathwhisper.

In WoW raids, as in other forms of collaborative play, interactants were in role relationships with one another, primarily the “holy trinity” of DPS, Healer and Tank. Raiding is predicated upon players performing their own role(s) at any given moment and knowing the roles of other players, as well as how those roles interact (Figure 5). The extent of each player’s ability to take the role of any other given player and to reflexively analyze his or her own role in a given situation affects the outcome of goal-oriented group play. In particular, the “raid leader” was expected to have extensive knowledge of all aspects of raiding, the ability to manage her own and other players’ emotions, and to ensure the successful coordination of action during raids (Williams, Kirschner and Suhaimi forthcoming).

BASIC RAIDING TACTICS

YOU ARE

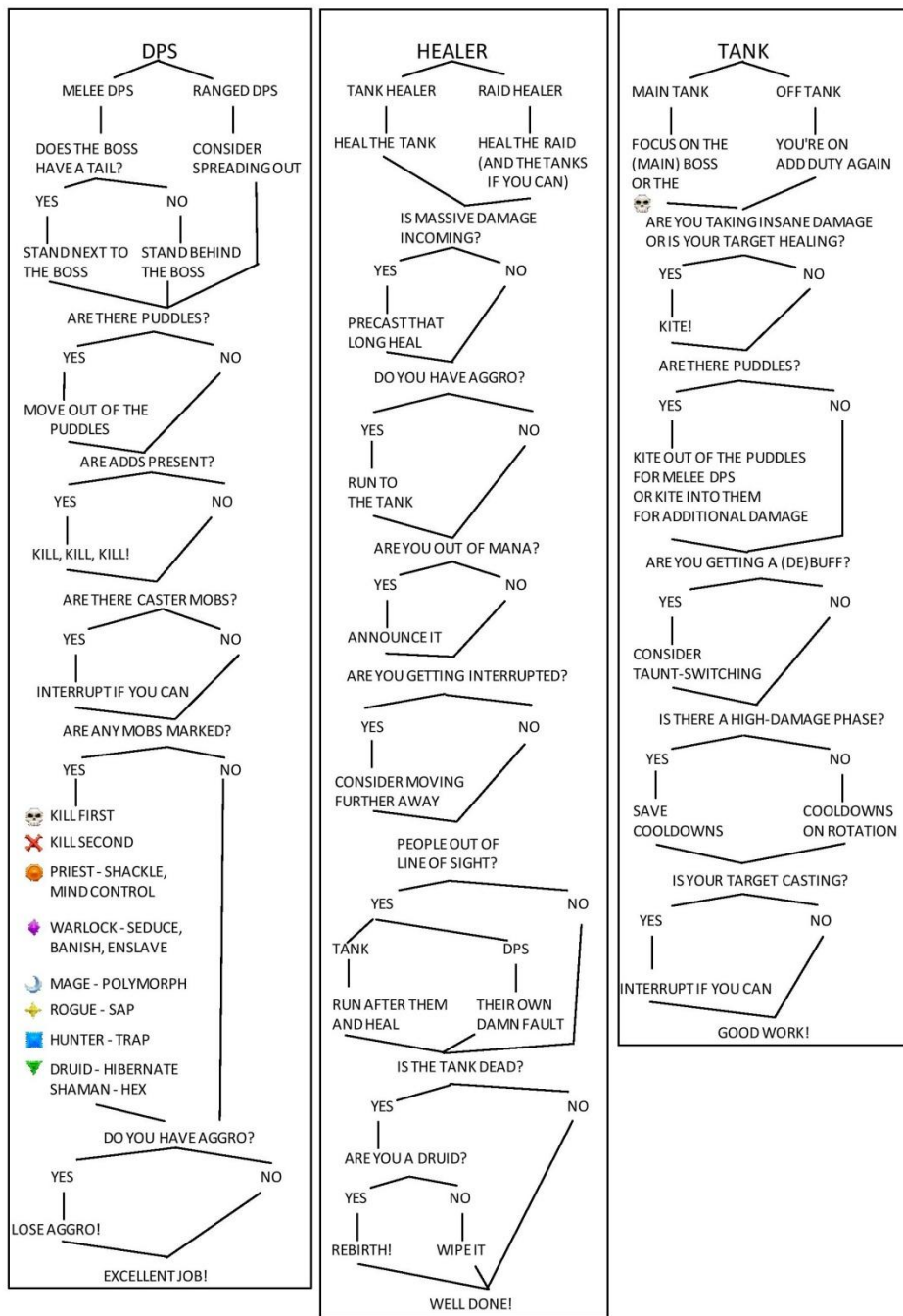


Figure 5. Role Obligations in WoW Raiding²⁰

²⁰ This is a modified chart based on an illustration by a player named "Aear" and published on many WoW raiding blogs, guild pages and websites.

How do 25 players engage in synchronous role performances to coordinate their action? As we noted, “the process of aligning actions among raid members is neither easy nor stable, especially when copresence is computer-mediated. Raid members engage in individual lines of action that each other player must perceive and interpret as she plans her own future actions” (Williams and Kirschner 2012:346). To coordinate their actions, players projected their plans through modes of communication that, as I have shown, include text chat, computer-mediated voice chat, co-present speech, on-screen visual action such as the movements of characters or ping tools, and other audiovisual cues emitting from the game. The range of communicative modalities available is partly determined by what the game allows, and how players use and pay attention to those modes partly determines the extent to which they are able to effectively communicate meaning and align their actions. Recall the earlier diagrams of communication in the introduction. In WoW raiding or other large-scale collaborative play, communication may look something like in the 25-player raid group in Figure 6:

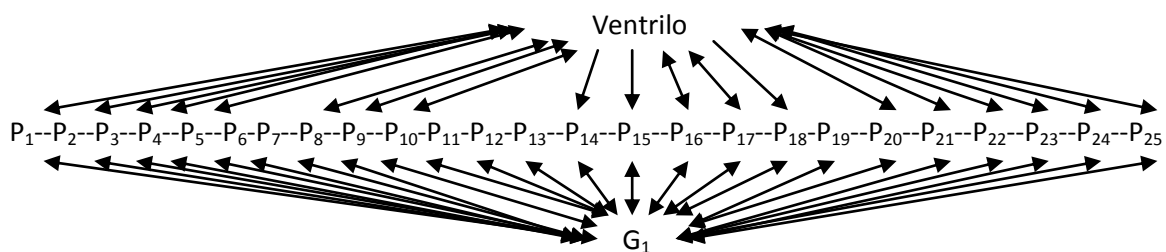


Figure 6. Lines of communication in a large-scale multiplayer game.

Each player in the group communicates back and forth with the game and with every other player mediated through the game. The links between players and the game are hugely simplified, not going into detail about the various modalities (visual, auditory,

textual) or digital objects. Additionally, in our raiding study, players were expected to download and use third-party voice chat software called Ventrilo, which mediated voice communication. Inevitably during any given raid, some players used the software and others did not. In Figure 6, players 14, 15 and 18 were only listening to the group's voice chat as indicated by a uni-directional arrow, and perhaps did not have a microphone to speak. Players 6, 7, 11, 12, 13 and 19 were raiding without using Ventrilo and were not privy to any interaction occurring through voice chat, unless it was repeated in text, which they may or may not be paying attention to. This has implications for the establishing the elements of sociation in any given situation, as well as for the socialization process as players cut off from certain communication channels may play less of a role in constructing norms, learning rules and so on, although they may inadvertently be used by the group as a negative example, such as in the not uncommon sanctions imposed upon players who do not conform to using Ventrilo (i.e., they may not receive loot or may not be allowed to participate in the raid in the first place).

DISCUSSION AND CONCLUSION

Despite experiencing various amounts of socialization into raiding and other semiotic domains, gameplay at times is still a difficult task. For example, being stuck on a solution in Portal 2 and dying in raids was still common. Despite sometimes years of socialization into the semiotic domains of WoW and WoW raiding, players still had trouble collaborating with others and were still being socialized into the game's rules and social norms. Sometimes it took our raid group 20 hours or more over the course of several weeks to learn how to defeat a particular enemy, representing one battle of many available.

This chapter addressed Research Question 4 and showed how players handle rising complexity in digital games. The point of the stories in this chapter is to show the increased potential for complex social action in games that allow larger numbers of (human) interactants. In addition to the game rules that players need to internalize in solo play, players collaborating in groups have additional human dynamics to deal with. The external design grammar is largely comprised of those social norms that emerge around a digital game as people discuss it or play together, and these additional interactants necessarily become agents of socialization into social play and the semiotic domains of games (Gee 2003: 30-31). The socialization process into such domains becomes increasingly complex as there are more things to know, more literacies required, and more simultaneous perspectives and roles to take in order to participate successfully. But people who play together may share the burden of knowledge. Players construct meaning together, share norms, teach rules, and through interaction socialize one another. The course of socialization varies with the availability and use of communicative modalities since these are the technological forms through which meanings are shared. Some modalities are more suited for certain purposes than others, and part of gameplay socialization is becoming literate in each modality, combining them and being selective.

This became more complicated with the move from individual relationships with digital objects to dyadic relationships between players to small group compositions. For example, in the single-player examples with digital objects, social action was primarily conflictual, the human versus the game. With the addition of a second player in *Portal 2*, the conflictual social action remained, but upon it was built a cooperative layer of social action between players. In Ian's example, not only was there conflict between players and

the game and cooperation among players, but there was also conflict co-occurring between Ian and other players regarding loot norms. These and other forms of social action (see Couch 1986) must be supported by communicative modalities provided for by the game, and players must be socialized to communicate through these modalities. One outcome of socialization is dealing with all the different role-identities and rules that exist for various forms of social activity through various communicative modalities simultaneously. I showed how Harry and Ian mixed voice and in-game audiovisual modes of communication to express characteristics of cultural elements to one another, acknowledging attentiveness, establishing shared foci regarding goals and things in the environment, in order to negotiate roles and ultimately get past the crusher to solve the puzzle.

Socialization is never finished, but is always ongoing. Since the time of data collection for this thesis, Blizzard has released another expansion pack to WoW, raising the level cap to 90 and adding new five-player dungeons, raids, an additional character class (monk), and a host of other things to learn. Portal 2 has received extensive publisher and community support, and players can create their own test chambers to share with others on the Steam Workshop. There is practically an endless supply of new puzzles, 324,318 at this moment, fuelled by the creativity of designers and players (<http://steamcommunity.com/workshop/>). Additionally, test chamber creation may be another domain in Portal 2, as learning to use map editing tools requires additional knowledge and skills beyond those required to “just” play the game. This underscores the argument that complexity in a domain tends to increase not only with the addition of human elements, but of digital elements as well, and the two often increase together. In

this case, players may take on a designer role, practicing the designer mentality and creating their own designed experiences as discussed in chapter 7, and experiencing different roles in the socialization process. Through analyzing player-player interaction in this series of examples, we begin to understand one of the major outcomes of socialization that I will lead the following chapter with, that players become adept at handling increasing complexity.

CHAPTER 9 – LITERACIES AND SOCIALIZATION

The previous chapter presented examples of semiotic domains increasing in complexity, culminating in a 25-player cooperative group. I suggested that as players experience socialization into semiotic domains, they may become involved in more complex social interactions. One major outcome of socialization is not only that people may become involved in complex interactions, but that they learn to pragmatically handle such rising complexity in situations involving both human and nonhuman others, leveraging tools to make complexity easier to deal with. Although I am arguing that the semiotic domains presented here do become more complex, subjectively, of course, perceptions and responses will vary. A person may perceive rising complexity, become bored or frustrated and quit. Alternatively, a person who has developed strategies for dealing with complexity may not perceive it as rising. Corey, for example, was frustrated at his slow progress before learning about quests. But once he became literate in questing and fighting, and began facing more powerful enemies, attaining a variety of abilities and so on, he did not indicate experiencing complexity, but repetition and boredom. Ian also highlighted the repetitiveness of participation in WoW, but upon joining a subdomain (dungeons), his single-player literacies were insufficient to expertly handle the new and altered knowledge and skills required, and he recounted being confused about the looting system, not understanding his role, dying more than he did alone, and being unsure of what other players in the group were doing. Of course this only further emphasizes the significance of learning domain grammars and, as Gee said, developing a “multiplicity of literacies” (2005:14).

In this chapter, I will outline some of the ways that players handled increasing complexity, including leveraging information systems, and discuss other outcomes of socialization, such as developing theories of task performance. I will integrate the major concepts used throughout the thesis and expand the significance of the study outward from digital games to media technologies in general, and from entertainment to education and other domains. I will discuss the implications of treating participants as experts in their own play, and what that may mean for user participation in development cycles of games and other technological products. Finally, I offer some ideas for future research and conclude the thesis.

DEALING WITH INCREASING COMPLEXITY IN SEMIOTIC DOMAINS

Portal 2's cooperative mode was interesting regarding handling complexity. Each pair of players came up with a way of expressing to one another the significance of the old idiom, "two heads are better than one." Both WoW and Portal 2's designs, of course, require players to work together, and create pre-defined roles for each "head." But the methods with which players go about performing roles, and modifying them through role-making, and the interactions through which they made meaning and worked together, were emergent in gameplay. Elliot and Frances thought of their handling complexity in terms of a role-based "division of labor," a phrase they began using in a troublesome test chamber in which they developed over many iterations a strict protocol for each performing a series of actions. In this test chamber, a cube travelled a set path and players had to open portals and position themselves to keep the cube moving unimpeded to where it needed to be. During their final co-op interview, Frances linked her single-player recognition that "you really have to understand why you do every single thing" with the

division of labor that emerged with Elliot: “Because that puzzle was so hard, we spent a lot of time trying to really figure out exactly what each of us was supposed to do. So we had this division of labor thing where basically I had to press the button and then run to the corner there and time it with Elliot while he opened his portals to let the box through, and then watch Elliot and then open my portals at the proper time and catch the box. We had to make sure both of us knew every little part of the plan, and even then, until we got all the timings right, we kept failing.”

Like Harry and Ian developing runner and launcher roles while discovering and utilizing the infinite loop, Elliot and Frances’s division of labor involved keen understanding and manipulation of time and space. Time and space are both elements of gameplay, tools that players can leverage, and have surrounding rules which players can learn. Another outcome of socialization is therefore learning timing and synchronicity in aligning actions with others. The individual’s sense of self and identity, who she (and others) thinks she is, depends on where she thinks she is and what time she thinks it is, or her particular (perception of) configuration of space-time (Domingues 1995). When an individual turns on a digital game, she necessarily introduces multiple temporalities and potential identities into the situation, and when the number of players increases, so does the number of temporal perspectives. For example, MMOGs like WoW have alternate time and space players must internalize: time based on server location in the real world and schedules of other players, and space based on the unique geography of Azeroth, along with countless other *timings* of spells and abilities common in many digital games (Aarseth 2008; Tychsen and Hitchens 2009). Zagal and Mateas (2007) identified four temporal frames for conceiving of time during gameplay, “coordination time” being most

important here, which “is established by the set of events that coordinate the actions of multiple players (human or artificial intelligence) and possibly in-game agents” (850). For example, the cube’s speed along its predetermined path and the precise timings that Frances and Elliot had to achieve in opening portals and moving their characters into proper positions involved mastering coordination time. Learning to make sense of coinciding temporal frames requires multiple simultaneous perspectives, which are facilitated by a role-based division of labor. Here is the understanding from the perspectives that time is both a thing independent of oneself and that time is socially constructed, an important understanding when simultaneously taking the internal and external view of semiotic domains. Mastering time and space in-game is a sign of skilled expertise, a “rapid judgment of what to do next...in terms of an emergent spatialized grasp of the game, seeing the implications of actions in a particular environment, at a point in time...” and chaining those actions together (Reeves, Brown and Laurier 2009: 223). These “rapid judgments” and “seeing the implications of actions” along a space-time dimension are learned through repeated play which “is constantly concerned with ‘why that now,’ ‘where can I go from here,’ what next,’ and other familiar concerns from those who study the sequential ordering of human action” (ibid.). Developing literacy in role creation and in spatio-temporal aspects of semiotic domains are outcomes of socialization.

Harry and Ian described handling increasing complexity in terms of “sharing the burden of thinking.” As was evident in the previous chapter’s infinite loop example, each of them explored the test chamber, contributed ideas, experimented with different roles and so on. Ian said that sharing the burden of thinking “allowed one of us to stop when we

got tired while the other guy did all the work.” Harry laughed and clarified, “I mean, sometimes when we get stuck, right, I can just go walk around the room [test chamber] and look for something we didn’t see before, try and get a fresh perspective. And I know Ian’s doing the same thing, still trying to figure out that part we were stumped on. So hey, maybe I see something new and I tell him, and then he goes like ‘Aha! I got it!’ and we both contribute like that.” Ben and Gail also developed a method for acquiring a fresh perspective on challenges. Half fun and half serious, they often played “the silent game” when they were having trouble during Portal 2. The one rule of the silent game was that talk was not allowed. The pair could communicate through any other modality, such as using the ping tool, pointing at one another’s screens, and even making noises to one another, usually to confirm (an excited “mmmm!” accompanied by nodding the head) or reject (a lower-pitched “mmmm...” accompanied by shaking the head) whatever it was they thought their partner was attempting to communicate. I was fascinated by the silent game and asked what its function was in the final interview for Portal 2. Gail responded that “sometimes [Ben] talks too much and it stresses me out because I’m trying to figure out on my own. The silent game is like a calm time. We can sort of step back from the noise, from the solution we were trying to get.” Ben chimed in, “I guess for me it forces me to have a fresh perspective because we can take what we came up with together and, you know, dwell – or what’s the word – let it settle and sort of work on it independently for some time.” After playing the silent game, with minimal communication, as they attempted to work on the solution more or less individually, one of them (almost always Gail) would end the game by sharing some insight she had developed.

The silent game was a more formalized means of sharing the burden of thinking. These participant commentaries on dividing labor, both in terms of role performances and thinking, indicate strategies to reduce cognitive load, which is simply “the number of information elements and their interactions that need to be processed simultaneously” (Paas, Renkl and Sweller 2004:1). I have highlighted many examples of participants being overwhelmed by stimuli and having too heavy a cognitive load, such as Diane’s example in chapter 5, and examples of participants having too light a cognitive load, such as when the games became too easy or boring. I also pointed out examples of the games facilitating, and participants creating ways of, managing cognitive load, such as Diane and Corey lumping and splitting objects in WoW into mental categories, Frances doing mind for turrets and externalizing some of the burden of thinking onto digital objects, and WoW players arranging their action bars into meaningful systems. What each of these examples has in common is that players’ thinking incorporated one another and objects in the digital environment. As I have argued, mind is emergent through interactions, and as such, such strategies for handling complexity in semiotic domains are distributed among interactants in the domain.

LEVERAGING INFORMATION SYSTEMS

Through interaction people are socialized to find and learn forms of managing stimuli and complexity in domains, and this is not limited to immediate gameplay contexts I have described so far. Gameplay also exists in wider social contexts (see Mayra 2007). Particularly for this study, participants had the entire internet at their fingertips to leverage while playing. Taking an ecological approach to gameplay, “humans are active organisms interacting with the environment. The environment *offers* the individual

different ways of acting. These offers are called *affordances*...[which are] relative to the physical constitution, as well as the capabilities, of the organism” (Linderoth 2013:4). The internet was an affordance for participants to whom it was perceived as known, usable, functional and appropriate (i.e., aligned with their goals) to call into practice. Leveraging the internet as a strategy for handling complexity in domains is to tap into the distributed information system of the domain’s affinity group, those people who (have) participate(d) in the domain, particularly online. This is true for practically all domains, as most are represented online in some form or fashion. Henry Jenkins (2006) referred to Levy’s (1999) theorizing on collective intelligence to refine his own work on convergence and participatory culture on the internet. Drawing on his studies of fandom (Jenkins 1992), he argued that the internet allowed fan cultures to proliferate, to quickly spread ideas, to remix and produce their own interpretations of media, to host discussions, and importantly for this discussion, to draw on community knowledge from anywhere at any time with an internet connection.

Sometimes, by minimizing the game window, my participants opened a web browser and accessed discussion boards, walkthroughs, cheat codes, wikis, news articles, fan sites and so on about WoW and Portal 2 to help them play or find information according to their goals. All participants but Gail avoided accessing information before gameplay, but once gameplay began, more participants engaged in “extrinsic gameplay” (Ang, Zaphiris, and Wilson 2010). As Ang et al. argued, “Gameplay is not merely limited to what is happening within the game software itself, but it also encapsulates a game culture that arises from it” (355). The main forms of extrinsic gameplay participants engaged in were using wikis (usually for WoW) and walkthroughs (usually for Portal 2),

and there was one humorous yet normatively enlightening example of Elliot using a cheat code in Portal 2. Walkthroughs²¹ are “detailed descriptions of where to go and what to do – in sequential order – to get through a game successfully” (Consalvo 2003:328). They are usually, though not always, created by fans and published online for free. I only observed extrinsic gameplay online once, whereas 27 instances were reported in the data; participants were checking wikis and walkthroughs at home or in class, as Ian reported consistently doing. Why did this behaviour not occur but one time while I was co-present? Consalvo (2007, chapter 4) suggested that using a walkthrough is occasionally seen as cheating by some players, and that one definition of cheating among players she surveyed involved obtaining any help playing a game for the first time. Despite aversions to assistance, nearly all players she talked to reported using free sources of information like walkthroughs and friends who had completed the game. Rarer were players who used cheat codes or hacks. These behaviours are situationally justifiable.

My participants did not look at information about the games beforehand because they did not want to spoil the surprise. During gameplay, however, the need to overcome an obstacle or learn additional information outweighed potentially spoiling surprises. Harry saw looking online for help as a gamble: “I’ll go online if I’m like really stuck, but sometimes you read something and you’re like ‘Aw, man!’ I remember playing Final Fantasy 7 and I was just going on a forum to look up some spell or something, and I accidentally read the ending of the game. I was so pissed, man.” Ian read about how

²¹ Walkthroughs, also known as strategy guides or FAQs, come in many forms. In the pre-internet days, players bought physical walkthrough books. Digitally, walkthroughs have usually been text-and-image. With technological advances, many walkthroughs today are available on YouTube. Video walkthroughs, also known as “Let’s Plays” also often feature vocal commentary. Follow the links for two walkthroughs for WoW and Portal 2: (<http://www.gamefaqs.com/pc/534914-world-of-warcraft/faqs>); (<https://www.youtube.com/watch?v=43CL70JT4bY>)

Portal 2 co-op worked before playing, and Gail and Elliot similarly reported searching wikis and walkthroughs for information. All participants maintained the sanctity of the story though. One of Consalvo's respondents summed up how mine felt: "If I'm stuck on a level and just cannot figure out what to do next, I'll look at the walkthrough for just that part, but not for the whole game. In that way, I can get on with the game, but I haven't spoiled all of it" (2007:96).

Participants were able to leverage the affordances of the internet because they, in the situations they were in, knew they had access to it, and perceived it as usable, functional and appropriate. Contrary to the above examples, Diane, who had almost no previous experiences with digital games, and who needed the most help overall, never reported going online or seeking any help outside of WoW's in-game FAQ. The "intertextuality" of digital games, the fact that their context is often larger than the game itself, is a piece of cultural knowledge (Myers 2003; Apperley 2006). Part of becoming literate in the semiotic domain of digital games is recognizing their intertextual properties. The extrinsic gameplay contexts provide space for discussion and reflection (Ang et al. 2010) and in those spaces people may learn, modify, contest or reinforce external design grammars. Elliot exhibited a tension between the practice of tapping into information systems and a do-it-yourself norm. His guilt showed that he had internalized the norm that he should play the single-player game by himself and that (a certain form of) help was wrong. The norm itself was almost certainly derived through traditional socialization channels like family, religion and education, but also from the larger digital game affinity group, through his previous interactions with other players and so on, many of whom likely shared his views on cheat codes.

THEORIES OF TASK PERFORMANCE

So far in this chapter, I have discussed a number of ways that participants managed and thought about handling increasing complexity, such as establishing a division of labor, manipulating space and time to perform synchronous actions with others, finding ways to work with(in) communicative modalities to achieve fresh perspectives and sharing the burden of knowledge between players, digital objects and the wider gameplay context by tapping into information systems in the form of digital artifacts online. These strategies for handling increasing complexity are enacted theories of task performance. Bastien and Hostager (1992; 1993) identified in an overarching theory of task both formal and informal theories of task performance in their study of cooperative action in a jazz performance. In jazz, formal theory

includes a complex, grammarlike set of rules of chords (assemblies of notes), chordal relationships, and chordal progressions. It also includes a lexicon of terms formally used to describe elemental structures of the music..., a theory of instrumental roles that specifies functional responsibilities of the instruments and their players under different circumstances. There are many other integrated sub-theories covering many other aspects of the music, including rhythmic theories... (1992:95).

Formal theory is learned and taught through formal means, through formal aspects of socialization. As discussed in chapter 6, this may be from a book, a teacher, or in digital games through the structured tutorial or in-game FAQ. Recall Gee's definition of internal design grammars: "the principles and patterns in terms of which one can

recognize what is and what is not acceptable or typical content in a semiotic domain” (2003:30). These principles and patterns are formally encoded into rules. Informal theories of task performance include “a set of implicit nonformalized sub-theories of how to behave and what to expect from others” (Bastien and Hostager 1992:103). These theories are conventional and learned experientially, through informal aspects of socialization. External design grammars are “the principles and patterns in terms of which one can recognize what is and is not an acceptable or typical social practice and identity in regard to the affinity group associated with a semiotic domain” (Gee 2003:30). Formal theories of task performance largely involve domain-specific rules, what I have argued comprises the internal design grammars of digital games (see chapter 5), while informal theories of task performance largely involve social norms, what I have argued largely comprises the external design grammars of digital games (see chapter 8).

Formal and informal theories of task performance are two sides of a theory of task. I have explained the internal and external views of domains in terms of one another and shown how they require and shape one another. What counts as appropriate content in a domain affects what counts as appropriate social practices, and vice versa. Role is a rich concept to illuminate this relationship. In digital games, roles are hard-coded into the system, yet not all players perform roles the same way. The internal design grammar of Portal 2, for example, allowed for a player’s role performance to include inputting cheat codes; however, the external design grammar regulated by the affinity group may not. In a previous example of Harry and Ian developing roles of runner and launcher, these roles were provided for by the internal and external design grammars and, Harry and Ian (and other players who developed role-based “divisions of labor”) incorporated them, as well

as the act of dividing labor/sharing the burden of thinking, into their theories of task performance.

Throughout socialization, people develop theories of formal and informal task performance. These theories, to the extent that they are functional and appropriate to successfully guide thoughts, feelings and behaviours in a domain, result in routinized action. Aligning actions and meanings of things both with other people and with digital objects in the domain becomes “natural.” As individuals experience socialization into a domain there forms the appearance or feeling of routinization where “‘respective identities and roles [become] essentially given and unproblematic, so that negotiation is mainly a matter of all recognizing the governing occasion or situation’” (McCall 2003:331).

I showed how routinization begins by using examples of less experienced players in chapter 5, Corey and Diane. I applied Fine’s (1979) elements of cultural items to digital objects and rules like WoW’s exclamation marks and the portals in Portal 2, and showed how players lumped and split things in the environment, attached meanings to things in situations and modified them until they were functional and appropriate to solve a particular problem. Players situated meanings of things in relation to meanings of other things into systems of meaning like questing and fighting in WoW, and then fit together systems of meaning. In chapter 6, I outlined a process of gameplay socialization that showed how players experienced formal, informal and personal aspects of socialization. Formal characteristics comprised the bulk of the entrance, where the game teaches players, typically through a tutorial and scaffolded beginner areas, the fundamental rules and grammar of the domain. The move from entrance to individualization is marked by

players developing theories of task, and especially moving from developing formal to informal theories of task performance as they personalize their roles. This move also reflects shifts in play from more ludic to more paidic as players leverage their increasing expertise to interact with more freedom under design constraints, as well as shifts in players' capacities for role-taking, which begins simply with the ability to take the role of a significant digital other and grows into the ability to take the roles of many human and nonhuman others simultaneously, and even into the ability to take the role of the game designer (or game) as a whole set of attitudes. In chapter 7 I took an in-depth look at how players interacted with digital objects, who functioned as both significant others and agents of socialization. Objects' dual roles as design features and occasional actors meant they were integral in participants developing both formal and informal theories of task performance. As players encountered situations necessitating simultaneous interaction with multiple objects, they began to do mind (Owens 2007) for them to handle increasing complexity. Complexity increased when human actors were introduced, and in chapter 8 I discussed how players managed aligning or competing theories of task with examples of intersubjective meaning-making in *Portal 2* and norm violation and communication in *WoW*. I also showed how participants used various communicative modalities within the domains to interact with other players and digital objects, to share meaning, integrate developing theories of task, and to accomplish the social act of gameplay.

Groups accomplishing a cooperative task share three elements (Bastien and Hostager 1992). First, they share an agreed-upon theory of formal task performance. Second, they share an agreed-upon set of social conventions, or theory of informal task performance. Third, they are able to synchronize their individual actions. The social

situations in this thesis involved both cooperation and conflict. From the perspective of the player, then, a theory of task performance may not be agreed upon by all actors in the situation. Turrets, for example, did not care about solving puzzles. Their goal was to eliminate the player-character. It is useful to discuss Couch's (1986) elements of sociation in regard to theories of task from the perspective of the player. The game itself allowed for players to enact particular theories of task and not others, although certain objects within the game served to block players' enactment of those theories. Thus, theories evolved to overcome obstacles, for example to get past turrets that did not share congruent functional identities, focus or objectives with the player. The significant part, and that which is relevant to role-taking, doing mind and the reality of meaning, is that, as Bastien and Hostager said regarding jazz musicians, "each player had to act as if the others understood the situation as he did" (1993:209). This does not have to lead to cooperation only, but may lead to any form of collaborative activity, with other players or with digital objects. Developing theories that lead to routinized forms of successful interaction is part and parcel of players becoming literate in semiotic domains.

DESIGNER MENTALITY AND TRANSFER

To the extent that players learned to take the perspectives designed into games, they were developing a "designer mentality," the ability to think about domains as relationships among systems of meaning (Hayes and Games 2008). This is another outcome of socialization and part of developing functional theories of task. Previous gameplay experience supplies players with a variety of design grammars, a wealth of different tropes and rules and roles to draw on, but that experience coupled with a designer mentality may be a potent combination for developing domain literacy and being

thoroughly socialized. A player with a developed designer mentality would be able to draw on elements of past experiences and effectively put them to work in understanding the present experience, not just from her own perspective, but from that of the game, or the game designers. Some participants were better at taking the perspectives promoted by games, or digital objects, or game designers, such as Ian and Harry, who had vast relevant previous gameplay experience. They showed that a designer mentality facilitates personalization during the individualization stage because the more one understands the rules, or is able to understand rules in the way they are meant to be understood from the perspectives promoted by games, the more they can play with(in) them and modify their roles. What Hayes and Games, and other scholars like Gee, would argue is that people can practice and develop designer mentality through experience, designing their own games, or reflection. Game designers themselves can also work to promote designer mentalities by creating tutorials that ease players into their roles along the lines of Sun and Jones-Rodway's (2008) tutorial principles they implemented in the award-winning *Company of Heroes*, and well-implemented scaffolding.

Designer mentality is not domain-specific, but incorporates a way of relational thinking that is transferable across domains, much like elements of theories of task performance, such as creating a division of labor or sharing the burden of thinking, are transferrable. Knowledge and sets of practices within domains may also be transferrable, while others are domain-specific. I have showed some strengths and limitations of transferability particularly in Ian's *WoW* dungeon example where he found that group play was predicated upon knowledge and skills he learned playing alone; however, he needed to modify and learn other elements. Some aspects of the design grammars that my

participants learned playing WoW, such as how to equip characters with armor and weapons or the concept of a group dungeon, are applicable to the broader domains of MMOGs or digital games. At the same time, Ian attempted to use an informal theory of looting from another MMOG, Maple Story, in WoW, where that theory was not functional²². Ian was adhering to social norms in the looting example, but norms that were part of the external design grammar of Maple Story, not WoW. He described how the mage perplexed him by not conforming to the looting norms that he was familiar with:

Actually, in Maple, we like bargaining. I was thinking [when the mage opened a trade window], should I barter trade, because it's the first time I'm doing it. I was thinking if it was formal, like if someone asked me for an item in Maple, it was like an unsaid rule, or even if there was a chat box, it was like name the price or something. So I thought if I put the item there, he would put some money there, and he didn't put any money...he didn't insist.

Ian's response after the mage thanked him ("okay...") suggested such a mismatch between norms that each interactant held. Although Ian understood the practice of trading items in general, he was not literate in that aspect of WoW. His interactions with the mage, and subsequently with me in the gameplay review, served as socialization experiences into this aspect of the domain and helped Ian develop a workable theory of loot norms that aligned with the game's grammars.

²² The informal theory of looting from Maple Story was not functional in Ian's local WoW group. This is not to say that Ian's theory of looting would always be inappropriate in WoW. Although the majority of groups will reject bartering or other forms of loot distribution apart from the game-based looting system, there are certainly some groups which may innovate upon the widely-held norms, or some situations in which it is more or less acceptable to do so.

LITERACY AND EXPERTISE

An important aspect of developing domain literacy is developing not just any theory of task, but a testable and workable theory of task, of knowing and doing within a domain, comprised of both formal and informal theories of task performance. Possessing literacy in one aspect of a domain (e.g., knowing the rules) is not pragmatically equivalent to being literate in another (e.g., sharing norms). When a domain requires people to be literate in internal and external design grammars, then people whose socialization has not adequately covered one or the other may find it difficult to participate. Further, when people lack domain literacy, they may threaten the integrity of the domain, the structure of the rules and the sanctity of the norms. People in domains must work to sustain the grammars or modify them in desired ways. People who are not socialized, or who do not get socialized adequately, may not do things ‘right,’ lacking literacy in design grammars and not having developed workable theories of task. Of course, as I have discussed, domains may be infinitely subdivided into subdomains, and there may be many different groups within the larger domain’s affinity group that take diverse perspectives on what counts as acceptable or typical content, social practices or identities within a (sub)domain. So though a person must experience socialization to perform collaborative activity, to develop theories of task performance, and to share theories with others, there may be competing definitions of what counts as socialization, or of the course of socialization. If part of socialization is the agreed upon grammars of individuals within a broad affinity group, then who determines by what criteria what counts as (successful) socialization?

The perspective taken in this thesis recognizes socialization as both a structural top-down and an emergent bottom-up process. The methodological position of the thesis

in particular allowed me to uncover how participants (inter)subjectively experienced it as both by treating people as experts in their own understandings. Chapter 7, for example, explored the interplay of treating digital objects as structural game design features and as fellow interactants, such that meanings were both imposed upon the player and created through their relationships with digital objects. My supervisor and I have written two papers exploring the utility of the gameplay review method of generating and analyzing processual video data for leveraging players' interpretations of their own socialization experiences. These papers attend to players' agency and constraint in the socialization process, but focus on how participants determined the course of their socialization. The first focused on the relationship between meaning-making, game design and engagement (Kirschner and Williams, forthcoming[b]). In it, we showed how Diane's interpretations of her gameplay provided insight not only into her meaning-making, but into her growing understanding of game design and her becoming engaged with the game. Further, the gameplay review method created a space for extrinsic play, for her to reflect on her gameplay, which increased subsequent engagement.

In the second paper, we sought to unpack the meanings of "expert" and "novice" in games research, and found that the two terms are often poorly defined in the literature (Kirschner and Williams 2013). For example, some studies equate "expert" with "good" or even "average." Kinnunen et al. (2012) interviewed 16 "average" players of digital gambling games. These average players had a "clear picture of the game and they [were] able to discuss about its features from different points of view," (4) and were "clearly gaming hobbyists based on the time used on gambling" (6). Reeves et al.'s (2009) description of experts in Counterstrike is similar: "they have invested a great deal of time

on play, moved beyond simple competence and regularly achieve mid-to-high ratings on in-game statistics tables...” (210). Quantitatively, Schrader and McCreery (2008) conducted a Likert-type survey (n=1817) to measure typical MMO players’ expertise. “Participants’ average expertise was 4.01 [4 = “Expert”] and most players rated their level of expertise with their current avatar Expert or Master [4 or 5]” (562). Each study emphasized the lengthy duration of involvement and knowledge-based competence of players. From the literature, it appears that the average game player is also an expert. It also appears that the definition of “novice” players is at least as varied as that of “expert.” Sometimes criteria for novices and experts are hardly distinct. Ziaeehezarjeribi (2010) classified novice participants as playing digital games less than two hours per week and experts as playing more than five hours, only a three hour per week difference (53). Reflexive narratives are not uncommon, especially in game ethnographies, where researchers begin as novices and become experts through self-play and/or (participant) observation (Bainbridge 2010). Hung’s (2009) novice had never played before, Steinkuehler (2004) was a novice at level 10 in an MMOG, and Rau et al.’s (2006) novices had played on average 1.36 hours per day of online computer games for the past 1.45 years (totalling over 719 hours). What we saw lacking in the literature is the idea that all players possess and can further develop meaningful expertise and provide invaluable insight into their socialization experiences.

In these papers, we placed less emphasis on determining who was a novice and who was an expert. The theoretical and methodological frames of the present study guided me toward conceptualizing all players as possessing invaluable “everyday expertise” that developed through practice occurring in “any setting in which

consequential decisions are made and meaningful action taken” (Chen 2012, 4). As I have argued, expertise, which incorporates the knowledge, skills and sets of practices one holds for a semiotic domain, is not limited to one domain, but it is constantly developing. Expertise is also distributed among people and sites like forums and wikis. The situated meanings that players construct and the expertise they develop through gameplay may draw upon expertise they hold or retrieve from any number of sources and domains. All players are experts in their own experiences who can provide useful interpretations of games and gameplay which researchers would not have access to without taking their expertise seriously.

One aspect of literacy in a domain is the ability to reflect on one’s experiences in the domain, to recognize the structural and emergent characteristics of their socialization, and to act with respect to their ongoing understanding of the domain. Gee (2003) distinguished between active learning in a domain and critical learning. The difference is that for critical learning to occur, the person “must be able consciously to attend to, reflect on, critique, and manipulate those design grammars at a meta level. That is, the learner must see and appreciate the semiotic domain as a *design space*” both in terms of its content and practices (40). This is a clear parallel to developing a designer mentality, and the concept of critical learning is also found in Squire’s elaboration of “designed experience,” which refers to the fact that games have design minds behind them who may have their own ideologies or goals (2006).

Good games are designed to encourage active and critical (as opposed to passive) learning, and especially to promote meta level thinking where knowledge, skills and practices learned in one domain are recognized as being applicable or related to other

domains (Gee 2003). I have argued that everyone has the potential to develop critical learning skills within various domains and to apply them to other domains. But of course, not all players engaged in critical learning all the time, or at all, while playing, and nor did they follow the same patterns of learning. My participants had different gameplay experiences and different trajectories based in part upon how they progressed through the stages of gameplay socialization.

For example, consider the concept of role exit (see Myers and Anderson 2008, chapter 2), which is what people do upon leaving an organization or stepping out of a role and which marks the “end” of participation into a domain, or at least a particular role within it. On the formal level of the game, this stage of socialization occurred once players stepped out of the research office for the last time. They were no longer active WoW players or research participants. On a wider domain level, role exit did not apply to this study (yet) because participants have continued to play or utilize the player/participant roles in their everyday lives and to act within the semiotic domains of these games and digital games in general. From a game studies perspective, consider Arsenault and Perron’s (2009) model of the “magic cycle” of gameplay. They astutely point out that “the gamer’s experience with the game starts before the gameplay proper” (126) by engaging with paratexts (Consalvo 2007) like reviews, box art, or TV commercials, in a form of anticipatory socialization through mass media. I disagree with their model though because it declares a final role exit, as they quote Jesper Juul (2007): “Actual game playing is about building and modifying one’s understanding over time. There is a first and a final impression of a game. A player picks up a game, explores it, and puts it down” (Arsenault and Perron 2009:126). The problems are assuming a

common definition of finish (i.e., complete/‘beat’ the game), assuming that players finish at all, assuming players do not pick up the game again, and thus further defining finish as cessation of subsequent interpretation and thought.

My participants did not have “final impressions” of WoW and Portal 2. In post-study conversations as recently as May 2013, Ben and Gail reported experiencing “withdrawal” from WoW for a couple months, and enjoyed playing together so much that they now “are on the look-out for multiplayer games to play. We really liked that Diablo 3.” Ben and I (in February 2013) participated in a focus group in a separate study about social interaction in online games, where he drew extensively on his WoW play from this study. Elliot reported not purchasing WoW for fear of becoming addicted, but continues to reminisce about his Night Elf hunter and his tiger mount, and even set a screenshot of them as his desktop background. Diane gained insight into the psychological dimensions of gameplay and talks to her WoW-playing friends about this. She recently (May 2013) reported becoming interested in her friends who “play so much of DotA 2” and she felt her WoW experience helped her better understand their motivations for play. Frances became more interested in games in general. She reported playing Portal 2’s cooperative mode with her brothers, and now occasionally watches them play other console games, in addition to understanding, and being able to more actively listen to, her boyfriend recounting his adventures in WoW and other MMOGs. I have regular conversations with Corey about his WoW play, and he is always interested to talk about its moral dimensions and the implications of virtual life in general. Clearly, my participants did not formulate final impressions upon completing the study, but are still (re)formulating their impressions and performing roles as (former) players in the semiotic domain of digital

games and as (former) research participants through interactions in/about these and other games, at this time of writing. One must define what exactly people are exiting. According to Gee's (2003) definition of critical learning, by continuing to leverage their roles as players and participants, my participants have all engaged in meta level thinking and transferred knowledge, skills, and experiences from WoW and Portal 2 to see their relationship to other domains.

The discussion of final impressions further serves to highlight an argument running throughout the thesis, that although patterns exist, each individual experiences socialization differently and treads an individualized path. This understanding is relevant for interaction and socialization in any number of semiotic domains apart from digital games. It has implications for how people will use other digital media technologies, for what purposes, how easy/difficult it is, and so on. This also has implications for users and creators of media products, or people who guide others in using media (teachers or tech professionals for example) because understanding how media are used or experienced should impact how they are taught or designed. I am arguing for reflexivity in media development and use and communication between users and producers, or a blurring of the line between them even, and that the perspective of gameplay socialization I have offered here aligns with such a move toward reflexivity.

CONCLUSION

The chapters in the thesis have each dealt with some aspect of socialization into semiotic domains in general, and I want to broaden the discussion from games toward new media technologies. In this study, I described how meaning-making is fundamental

to interaction with(in) digital technologies and is a basic part of socialization. The gameplay socialization chapter outlined a process that my participants went through with (at least these two) digital games, and something like this can be applied to other new media technologies in various domains. I explained the significance of interaction with digital objects, which is a type of interaction that is becoming more and more common, and is constantly changing with new technologies being developed and used in various domains. Socialization into media use is definitely a product of this type of interaction. It is also a product of human-human interaction, and I have shown how that is also fundamental to socialization into media technologies. Finally, I discussed rising complexity in semiotic domains and suggested how people develop theories of task for interacting with media technologies.

A major location of interest for digital technologies is in the field of education. This is easily observable from the vast numbers of discussions and studies about education, media and games, from recognizing the need for digital media literacy in schools (Jenkins et al. 2006) to supporting learning about games (Zagal 2010) to rethinking educational game design (Gunter, Kenny and Vick 2008). One of Gee's (2003) major arguments is that good games promote design thinking and critical learning. My study has fit into this project by analyzing the meaning-making processes players engage in throughout their course of socialization into semiotic domains. Lemke (as cited in Commeyras 2009, p.51-52) argued that "[we] are not going to be able to do sophisticated, reliable, or useful research on how to adapt features of computer games to develop advanced educational media unless we first understand the basic meaning-making practices people employ in these complex virtual environments" (2006:11). As I have

shown, technological design is not simply imposed upon users, but is interpreted in dynamic situations. An understanding of peoples' (inter)subjective meaning-making and how they actually use technology in practice over time is vital to understanding and creating good design. There is also a much wider range of applications for utilizing an understanding of meaning-making practices in the semiotic domains of video games than just developing educational media. The range covers more like the entirety of digital media use and development in education, business, entertainment, and so on. Meaning-making is the basis for learning, socialization and experience, and there are many other (trans)digital domains in 2014 and beyond that we can apply this process to. For example, as the internet becomes a more populated and socially shared space, how will we continue to virtually organize ourselves and develop methods of seeking out, sharing and constructing information via wikis, open source platforms, and so on (Pirolli 2009)? On the gadget side, tablets and smartphones seem ubiquitous, especially among younger users. The New Media Consortium's latest Horizon Report (Johnson et al. 2013) predicts that these cloud-capable devices will continue to intrude on the traditional territory of desktop and laptop computers, both spatially and with ramifications for how we work, collaborate, and learn. Meaning-making in interactive digital environments is the basis for understanding what people do with technology, including most importantly how people communicate with and through it. The ability to make meaning is the first step to achieving literacy in any semiotic domain, and the ability to understand the meaning-making process will move us toward understanding other co-occurring processes like socialization.

Since semiotic domains are understood and experienced differently by different people, peoples' conceptions of technologies and semiotic domains are varied, perhaps marginally in some cases, more drastically in others. If media technology is *for* something, and many media technologies are designed for specific purposes, then they could be designed to attempt to socialize people into its use for such purpose(s). But, since people have varied socialization experiences, media technologies need to be designed at the same time to accommodate a wide range of literacies and to socialize people toward specific ends of whatever the technology is for, or even allowing users freedom to manipulate it for their own novel purposes to pave their own courses of socialization and create their own theories for task performance.

APPENDICES

1. CALL FOR PARTICIPANTS – FACEBOOK AND EMAIL

Hi [name], my name is David Kirschner from the Sociology Division in HSS at NTU. I am contacting you about my Ph.D. research project. The purpose of the project is to understand how people learn to play video games through the process of socialization. This research has significance for understanding how we interact with and within digital media in everyday life.

I would like to invite you to participate in this exciting project if you are interested in playing two computer games -- Portal 2 and World of Warcraft -- at NTU this semester. You must have little to no experience with these two particular games. It doesn't matter whether you are an experienced gamer or have never played a game in your life. You will play approximately 5 hours per week over 10 weeks at times convenient for you, discuss your experiences in interviews, and keep a gameplay diary.

You will play single-player, two-player, and online in a virtual world with many others. For this reason, I encourage you to sign up with a friend to play together! You will be thanked with S\$120 at the end of your participation.

Please contact me through Facebook, email, phone, or in person if you are interested or have any questions, and I will give you more information about the project!

Whether or not you are interested, please tell your friends who may be interested in participating!

Thanks and Cheers,

David Kirschner

Email: davi0017@ntu.edu.sg

Phone: 9756 1494

2. PARTICIPATION REQUIREMENTS AND NEXT STEPS

Hey [name], thanks for showing interest in participating! The next steps are:

(1) I provide you with more information detailing the participation requirements, as follows:

- a. Play 5 hours (more if you want) per week for 10 weeks. You can break the 5 hours up any way you like (5 hours at once, 1 hour per day for 5 days, whatever is convenient). The 10 weeks do not have to be consecutive, but let's try to stick to it. I will be traveling for 1-2 weeks at the end of February, and will likewise accommodate for any plans you have or make that require a break from playing.
- b. You'll either be playing Portal 2 single-player or World of Warcraft first. I have a rotation set up for when and how long you play each game – 10 hours Portal 2 single-player, 10 hours Portal 2 two-player with another participant, and 30 hours of World of Warcraft alone and/or with other participants and/or with other players online. The World of Warcraft phase is very much your preference for how you want to play it.
- c. All play will be in HSS on our computers. The games are installed there. You don't have to buy or bring anything of your own to participate. I will manage all accounts, passwords, and monthly fees.

- d. I will be present in the room and observing your play. I will occasionally ask you to think aloud or talk about what you are doing and why.
- e. I will occasionally videotape your playing (your face will not be shown), and record the game itself on the screen with computer recording software.
- f. I will conduct initial interviews for each game, and then interview you after the 1st hour, the 5th, hour and the 10th hour, and for World of Warcraft also after the 20th and 30th hours. These will not take a long time, especially after we get used to the questions. Be aware when scheduling time to play that this means if you want to come play for 5 hours right away, I'm going to do the initial interview, then interview you after an hour, then interview you again after the 5th hour. I'll remind you of interview schedules.
- g. At the end of your time with each game, I would like to sit down with you and review some of the video I record of your gameplay.
- h. Finally, I will ask you to keep a gameplay diary, and I will provide you with a set of questions to guide your writing. This will be quite open-ended. I will probably ask you to do this every 5th hour.

(2) I need your contact information (full name, phone number and preferred email address).

(3) I need to have a brief conversation with you through the phone, online, or in person about your potential participation in the project to make sure you are okay with the participation requirements going forward. I've had positive response so

far, but I may not be able to include everyone due to budgetary constraints. I will have this conversation with all the respondents so far and then I will get back to you ASAP about potential participation.

As usual, please ask any questions you have and voice any concerns. I am excited about moving forward in this research, and I'm grateful for your interest in it!

Thanks and Cheers,

David Kirschner

davi0017@ntu.edu.sg

9756 1494

3. SCREENING INTERVIEW

1. Age?
2. Gender?
3. Nationality?
4. Student? If yes, major?
5. You are okay with the time commitment?
 - a. 5 hours over 10 weeks of play time
 - b. Interviews
 - c. Video-taped & audio-taped
 - d. Gameplay diary
 - e. Video review
6. You are okay playing both alone and with other people?

- a. Is there any specific person you'd like to bring into the research to play with?
- 7. What will you do if you don't particularly like the game I have you play?
- 8. What will you do if you end up facing time constraints?
- 9. You can travel to NTU?
- 10. You have limited or no experience with WoW and Portal 2?
 - a. Portal 1?
 - b. Puzzle games?
 - c. Other MMOs?
 - d. RPGs?
 - e. Shooters?
 - f. Are you a gamer?
 - i. What types of games?
- 11. Why do you want to participate in this research?

4. INFORMED CONSENT FORM

About the Research

I am David Kirschner, a Ph.D. candidate in the Division of Sociology at Nanyang Technological University, Singapore. The purpose of my thesis research is to understand how people learn to play video games through the process of socialization by formal and informal means. Participation involves playing 50 hours of computer games, 5 hours per week for 10 weeks, at NTU. Some of those hours will be videotaped. In addition to playing, participation involves sitting for in-depth interviews about your gaming experience, as well as keeping a gameplay diary. You must have limited or no experience

playing World of Warcraft and Portal 2. You will receive S\$120 upon completion of 50 hours of gameplay.

I would like to invite you to participate in this exciting research. There is no pressure; only join if you genuinely want to and have the time to commit.

Participant's Agreement

By signing below, I agree that:

- I give my voluntary consent to participate in this study.
- The research project, and my participation in it, has been explained to me, and I have had an opportunity to ask questions.
- My identity and information will be kept confidential.
- All data collected will remain safe and confidential, and will only be used for academic purposes.
- I have the right to refuse or terminate participation at any stage for any reason with no repercussions.
- I have the right to ask the researcher questions about any aspect of the research.

I have read and understand the above form. My questions have been answered to my satisfaction and I agree to participate in this study. I have been given a copy of this form.

Names of Researcher	Signature	Date
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Name of Participant	Signature	Date
---------------------	-----------	------

If you have any further questions or concerns about the research, please contact:

David Kirschner (Ph.D student): davi0017@ntu.edu.sg // 9756 1494

Dr. Patrick Williams (thesis supervisor): patrick.williams@ntu.edu.sg // 6513 2713 // HSS-05-41

Germaine Foo (secretariat of NTU-IRB): irb@ntu.edu.sg // 6592 2495

5. SHARED GMAIL CALENDAR INSTRUCTIONS

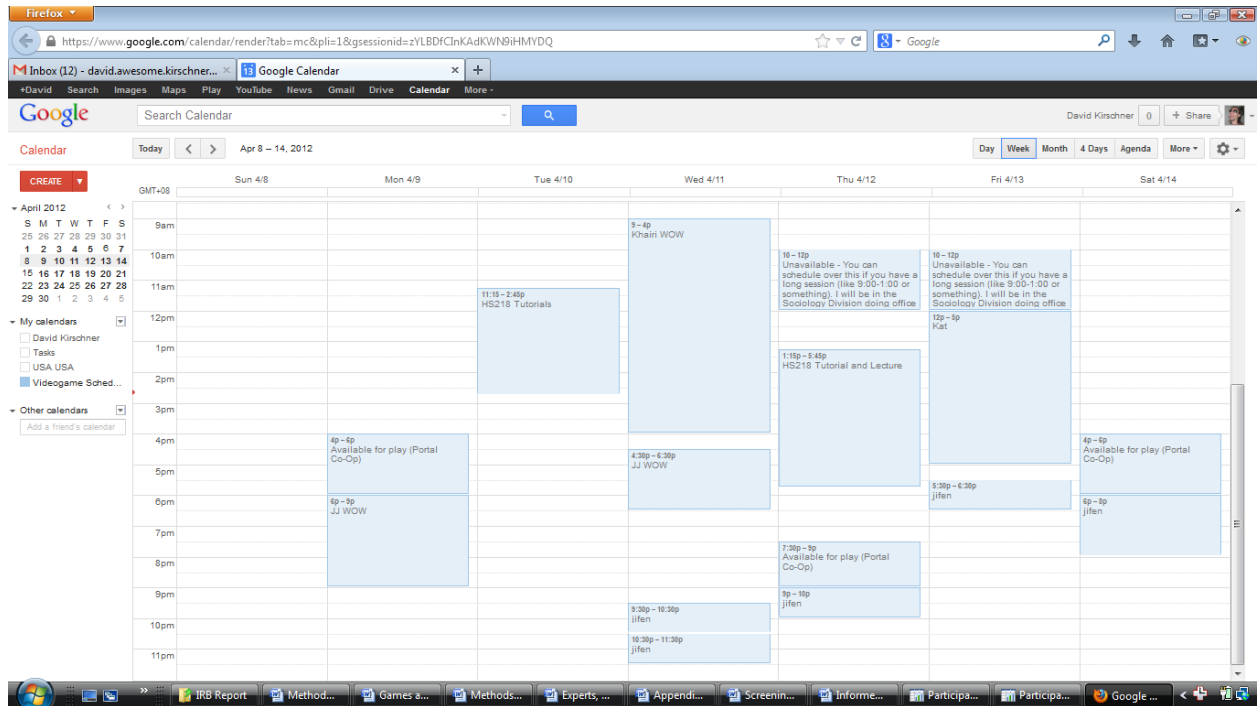
Sign up for empty slots that fit your schedule! I will be available during any empty slot, day or night, weekday or weekend, as long as I have 24-hours notice. If you want to schedule time **WITHIN 24 HOURS** of an empty time slot, please text me to let me know, and I will be available if I can. If you want to cancel a play session, just remove it from the calendar, and if your cancellation is within 24 hours of the scheduled session, also drop me a text to let me know. Please only edit your own schedule :-)

Time slots with the word "unavailable" mean that I have something on and are thus...unavailable...for scheduling.

Thanks!

David Kirschner

6. SHARED CALENDAR SAMPLE – APRIL 8-14, 2012



7. OPENING INTERVIEW – HOUR 1 – PORTAL 2

Gaming History [If no video games, ask about board/card games]

Tell me about the most memorable video game you learned to play. (If they struggle with memorable, say ‘favorite.’)

How did you find out about it?

What did you think about it before you played?

How did you learn to play? (How did it teach you? Who/what taught you? What method(s) did you use to go about learning?)

[probe: other people, instruction manual, internet, guides, by playing, observing]

To what extent are these typical methods for you to learn to play a game?

How good at the game did you become?

Describe your interactions with other people around that game. And with other media.

[probe: talked with others about it, interacted with spinoffs (books, movies, comics), interacted with other related media (reviews, fan content), interacted on forums, etc.)

To what extent are these typical interactions for you around a game?

Approximately how long did you play this game?

Tell me about video games you play currently. If none currently, then most recent.

[probe iPhone games, mobile games, Facebook games]

What do you enjoy about the games you play?

[If they enjoy different types/genres of games, ask what they enjoy about each genre]

What else makes a good game?

Do you often game alone and/or with others? Elaborate.

To what extent do you typically use outside sources (friends, Internet, guides, etc.) to help you play a game?

[If yes] What do these outside sources help you with?

To what extent do you typically find it easy or difficult to pick up a new game? To “get into” a new game? Elaborate. Depends on genre?

How long have you played video games?

About how many hours in a typical week do you play video games?

How do you manage your time playing games?

Where do you typically play games?

To what extent is gaming an important part of your life? Integrated into your life?

If you weren't gaming what would you be doing?

What functions does gaming serve for you in your life?

Preconceptions

Have you ever heard of Portal 2?

[If yes] What have you heard?

Where did you hear it?

Have you played a game like Portal 2 in the past, that you know of?

What do you imagine playing Portal 2 will be like? [probe: time, space]

How do you think your friends and family might respond if you tell them you are participating in this study?

Why do you think they will respond this way?

What do you think the average person in society thinks about Portal 2?

What were you doing just before you came in to play today?

What are you planning on doing after you play today?

Did anything significant happen today (at home, work, school, with family/friends, etc.)?

Tell me what you're thinking about as you look forward to starting to play.

What kinds of emotions do you have?

[probe specific emotions]

If you have to describe your current mood, what's it like?

8. POST-PLAY– HOUR/SESSION1 – PORTAL 2 AND WORLD OF WARCRAFT

Describe your most memorable moment.

Tell me what kinds of things you learned just now.

What do you feel is the most significant? How come?

How did you learn [response]?

Who/what did you learn [response] from?

[If (response) isn't about a game rule] Explain some of the game rules.

Which do you feel is the most significant? How come?

How did you learn [response]?

When you weren't sure what to do, how did you go about solving that problem? Describe this process.

What about this session was easy? Why?

What about this session was difficult? Why?

What do you still find difficult?

What do you find confusing about the game?

Did you find yourself improving in any aspect of the game?

Tell me about something that became easier/clearer/you got better at over time.

How?

[probe: knowledge, using the UI, using controls, something game-specific]

How do you understand time in the game?

How do you understand space in the game?

What's the story like?

How did you come to understand the meaning of [plug some game object, rule, NPC, etc. that they previously mentioned]?

Tell me what the most important object/non-player character is that you encountered.

Why?

Are there any elements of this gameplay that remind you of real life?

[probe: game visuals, game processes, game rules, making sense of space]

Did you play with other players? [Ask relevant sub-questions.]

How did you find the experience of playing alone?

To what extent do you think you understood the game alone versus in a more social setting?

How did you find the experience of playing with a partner?

To what extent do you think you understood the game playing with a partner versus playing alone?

How did you find the experience of playing online?

To what extent did your interactions with me affect your understanding of the game?

What do you anticipate doing next time?

Is there anything I didn't ask you that you thought I would ask you?

Is there anything else you want to tell me or discuss about your experience?

9. ELLIOT MIDWAY WOW INTERVIEW (12 HOURS)

What were you doing just before coming in to play today?

What are you planning to do after I play today?

Describe your mood.

Did anything significant happen today (at home, work, school, with family/friends, etc.)?

What do you remember most about your previous gameplay session? Positive? Negative?

Have you interacted about this game since the last time you played? (participating on forums, watching videos, talking with friends, etc.) Describe each instance I can remember.

[If yes to the above] Why did you participate in those interactions?

To what extent might those interactions benefit you in your gameplay? (i.e., will they help solve a problem, change the way I thought about an aspect of the game, teach me something, etc.)?

Have you thought about the game since last time?

To what extent have these interactions/thoughts contributed to your game play?

[probe: interactions with me and Corey]

Tell me about WoW.

Describe the very beginning of the game for me. [probe: you went off in the wrong places with enemies too high for you. How did you figure this out and overcome it?]

What about this game is easy? Why?

What about this game is difficult? Why?

What do you find confusing about the game?

In what aspect of the game have you improved the most?

[probe: knowledge, using the UI, using controls, something game-specific]

What do you feel is the most significant thing you learned? How come? [probe: using the map/quest tracker/to find corpse]

Describe the process of learning [response].

Who/what did you learn [response] from?

Tell me what the most important game object is that you encountered. Why? How learn?

Tell me what the most important game mechanic that you learned is. Why? How learn?

Tell me what the most important aspect of the interface for you is. Why? How learn?

How use?

Tell me what the most important non-player character is that you encountered. Why?

What's the story like? How do you come to that explanation? [probe: relationships to other games]

Have you had any major changes in understanding certain aspects of the game? [probe: how to use the map, how to utilize stealth, etc.]

How did [changes] occur?

(How) Do [changes] alter your understanding of the game? [probe: its nature, what you're supposed to do, relationships among things]

Tell me about your character's class.

What are some abilities of your class?

What are the strengths of your class?

What are the weaknesses of your class?

What specific tactics have you developed for fighting enemies?

How do you utilize aspects of the interface to play your class? (health bars, hotkeys...) [probe: you said early on that fighting requires no skill. Do you still think that?]

What do you spend your talent points on? How come?

Do you have a plan for the growth of your character? Elaborate.

Have you taken up a profession?

To what extent do you identify with your character?

To what extent do you value upgrading your character? Gear?

How do you get a sense of value in the game? What's valuable and what's not, and how do you know?

What's the value of money and/or loot? [probe: difference between white/green items]

Characterize quests.

Have you played with other characters? To what extent have you noticed other characters?

Tell me about guilds.

How did you find the experience of playing online?

How do you understand time in the game? (cooldowns, timings, travel, "Not ready yet," respawn times for mobs, death, hearthstones, value --- time is money)

What are rules governing time in the game?

How is time presented?

To what extent can you use time to play?

How do you understand space in the game? (distance to target, running, "I can't attack that," "It's too far away," their relation to one another via the map or vision, hearthstones and travel, facing direction to cast a spell, item space and organizing, bag space..."space is money?"")

What are rules governing space in the game?

How is space presented?

To what extent can you use space to play?

How do you understand movement in the game? [probe: walking/running/mounting]

(How) do you feel the game moves you from area to area? By what means does the game do this?

How have you been traveling?

What's it like to die?

Are there any elements of this gameplay that remind you of real life?

[probe: game visuals, game processes, game rules, making sense of space]

To what extent do you feel that you 'play' with or within the game? Not follow the rules, experiment, tinker, etc.? Has this changed over time?

Is there anything else you would change about the game to make it more enjoyable?

What is the chance that you will continue playing WoW?

What do you anticipate doing next time?

Is there anything I didn't ask you that you thought I would ask you?

Is there anything else you want to tell me or discuss about your experience?

10. GAIL AND BEN CLOSING CO-OP PORTAL 2 INTERVIEW

What was I doing just before coming in to play today?

What am I planning to do after I play today?

Describe my mood.

Did anything significant happen today (at home, work, school, with family/friends, etc.)?

What do I remember most about my previous gameplay session? Positive? Negative?

Have I interacted about this game since the last time I played? (participating on forums, watching videos, talking with friends, etc.) Describe each instance I can remember. (YES – ask them about Wowwiki)

[If yes to the above] Why did I participate in those interactions?

To what extent might those interactions benefit me in my gameplay? (i.e., will they help solve a problem, change the way I thought about an aspect of the game, teach me something, etc.)?

Have you thought about the game since last time?

What significance do these interactions outside the game have for your understanding of the game?

What was the most memorable moment for each of you? Both of you together?

How does this compare to single-player? What is similar/different? [probe: UI, teamwork]

What about co-op is easy? Why?

What about co-op is difficult? Why?

What do you find confusing about co-op?

In what aspect of co-op have you improved the most?

[probe: knowledge, working together, using the UI, something game-specific]

What do you feel is the most significant thing you learned? How come?

Describe the process of learning [response].

Who/what did you learn [response] from?

Tell me what the most important game object is that you encountered. Why? How learn?

Tell me what the most important game mechanic that you learned is. Why? How learn?

Tell me what the most important non-player character is that you encountered. Why?

What's the story like? How do you come to that explanation?

Who are your characters? [probe: they gendered the robots].

Explain the (new aspects of the) user interface to me. What is the most important aspect for you. Why? How learn? How use?

How have you learned/adapted your use of the interface over time? Why did you have to learn/adapt? [probe: partner cam, pinging, countdown, gestures]] – [[probe – When did you use the partner view?]

(How) have you used these icons to get your partner to do what you want?

How did you figure out how to use the four portals?

How did you find the experience of playing with a partner?

To what extent do you think you understood the game playing with a partner versus playing alone?

In what ways do you communicate with one another? Can you characterize your communication styles? [probe: to what extent did you think aloud // tell your partner an idea // give instructions?]

Describe your 'playful' communications, i.e., "the silent game." [mumbling, not talking]. What was the purpose? What were its limitations? How did you supplement it?

Describe an example of you helping one another.

Describe an example of teamwork? Division of labor?

Describe an example of you becoming frustrated with one another, if any.

Can you describe a time when you were really stuck? How does this compare with being stuck in SP?

Did you ever face the problem of over-thinking a solution by, for example, insisting on using the most advanced tools available? Why or why not? [probe: game design in co-op to include all advanced tools already?]

How have the two of you taught each other aspects of the game?

How do you understand time in the game?

What are rules governing time in the game?

How is time presented?

To what extent can you use time to play?

[probe: timings of button presses, timing countdowns]

How do you understand space in the game?

Describe your ability to find/track one another?

How is space presented?

To what extent can you use space to play?

What's it like to die? What is the role/purpose of dying in this game?

What's the most unique method you've found to kill one another?

To what extent have norms emerged between the two of you? How do you play similarly or differently now than you did before? Norm of fun? Norm of teamwork? Strike a balance?

Are there any elements of this gameplay that remind you of real life?

[probe: game visuals, game processes, game rules, making sense of space, teamwork]

Would you continue playing co-op?

Is there anything I didn't ask you that you thought I would ask you?

Is there anything else you want to tell me or discuss about your experience?

11. TALK-ALOUD PROTOCOL PORTAL 2 GUIDE

An ongoing list of topics to consider asking about during play [always ask why is that/why do you think/how do you know]:

Where do you think you are?

Who do you think you are?

What do you think is going on here?

What are you supposed to be doing?

How do you know where to go?

What are the signs/pictures on the wall?

What is that robot (Wheatley)?

Is the robot guiding you anywhere?

What do you see?

What do you hear?

How do these inform you of the world you are in?

(How) are the tutorials helping?

What is the relationship between the buttons and the portals?

What are the portals for?

What are the yellow and blue dots on the ground?

What is the cube?

How did you know to move the box to the button in level 2?

What does the disembodied voice tell you about the world?

What is the wall art? Who drew it? Why?

Mechanics/Rules – button, cube, gravity, portal, acid, pick up, lasers

What did you do at the laser part? Why? What did you think it was?

Develop space questions about portals.

Who is 'she'?

Lasers in the slots

Cubes that redirect lasers

What else can the cubes do? Stop lasers?

Do the videos in the elevators serve any purpose?

Catapulting face thing

Their understanding of time in the game

Their understanding of space in the game

Interactions between participant(s)

Interaction between participant(s) and myself

Any verbal or non-verbal communication (facial expressions, body language/posture)

Problems/frustrations/failures/questions

Successes/achievements

What they are thinking

Emotions

What they see

What meanings the visual elements hold

How they make these meanings (through previous game/life experiences)

Their impressions of landscapes

Their impressions of other game objects

Their impressions of NPCs

Their impression of graphics, sounds, controls

Their skill

Their interactions with the UI

How they learn to play over time

What they are learning

What/Who is teaching them

What improves and doesn't improve over time.

How other players/characters interact with them.

12. TWO EXAMPLES OF MEMOS

a. Embedded Instruction – *Some memos were sparked by reading literature and then reflecting on the data.*

Bainbridge defines "embedded instruction" as "training exercises that fit naturally into the gameplay and are not explicitly labeled educational" (89).

This is largely attempted in the early levels to teach players basics, and Bainbridge discusses how they find form in quests. NPCs present quest texts with embedded instruction to spur players to travel to other places, to learn how to fly or mount, to find trainers or practice skills (like Gail's Charge quest). Bainbridge gives the good example essentially of NPCs through early flight quest text socializing players into using this mode of transportation. They learn about chaining flight paths together, they learn about costs, the value of coin, time saved, how to look for these NPCs, etc.

Take all the other things that NPCs teach players. How much of it is through embedded instruction? How is this different from a tutorial?

In addition to this kind of learning, Bainbridge also discusses verbal teaching (which apparently there might be some useful stuff on finding facts [my information seeking], developing tactics or strategy [also information seeking], and being socialized to the norms and values that constitute the game ethos [but how? Bainbridge's examples are primarily in dungeon groups] in Nardi, Ly and Harris (2007). "Learning Conversations in WoW," Proceedings of the 40th Annual Hawaii International Conference on System Sciences, Washington DC, IEEE Computer Society) and nonverbal learning. I would add 'experiential learning.'

He divides nonverbal learning into perception [very important for my study, pg. 95-6], modeling and insight. Think about all the things that an experienced player takes for granted, that are second nature to him, but that newer players struggled with, such as (as Bainbridge describes) looking for herbs and ore, judging agro distance (there's a difference between WoW enemies and Portal turrets), reading the geography (Espen Aarseth in WoW as Digital Culture Rettberg book).

Bainbridge defines perception (95) as "concerns being able to see and hear things, learning to discern distinctions that may not be immediately apparent." This is where he discusses herbalism. For me and WoW, I might talk about players (Diane) learning to find quest items, learning to read icons on a map, learning to tell when the mouse changes to signify a merchant, and so on.

He defines insight (98) as "involves abstracting a lesson from one's observations or by assembling information from multiple sources. A fundamental feature of insights is that they tend to exist in hierarchies, with later insights modifying earlier ones." He describes learning that enemies are non-aggressive, but modifying that upon level 3 or 4 when they become aggressive. Then the player would (sometimes) perceive a distinction between the yellow and red name plates. Then, as Bainbridge discusses, players may realize that non-aggressive enemies are present throughout the game and can be exploited for risk-free xp.

b. Information Seeking – *Some memos were sparked by wrestling with codes and attempting to refine questions I was asking and answers I was trying to make sense of.*

Inductive vs Deductive ways of knowing in Portal vs WoW

If I want to talk about meaning making, I need to think about what kinds of things are especially important to players that they need to make meaning out of. I've already come up with these core components of gameplay like combat and questing that everyone needs to figure out at some level. Thinking of meaning making as a process, there should be some change involved. One way is from not knowing to knowing. Another way is from one perspective/method to another perspective/method. Another could be a major frame shift, like that quests are THE way to level in WoW or that portals operate in a fundamental way in Portal 2.

(1) IDENTIFY problems players had. What were the most important, the most significant? What inhibited their play the most? What confused them? What were they uncertain about? What didn't they understand?

I can find these problems through looking at what I've coded as uncertainty, as well as through looking at what I've coded as information seeking, and categorizing the different methods through which people sought information about the game. This will also help me answer (5).

(2) WHY were these things problematic? How were players going about gathering and judging information?

(3) WHEN did they perceive a need to change? Or how did this need to change, or re-assign meaning, develop over time?

(4) HOW did it develop?

(5) WHAT methods of information seeking made this development possible? WHAT methods of interaction made this development possible?

(6) What are the outcomes of the meaning-making development?

13. CODING EXAMPLE: SOCIALIZATION

As I said above in a footnote, I do not have access to early iterations of my coding scheme because I did not initially keep records of coding summaries. This example necessarily shows only a mere fraction of the data that formed these coding schemes. I chose and re-composed this small sample for demonstration purposes. I have presented this data by using NVivo's "Export Node" function, which reports every piece of data that has been coded at any particular node. In this appendix, I will re-create my process of moving from a general code originally acquired from the literature, socialization, and show how I

refined and abstracted it into two conceptual codes, subject-subject and subject-object interaction, that formed the basis for chapter 7 of the thesis.

- a. In the first step, I created an initial code, socialization, and coded transcripts from interviews, observations and audiovisual recordings of gameplay. Socialization was a central concept from the inception of the project, and I defined the code based on a broad definition of socialization from the sociology literature as I applied it to games.

Name: Nodes\\Socialization

Description: Socialization is the process of learning the rules and norms required to play games. Code for instances of players learning how to play the game, or teaching others how to play the game.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 0-1> - § 2 references coded [5.16% Coverage]

Reference 1 - 0.88% Coverage

Gerry: who is Prometheus?

Bai: here, here. It's the guy. You see the map on the top right. There's a question mark.

Reference 2 - 4.28% Coverage

Bai: oh, you know actually right, you d don't have to use your left and right. Nonono, you don't have to left and right. You use your right click right. When just right click, and then you just drag to whichever direction you want to go to. And then just click straight. So you d don't have to use left and right to turn.

Gerry: I d don't understand.

Bai: right click. Then... actually I'm not, when I turn right, I d don't use my left and right button. I d don't use the a, a, a.

Gerry: Oh my gooooooooood.

Bai: yeah, it's a lot easier right?

Gerry: it's like a realization.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 1-4.25> - § 1 reference coded [3.44% Coverage]

Reference 1 - 3.44% Coverage

Gerry: that's why you can't right hippogryph. <pause> what is procrastinex <?> can't see the word because you're moving. Procrastilaxing <?> it's above your head.

Bai: oh, that's the guild that I was invited to.

Gerry: oh. what is a guild?

Bai: it's like a...

Gerry: said what's the purpose of a guild?

Bai: oh it's like an organization or community where people get to know one another, and then you can party with them. so make new friends and yeah. And sometimes I'm not sure if they have like guild wars or guild battles, just to fight to see which guild is the best.

Gerry: oooh. Like Neopets is it.

Bai: what? Aah.

Gerry: what do you mean what? I'm sure you played Neopets at some point in time.

<Internals\\Corey WoW 01-27 Interview 01 - INCOMPLETE> - § 1 reference coded [4.26% Coverage]

Reference 1 - 4.26% Coverage

David: most positive moment?

Corey: the most interesting one, the one where I realized, like Eureka! Moment, was when I realized the rangers would help me. That was good because like, I remember, I was going toward the green skeletons, and I was like okay, let's try one more time after I died, after I got reincarnated. I went again after the green skeleton. Then suddenly I saw this troop, this 3 or 4, I have no idea what monsters they were, like running through the dead scar. And I thought, okay let's check out what kinda monsters are they, and experience should have taught me better, and yet again I still went too near such that they started attacking me. And I started running back, and it suddenly occurred to me, hey

there's the rangers there. ok let's try it out. So I ran back to the rangers and true enough, the rangers couldn't just let them pass through.

<Internals\\Corey WoW observations> - § 4 references coded [3.85% Coverage]

Reference 1 - 0.93% Coverage

He is playing with putting items in hotbar slots trying to equip things and use things (watch video) and has figured out how to equip things through the character pane. He bought some bread ("ah, that might be useful") and a throwing knife.

Reference 2 - 0.32% Coverage

"Now I understand why I couldn't attack the guards initially. They are my friends."

Reference 3 - 1.71% Coverage

He wandered all the way to where level 10 enemies were and started saying that these areas may be too difficult for a level 4, and so I asked him that since he knows what level he is, If he knows the levels of his enemies. He said no, but they must be difficult. Just a few minutes later I hear him go "OH, level 8!" as he dies. I asked if he'd noticed the enemy level numbers before and he said no, he'd only paid attention to the health bars,

Reference 4 - 0.89% Coverage

He relies a lot and uses guards to help kill high level enemies. It's problematic when he relies on patrols who aren't near at the moment. He says it's useful that they're patrolling bc along the way they can help wherever he is.

<Internals\\Francis P2 01-25 Gameplay 0-1 INCOMPLETE> - § 1 reference coded [29.68% Coverage]

Reference 1 - 29.68% Coverage

David: can you explain again why you need an orange portal to get over there?

Francis: because if I pass through the blue portal, I'll come out through the orange portal. So if I wanna get there, there should be an orange portal there so I can just open up a blue hole wherever I am, and when I pass through the blue hole, I'll be there. but, I can't even get there in the first place, so I don't know. don't know how to go on from here. I've been

through here before and it's just...okay, this will be orange now. I'm still at the same place. Can I shoot far? Oh yes I can! So...Ha!

David: so what happened?

Francis: I realized that the gun doesn't have a limited range of shooting, so I can shoot far. So I just have to shoot in the direction where I want to go and it will open up a portal for me. So that's...

<Internals\\Francis P2 02-01 Gameplay 1-4 - INCOMPLETE> - § 1 reference coded [12.42% Coverage]

Reference 1 - 12.42% Coverage

Francis: there's [gets shot at] a new gadget that I've found on the floor that looks like a rocket ship. And apparently it shoots people and I'm dead because I got shot multiple times.

GlaDOS: This next test involves turrets. You remember them, right? They're the pale spherical things that are full of bullets. Oh wait. That's you in five seconds. Good luck.

Francis: ok so I think I'm supposed to use one of these spherical things to shoot other spherical things. So I...am just going to proceed really carefully to the next turn, where I see one of the spherical things. And they started shooting at me first!

Turret she is holding as it gets shot: Don't shoot!

Turret that killed her: Are you still there?

Francis: so, on top of science concepts, this game has battle elements as well. Great.

- b. In the next step, after studying the data that I coded, I realized that the data coded as socialization fell under two main types, player-player and player-game. I went back through the data coded as socialization and reorganized it into these more specific categories. Players did not just experience socialization generally or from a generic source, but specifically depending on who/what they were interacting with. Further, by this point in time, I had been reading James Gee's (2003) work on semiotic domains, and modified the definition of socialization to remind myself to apply the concept of design grammars to the data as I coded. This shows the interplay of reading literature and forming conceptual categories, the ongoing conversation between other scholars and my data.

Name: Nodes\\Socialization

Description: Socialization is the process of learning the rules and norms, elements of the internal and external design grammars, required to interact with(in) games. Code for instances of players learning how to play the game, or teaching others how to play the game.

Name: Nodes\\Socialization\\Player-Player Socialization

Description: These are specific instances of players socializing one another into the rules and norms of the game. This should have to do primarily with learning social norms for gameplay, or external design grammar, although surely players will teach and learn rules as well. Code instances of players learning through interaction with other players.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 0-1> - § 2 references coded [5.13% Coverage]

Reference 1 - 0.87% Coverage

Gerry: who is Prometheus?

Bai: here, here. It's the guy. You see the map on the top right. There's a question mark.

Reference 2 - 4.26% Coverage

Bai: oh, you know actually right, you d don't have to use your left and right. Nonono, you don't have to left and right. You use your right click right. When just right click, and then you just drag to whichever direction you want to go to. And then just click straight. So you d don't have to use left and right to turn.

Gerry: I d don't understand.

Bai: right click. Then... actually I'm not, when I turn right, I d don't use my left and right button. I d don't use the a, a, a.

Gerry: Oh my goooooood.

Bai: yeah, it's a lot easier right?

Gerry: it's like a realization.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 1-4.25> - § 1 reference coded [3.43% Coverage]

Reference 1 - 3.43% Coverage

Gerry: that's why you can't right hippogryph. <pause> what is procrastinex <?> can't see the word because you're moving. Procrastilaxing <?> it's above your head.

Bai: oh, that's the guild that I was invited to.

Gerry: oh. what is a guild?

Bai: it's like a...

Gerry: said what's the purpose of a guild?

Bai: oh it's like an organization or community where people get to know one another, and then you can party with them. so make new friends and yeah. And sometimes I'm not sure if they have like guild wars or guild battles, just to fight to see which guild is the best.

Gerry: oooh. Like Neopets is it.

Bai: what? Aah.

Gerry: what do you mean what? I'm sure you played Neopets at some point in time.

Name: Nodes\\Socialization\\Player-Game Socialization

Description: These are specific instances of players being socialized by the game. This should have to do primarily with learning game rules, or internal design grammar. Code for instances of the game teaching players, of players learning through interacting with the game.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 1-4.25> - § 1 reference coded [1.95% Coverage]

Reference 1 - 1.95% Coverage

Bai: oh it's like an organization or community where people get to know one another, and then you can party with them. so make new friends and yeah. And sometimes I'm not sure if they have like guild wars or guild battles, just to fight to see which guild is the best.

Gerry: oooh. Like Neopets is it.

Bai: what? Aah.

Gerry: what do you mean what? I'm sure you played Neopets at some point in time.

<Internals\\Corey WoW 01-27 Interview 01 - INCOMPLETE> - § 1 reference coded [4.26% Coverage]

Reference 1 - 4.26% Coverage

David: most positive moment?

Corey: the most interesting one, the one where I realized, like Eureka! Moment, was when I realized the rangers would help me. That was good because like, I remember, I was going toward the green skeletons, and I was like okay, let's try one more time after I died, after I got reincarnated. I went again after the green skeleton. Then suddenly I saw this troop, this 3 or 4, I have no idea what monsters they were, like running through the dead scar. And I thought, okay let's check out what kinda monsters are they, and experience should have taught me better, and yet again I still went too near such that they started attacking me. And I started running back, and it suddenly occurred to me, hey there's the rangers there. ok let's try it out. So I ran back to the rangers and true enough, the rangers couldn't just let them pass through.

<Internals\\Corey WoW observations> - § 4 references coded [3.84% Coverage]

Reference 1 - 0.93% Coverage

He is playing with putting items in hotbar slots trying to equip things and use things (watch video) and has figured out how to equip things through the character pane. He bought some bread ("ah, that might be useful") and a throwing knife.

Reference 2 - 0.32% Coverage

"Now I understand why I couldn't attack the guards initially. They are my friends."

Reference 3 - 1.71% Coverage

He wandered all the way to where level 10 enemies were and started saying that these areas may be too difficult for a level 4, and so I asked him that since he knows what level he is, If he knows the levels of his enemies. He said no, but they must be difficult. Just a few minutes later I hear him go "OH, level 8!" as he dies. I asked if he'd noticed the enemy level numbers before and he said no, he'd only paid attention to the health bars,

Reference 4 - 0.88% Coverage

He relies a lot and uses guards to help kill high level enemies. It's problematic when he relies on patrols who aren't near at the moment. He says it's useful that they're patrolling bc along the way they can help wherever he is.

<Internals\\Francis P2 01-25 Gameplay 0-1 INCOMPLETE> - § 1 reference coded
[29.61% Coverage]

Reference 1 - 29.61% Coverage

David: can you explain again why you need an orange portal to get over there?

Francis: because if I pass through the blue portal, I'll come out through the orange portal. So if I wanna get there, there should be an orange portal there so I can just open up a blue hole wherever I am, and when I pass through the blue hole, I'll be there. but, I can't even get there in the first place, so I don't know. don't know how to go on from here. I've been through here before and it's just...okay, this will be orange now. I'm still at the same place. Can I shoot far? Oh yes I can! So...Ha!

David: so what happened?

Francis: I realized that the gun doesn't have a limited range of shooting, so I can shoot far. So I just have to shoot in the direction where I want to go and it will open up a portal for me. So that's...

<Internals\\Francis P2 02-01 Gameplay 1-4 - INCOMPLETE> - § 1 reference coded
[12.39% Coverage]

Reference 1 - 12.39% Coverage

Francis: there's [gets shot at] a new gadget that I've found on the floor that looks like a rocket ship. And apparently it shoots people and I'm dead because I got shot multiple times.

GlaDOS: This next test involves turrets. You remember them, right? They're the pale spherical things that are full of bullets. Oh wait. That's you in five seconds. Good luck.

Francis: ok so I think I'm supposed to use one of these spherical things to shoot other spherical things. So I...am just going to proceed really carefully to the next turn, where I see one of the spherical things. And they started shooting at me first!

Turret she is holding as it gets shot: Don't shoot!

Turret that killed her: Are you still there?

Francis: so, on top of science concepts, this game has battle elements as well. Great.

- c. In the final step, I realized an important distinction in the player-game socialization code between certain types of game objects. By this point in data analysis, I had been reading and thinking theoretically about players' relationships to digital objects, in part due to studying both my data and papers I had written or was writing (e.g., Kirschner and Williams forthcoming [a]; Williams and Kirschner 2012), as well as chapters of this thesis. Additionally inspired by G.H. Mead's discussions of mind and taking the role of the other (1934), Latour's (1992) work on Actor-Network Theory, and papers by Cerulo (2009) and Owens (2007) on interacting with nonhuman objects and doing mind for nonhuman objects, I further refined and abstracted the player-player and player-game socialization codes into subject-subject interaction and subject-object interaction. I exchanged the word "interaction" for "socialization" because I treated these interactions as nested within the concept of socialization, indeed as a necessary aspect of socialization, as is visible in the NVivo reports. Note the interplay of reading literature, writing, data analysis and theorizing that all contributed to the refinement of these codes. This highlights the various stages of the research project spiralling, acting back on each other, informing both what happened in the past and work in the future (Berg 2009).

Name: Nodes\\Socialization\\Subject-Object Interaction

Description: Code instances of a subject interacting with an object. This should be almost always a player with a game object. Pay attention to the subject learning from interactions with the object/the object socializing the player into the domain, teaching or reinforcing rules and norms.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 0-1> - § 1 reference coded [0.87% Coverage]

Reference 1 - 0.87% Coverage

Gerry: who is Prometheus?

Bai: here, here. It's the guy. You see the map on the top right. There's a question mark.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 1-4.25> - § 1 reference coded [1.26% Coverage]

Reference 1 - 1.26% Coverage

Gerry: that's why you can't right hippogryph. <pause> what is procrastinex <?> can't see the word because you're moving. Procrastilaxing <?> it's above your head.

Bai: oh, that's the guild that I was invited to.

Gerry: oh. what is a guild?

Bai: it's like a...

<Internals\\Corey WoW 01-27 Interview 01 - INCOMPLETE> - § 1 reference coded [2.48% Coverage]

Reference 1 - 2.48% Coverage

That was good because like, I remember, I was going toward the green skeletons, and I was like okay, let's try one more time after I died, after I got reincarnated. I went again after the green skeleton. Then suddenly I saw this troop, this 3 or 4, I have no idea what monsters they were, like running through the dead scar. And I thought, okay let's check out what kind of monsters are they, and experience should have taught me better, and yet again I still went too near such that they started attacking me.

<Internals\\Corey WoW observations> - § 4 references coded [3.84% Coverage]

Reference 1 - 0.93% Coverage

He is playing with putting items in hotbar slots trying to equip things and use things (watch video) and has figured out how to equip things through the character pane. He bought some bread ("ah, that might be useful") and a throwing knife.

Reference 2 - 0.32% Coverage

“Now I understand why I couldn’t attack the guards initially. They are my friends.”

Reference 3 - 1.71% Coverage

He wandered all the way to where level 10 enemies were and started saying that these areas may be too difficult for a level 4, and so I asked him that since he knows what level he is, If he knows the levels of his enemies. He said no, but they must be difficult. Just a few minutes later I hear him go “OH, level 8!” as he dies. I asked if he’d noticed the enemy level numbers before and he said no, he’d only paid attention to the health bars,

Reference 4 - 0.88% Coverage

He relies a lot and uses guards to help kill high level enemies. It’s problematic when he relies on patrols who aren’t near at the moment. He says it’s useful that they’re patrolling bc along the way they can help wherever he is.

<Internals\\Francis P2 01-25 Gameplay 0-1 INCOMPLETE> - § 1 reference coded [29.61% Coverage]

Reference 1 - 29.61% Coverage

David: can you explain again why you need an orange portal to get over there?

Francis: because if I pass through the blue portal, I’ll come out through the orange portal. So if I wanna get there, there should be an orange portal there so I can just open up a blue hole wherever I am, and when I pass through the blue hole, I’ll be there. but, I can’t even get there in the first place, so I don’t know. don’t know how to go on from here. I’ve been through here before and it’s just...okay, this will be orange now. I’m still at the same place. Can I shoot far? Oh yes I can! So...Ha!

David: so what happened?

Francis: I realized that the gun doesn’t have a limited range of shooting, so I can shoot far. So I just have to shoot in the direction where I want to go and it will open up a portal for me. So that’s...

<Internals\\Francis P2 02-08 Gameplay 5.3-7.8> - § 1 reference coded [3.90% Coverage]

Reference 1 - 3.90% Coverage

Francis: please work. Oh no! I don't know if it was because of my mis-aim or because there's not – hey! The box is gone. Oh because it got propelled here, so I just have to open. Yep. Uh, I just have to – conveniently it's here. Don't have to keep –gah, they're kind in that sense. So just going – oh, shoot the robots first, yes. Going to kill the robots first. [killing robots] ok, doors open. Ok, now I just have to propel myself there. I don't have to worry about going to the door anymore. Moving forward. My nightmare is over. Ok, there. no, facing the wrong direction. Hey? [sigh]. Oh my god! I finally finished the challenge!

Name: Nodes\\Socialization\\Subject-Subject Interaction

Description: Code instances of two subjects interacting, particularly where one is teaching/learning from another. In the case of digital objects acting as subjects, classification here is toward doing mind for digital objects. Pay attention to socialization in terms of game rules and norms, the grammars of the domain.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 0-1> - § 1 reference coded [0.87% Coverage]

Reference 1 - 0.87% Coverage

Gerry: who is Prometheus?

Bai: here, here. It's the guy. You see the map on the top right. There's a question mark.

<Internals\\Bai & Gerry WoW 01-21 Gameplay 1-4.25> - § 2 references coded [3.21% Coverage]

Reference 1 - 1.26% Coverage

Gerry: that's why you can't right hippogryph. <pause> what is procrastinex <?> can't see the word because you're moving. Procrastilaxing <?> it's above your head.

Bai: oh, that's the guild that I was invited to.

Gerry: oh. what is a guild?

Bai: it's like a...

Reference 2 - 1.95% Coverage

Bai: oh it's like an organization or community where people get to know one another, and then you can party with them. so make new friends and yeah. And sometimes I'm not sure if they have like guild wars or guild battles, just to fight to see which guild is the best.

Gerry: oooh. Like Neopets is it.

Bai: what? Aah.

Gerry: what do you mean what? I'm sure you played Neopets at some point in time.

<Internals\\Corey WoW 01-27 Interview 01 - INCOMPLETE> - § 2 references coded
[1.78% Coverage]

Reference 1 - 0.77% Coverage

David: most positive moment?

Corey: the most interesting one, the one where I realized, like Eureka! Moment, was when I realized the rangers would help me.

Reference 2 - 1.01% Coverage

And I started running back, and it suddenly occurred to me, hey there's the rangers there. ok let's try it out. So I ran back to the rangers and true enough, the rangers couldn't just let them pass through.

<Internals\\Francis P2 02-01 Gameplay 1-4 - INCOMPLETE> - § 1 reference coded
[12.39% Coverage]

Reference 1 - 12.39% Coverage

Francis: there's [gets shot at] a new gadget that I've found on the floor that looks like a rocket ship. And apparently it shoots people and I'm dead because I got shot multiple times.

GlaDOS: This next test involves turrets. You remember them, right? They're the pale spherical things that are full of bullets. Oh wait. That's you in five seconds. Good luck.

Francis: ok so I think I'm supposed to use one of these spherical things to shoot other spherical things. So I...am just going to proceed really carefully to the next turn, where I see one of the spherical things. And they started shooting at me first!

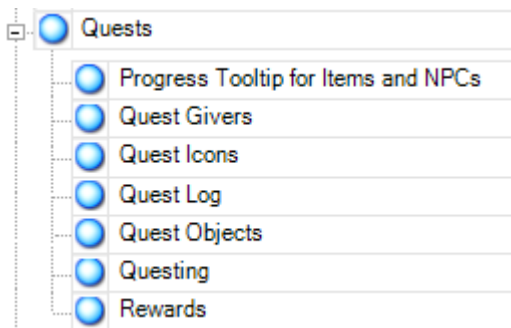
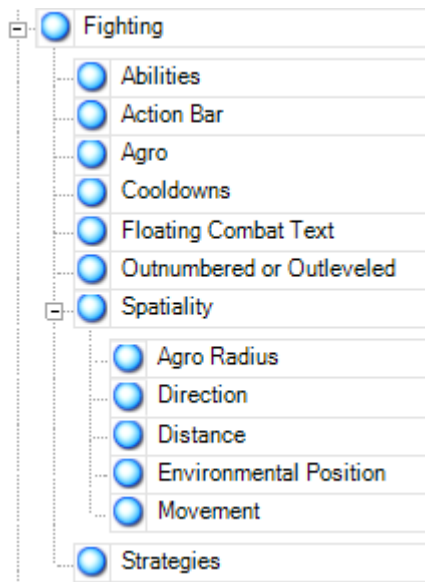
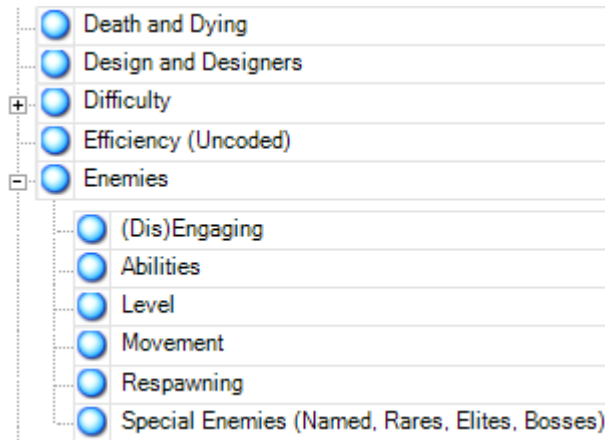
Turret she is holding as it gets shot: Don't shoot!

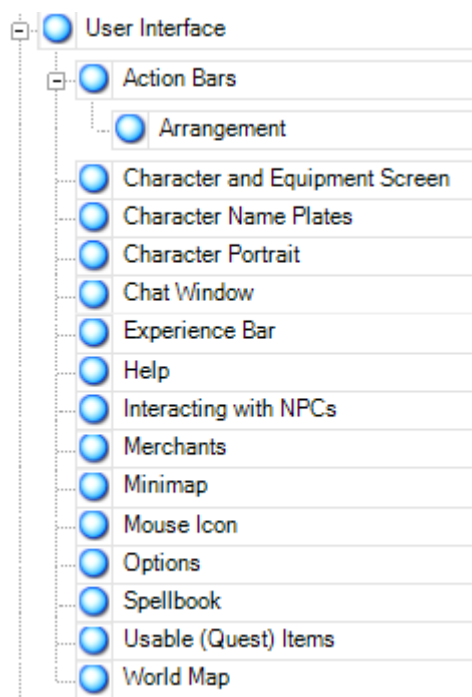
Turret that killed her: Are you still there?

Francis: so, on top of science concepts, this game has battle elements as well. Great.

This redefinition of codes allowed me to tease out the differences between the ways participants interacted with/talked about some game objects. Armed with theories of mind and human-nonhuman interaction, I made analytical distinctions between how Frances treated turrets as subjects and portals as objects (see chapter 7), how Corey learned to reinterpret rangers from objects to subjects (see chapters 5 and 7), and how Ben and Gail, as well as the other pairs, interacted at the same time with themselves as subjects and with digital objects as mere manipulable things (see chapters 6, 7 and 8). Of course the codes could be further refined, such as by splitting subject-subject interaction into human subject-human subject, human subject-nonhuman subject, and even nonhuman subject-nonhuman subject interaction if players were doing mind for two digital objects like Frances in chapter 7, but I will stop here for this example, as reaching the critical distinction between subject-subject and subject-object interaction was the major achievement in my understanding for these codes and allowed me to make serious headway on writing chapter 7.

14. SAMPLE OF CODING SCHEMES





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GLOSSARY

Action Bar - A series of icons along the bottom of the screen that represent actions the character can perform in WoW.

Blue Portal – One of the portal types the player can create. This type is default in single-player and is paired with the orange portal. If a player goes into the blue portal, she comes out the orange portal, and vice versa.

Buttons – Game objects in Portal 2 that must be depressed by a weight, either the player-character standing on them or placing something else on them, usually a cube. When pressed, buttons may open a door or cause something else to happen in the test chamber.

Chat Window – A space into which players can enter text to communicate with others, and through which the game system and NPCs textually communicate with the player.

Character Portrait – Located in the upper-left corner of the WoW UI, the character portrait displays important information about the character such as its level and health.

Class - An archetype such as rogue, priest, or mage, each of which may specialize in one of several areas of expertise that define the character's primary role-identity.

Class Trainers - NPCs that players seek out in order to learn new skills and abilities

when their character increases in level.

Cooperative games (co-op) - Games that involve two or more players cooperating together. Portal 2 has a co-op mode, and WoW can be played cooperatively.

Crusher – A game object in Portal 2, this mechanical obstacle's roof is covered in spikes. The roof slowly raises then slams down, crushing anyone caught underneath.

Cube – A weighted box that Portal 2 player-characters can manipulate for various purposes, such as to depress a button.

Dark Blue Portal - One of the portal types a player can create in co-op. It is paired with the light blue portal. If a player goes into the dark blue portal, she comes out the light blue portal, and vice versa.

Digital Games - Marked by immediate interactivity, information manipulation, automated and complex systems and networked communication. Examples include Portal 2 and WoW. Digital games are typically played on devices like personal computers, tablets and phones, as well as specialized gaming consoles like Xbox 360, Nintendo Wii and Playstation 3.

Dungeons - Self-contained areas of the WoW game world containing difficult quests and enemies, and generally requiring a group of players to complete.

Enemies - Hostile NPCs.

Equipment - Obtained largely by completing quests and killing enemy NPCs, better equipment, like armor and weapons, allows players to tackle more difficult challenges and obtain still better equipment.

Experience - By earning enough experience points from completing quests, slaying enemies and other activities, WoW characters level up from 1 to 90.

Flight masters – NPCs that charge a small fee to transport characters to specific destinations throughout WoW.

Game – “A_system in which players engage in artificial conflict, defined by rules, that results in a quantifiable outcome” (Salen and Zimmerman 2003:80).

Game Design - The process of creating designed experiences for games. Also refers to the purposeful design elements of the game (i.e., the game design may allow for the use of mouse and keyboard).

Game Object - Elements within or emanating from a digital game, such as a robot or a sound effect. Game objects are essentially the material and immaterial culture within digital games and are necessarily related to one another in systems of meaning.

Gameplay - Interaction that occurs as players engage with the rules of a game. It is not only a designed feature of games, but is an emergent aspect of interaction between the game and the player(s).

GLaDOS – A main character and primary antagonist in Portal 2.

Guild – A persistent group of like-minded players who may draw on the resources of one another in order to do dungeons, raids, PvP and any number of other activities.

Health – A WoW character's health is represented graphically by the green bar and numerically by the ratio on the character portrait. When health reaches zero, the character dies and may immediately revive at a nearby graveyard. In Portal 2, health is represented as the screen flashes red when Chell takes damage. It is not quantifiable like in WoW.

Level - The small number along the circumference of the character portrait, it is a quantitative measure of the character's strength or difficulty.

Level Up – When characters gain enough experience to level up, their attributes (strength, health, intellect and so on) increase, making them more formidable fighters. As characters level up, they learn new and powerful skills and abilities, often class-specific attack moves and other special actions.

Light Blue Portal – One of the portal types a player can create in co-op. It is paired with the dark blue portal. If a player goes into the light blue portal, she comes out the dark blue portal, and vice versa.

Massively Multiplayer Online Game (MMOG) – Games like WoW, which are large-scale online virtual environments where thousands of players can play together simultaneously. MMOGs tend to be characterized by physicality, meaning that the game occurs in a representation of a detailed physical world that may be real or imaginary, provide communicative modalities for player-player interaction, such as text or voice chat, feature avatar-mediated play, offer persistent worlds, meaning that the game is always available 24 hours a day, 7 days a week, and continues to evolve whether or not the player is online, contain elements of vertical game play, which refers to a player's progression through the game and may have multiple indicators, and are perpetual, meaning that they do not “end” in the conventional sense of the word. The digital worlds continue to evolve and there are endless game-given goals for players to reach.

Minimap – Located in the upper-right corner of WoW's UI, players can use the minimap or open a larger map to navigate the world and find quest givers and other things represented symbolically on it.

Mount – Purchasable at level 20, this game object increases a character's movement speed.

Non-Player Characters (NPCs) - Artificial intelligences in games that typically respond, seemingly intelligently, to player action.

Norms - Social rules that comprise a game's external design grammar. Game rules and norms determine what is (un)acceptable content and practice in the particular semiotic domain. Rules and norms shape the types of conflict within and around the game and shape both possible outcomes of interaction and players' goals.

Orange Portal - One of the portal types the player can create. This type is default in single-player and is paired with the blue portal. If a player goes into the orange portal, she comes out the blue portal, and vice versa.

Pick-Up Groups – Short-lived groups of strangers who band together for a common goal, usually to complete a dungeon or play a PvP battle.

Play - “Free movement within a more rigid structure” (Salen and Zimmerman 2003:304).

Players - People who play a game

Player-Character – The embodiment of the player in the game world, and the object through which the player interacts with the game world.

Player-Versus-Player (PvP) - A game mode in WoW where players compete against one another.

Portals - Holes that function as doorways that players may create on the surfaces of walls, floors and ceilings within each test chamber. They allow players to navigate around obstacles and reach the elevator which takes them to the next test chamber.

Portal Gun – A game object that players manipulate to create portals.

Propulsion Gel – A game object that players can spray around a test chamber. As the name suggests, it makes player-characters run extremely fast on surfaces coated with it.

Quest - Discrete tasks in WoW provided by quest givers, identifiable by the exclamation marks and question marks above their heads. Quests provide rewards in the form of experience and equipment.

Raids - The most difficult dungeons in WoW requiring 10 or 25 players acting cooperatively, they provide the most sought-after rewards.

Red Portal - One of the portal types a player can create in co-op. It is paired with the yellow portal. If a player goes into the red portal, she comes out the yellow portal, and vice versa.

Rules - The rules of a game comprise its internal design grammar, determining what the player can and cannot do, and both facilitating and constraining player action. Game rules and norms determine what is (un)acceptable content and practice in the particular

semiotic domain. Rules and norms shape the types of conflict within and around the game and shape both possible outcomes of interaction and players' goals.

Single-player games – Games that involve one player interacting with the game.

Semiotic Domain - “Any set of practices that recruits one or more modalities (e.g., oral or written language, images, equations, symbols, sounds, gestures, graphs, artifacts, etc.) to communicate distinctive types of meanings” (Gee 2003:18).

Switches – Game objects in Portal 2 that players approach and press “E” to interact with. They usually open doors or cause something to happen in the test chamber.

Systems of Meaning - A term used to emphasize that the “set of things” is defined through the meaning-making process. A system is a set of things that affect one another within an environment to form a larger pattern that is different from any of the individual parts.

Targeted – A green circle beneath an NPC in WoW signifies that the player has targeted the NPC. Once a player targets an NPC, he can interact with it. Targeting is also signified by the NPC's portrait.

Test chamber – In most other games, this would be called a “level” or “stage.” Portal 2's test chambers are the discrete puzzles that players solve to progress through the game.

Turrets - Stationary robots capable of killing the player-character by firing bullets. Turrets, like other types of hazards introduced throughout Portal 2, serve as obstacles or discourage the player from performing certain actions.

Tutorial - A structured segment of gameplay that serves to teach the basics.

User Interface (UI) - Mediates communication between the player and the game and is comprised of a host of symbols that players must learn to interpret.

Wheatley – A main character in Portal 2.

Yellow Portal - One of the portal types a player can create in co-op. It is paired with the red portal. If a player goes into the yellow portal, she comes out the red portal, and vice versa.

Zones - Discrete areas of the WoW game world each with its own aesthetic, story lines, and enemy level range.