MMOG players' sense of place in virtual worlds

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MMOG PLAYERS' SENSE OF PLACE IN VIRTUAL WORLDS

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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

2021

Statement of Originality

I hereby certify that the work embodied in this thesis is the result of original research, is free of plagiarised materials, and has not been submitted for a higher degree to any other University or Institution.

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Katrina Paola Bañas ALVAREZ

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I have reviewed the content and presentation style of this thesis and declare it is free of plagiarism and of sufficient grammatical clarity to be examined. To the best of my knowledge, the research and writing are those of the candidate except as acknowledged in the Author Attribution Statement. I confirm that the investigations were conducted in accord with the ethics policies and integrity standards of Nanyang Technological University and that the research data are presented honestly and without prejudice.

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Authorship Attribution Statement

This thesis contains material from one (1) paper accepted at conferences in which I am listed as an author.

Earlier versions of Chapters 1 and 2 were presented as Alvarez, K.P.B. & Chen, V.H.H. (2019, May). Sense of place among MMOG diaspora communities [Extended abstract]. 69th Annual International Communication Association Conference, Washington, DC.

The contributions of the co-authors are as follows:

- I designed and conducted the study, including data-gathering and analysis.
- I prepared the manuscript draft.
- A/Prof Chen edited and provided guidance on the manuscript.

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Table of Contents

Summary	8
Chapter 1: Introduction	10
Chapter 2: Sense of Place in MMOG Communities	14
Conceptual Background	
Place and Sense of Place	
Place-Making and Sense of Place in Virtual Worlds	21
Related Literature	26
Communities in MMOG Worlds	
Place Studies of Virtual Worlds	32
Authenticity and Meaning	36
Preliminary Study: Nostalrius Players' Sense of Place	39
Methods	41
Findings and Discussion	42
Conclusion	53
Chapter 3: Factors Influencing Sense of Place	57
New Research Questions	
Proposed Factors	58
The "Natural" Structures of Virtual Space	
Presence and Sense of Place in Virtual Worlds	63
Place-Making Practices	67
Summary	70
Chapter 4: Place-Making Practices Across Forked MMOG Worlds	72
Study 1: Place-Making by the Glitchen	

MMOG PLAYERS' SENSE OF PLACE IN VIRTUAL WORLDS	7
Methods	74
Findings	78
Study 2: Place-Making in WoW	85
Methods	86
Findings	91
Synthesis	94
Chapter 5: Testing the Theoretical Model of Sense of Place	98
Methods	
Survey Development	102
Game Design Patterns	
Place-Making Practices	108
Sense of Place Scales	113
Final Survey Results	116
Reliability Analyses	
Regression and Mediation Analyses	122
Qualitative Responses	127
Summary	136
Chapter 6: Discussion	138
Limitations and Future Directions	146
Reflexivity	149
Conclusion	151
References	155
Appendices	184

Summary

This project explores *how game players* develop *sense of place*, the perception that a space has meaning (Bott, 2000; Hummon, 1992) as they interact with the virtual spaces of massively multiplayer online games (MMOGs). Researchers have long proposed that people relate to mediated people, objects, and places as they do to those physically experienced (Reeves & Nass, 1996), to the extent that the experience is as though unmediated (Lombard & Ditton, 1997). While this proposition has been extensively tested with mediated human-to-human and human-to-computer interactions, the mediated human-to-place relationship is taken for granted and understudied, particularly when it comes to virtual worlds. Researchers have discussed how one might feel present in a virtual world (Lee, 2004), how virtual worlds might be experienced as third places (Steinkuehler & Williams, 2006), and how communities and cultures develop in virtual places as they would in physical ones (Boellstorff, 2008; Pearce & Artemesia, 2009; Taylor, 2006; Yee, 2014). Yet researchers have only recently begun to investigate how people come to perceive virtual environments as places at all.

Place is the broad concept geographers have for a mere *space* that people have invested with meaning (Cresswell, 2015; Low & Altman, 1992; Tuan, 1975, 1977). As people perform the activities of their lives in a space, the structures of that space—its natural, built, and eventually, sociocultural elements—become associated with the meanings of those activities, turning space into place. In the process of conducting these *place-making practices*, people develop their own *sense of place*, the perception that the space has meaning (Bott, 2000; Hummon, 1992), based on a personal understanding of

how the place's various parts work together to produce its unique rhythm and character (Relph, 1997; 2007).

This project aimed to build a new conceptual framework to understand sense of place in MMOG communities through a series of studies that developed variables and quantitative measures to unpack the factors that influence sense of place. It first uncovered the factors that influence MMOG players' sense of place in virtual worlds through literature review and observations of online discussions in MMOG communities. Through mixed-methods content analysis and large-scale text analysis, it then identified specific place-making practices that influence sense of place in virtual worlds. The theoretical model that explains the factors and their respective influence on sense of place was finalized via an online survey.

The survey included a taxonomy of the common place-making practices based on the results of the content analyses, a catalog of game design elements or patterns (Björk & Holopainen, 2005), and measures of spatial presence (Hartmann et al., 2015) and sense of place (Bott, 2000; Cottrell & Cottrell, 2015). Results showed that place-making practices involving regular social interaction with other players as well as exploration and developing familiarity and knowledge of the virtual world can predict MMOG players' sense of place. Game design patterns that embody players' actions through avatars and enable them to participate in narrative also influence sense of place. Players who spent a longer time playing the MMOG and experienced greater spatial presence also tended to have greater sense of place. This study contributes to related literature both theoretically and methodologically.

MMOG Players' Sense of Place in Virtual Worlds

Chapter 1

Introduction

From metaphors like the magic circle (Huizinga, 1949; Salen & Zimmerman, 2004), literature-based concepts like *transmedial worlds* (Klastrup & Tosca, 2004) and world-building or *subcreation* (Wolf, 2012), cognitive experiences of immersion and presence (Lombard & Ditton, 1997; Lee, 2004), to sociological perspectives on communities and cultures in massively multiplayer online games (MMOGs; Boellstorff, 2008; Taylor, 2006), scholars have taken various approaches to explain how people, as users or players, experience the spaces mediated in virtual worlds. Researchers have long proposed that people relate to mediated people, objects, and places as they do to those physically experienced (Reeves & Nass, 1996), to the extent that the experience is as though unmediated (Lombard & Ditton, 1997). While this proposition has been extensively tested with mediated human-to-human and human-to-computer interactions, the mediated human-to-place relationship is often taken for granted and understudied, particularly when it comes to virtual worlds. Researchers have discussed how one might feel present in a virtual world (Lee, 2004), how virtual worlds might be experienced as third places (Steinkuehler & Williams, 2006), and how communities and cultures develop in virtual places as they would in physical ones (Pearce & Artemesia, 2009; Yee, 2014). It is only recently, amid a broader interdisciplinary turn toward the interrelations among people, information and communication technologies (ICTs), and space and mobility (Sheller & Urry,

2006, 2016), that researchers have begun exploring how people come to think of virtual worlds as *places* — as *spaces* invested with meaning — at all.

Place is the broad concept geographers have for any previously undifferentiated space that has become meaningful (Low & Altman, 1992; Tuan, 1975, 1977), through a dialectical *place-making* interaction between people and the structure of that space over time (Creswell, 2015). This structure can have material components—topography, climate, architecture, urban plans, and so forth—and immaterial ones, such as the social relationships, culture, and history that might have developed in the space so far. As people, with their individual memories, routines, and choices, interact with and within this structure over time, they associate various meanings with the space, turning it into a place. Their *sense of place* emerges from their emotional connection to, understanding and appreciation of, and participation in particular places, including the interactions, processes, and meanings that create these places (Relph, 1976; 1997).

While studies of sense of place have traditionally focused on physical spaces (e.g., home, city, or country), the ways electronic games mediate spatial experiences have led researchers to suggest that imagined or virtual spaces, like those of MMOGs, can become places, too (Kalay & Marx, 2005; Milligan, 1998; Plunkett, 2011; Relph, 2007). Virtual worlds mediate an experience of navigable space that is distinct from other media—such as chat rooms, forums, and social networking platforms—often also referred to as “virtual space” or “cyberspace” (Malecki, 2017; Tavinor, 2011). MMOG players encounter a space that enjoys the same *persistence* as a physical one. However, rather than natural, built, and sociocultural structures developed by

physically present people, players encounter a virtual world and game mechanics determined by game developers, as well as traditions or practices that previous players might already have established in that world. Thus, as new players interact with, contribute to, or even change this world structure over time through such *place-making practices*, the structure becomes associated with the meanings of their gameplay experiences, and they develop a sense of place.

By borrowing from geography, this project contributes to the still-growing *space-communication nexus* (Adams & Jansson, 2012) of convergent social science research, notably in geography, mobility studies, sociology, and communication research. In the past 15 or so years, scholars in these fields have recommended more interdisciplinary approaches to understand how communication and ICTs influence places, mobility, and people's experiences of these concepts, and, conversely, how space, place, and mobility might influence communication, ICT use, and other social and cultural processes (Ash, Kitchin, & Leszczynski, 2016; Lindell, 2015; Sheller & Urry, 2006, 2016). Such research often brings theories and methods from one discipline to pursue the research questions of another, as I have attempted in this project.

For some time, however, scholarship at the space-communication nexus has focused on the relationships among people, ICTs, and physical places. Some of the research foci include whether ICTs and ICT use diminish sense of place or promote *placelessness* (lack of meaning; Relph, 1976); how ICT use blurs boundaries between public and private places; how ICTs such as digital geolocation or locative media serve as additional layers or augmentations of a place; and how ICTs influence movement and the various

stages of migration between places; among others (Adams & Jansson, 2012; Ash et al., 2016; Cresswell, 2015; Diminescu, 2008; Faist, 2013; Larsen, Axhausen, & Urry, 2006; Sheller & Urry, 2006, 2016). And, while some researchers have examined place with a specific focus on electronic games and virtual worlds, they have focused more on games' problematic representations of physical places and peoples; racial, gender, and/or generational inequalities in accessing and participating in gaming spaces; and how physical spaces are electronically or digitally augmented as players interact with gaming technologies (Ash & Gallacher, 2011). Others have focused on comparing sense of place between physical places and virtual recreations of those places (e.g., Benyon, Smyth, O'Neill, McCall, & Carroll, 2006; Bowman, Banks, & Rittenour, 2020; Turner & Turner, 2006). Scholarship on how people might engage in place-making practices and thereby develop sense of place in virtual worlds with no physical counterpart has been rare.

This, then, is the primary research question of this project: *How do MMOG players develop sense of place in virtual worlds?* In the following sections, I further discuss place concepts to provide an initial theoretical background for the project and review how place and sense of place have been examined in past literature on MMOGs. I then report a preliminary study in Nostalrius Begins, a private server that ran a deprecated version of World of Warcraft (WoW; Blizzard Entertainment, Inc., 2005) to illustrate how sense of place emerges from players' interactions with the structures of their chosen world. I further develop a conceptual framework for sense of place in virtual worlds with a review of relevant literature to suggest several factors influencing

players' sense of place. These factors include *game design elements* or *patterns*, spatial presence, and place-making practices. I then report on mixed-methods content analyses conducted with two MMOG communities, WoW and the now defunct Glitch (Slack Technologies, Inc., 2009), in order to uncover common place-making practices. I explore the relationships suggested in the framework through a survey of over 400 MMOG players, before concluding with a refinement of the framework to understand how they develop sense of place in their chosen worlds.

Chapter 2

Sense of Place in MMOG Communities

Conceptual Background

Place and Sense of Place

As discussed above, place is space made meaningful over time. A place is never finished but is an ongoing dialectical production (Manzo, 2005). This production, the place-making practices that imbue a space with meaning, include the actions, routines, performances, and interactions people conduct in that space. A space's material and sociocultural structures might shape, facilitate, or constrain those practices (Lefebvre, 1991; Pred, 1984), which in turn can reshape these structures. Regardless of whether place-making practices are conscious or unconscious, as people interact with and within a space, they associate that space with the meanings of their activities and experiences there over time (Cresswell, 2015) and thus develop sense of place.

For humanistic geographers, sense of place is the skill, capacity, or ability to participate in, understand and appreciate the unique rhythms of a

place. Tuan (1977) suggested it is a sense like one's senses of sight, hearing, taste, smell, and touch; it begins to emerge by use of those senses along with proprioception, or one's sense of one's position, movement, and direction in space relative to other objects. In this vein, Seamon (1980) described sense of place as arising from *body-ballets* and *time-space routines*. People develop integrated, habitual bodily behaviors for doing things, such as making breakfast or getting dressed; a set of such behaviors is a body-ballet. In the course of everyday life, people combine various body-ballets into time-space routines. For example, a person's time-space routine of travelling from home to work might involve the body-ballets of walking to the station, paying fare, boarding and alighting, walking to the next block, and so on. These body-ballets become so routine that they are practically unconscious. Finally, from the many, combined time-space routines of all people using a particular space (e.g., a city) emerges the *place-ballet*, "an environmental synergy in which human and material parts unintentionally foster a larger whole with its own special rhythm and character" (Seamon, 1980, p. 163). Sense of place thus develops with directly participating in and learning the routines of the place-ballet, thereby joining in place-making, intentionally or unintentionally.

Relph (1997, 2007), on the other hand, suggested that sense of place is cultivated through careful observation and analysis of a place and its underlying processes; thus, one can have a sense of place for somewhere they have not inhabited for long. However, the depth of a person's connection to a place varies with the level of *insideness* they experience. *Vicarious insideness* is what people gain when they experience places through media. *Behavioral insideness* entails being physically present in a place and being

able to observe its various qualities and functions. This can develop into *empathetic insideness*, where a person can appreciate and identify with the abstract meanings invested in the place. Yet, Relph (1976) suggested that the deep connection one might develop through the conscious attention of these latter two types of insideness still falls short of a more intimate, unconsciously developed connection:

To be inside a place and to experience it as completely as we can does not mean that existentially we are insiders. The most fundamental form of insideness is that in which place is experienced without deliberate and self-conscious reflection yet is full with significances. ... *Existential insideness* characterizes belonging to a place and the deep and complete identity with a place that is the very foundation of the place concept.

Existential insideness is part of knowing implicitly that *this* place is where you belong — in all other places we are existential outsiders no matter how open we are to their symbols and significances. (p. 55; emphasis in first paragraph added)

In general, to have a strong sense of place is to know intuitively not only what a place is like and why, but also, if necessary, how to dwell there; this allows a person to feel they fit in or belong to a place, or else they seem alien and “out of place” (Cresswell, 2015, p. 64). For geographers taking more positivist perspectives, particularly in environmental psychology, sense of place is simply the perception that a place has meaning (Bott, 2000; Hummon,

1992). By inhabiting a place and participating in place-making, a person develops this perception that the location of those activities means something.

While sense of place is personal and individual (Relph, 1976; Tuan, 1977), the place-making process by which it develops usually occurs in a larger social context. Place-making can be considered a process of the social construction of reality (Berger & Luckmann, 1966), where the routine behaviors and roles people perform as part of society come to be institutionalized, accepted as the common-sense order of things. Social institutions, from everyday time-space routines to sacred rituals, are never without spatial and temporal context. The projects of a society serve to constrain people to specific paths through space and time, and in determining its members' paths and allocating resources for its projects, a society will appropriate its natural and, later, built environment accordingly (Pred, 1984). Society and space interact dialectically to facilitate, establish, and reproduce the accepted order of things (Lefebvre, 1991). Thus, over time, the social and cultural meanings of a society's place-making practices are sedimented into its environment—physically, in the signs and symbols of art and architecture, as well as plans that organize certain spaces for specific projects; and mentally and emotionally, for the members of that society who learn, perform, and impart the norms, customs, traditions, and history of that environment—thereby developing their sense of place.

Definitions and frameworks for sense of place therefore include some social dimension (Bott, 2000; Low & Altman, 1992; Proshansky et al., 1983). Places become important or meaningful because of social opportunities to be found there, as well as from a sense of belonging based on one's social

identity (Manzo, 2005). Sense of place can arise from social experiences, including a person's social position and relationships in said place, as well as "public meanings" (Hummon, 1992, p. 259) that give place a cultural identity and give people references for their own identity or self-characterization. Places themselves become social symbols in that regard (Scannell & Gifford, 2010). It is not uncommon for places to be associated with certain people or groups of people (consider the connotations of terms like "ghetto" or "ethnic neighborhood"), and when a person participates in place-making themselves, the meanings that give rise to sense of place come from relating to others in the same place, feeling sense of community and "recognition, being recognized and recognizing others in the neighborhood" (Gustafson, 2001, p. 10).

Here, it is important to mention three related concepts that are often confused with sense of place. The first is *spirit of place*, or a place's distinctive identity (Norberg-Schulz, 1980; Relph, 2007). It is this concept people mean when they say, for example, "The town plaza has a real sense of place." Under the definition used in this project, however, it is humans—not places—who possess sense of place, because it stems from their own understanding of a space's character, purposes, and associated practices. It is with their sense of place that a person might apprehend the spirit of a place.

The second common concept, *place attachment*, is a person's emotional connection to a place (Lewicka, 2011; Low & Altman, 1992). However, assuming sense of place stems from understanding or perceiving a place's meanings, place attachment can be thought of as contributing to those meanings. That is, the emotional connection a person feels for a place can

help make that place meaningful and is only one dimension of their sense of place.

The third concept, *sense of community* (McMillan & Chavis, 1986; Peterson, Speer, & McMillan, 2008) or *community attachment* (Hummon, 1992), refers to personal connection to any social collective. However, it can be confused with sense of place when the location of the target community is salient in a study, particularly when the “community” in question is conflated with a “neighborhood”, “village”, or “town”. As with place attachment, however, sense of community can be considered a contributing factor to one’s sense of place rather than equivalent to it, in so far as belonging to and participating in the place-making practices of a social collective can influence the meanings one personally associates with the space.

These confusions likely stem from the general model—accepted by both positivist and interpretive researchers—of place-making as a dialectical or interactive process, and it has thus been difficult to determine which place concept precedes or contributes to the other, in the pursuit of a primary focal concept or measurable construct to denote human connections to particular spaces. To illustrate, the components of sense of place and place-making—people, structures, and interactions/practices—are also often considered dimensions of place attachment (e.g., Raymond et al., 2010; Scannell & Gifford, 2010). Some researchers consider place attachment to be a dimension of sense of place, which they in turn define in the same way as spirit of place (e.g., Jorgenson & Stedman, 2001). Similarly, some sense of community models consider whether the community in question fosters emotional attachment to the community’s space (McMillan & Chavis, 1986;

Hummon, 1992). These confusions have certainly made it difficult to determine the appropriate terminology for the current project to examine how players relate or connect to MMOG worlds. However, further explicating sense of place, spirit of place, place attachment, and sense of community was beyond this project's scope.

Regardless of the various names for this way people relate to places, researchers have tended to agree that the relationship has structural/environmental and personal components (Bott, 2000; Cresswell, 2015; Gustafson, 2001; Hummon, 1992; Low & Altman, 1992; Manzo, 2005; Milligan, 1998; Proshansky et al., 1983; Raymond et al., 2010; Relph, 1976; Scannell & Gifford, 2010). The structural/environmental component includes both the natural and built environment as well as the sociocultural environment produced by social interactions and larger cultural processes such as history and politics. The personal component involves psychological connections to a place: thoughts, feelings, and memories. It also includes behavioral or functional connections formed when a person associates the place with the fulfillment of various needs or motivations, as well as the anticipation of future possible activities, experiences, and interactions. The intersection of these

Figure 1*Sense of Place Model*

components, through place-making practices, gives rise to sense of place (see Figure 1).

To summarize, this project defines sense of place as the personal connection or relationship one has to a place that they find meaningful. It is not necessarily a positive or negative connection and can change as the meanings associated with a place also change (Manzo, 2005). A person develops this sense of place as long as they engage in place-making practices, consciously or not, that invest a space with meaning over time (Cresswell, 2015).

Place-Making and Sense of Place in Virtual Worlds

How would players, then, develop sense of place in the virtual world of a MMOG? As stated earlier, virtual worlds have persistence similar to that of the physical world. They are designed to reflect the impact of a user's actions or decisions on that world (Fernández-Vara, 2011). Thus, for example, if a

player has lain siege to a virtual city, debris from the fighting might still litter the streets when they return, non-player character (NPC) dialogue might change to reflect how lives have been affected by the battle, certain areas might no longer be accessible by the player, and so on.

For MMOG players, persistence simply means that the world is available is available to all users at all hours of the day and does not cease to exist. Offline players may leave the world for a while and return to see how virtual life has gone on in their absence. Persistence in MMOG worlds is even less extensive than that in the physical world, as player actions do not permanently change certain preset structures (e.g., slain NPCs such as boss monsters are reset so that later players can slay them). However, a MMOG world's constancy still facilitates continuity for individual and group histories in that world. Player characters themselves enjoy *perpetuity*; death is not permanent, and players can continue even after reaching the highest levels of in-game achievement or unlocking all available content (Taylor, 2006). Together, persistence and perpetuity allow community, economy, and other social structures to develop in the spaces of a MMOG world (Chan & Vorderer, 2006), these social structures become part of the overall structures of place-making, and over time, engaging in place-making allows players to develop their sense of place.

To further understand this process, the Mechanics-Dynamics-Aesthetics (MDA) framework (Hunicke et al., 2004) of gameplay experience is a useful way of translating some of the components of place-making into the gaming context. Under this framework, *mechanics* refer to the components that have been determined by a game's designers: software that specifies

Figure 2

Mechanics-Dynamics-Aesthetics Model of Gameplay Experience

Note. This is a re-illustration, not a true copy of Hunicke et al.'s (2004) diagram.

what players can do in a game, as well as the graphics, sounds, and other elements to represent the workings of that software to the player. Under an expansion of the model (Ralph & Monu, 2015), pre-written/scripted narratives as well as the hardware a player requires to even play the game are also considered mechanics. *Dynamics* refer to the behavior of the game that emerges from the ongoing interaction between the mechanics and player input; they are what a player actually does in a game and the emergent narrative that unfolds as they play. Lastly, *aesthetics* refer to the player's thoughts and emotional responses during this interaction, as well as their interpreted and remembered narrative, or memory. From the designers' perspective, mechanics facilitate dynamics, resulting in aesthetics; for players,

aesthetics “set the tone, which is borne out in observable dynamics” (Hunicke et al., 2004, p. 2), which players may then manipulate by interacting with the mechanics (see Figure 2).

This model of gameplay experience parallels how space becomes place. Rather than entering a physical space with its structure of terrain, climate, buildings, and so forth, players enter a virtual space whose structure is determined by mechanics. These mechanics include the hardware by which their bodily actions are translated into the game, the visual and aural representation of some environment that can be traversed by the player-character or avatar, the algorithms specifying how the player can act in and upon that environment, and the narratives the player might cause to transpire there (e.g., quests). Just as the structure of a physical space might enable or constrain people's movements and activities, mechanics delimit player actions in virtual space. The dynamics or actual experience of a game—what players actually do in the virtual space and the narratives that actually occur as they manipulate mechanics—correspond to the actions and experiences people have as they interact with a space's structure. The meanings they might associate with the virtual world as a result of these experiences arise from their aesthetics: the emotions, thoughts, interpretations, and memories that develop as they play. Thus, by playing in virtual space, it becomes a place, and players develop a sense of that place as personally meaningful (see Figure 3).

Under this framework, the continuity of a player's experience in a persistent MMOG world allows their dynamics to become the virtual body-ballets and time-space routines that, with those of other players, compose a

Figure 3*How Sense of Place Develops in MMOG Worlds*

place-ballet over time. In the same way that many routines do not need much conscious attention in everyday life, mastery of controls and navigation in virtual worlds frees players' attention for engagement with narrative, social interaction, and gameplay aesthetics (Calleja, 2011), allowing individual thoughts and emotions to color meanings invested in the space. The routine dynamics might be institutionalized as players interact with other players and establish a shared understanding of the order of things. The place-making practices in the form of such dynamics become part of the rituals of player culture known to develop in MMOGs (Chan & Vorderer, 2006; Taylor, 2006; Yee, 2014). Shared narratives also become part of a history and collective memory associated with the virtual world. Over time, culture becomes part of the structure of virtual space that new players encounter when they learn to play the game, in turn influencing their own development of sense of place.

Related Literature

Communities in MMOG Worlds

The “massively multiplayer” in MMOGs suggests how they facilitate social interaction on a scale far above that of other multiplayer games (Chan & Vorderer, 2006). Past work on MMOGs has thus focused considerably on the relationship between social variables and MMOG play, MMOG loyalty, time spent playing MMOGs, and other similar concepts. For example, studies have found positive relationships between such concepts and friendship with other gamers (Tseng & Wang, 2013); guild membership (Ducheneaut et al., 2006); social identity with a guild (Moon, Hossain, Sangers, Garrity, & Jo, 2013); interdependence with other players (Teng, Chen, Chen, & Li, 2012); and sense of community and the potential loss of relationships (Tseng, Huang, & Teng, 2015). These studies illustrate how sense of community—encompassing feelings of belonging, influence, fulfillment of needs, and shared emotional connection (McMillan & Chavis, 1986)—might help to anchor a player to a particular MMOG world as part of sense of place.

Previous studies of how MMOG players develop culture and community, while not focused on that development as place-making, further shed light on how place-making is carried out. These works have actually tended to take the potential place-ness of a MMOG world for granted, to see virtual space largely as a backdrop to player interaction and culture, rather than as part of the larger interaction of place-making. Perhaps because such work emerged amid a general perception that virtual activity, including and especially social activity and relationships, was inauthentic or not real (Boellstorff, 2008; Steinkuehler & Williams, 2006), early MMOG culture

researchers focused on demonstrating the contrary. Some of these works even specifically called MMOG worlds “places” and illustrated how player activity, as actions and interactions with and within MMOG structures, constituted place-making. However, just as Berger and Luckmann (1966) considered spatial structure “quite peripheral” (p. 40; Lindell, 2015) to the initial development of their theory of the social construction of reality, MMOG research similarly focused on how in-game/in-world cultures and communities developed, without necessarily focusing on what it meant for such cultures to *be in* those worlds, to experience their environments as worlds at all.

For example, Steinkuehler and Williams’s (2006) seminal study of player activity and culture in Asheron’s Call I and II (Turbine, Inc., 1999, 2002) and Lineage I and II (NCSoft Corp., 1998, 2003) aimed to demonstrate that MMOGs function as third places, or places for social interaction and relationships outside of the home and the workplace (Oldenburg, 1999). Third places offer people opportunities to socialize without having to fulfill social role requirements, to converse for the sake of bonding and belonging rather than for goals related to work or family life, and to have diverse interactions with diverse people. These characteristics, rather than physical environmental criteria, determine whether a location is a third place, though third places often take the form of cafes, bars, and similar hangouts (Oldenburg & Brissett, 1982). Again, Steinkuehler and Williams’s (2006) work was a response to concern that games, among other media, were displacing authentic social, community-building activities. The authors suggested that, on the contrary, because MMOGs fit the criteria for third places, players could and did engage in the same bonding socialization in virtual space.

Another way of interpreting Steinkuehler and Williams's (2006) findings is to suggest that MMOG players engage in third-place-making. Their activities or practices in virtual space establish it as a place for social interactions and institutions similar to those that people develop in their physical third places. As players develop routine dynamics, they imbue the space with the distinctive character that one experiences with sense of place. A clear example is the behavior of "squatters" who tended to stay in specific areas of the game worlds. The authors likened them to physical third-place "regulars", such as one might find at the local bar, and whose activities helped produce "the feel of a given MMO world" (Steinkuehler & Williams, 2006, p. 896).

Another prominent text in MMOG research is Taylor's (2006) ethnographic work in EverQuest (Daybreak Game Company LLC, 1999). She noted the early popular categorization of graphical multiplayer/multi-user spaces as either "games" (usually role-playing adventures) or "social worlds" (Taylor, 2006, p. 23) for more varied social interaction. Eventually, technological developments led to three-dimensional, player-navigable landscapes, thereby allowing "games" "to more explicitly orient toward a kind of virtual 'worldness'" (Taylor, 2006, p. 24). This may be why, throughout the text, the author tended to treat the game world as fact or background, a technologically created space that never changed except by changes to its technology. Only when addressing questions of game ownership did she explicitly posit the game world as a co-creation with players, not simply a developer-provided experience.

Yet even before such questions, Taylor's own observations of practices in EverQuest often demonstrated how much player activity and culture helped

to produce the game's "worldness". Over time, players developed norms and practices, with associated meanings, for specific spaces in the world. Her own description of returning to her avatar's starting area showed how she herself had developed a sense of place: "When I venture back now I still remember the valleys and hills, the location points of many monsters I killed or was killed by. Returning is not unlike going back to a real-life hometown, with all the memories the landscape and architecture evoke" (Taylor, 2006, p. 32). She also noted how changes in game space later affected player practices: "With the automatization of porting and the introduction of centralized transportation zones ..., the regional gathering places died, as did the social life around them" (p. 62).

A third exemplary work is Boellstorff's (2008) ethnography of Second Life (Linden Research, Inc., 2003). Perhaps because Second Life's mechanics enable user-created content, and the game does not feature a player progression as in adventure-themed MMOGs like EverQuest and WoW, Boellstorff paid close attention to how players interacted with, appropriated, and transformed the virtual space of Second Life, not only with digital structures they created but also with cultural meanings. He observed how players developed social conventions regarding what could and could not be done in various spaces and even defended their sense of place from perceived violations, such as by protesting the building of a flashy, noisy virtual nightclub next to a quiet, more established oceanfront hangout.

Moreover, Boellstorff (2008) was aware of place as conceptualized by geographers like Relph (1976) and Tuan (1977) and directly claimed that virtual worlds are places. However, even though he recognized how Second

Life players consciously engaged in place-making—indeed, doing so was fundamental to the culture—rather than acknowledging the dialectical nature of place, like other scholars, Boellstorff seems to have treated it, ultimately, as a fact of the game experience. His statement, “if what makes virtual ‘worlds’ worlds is that they are places, what makes them sites of culture ... is that people interact in them” (Boellstorff, 2008, p. 179) suggests that the concept of place might have been conflated with world persistence. Rather, I wish to clarify that persistent virtual worlds are sites of culture, and that is what makes them into places.

Finally, Pearce’s (2008, 2009) studies of players who migrated from the sunsetted MMOG Uru (Cyan Worlds, Inc., 2003) to Second Life and There.com (Makena Technologies, Inc., 2003) attended to how players interacted with new game spaces in order to reproduce place-making practices and sense of place. She asserted that successful transition from one virtual space to another, for the Uru diaspora, required what she called *spatial literacy*:

... the ability to both “read” and “write” in the language of spatial communication and spatial narrative. Different games and virtual worlds utilize different conventions of spatial communication and meaning-making, and ... it is often the situated knowledge of the language and syntax of a specific game space that gives rise to emergent behavior. In the case of Uru players, this spatial literacy guided players’ understandings of the spaces and stories in Myst games, particularly Uru, and also enabled them to subsequently recreate and interpret

those spaces in other game worlds. (Pearce & Artemesia, 2009, pp. 20-21)

Based on this description, I consider spatial literacy to be equivalent to humanistic geographers' conceptualization of sense of place as a skill or capacity to participate in place-making (Relph, 1997, 2007; Tuan, 1977; Seamon, 1980; Cresswell, 2015). By developing this capacity, the Uru players were able to navigate, act, and interact in alternative MMOG worlds based on their understanding of what made Uru distinctive and meaningful. Pearce's (2008, 2009) theorization differs mainly by suggesting that spatial literacy is developed by interacting with mediated or virtual environments. However, if spatial literacy is understood as sense of place, then developing it is not unique or confined to virtual worlds. On the contrary, MMOG players' spatial literacy emerges from an online exercise of the capacity to relate to space that humans have possessed for as long they have dwelled in and interacted with any space, virtual or physical.

The present work builds on these and other prior studies by framing the experiences of MMOG players as place-making experiences and studying them as such, by exploring how they relate to virtual worlds through developing their sense of place. Rather than treating virtual worlds as mere backdrops of player activity and culture, the current project explores how the development of sense of place—the way humans interact with, appropriate, and relate to places—might or might not be the same, regardless of a place's physical or virtual nature.

Place Studies of Virtual Worlds

Other past literature has considered virtual worlds as potential places, using geographers' understanding of spaces that people imbue with meaning. However, few actual studies have explored how players might develop sense of place by interacting with the structure of game space. These studies are diffuse in focus and/or reveal the continuing ontological confusions regarding place, sense of place, spirit of place, and other related concepts, affecting the roots of the studies' assumptions. Other scholarship is abstract, hypothetical, and/or critical, focusing on designer intention rather than the place-making process that players perform.

One strand of literature recommends place-making criteria for game designers, considered the architects and planners of a structure that would, in turn, determine the activities players might perform in the space. While acknowledging that users might adapt and appropriate a space with their own practices and meanings, Kalay and Marx (2005) privileged the designers' position and mostly saw place-making as an endeavor on designers' part to provide virtual space users with various affordances. Arora and Khazanchi (2014), in making recommendations for the design of virtual learning environments (VLEs), were concerned with how designers might create a space that users would consider a place for the activities, emotions, and perceptions that designers desire.

Relph (2007) similarly suggested virtual place-making depended on designers' choices but was more generous regarding users' role:

The original author of a virtual place in some fashion has to anticipate how participation might occur and to provide suitable cues and

possibilities for it, though in a fully interactive virtual place, as in a real place, the imaginative involvement of participants will lead to changes that can in no way be anticipated. (no page number)

If place is indeed understood as a dialectical production between humans and space, research must consider the experiences of other humans who interact with a space as well as if not more than its original designers.

There are two studies that appear to have considered players' place-making in this sense. The first analyzed the pre-designed spaces in EverQuest and players' actual uses of such spaces. The authors suggested that the game designers attempted to fill the MMOG world with virtual built elements that might encourage certain player behaviors (e.g., taverns, shops, and civic buildings where players might gather), as well as graphic and narrative elements to give such spaces some quasi-cultural and historical context in the game world. However, the dynamics of actual play, progression, and travel saw players develop their own centers for socialization, trade, and transportation, away from the spaces designers intended for those same purposes (Hayot & Wesp, 2009).

The second study considered players' use of the racetracks in Gran Turismo (GT; Polyphony Digital, Inc., 1997) and rFactor (rF; Image Space, Inc., 2005). It showed that even spaces that appear to rigidly constrain player behavior—here, tracks for simulated car racing—may be appropriated for various uses and associated with different meanings depending on the community involved (Paiva, 2015). GT players decided amongst themselves, for instance, whether a particular track would have races every 15 minutes or was open for just cruising, and they valued fictional tracks for their uniqueness

over recreations of real-world tracks. rF players, on the other hand, could design their own tracks for various purposes because the game was open to modification, and this helped foster feelings of ownership of and belonging to these spaces.

A third study also purported to study virtual place-making but focused on whether select spaces in Second Life fit Kalay and Marx's (2004) design criteria, rather than whether players had invested those spaces with meaning. This resulted in superficial design recommendations that largely continued to minimize the role of the player in turning space into place. In one instance, the authors found that a space that seemed designed for social and business gatherings was in fact used to perform repetitive actions to earn money, turning what designers intended as a lively lounge into the functional equivalent of quiet office cubicles. Yet rather than recognizing that following design criteria did not necessarily yield desired results or that player appropriation of the space ultimately influenced the sort of place it became, the authors maintained the primacy of the designer's role in place-making and concluded with "the necessity ... to design virtual worlds that are socially and culturally appropriate" (Tan & Yee, 2010, p. 112).

The authors also recommended providing mechanics that left players room to improvise—despite their own findings that players were already improvising using the existing mechanics. They suggested that allowing users to simulate realistic behaviors in the virtual space helped with place-making but did not articulate any association between realism and meaningful experience. The latter is the core of what makes space into place. Other research has shown that players can have meaningful experiences in fantastic

virtual worlds that allow non-realistic action (e.g., Taylor, 2003; Yee, 2014).

Fundamentally, Tan and Yee (2010) assumed that following certain design principles would impart spirit of place to the virtual world. My perspective, however, is based on the view that spirit of place is unfinished and malleable, emerging from the temporal and spatial practices of all people—not only designers—who use it over time.

Another virtual world study somewhat conflated place with place attachment, a personal's emotional bond to a place (Milligan, 1998). The researchers suggested that high levels of awareness and cognitive absorption in the virtual world would lead to place attachment, which in turn indicated that the virtual space had become meaningful and therefore a place to its users, who would thus intend to return to the virtual world (Goel, Johnson, Junglas, & Ives, 2011). Yet place attachment can be negative as well as positive (Low & Altman, 1992), and past literature has noted that people can feel positive attachment to a place without necessarily being aware or conscious of its various elements, or be highly aware yet negatively attached (Hummon, 1992; Tuan, 1977). Moreover, the authors themselves admitted that they did not measure whether the study participants found their experience in virtual world meaningful, nor was this included in the research model. Closer examination of their measures suggests the experiment intended to show the viability of Second Life as a learning environment, not place-making in or place attachment to virtual worlds at all.

The studies discussed here all recognized, to varying extents, the influence of game design in delimiting what players can and cannot do in virtual spaces. However, two (Hayot & Wesp, 2009; Paiva, 2015) ultimately

showed, as the sociological work did, that it was the routines and rhythms of players' practices, along with the accumulation of meaning, that turns those spaces into something players would recognize as a place. In the terms of the MDA framework, while game mechanics might facilitate or constrain certain uses of a virtual world's space, it is actual dynamics and the meanings arising from player aesthetics that lead players to relate to a virtual world as a place.

Authenticity and Meaning

This view also counters some skepticism regarding whether users can truly turn virtual space into place, especially if they are unable to alter or add to a world's pre-developed structure or mechanics. Such skepticism may be related to the views game culture researchers have worked to debunk (Boellstorff, 2008; Steinkuehler & Williams, 2006), that relationships and other social processes in virtual worlds are inauthentic or unreal. Longan (2008), for example, asserted that games provide players with only the illusion of control over space; ultimately, they are landscapes—in the sense of landscape paintings—that embody and reinforce the worldviews of their creators or developers. Aarseth (2008) also compared the design of WoW to that of theme parks like Disney World, thus questioning whether one could have an authentic experience of place in such an inauthentic environment. Because the world's dimensions and other features were inconsistent with those of places in the physical world, because game mechanics seemed to simply propel players from one challenge (or theme park "attraction" [Aarseth, 2008, p. 114]) to the next, and because players could not manipulate the structure of the represented environment in a lasting way—as players of MMOGs like Second

Life can—he claimed, “the ‘world’ in World of Warcraft is not a proper world ...” (p. 121).

However, such views may be based on romantic ideas of authenticity that authors like Relph (1976) and Tuan (1977) held in the early days of humanistic geography (Aner, 2016). Aarseth (2008) purported to examine spatial practice as defined by Lefebvre (1991): the enactment of a dialectical relationship between society and space to facilitate, establish, and reproduce an accepted sociopolitical order of relations. Yet, he failed to incorporate an integral part of that definition: the relations of players engaged in that practice. Even Relph acknowledged in his original writing that people who lived in pre-designed spaces, such as masterplanned neighborhoods of identical houses or uniform housing blocks, might be able to endow them with spirit over time, simply by living there, developing their routines and traditions as individuals and as communities. In the preface to the 2008 edition of his work, he also recognized that fabricated spaces like theme parks, malls, and airports can still be meaningful places to their users, and further said:

What I wrote in the 1970s suggests a Manichean struggle between place, which is represented as good, and placelessness, which is bad. ... In this postmodern era ... [m]obility, commercialization, disneyfication, [and] museumization, all of which I proposed as roots of placelessness, have developed a potential to be sources of enhanced diversity. (no page number)

Thus, it should not be difficult to imagine that users of virtual worlds can develop a sense of place, as members of the culture living and developing in

virtual space, in much the same way people do so in physical spaces—even if those spaces might appear manufactured or synthetic and cartoonish.

This is not necessarily to claim that the sense of place MMOG players might develop in virtual worlds is equivalent to or as intense as the attachment experienced by, for example, refugee or diaspora communities in relation to their homelands. Nor do I claim that the meanings MMOG communities associate with virtual worlds might have psychological, historical, or cultural impact comparable to those linked to places like Uluru or the West Bank. In acknowledging the possibility of meaning in commercialized, manufactured spaces, Relph (1976/2008) did not make such comparisons, either.

It is also not a goal of this project to redefine sense of place, nor to devise a new concept such as virtual sense of place. To do so rings of returning to the real-vs.-unreal debate regarding the authenticity of people's experiences in virtual worlds. It is the reason my distinctions throughout this document are between the *physical* and the virtual, rather than the real and the virtual. Past researchers have been able to show that people relate to the mediated in the same ways they relate to the physical (Reeves & Nass, 1996), to treat the player relationships and culture in virtual worlds as real (Boellstorff, 2008; Steinkuehler & Williams, 2006), and to demonstrate that people behave in much the same way online as they do offline, even when the affordances of virtual worlds ostensibly free them from social constraints (Yee, 2014).

In the same spirit, I aim in this project to treat the sense of place players might develop in virtual worlds as real. The research gap, in my view, is not that we lack a concept to describe human connections to virtual places but that a well-established concept for connection to place is understudied in virtual

contexts. My goal is not to redefine sense of place for the virtual world but to simply study it in such worlds, to understand how it arises from players' interaction with the structures of virtual space. This, in the same way Boellstorff's (2008) ethnography aimed to study culture in virtual worlds rather than to produce a separate concept of virtual culture. On this point, I find another quotation from him quite pertinent:

I particularly wish to avoid "synthetic" and "artificial": for some researchers these terms have value, but for my purposes they obscure how the most distinctive feature of the worlds under discussion is not that they are fabricated, but that they are virtual. The "real world" of human social life is also synthesized through human artifice. Virtual worlds are self-evidently social constructions, but they are far from unique in this regard. (p. 17)

Preliminary Study: Nostalrius Players' Sense of Place

To begin exploring how MMOG players develop sense of place, I studied the experiences of Nostalrius Begins (Nostalrius) players. Nostalrius was a private, volunteer-run, non-profit but still illegal emulation of World of Warcraft (WoW) in its early years, known to the community as the *vanilla*, *legacy*, or *classic* game. This contrasts to the *live* or *retail* version of the game with all its content expansion packs, patches to game mechanics, and so forth. For WoW players, vanilla WoW generally refers to the version of the game prior to the 2010 release of the Cataclysm expansion, which dramatically reshaped the world's mechanics in terms of gameplay rules as well as in-game geography and narrative (Braithwaite, 2015; Tavinor, 2011; Winkie, 2015).

Until WoW parent company Blizzard Entertainment released an official iteration called WoW Classic in 2019, the only way players could enjoy vanilla WoW was through *private servers* like Nostalrius. Private servers are unauthorized instances of a MMOG run by independent individuals or groups, providing a venue for players to engage with the same virtual world in a different form, and without the subscription or membership fees required for retail play. Not only do such servers offer entry into deprecated versions of a virtual world, but they also give players a venue to experiment with different gameplay dynamics due to the modifications some private server operators make to the MMOGs' mechanics, usually to remove or circumvent limits set by the original developers (Debeauvais & Nardi, 2010; Lin & Sun, 2011).

In this way, private servers can be seen as *forks*, which are parallel projects derived from the same software, independently developing into different products based on the fork developers' philosophies (Robles & Gonzalez-Barahona, 2012). MMOGs' nature as fork-able software thus allows study of how structural differences in nominally the same virtual space—in this case, WoW's fictional realm of Azeroth—might influence players' place-making and sense of place. The different and usually separate player populations that make up any one private server's player base, combined with the server operators' modifications to mechanics, mean that each fork hosts a unique community with its own culture and gameplay dynamics. This, even though every fork features the same virtual environment, non-player characters (NPCs), items, and storylines.

Though there are hundreds of WoW forks available, Nostalrius's shutdown in April 2016 inspired such a community outcry that it garnered

considerable news coverage in both gaming and general news media (e.g., Foxx, 2016; Morrison, 2016a; Paget, 2016; Skipper, 2016; Thier, 2016). In the larger gaming community, observers unfamiliar with the differences between vanilla and live/retail WoW—including myself—asked why Nostalrius players were struggling or even refusing to move on. However, as someone who had experienced a MMOG sunset herself, I also had firsthand experience with the difficulty of finding a new virtual world that spoke to the gameplay, environmental, and community sensibilities I had appreciated about the old one. I was beginning to explore sense of place as a concept that encapsulated those sensibilities. Nostalrius thus provided a timely opportunity to explore how differences in mechanics, dynamics, and aesthetics might give rise to different senses of place between communities that inhabited different versions of a single virtual space.

The pilot study was thus guided by two research questions:

RQ1: How did interaction with MMOG structures inform players' sense of the world in Nostalrius as a place?

RQ2: How does this sense of place compare with their sense of the world in live/retail WoW as a place?

Methods

I conducted a textual analysis of forum posts created by Nostalrius players after the server team announced the impending shutdown. The corpus, gathered in April 2017, consisted of 1,704 individual posts from 200 forum pages, resulting from a search of the General Discussion section for the terms “vanilla” and “legacy”. These posts were downloaded into a spreadsheet

with the import.io (2018) web-based data extractor. From the 1,704, I purposively sampled 206 posts based on whether they contained player descriptions of mechanics, dynamics, or aesthetics for further coding and analysis. I coded these posts in a two-cycle qualitative content analysis (Hsieh & Shannon, 2005; Tracy, 2013). The first cycle highlighted activities, feelings, thoughts, processes, and so forth that were present in the data; codes were based on the players' own words. In the second cycle, I organized or synthesized these codes into larger categories or concepts. Though the original posts remain accessible to anyone online, I have changed players' usernames for this report.

Findings and Discussion

While RQ1 concerned players' sense of place in the game world presented in Nostalrius, what emerged from the data was players' sense of vanilla WoW in general, recalled from memory and/or relived in the private server. Nostalrius simply provided the mechanics by which they could once again perform place-making practices learned and developed prior to retail WoW's updates. The server allowed them to reproduce a sense of place that no longer fit into the live game. This allowed them to reestablish social institutions that drew meaning from overcoming the game's challenges and working hard for reward items and achievements, which they felt had become trivialized by retail WoW's reduced difficulty.

Player-game dynamics in vanilla WoW, as provided by Nostalrius, produced a player culture centered on challenge and achievement. The community, through guilds, friendships, and other groupings, focused on meeting shared goals, usually the completion of difficult raids, dungeons, or

quests and the acquisition of rare game items such as weapons and armor. They also enjoyed competing with one another in player-versus-player (PVP) combat, either on the games' designated battlegrounds (BGs) or by simply attacking other players elsewhere in the game world (world PVP [WPVP]).

Nostalrius players believed the changes in game structure, imposed by live WoW's patches and expansions, indicated that Blizzard had pivoted toward casual players. Past researchers have suggested that developers did indeed lower WoW's overall difficulty (Brown, 2011; O'Connor, Longman, White, & Obst, 2015). Having overcome the challenges in their original form, Nostalrius players saw themselves as more authentic or legitimate than those who had joined the game later on. However, they also felt disillusioned by and alienated from a place they could no longer recognize. Two players' thoughts exemplify these issues:

The Burning Crusade has been the expansion that has added more content, been much more difficult and skill requiring, while also being extremely fun, enjoyable, and rewarding. The Battle for Mount Hyjal, the Black Temple and the Sunwell Plateau have been three of the hardest and most iconic raids to have ever been seen in Warcraft Lore. Any future expansions catered towards casual players, this [TBC] is the expansion where we get tested and put through a hell of a challenge but if you are able to rise and defeat it, it will be a victory unlike any other (OscarMach).

The patch that truly breaks WoW's history in 2 is 3.2.; Up to that point, your guild had to work together to progress through previous raiding

tiers, all while remaining competitive and inspired to prevent your better players from abandoning boat. When ToC¹ was introduced, for the first time in the history of WoW, catch up mechanics were added that allowed you to circumvent all the tier 7 raids, and provided gear on par with Ulduar² just so you could immediately jump into the new tier.; This was correctly dubbed, the worst patch in the history of the game, and every design decision made ever since has just built upon it, *ruined the long cumbersome road experience an MMO should be*, and instead turned it into forgettable, disposable, replaceable entertainment that you can use for a couple of hours per week when there's nothing too good on TV (Vickrick; emphasis added).

Players also perceived a loss of social interaction and community development due to certain structural changes. Recruiting group and guild members and coordinating their schedules for major raids or dungeons has been compared to the labor of an offline job (Yee, 2014). Perhaps to make this work more convenient, Blizzard introduced the Group Finder tools that automatically match players with others who are ready for the dungeon/raid/BG or other goal/quest at that very moment. Also known as Looking For Group/Raid/Dungeon (LFG/LFR/LFD), the tools sometimes produced cross-realm³ groupings, matching players with others who might not

¹ Either Trial of the Crusader or Trial of the Champion, dungeons introduced in Patch 3.2.

² A raid that provided rare, high-level equipment rewards. Players had to be at least Level 80 to raid.

³ Live WoW servers are subdivided into instances called realms to prevent overcrowding. Areas or instances (e.g., dungeons) within each realm can be further "layered" or "sharded" into multiple copies as needed, for hundreds or thousands of players to play simultaneously yet comfortably. Cross-realm zoning or grouping, on the other hand, is intended to avoid undercrowding.

even be playing in the same server instance and so were even more likely to be strangers to one another.

Community went from being part of a guild, making friends to regularly run dungeon content with, getting helped by strangers and then help strangers in return, making premades⁴ in BGs to improve your chances of winning.; It turned into not being part of a guild, using the Blizzard LFG queue tool to find groups of people that you never speak to, or will ever speak to again, and more focus on singleplayer aspects, having crossrealm battlegrounds that matched you into BGs faster more reliably, but it removed the feeling of community since probably never met the people inside your BGs before, and you won't have the need to meet them again (waferjam).

Streamlining social coordination with the Finder tools also diminished opportunities for player interaction that often took place in specific areas of the game and/or entailed travelling together to some destination. Because Group Finder could effectively teleport a player to a dungeon/raid location, retail WoW players no longer had to spend more time than necessary in the world with one another to accomplish their goals. Coupled with cross-realm groupings, the overall effect was of a less sociable, less lively, perhaps less lived-in world, consistent with other research on WoW private server players (cf. Crenshaw & Nardi, 2016) and as described in these Nostalrius players' experiences of retail WoW:

⁴ groups formed for the purpose of performing well in BGs

LFR, LFG, LFD: How many LF abbreviations can one make? This absolutely destroyed pvp for me. ... This also takes away all interaction with the environment. Once you hit 100, you can raid without even running to the raid! (Bab 02)

Quest areas were totally empty. No one bothered out in the field. Everyone leveled in the dungeons. You click the magic button, poof off to the dungeon, plow it in 15m, poof back, then repeat. ... Was no community either. Every person in a dungeon group or BG was from a different server, people you've never seen before, and will never see again (KarateTurts).

Chairdoc's thoughts on travel in vanilla WoW, quoted below, help to elaborate on KarateTurts's observation about quest areas in retail WoW. They suggest that a quest is a means not only for characters to gain experience and level up but also to further develop players' relationship to the game world, their sense of that world as a place:

Vanilla has, while not being particularly full of story, those quests you could call epic. You travel from one end of the world to the other, often discovering new locations you've never been into (at least not on this char⁵) before. And going through a location on foot or a mount is something entirely different than just fly to a preset flightmaster. It's long, and eventually it can become annoying (that's why Bli\$\$ard axed these quest eventually), but you have the feeling of an actual adventure

⁵ character

and that you're undertaking an expedition.; For me, this particular feeling is exemplified by quests that send me to Kalimdor as an Alliance⁶ [member]. It's a land vast and untamed, and to an Alliance member mostly unknown and makes you feel like you could ride for days and not meet civilization and get totally lost. (Chairdoc)

Another expansion feature that affected players' experience of virtual space was the in-game housing system, *garrisons*. WoW limits the number of professions a player character may learn, so players often did business with those of other professions. They also tended to gather in WoW's cities or towns, where NPCs that provided profession training were stationed. Garrisons, however, serve as a personal base where players can access profession services from non-player elements. Live WoW players with garrisons thus no longer need to travel to a public hub to train, hire players of other professions, or promote their own professional services to others, as Bab02 noted: "You don't have to visit a trainer anymore. ... So you never.. really have to go into town."

The player base, their social interactions, and the community they fostered might have been what did distinguish Nostalrius from other forks of WoW, including other vanilla servers. As they eulogized the server, players often said that the several-thousands population was one of its best qualities. Past research has linked MMOG players' commitment to a sense of community (Tseng et al., 2015), as well as guild membership (Ducheneaut et

⁶ Upon character creation, WoW players join either of its main rival factions: the Alliance or the Horde. The center of the in-game continent Kalimdor is currently dominated by the Horde. The factionless Pandaren race was introduced in 2012, but Pandaren players must still choose a faction at the end of their beginner/starter quests.

al., 2006a) and interdependence with other players (Teng et al., 2012). Even though it is unlikely that every Nostalrius player got to know each other, it appears they valued the mere presence of many fellows to potentially befriend and/or compete with, and to simply breathe life into the game, as other researchers have noted (Calleja, 2011; Castronova, 2016; Ducheneaut et al., 2006b). Excerpts from two players' posts capture this idea:

Even if Blizzard does host their own legacy servers, it won't be international. ... I'm pretty sure there are servers for different regions [in retail].... I'll really miss the massive bustling world full of people from all parts of the world. ... The entire world was full of players and that's what made this server what it was, the community. MMORPGs these days just aren't the same as they were in the early 2000s, not as immersive and social (Farmer McRigor).

What sucks is that we can't ride into battle together again. We can move on find another server, many of us want to stick together but it won't ever be the same. I am never going to see familiar players that weren't in our guild just out in the world anymore. I am even sad that I can't be harassed by some of the players I didn't like very much. How pathetic is that? So heartbroken ...(Saint Ronnie)

Perhaps players also felt a shared kinship from the first loss of vanilla WoW and the knowledge that others in Nostalrius were also there to recapture the past and their sense of place. Several players made statements to this effect, including 1K Island:

Almost each and every player on Nostalrius came there for a reason.

We all had the same in mind. And I am damn proud I was part of this international project that formed so well.; Making new friends, the courtesy, the friendliness, the finding a group and walking to a dungeon together and clear it together while socializing. Not this join a que with random strangers to grind some numbers to get your epic set⁷ in 2 days.

When discussing the possibility of migrating to other vanilla servers, players focused on two points: structural similarity and continuity. Besides effectively pirating the retail game, private server operators sometimes modify mechanics by adjusting difficulty, the availability of resources, and the speed of experience point (EXP or XP) gain, allowing players to progress through content at a different pace from the retail game (Debeauvais & Nardi, 2010; Lin & Sun, 2011). Server teams unable to replicate the rules or mathematics behind some mechanics in the retail game might also rely on guesswork and approximation (Morrison, 2016b), resulting in subtle differences. MMOG players are also known to pay physical-world currency for in-game currency, items, and even character progress (Dibbell, 2006), and some private servers themselves accept payment or donations for the same. As Nostalrius players valued the server for mechanics that supported vanilla dynamics, particularly of honest grinding for their own gear and achievements, they wanted a new server to have similar structures, as suggested in this brief sequence of posts:

⁷ Epic is a tier of in-game equipment, often pluralized as simply “epics” (see quotation from BabooTunt below).

If u wanna play TBC⁸ with nos community; Found this server;
[Alternative Server] (OscarMach)
It's 2x xp and it appears you can buy items. Nope for me. (garynone)

In fact, despite Nostalrius players' animosity for Blizzard over the server shutdown, *blizzlike* remained a standard for private servers to aspire to.

[Alternative Server] actually is very bad, its not blizzlike(many xp event, cosmetics with donation) and the pvp sux balls they are freaking bad (eggsy22).

[Alternative Server] is actually average non blizzlike shit with item shop, donations and account/gold trading (GwendyE).

Besides these structural ideals for a destination server, character continuity was another thing Nostalrius players sought. Avatars are the medium through which users act in a MMOG, explore its spaces, and interact with other players. Players see their avatars as not only tools but also as mirrors or extensions of themselves, or even as distinct social others to whom they can develop strong emotional attachment (Banks, 2015). For Nostalrius players, losing the server meant losing the avatars that embodied all their progress and achievement. Many hoped, given that player-characters are essentially digital data or code, that they would one day be able to play with their own avatars again.

I would only consider migrating if our characters went with us. I don't have a lot of time as it is, and I put most of my free time since the new

⁸ The Burning Crusade, a pre-Cataclysm expansion.

year into my characters. If they die with Nostalrius, so does my unofficial Legacy play (spiderRoss).

Why doesn't nostalrius just pick up shop, call it mostalrius, put it down somewhere else, make it invite only.; Theres no reason why they cant and characters wouldn't be interrupted (12Mila).

A related concern was the continuity of the community itself, which in turn was tied to the feeling of having many like-minded others populating the same world. Players appeared divided over whether to immediately begin again and reestablish connections in a new server, or to wait for the Nostalrius team to either announce an official reboot or endorse another server. Again, even if it was unlikely that the players all knew one another, they valued the prospect of sharing the same space with the same people once again.

What I am promoting is ONE SERVER, because atm⁹ people will go to random servers...; This means that We will never have a population as big as nostalrius ever again. I want to preserve this moment, and gather everyone to go to ONE SERVER, doesnt matter which (Pittie89).

I agree as well... Our population will never be the same if we all scramble (BilbsPlates).

Nostalrius players also referred to transmedial world practices they engaged in as part of a larger community of WoW players and Blizzard fans and consumers in general. Transmedial worlds are those that are actualized

⁹ at the moment

and accessible across various media (Klastrup & Tosca, 2004), such as the world of Middle-Earth in J.R.R. Tolkien's books, the films by director Peter Jackson, and the MMOG currently published by Daybreak Games. Notably, at the time the Nostalrius shutdown was announced, players were aware that the Legion expansion pack and a Warcraft film (Jones, 2016) based on the first game (Blizzard, 1994) were a few months from release. Some Nostalrius players were longtime Warcraft fans looking forward to both events. Despite their expressed preference for vanilla WoW, many still patronized the retail version, consistent with other research on private server players (Lin & Sun, 2011). While engaging with the virtual world through non-game media did not appear to directly influence play in the world of Nostalrius itself, being deprived by Blizzard of their chosen version further alienated them not only from retail WoW but from other Warcraft products such as the film and the game Hearthstone (2014), as well as other Blizzard franchises such as StarCraft (1998) and Overwatch (2015). This illustrates how a MMOG players' sense of place might relate to a larger context outside of the virtual world itself.

If you plan on "returning" to retail WoW after Blizzard has sued Nostalrius, I spit in your face. There is nothing worse than supporting an enemy. If you have any feelings for Nostalrius, boycott Blizzard, uninstall their games and tell them on social media that you despise them. (SangPuno)

I was thinking about playing legion with couple friends but after this I will not touch one of there games or see there movie. Wont give them a cent of my money ever again. (Flake49)

On the other side i really wanted to experience a launch of a new expansion, get epics, try the new class and changes made to the other classes, raid and PvP.; Now i feel that I can do without that (after these "circumstances" with Nost). It would only be fun on the launch - and a short period after anyway.; They have announced to make a new expansion every year, I do not have time to build up gear etc etc and then have it ruined after a year. It takes time to farm for epics and such.; That was one of the things that attracted me to Nostalrius. Your character progression would stay - relatively: forever.; But (sadly;) REKT¹⁰ by blizzard on that point - "buy a new expansion every year or gtfo¹¹;; we want you to buy another game every year, including paying us the membership fee."; I was also planning on buying the shortly upcoming expansion to Hearthstone. Not anymore! (BabooTunt)

Conclusion

Overall, players' sense of Nostalrius as a place was informed by a sense of place developed in vanilla WoW, by their understanding of the way things used to be and could be again in the private server—at least before it was shut down. None of the players said that they had joined Nostalrius to replicate their memories exactly. Rather, they had joined to re-experience vanilla WoW. Another way of putting this is, they had joined Nostalrius to regain a sense of place that could no longer be used in the retail game. Vanilla

¹⁰ slang, "wrecked"

¹¹ get the fuck out

mechanics allowed them to perform vanilla dynamics and routines, to reexperience vanilla aesthetics. Nostalrius allowed them to reestablish what they saw as the proper order of things in WoW, before the retail expansions rendered the place-making practices underlying this order unnecessary or obsolete. It was a place where players embraced the grind, the work of levelling, overcoming challenges, and earning achievements that had become reduced or trivialized in the retail version of the game. Moreover, it was a place where they performed this work with like-minded others to recapture what many players referred to as the vanilla “magic”. These others appeared to be part of a larger WoW community, itself within a larger Warcraft and Blizzard community, providing an expanded social and transmedial context for players’ engagement with the structures of this fork or instance of WoW’s virtual world.

While the findings of this study are not intended for generalization to other MMOGs or MMOG communities, they demonstrate how players might associate specific place-making practices and meanings with different iterations of the same virtual world. What remains unclear from this study are the specific structural or environmental factors—in terms of specific game mechanics or elements as well as sociocultural factors—that influence sense of place among MMOG players. Also, the particular place-making practices Nostalrius players engaged in to develop their sense of place, how they used and related to the game spaces, are suggested in the data but were not a very common or salient point of discussion. This may be because many of the posts were to express anger or sadness over the shutdown. Those that did describe the mechanics, dynamics, and aesthetics of vanilla WoW and Nostalrius served to reveal and reinforce the culture of grinding, challenges,

achievement, and domination. There might still be other conventions and practices that contribute to players' sense of their virtual worlds as places. These likely include transmedial place-making practices, given that Nostalrius players were aware their instance of WoW was part of a larger ecosystem of Blizzard games and other media products. A more holistic sense of place model than that currently proposed in place studies would account for these various factors.

Moreover, the emphasis on a vanilla way of doing things served to position Nostalrius players as different from the larger WoW community, yet many apparently continued to patronize the live game. This is not uncommon among private server players, and not only in the WoW community (Lin & Sun, 2011). This raises new, interesting questions about how MMOG players' concurrent access to forks might influence their sense of place in virtual worlds. Having access to different forks of WoW means that players can experience the same virtual world at different points in time: pre- and post-Cataclysm. This is impossible in the physical world, where actual cataclysms, war, gentrification, and other large-scale changes to the structures of a space mean that a place of the past can no longer be inhabited as before, and may be experienced only indirectly through media, history, and memory.

This study suggests that the initial parallels between game experience models like the MDA framework and current models of place-making and sense of place are insufficient for understanding how the process unfolds for MMOG players. All human place-making is ultimately contained in the physical world, but players' place-making practices with MMOG worlds are not similarly confined (see Figure 4). Virtual worlds are not necessarily limited to a single

Figure 4*Different Sense of Place Models for Physical and Virtual Spaces*

game or environment but can be experienced transmedially (Klastrup & Tosca, 2004; Wolf, 2012), such as through multiple forks of the same game; sequels, spinoffs, and other related games; and films, books, and so forth set in the same world. Paratexts, or external resources such as reviews, commentary, and guides, similarly influence play (Consalvo, 2009), and players themselves create paratext and transmedial engagement in the form of fan art/writing, screenshots, videos, live streams, etc. that might serve as personal ways to engage in place-making. And, overall, these practices are in the context of a larger community of fellow players, whose interactions across the game and other media help shape the meanings they associate with their chosen virtual space (Mayra, 2007). Whether engaging with these various entry points to virtual worlds indeed serve as place-making practices, and whether they thus impact sense of place, requires further exploration.

The next chapter discusses the research questions pursued by the rest of the project, proposes factors that influence MMOG players' sense of place, and describes the conceptual model tested by further studies.

Chapter 3

Factors Influencing Sense of Place

New Research Questions

The preliminary study of Nostalrius' players' experiences raised new research questions for this project. First, given that place-making in virtual worlds does not have the same environmental constraints as the physical, and that player and community practices are transmedial, uncovering other factors would provide a more robust conceptual framework that would aid virtual world designers and researchers in understanding how MMOG players develop sense of place, their personal connection to virtual spaces that have been made meaningful.

RQ1: What are the factors that influence MMOG players' sense of place in virtual worlds?

Place-making practices are the means by which people invest spaces with meaning and develop their sense of place. Prior literature and the Nostalrius study suggest a variety of player practices—in-game, out-of-game, and transmedial—that facilitate this process. Identifying these practices could provide an inventory of the activities that cultivate a MMOG player's connection to the virtual world, as well as to explore the relative importance of various practices in contributing to their sense of place.

RQ2: What are the place-making practices that influence sense of place among MMOG players?

The Nostalrius study suggested a sense of place that was not only attached to the Nostalrius server by itself but also blurred with the meanings of vanilla WoW as it once existed. This raises the question of how MMOG players' simultaneous engagement with more than one fork of a virtual world affects the meanings they associate with that world, as well as whether there are key differences in the practices by which they develop sense of place.

RQ3: How do place-making practices and sense of place vary among players of different forks?

Proposed Factors

A further review of the literature suggested three factors that might influence sense of place among MMOG players: game design patterns, spatial presence, and engagement in place-making practices. Each possible factor is discussed in the sections below.

The “Natural” Structures of Virtual Spaces

The first factor in traditional models of sense of place is the natural and built environment (Bott, 2000; Scannell & Gifford, 2010). After all, one cannot have sense of place without finding some point in space to perform place-making practices and make that space meaningful. Without necessarily claiming technological determinism, it must be acknowledged that all virtual worlds must first be created and designed before any players may enter them and develop place-making practices of their own. Therefore, it is important to examine how the “natural” structures of a virtual world—the mechanics that provide a space to interact in and with—might contribute to MMOG players' sense of place.

As discussed previously, some place researchers have recommended design criteria for virtual worlds to promote the development of sense of place. They have suggested that virtual worlds ought to provide a “narrative of spaces” (Chen & Kalay, 2008, p. 238) in the same way physical architecture does, suggesting a flow of movement, activities, and emotions that might be experienced in the overall structure. The goal is to “establish a foundation or framework that can then be adapted and modified through [users’] participation” (Relph, 2007). There must be some structure or mechanics with which a player can develop dynamics, aesthetics, and, ultimately, sense of place.

Kalay and Marx (2005) have suggested that virtual places must (1) have events such as activities and goals to give players a purpose; (2) facilitate presence, for players to engage with the objects and people in the world; (3) differentiate locations within the world, to give context to activities and make realistic the experience of travel and movement between locations; (4) promote the suspension of disbelief, so that the world feels authentic; (5) be adaptable, so that players feel they can leave their own mark on the place; (6) capitalize on game technology to provide players with different experiences, perspectives, and transitions; and (7) be memorable through eliciting emotions, such as promoting either a sense of belonging or a sense of adventure and danger.

Other examinations of virtual space have focused on connections between specific mechanics and player experience. For example, previews of graphics are often a major entry point for players to even try a game; thus, aesthetically pleasing, evocative spaces that promise some exploration and

mystery might encourage players to engage with the world further (Calleja, 2011). Differences between first- and third-person points of view might affect a player's experience of the virtual space, unfolding narratives, and their identification with characters found there, including their own avatars (Taylor, 2003). Game mechanics of exploration (an embodied activity in physical life) and cartography (typically a remote, abstract pursuit) can combine the two into a single, hybrid activity that facilitates new spatial and experiential understandings that are almost impossible to have in physical life (Lammes, 2008). In MMOGs with progression systems, a players' level or amount of experience in the world can influence the choice of in-game spaces they spend time in and the frequency with which they visit those spaces, as well as the world as a whole (Ducheneaut et al., 2006b).

Some researchers have also focused on realism, or the extent to which a virtual world emulates the physical and whether players themselves perceive the virtual world as realistic. Many researchers suggested a balance between realism and abstraction or fantasy. A virtual world where the environment and possible activities bear some resemblance to what players likely experience in the physical world allows them to draw from prior knowledge of how the physical world works, so they might understand, move through, interact with, and inhabit the virtual world more intuitively (Björk & Holopainen, 2005; Ondrejka, 2004; Wolf, 2012). However, making the virtual world too realistic might also reduce opportunities for designers and players alike to produce the creative, fantastic experiences that game technology can facilitate and which are often the purpose of virtual worlds to begin with (Kalay & Marx, 2005; Relph, 2007).

Other studies, while not directly concerned with sense of place, have tried to link game design elements to other concepts such as gratification, loyalty, or preference. For example, Scharkow et al. (2015) attempted to link “content gratifications” of “graphics”, “mechanics/control”, “topic of the game”, and “story of the game” (p. 295) with players’ game genre preferences. Choi and Kim (2004) have suggested that game goals, feedback mechanisms, in-game communication tools, and “communication places” (p. 14)—in-game areas where players can gather together—are indirectly connected to MMOG player loyalty.

While many of these studies have similar suggestions or recommendations, they also reflect a lack of a common terminology or framework among researchers for game design elements that might then be identified as contributing to desired gameplay experiences—in this case, the development of sense of place. It is difficult to directly apply frameworks from physical place research, on the other hand, as place researchers have tended to focus on elements that are often specific to the locations of study and might not be encountered in or appropriate to a virtual world. Examples of environmental factors in such studies include how natural a place feels, whether the building materials are appropriate, and whether the lighting and the amount of trees are good (Bott, 2000); whether green space availability, density, and vandalism affect the respondents (Williams et al., 2010); and whether noise, neighborhood size, and access to the supermarket and the post office are related to neighborhood satisfaction (Mohan & Twigg, 2007). Yet a study aiming to uncover the factors influencing sense of place in virtual

worlds cannot neglect to account for how those worlds are presented to their users.

To address this concern, this project applied Björk and Holopainen's (2005) inventory of *game design patterns*. This collection was produced following the authors' formalist analysis of various games and interviews with professional game designers (both computer and tabletop), in order to provide designers and researchers alike with a pattern language similar to that proposed by Alexander et al. (1977) for architecture and urban design. Fields such as software engineering and interaction design have adopted the concept of design patterns as well. Each game design pattern describes an element with which a player might interact in a game as well as how it might influence or be influenced by other patterns. Many of the pattern names and descriptions are based on common terms among both game designers and the general gaming community and are meant to be applicable to any project or analysis, regardless of the target game's genre or visual/narrative content.

As an "activity-based" (Björk and Holopainen, 2005, p. 7) inventory, game design patterns describe the activities a player might be able to perform with a given mechanic, regardless of the game's genre or visual/narrative content. This activity-centered conceptualization of specific mechanics seemed well-suited to this project's aims of examining player-space interactions while being inclusive of the diverse forms MMOG worlds take, from combat-oriented games like World of Warcraft to sandboxes like Second Life. In this and subsequent sections of this thesis, for the sake of simplicity, the term game design pattern is used synonymously with game mechanic.

As an auxiliary to RQ1, to explore the structural factor of MMOG players' sense of place, this project asked:

RQ1a: Which game design patterns predict or facilitate sense of place in virtual worlds?

Presence and Sense of Place in Virtual Worlds

Place researchers' focus on inhabiting spaces and bodily participation in place-making poses another challenge to understanding sense of place in virtual worlds. While we relate to other objects or people as outside of ourselves, Tuan (1977) noted:

Movements such as the simple ability to kick one's legs and stretch one's arms are basic to the awareness of space. Space is experienced directly as having room in which to move. ... Place is a special kind of object. ... it is an object in which one can dwell. (p. 12)

Movement and proprioception as the roots of place experiences also led to Seamon's (1980) proposition that sense of place arises from people's body-ballets and time-space routines, as they create and participate in place-ballet. However, MMOG players cannot actually move in and inhabit virtual worlds, and their bodily interactions with those worlds depend on the mechanics of hardware, usually limited to button presses on keyboards, computer mice, or console controllers.

Presence theory suggests how players might yet perceive themselves as actually interacting with virtual space regardless of their physical separation from it. Presence refers to the perception that the mediated experience of an object—in this case, a space or place—is unmediated (Lombard & Ditton, 1997). A person experiencing presence does not perceive or acknowledge the

medium and responds to the experienced object as though the medium is not there. For virtual worlds, the pertinent dimension of presence is *spatial presence*, where the user or player does not notice the artificiality of the mediated environment (Lee, 2004; Wirth et al., 2007). This occurs as the player generates a mental model of the virtual environment, as well as the movements and interactions they might perform within that environment, in the same way they would in a physical space (Biocca, 1997). It depends on how well a user's sensory perceptions, a medium's input devices, and the mediated output correspond to that model (Biocca & Delaney, 1995; Calleja, 2011). A MMOG player can thus feel as though they are climbing a mountain because their avatar might move more slowly, make grunts of effort as a sound effect, and require more physical effort on the player's part in manipulating game controls, even though the player themselves is physically sitting in place, pushing a few buttons, and seeing a sequence of images with their eyes (Ash, 2009).

This suggests that spatial presence might serve as a vital bridge between game mechanics, as pre-existing structures of the virtual world, and the player interacting with those structures while physically located outside them. The mediated illusion of movement and proprioception of virtual bodies in virtual space becomes mapped onto one's physical manipulation of mechanics in physical space. Physical manipulations that become routine become closely linked to the virtual routines that develop and play out in virtual space as game dynamics. MMOG players thus develop body-ballets, time-space routines, and place-ballet in virtual worlds as well as in the physical, and these serve to develop their sense of virtual places. Previous researchers

have also suggested that experiencing presence might thus enhance or influence sense of place in virtual worlds (Bowman et al., 2020, Plunkett, 2011; Teng, 2010) or mediated environments (Turner, Turner, & Burrows, 2013).

However, prior research on the relationship between presence and sense of place in virtual environments has so far focused on the inversion: that sense of place might lead to a stronger experience of presence (Turner & Turner, 2006). This perspective is suited to these researchers' aim of virtually recreating physical spaces, such as heritage and tourism sites. Such research is generally preoccupied with realistic graphic renderings and interactions (e.g., Benyon et al., 2006; Devine, 2017; Falconer et al., 2020; Ghani et al., 2019), and it has suggested that place experiences in these virtual environments might be inferior to those in the physical locations they depict, due to a failure to meet participants' expectations of visual fidelity, atmosphere, available activities, and social interaction consistent with what they know from the actual places. Tjøstheim and Waterworth (2020) have even posited that using such environments is simply a form of Relph's (1976) vicarious insideness and thus does not facilitate the deep, authentic connection to virtual spaces that comes from physically being in place.

While users of MMOG worlds do have certain expectations rooted in their experiences of physical places (Boellstorff, 2008; Ondrejka, 2004), the conclusions of the above presence literature do not necessarily apply to sense of place in virtual worlds. On the contrary, players enter MMOG worlds with expectations of fantastic spaces, activities, and interactions that are different from those they find in physical places (Yee, 2006), and designers of these worlds purposely depart from realism in order to provide such unusual

experiences. The suggestion that connections to virtual worlds are only an inferior, vicarious insideness also contradicts the prior research that has illustrated the strong, personally meaningful attachments MMOG players develop for these worlds (e.g., Pearce & Artemesia, 2009; Taylor, 2006).

Yet prior empirical research on presence and game environments, on the other hand, does not clearly suggest a relationship between presence and sense of place. One possible reason is the ontological confusion between presence and the related concept of *immersion*. Presence researchers use this term to refer to how deeply or fully a virtual environment engages one's senses, so that a user is less conscious of stimuli in the physical environment and more involved with those in the virtual (Biocca & Delaney, 1995; Lombard & Ditton, 1997). Games scholars, designers, and players themselves, on the other hand, use immersion to describe a broader, holistic absorption in gameplay, environment, and narrative (Adams, 2004; Calleja, 2011). Gamers might thus describe anything from technical glitches to spelling errors to excess legroom inside a virtual airplane as "breaking" or "ruining" immersion. Prior research examining immersion as a motivation for MMOG play (e.g., Billieux et al., 2013; Worth & Book, 2014; Yee, 2006) have thus tended to use this definition, not that of spatial presence.

Games research that does use the concept of spatial presence (or immersion as defined by presence researchers) has tended to test its relationship with other variables or outcomes. Presence has been associated with game enjoyment or appeal (Boyle, Connolly, Hainey, & Boyle, 2012; Christou, 2014; Skalski et al., 2010; Weibel & Wissmath, 2011; Weibel, Wissmath, Habegger, Steiner, & Groner, 2008) flow experience (Jin, 2011;

2012; cf. Csikszentmihalyi, 1990); better game or task performance (Cheng, She, & Annetta, 2015; Jennet et al., 2008); as well as gaming disorder/addiction (Hsu, Wen, & Wu, 2009; Lehenbauer-Baum & Fohringer, 2015; Stavropoulos, Burleigh, Beard, Gomez, & Griffiths, 2018). Studies have yet to establish empirically a connection between presence and sense of place in virtual worlds. To this end, this project proposes and explores spatial presence as a factor in MMOG players' sense of place (rather than vice versa), and tests these hypotheses:

H1: Spatial presence predicts MMOG players' sense of place.

H2: Spatial presence mediates the relationship between game design patterns and MMOG players' sense of place.

Place-Making Practices

Having access to an interactive virtual world and feeling present and able to interact there are not enough to cultivate a MMOG player's sense of place. Humans use a variety of spaces in physical life yet do not necessarily invest every space with meaning; nor do they always experience the sense of belonging or insideness to a place that comes with such investment. Relph (1976) conceptualized three types of outsideness to further describe ways people relate with places: *existential outsideness* indicates a profound alienation from all places and a sense of belonging nowhere; *objective outsideness* entails conceiving of places as mere objects and locations, like points on a map to which one has no relation; and, with *incidental outsideness*, "places are experienced as little more than the background or setting for activities and are quite incidental to those activities" (p. 52). A frequent flier might experience incidental outsideness with the airports they pass through

during layovers, for example, but experience behavioral, empathetic, or existential insideness with the hometown airport that bookends their long journeys. It is through repeated participation in the rhythms of a space that a person makes it into a meaningful place and cultivates their own sense of place.

This participation is known as place-making and is “how a culture group imprints its values, perceptions, memories, and traditions on a landscape and gives meaning to geographic space” (Lew, 2017, p. 449). This process takes the form of reiterative social, political, and material practices by a society in a particular space (Cresswell, 2015; Pierce, Martin, & Murphy, 2011), as its members go about everyday life (Benson & Jackson, 2012). It might seem dubious to claim that mere repetition of practices is enough to set a social institution in place. However, Berger and Luckmann (1966) have noted that institutionalization is preceded by habitualization, where certain meanings become embedded in a person’s routines. As Friedmann (2010) also noted, “the very act of inhabiting a neighborhood will shape its character, its daily and seasonal rituals, and the recurrent sociospatial patterns that imprint themselves on its memory” (p. 159). These patterns emerge from the body-ballets and time-space routines of a society’s members (Seamon, 1980), serve to establish social institutions and order in places (Lefebvre, 1991; Pred, 1984), and influence people’s sense of place.

Place-making is also used to refer to the work of designers and planners seeking to facilitate certain activities or evoke some affective state (Lew, 2017; Relph, 2007). However, as discussed in the section on sense of place, places are never finished objects, because their structures, people,

place-making practices, and associated meanings can change over time (Cresswell, 2015; Friedmann, 2010). Games, too, are often thought of as unfinished upon release: their authorship is begun by developers and completed by players' actual gameplay (Bowman, Kowert, & Ferguson, 2015). And, every combination of mechanics, dynamics, and aesthetics results in a unique, personal—personally co-authored—gameplay experience (Hunicke et al., 2005). Thus, a study of sense of place in virtual worlds must also take the place-making practices of users or players into account. While designers provide the mechanics or patterns with which players might engage, how players actually engage with them determines how these mechanics figure in place-making.

Previous work on MMOG communities has illustrated how players engage in place-making with the mechanics of their virtual worlds. They appropriate in-game spaces for their own purposes (Hayot & Wesp, 2009); develop practices, conventions, and rituals not anticipated by MMOG designers (Yee, 2014); and socialize one another into community norms, even overtly negotiating what is appropriate according to their sense of place (Boellstorff, 2008). This relationship players have to their virtual places is especially apparent when changes to that world disrupt the established place-ballet (Tavinor, 2011; Taylor, 2006), as in the case of the *Nostalrius Begins* community. Studies of other post-sunset or -shutdown communities have also shown how players who are *displaced* entirely can redevelop place-making practices and sense of place, as they learn and appropriate the mechanics of the MMOGs where they resettle (Marquez, 2013; Pearce, 2008, 2009). They also engage in transmedial, out-of-game practices that nonetheless serve to

Figure 5*New Proposed Model of MMOG Players' Sense of Place*

maintain their connection to their communities and lost worlds (Consalvo & Begy, 2015; Papargyris & Poulymenakou, 2009). Besides pursuing RQ2 to identify specific place-making practices, this project builds on prior work by attempting to clearly show a link between MMOG players' place-making practices and sense of place, by testing the following hypotheses:

H3: Place-making practices predict MMOG players' sense of place.

H4: Place-making practices mediate the relationship between game design patterns and sense of place.

Summary

Figure 5 illustrates the final proposed framework explored and tested in the rest of the project. Game design patterns, the “natural” structures of the virtual world, might facilitate sense of place, but it is unclear which, and these patterns alone cannot produce sense of place. Experiencing spatial presence potentially facilitates the development of sense of place by compensating for players' inability to physically act and interact with and within virtual world

structures. Place theory also suggests that players' interaction with game design patterns through place-making practices will make these worlds meaningful. The next chapter describes two studies conducted to derive MMOG players' place-making practices, a key factor in this framework.

Chapter 4

Place-Making Practices Across Forked MMOG Worlds

So far, previous work showing place-making in virtual worlds has focused on the experiences and practices of players in specific MMOGs. Similarly, studies of physical place-making have tended to focus on communities and people in particular locations (e.g., Benson & Jackson, 2012; Pierce et al., 2011). This project contributes to existing literature by developing an inventory of place-making practices common across MMOGs of various types or genres, with multiple forks, and in different stages of development. In the process, it also demonstrates the application of alternative, mixed content analysis methods to explore how players engage in place-making. This section describes the development of a place-making practices taxonomy through two studies of player forums or message boards in the MMOG communities of Glitch (Slack Technologies, Inc., 2009) and WoW, to answer RQ2 and later test H3 and H4.

Study 1: Place-Making by the Glitchen

Glitch was a browser-based, two-dimensional MMOG set in the fictional land of Ur, imagined by 11 giant deities and populated by Glitchen, as the players were called. It positioned itself as a peaceful yet humorous alternative to more typical, combat-oriented MMOGs like WoW. Gameplay and progression focused instead on crafting, exploration, creativity, and social interaction. The only instances of combat were cooperative—against the “Rook” antagonist that wanted to destroy Ur—and involved joint ritual performance rather than weapons, skills, and tactics. Also, as the game was

still in its beta phase, players enjoyed frequent interaction and a warm rapport with its developers, in the forums as well as in the game world.

Unfortunately, despite some critical acclaim, Glitch failed to build a stable paying subscriber base. Its developers also realized that building the game with Flash (Adobe, Inc., 1996) meant building with a technological platform that was poorly suited for the rise of mobile applications, including mobile gaming (Slack, 2012). Glitch thus went through sunset on December 9, 2012, displacing an estimated 150,000 players.

While most MMOG companies retain ownership of the code, artwork, and other assets after sunset, Glitch developer Slack, then known as Tiny Speck, released the entire library of art assets and a limited portion of the game's source code to the public domain in 2013. This allowed volunteers to take up the project of recreating and possibly extending Glitch on their own. Tiny Speck / Slack developers also provided these volunteers with some technical advice at the beginning, but the company has since moved on from game development to the Slack business communication application that was originally created for internal use.

Philosophical differences led the Glitch restoration efforts to fork from the beginning. The first fork, Eleven, developed with Flash in the belief that the game experience would be closer to the original (Daigle, 2014), and was in closed testing with a limited number of players. The second fork, Children of Ur (CoU), has been using HTML and Dart for greater accessibility (CoU, 2013). It remains in open testing, which means that anyone with a web browser can try the portions of the game that CoU developers have managed to restore. With Flash reaching its own end of life in 2020, both forks

announced a merger the year before, with development to continue using CoU's platform (Kaiyon, 2019). A third fork, Odd Giants, was announced in 2019 and is under development with the Unity platform.

Though the original game is no longer playable, the Glitch community offers a unique perspective of MMOG players' experiences of place because the remaining active Glitchen are consciously concerned with place-making. As this study will show, not only do they seek to restore lost spatial structures and recapture the sense of place they developed in Ur, but they also hope to continue place-making through the addition of new features and activities that might or might not be consonant with that sense of place established before. Studying their online exchanges can thus illustrate how place-making can take the form of "discursive practices [that] enact and reinforce particular understandings of place" (Benson & Jackson, 2012, p. 797).

Methods

To identify place-making practices in the Glitch community, I conducted a mixed-methods content analysis of posts downloaded from the original Glitch forums as well as from the Eleven and CoU boards. This was to allow for comparison and contrast between forks. The target sample was 2,000 randomly selected posts per forum; if the forum contained fewer than 2,000, then all available posts were extracted. This sampling strategy produced 2,000 posts from Glitch, 269 posts from Eleven, and 243 posts from CoU for analysis. Odd Giants was excluded from the study as it had no active forums at the time of data collection (March 2020).

The analysis itself centered on keyword-in-context (KWIC) indices of the posts. KWIC indices are a form of concordance, which is an index of

significant words in a text (Baldick, 2015) that also provides some context of that word's usage in the form of a sample quotation or passage (Knowles, 2006). KWIC indices can be manually or computer-generated and consist of a list of phrases containing a selected keyword/phrase at the center and n number of words before and after it, allowing the researcher to examine how the word/phrase tends to be used. These indices help researchers locate relevant text, topics, or themes efficiently for analysis (Wood, 1984; Ryan & Bernard, 2003) and can be considered a visualization or triangulation technique for qualitative content/text analyses (Ignatow & Mihalcea, 2017; Leech & Onwuegbuzie, 2007; Shahin, 2016). Place researchers have previously used the KWIC index in content analyses comparing how different stakeholders express themselves regarding specific environmental topics (Bengston & Xu, 1995).

KWIC indices thus allowed me to focus on how the Glitchen in each fork thought about or discussed space and place in their own words and reduce the time required to read and analyze the large number of posts, which were of varying lengths and topics and spanned the years of each fork's life. I constructed KWIC indices for each forum's usage of the following keywords, including plural forms: *area, character, chat, community, global, group, home, location, map, person, place, player, region, space, street*¹², *Ur*, and *world*. Most of these keywords are clearly related to space and the game world. The human keywords (*character, community, group, person, and player*) were selected to explore discussions about the human actors and social others in

¹² The world of Ur is divided into spaces called streets, possibly due to the two-dimensional design; movement through each section or area the world proceeds from one end of the screen to another. The environments depicted are rarely urban, however.

game space. Because the chat panel is always present during gameplay and is how players communicate with the others they encounter in the game's space, I also included the communication keywords *chat* and *global*¹³.

There appears to be no rule of thumb regarding the recommended length of computer-generated KWIC indices for analyses. However, sentences in English consist of five to 20 words on average (Sigurd, Eeg-Olofsson, & van de Weijer, 2004), and so I expected a KWIC phrase of at most 21 words to contain at least one complete thought. Each phrase in its index thus consisted of at most 10 words before and after the keyword. I also deemed this window sufficient for capturing context after initial testing and examination with limits of five, 10, 15, and 20 words on either side of the keyword. For ease of KWIC index construction with Python (2019), words were lowercased, and punctuation, removed, but I retained access to the original posts to settle any confusion this might have produced. Figure 6 shows an abridged KWIC index as an example of the phrases analyzed. The texts were manipulated using the pandas (2020) Python library.

As with the Nostalrius forum posts, I subjected each KWIC phrase to two cycles of qualitative content analysis (Hsieh & Shannon, 2005; Tracy, 2013). The first cycle highlighted players' thoughts, feelings, and activities. To assist in the second cycle, I used Gephi (2017) to produce network visualizations of each keyword and the codes associated with its respective KWIC phrases (see Figure 7 for examples). Two individual codes being applied to a single post created the network edges or connections between

¹³ Chat in MMOGs is usually divided into global, local, and private channels, with "global" often used as a shorthand for "the global chat/channel".

Figure 6*Sample KWIC Phrases for the Word "Home"*

```

for glitchen < level 15 or making fist [home]
purchase we offer negative interest microloansjoin
us in the sandbox

i'm thinking something that can be displayed in your
[home] that you can slot 1 of every existing
noteblock into

the imagining and building of this wonderful place
we call [home] ur is what we make it if we are to

searching but didn't find anythingwhen you allow
visitors in your [home] can they open your storage
cabinet and take things out

so you can change the types of plots in your [home]
to herb or crop depending on what you need going

i've just started visiting glitches' [home] streets
for more than delivering a gift or just being

someplace in particular i was looking around my new
[home] and buying up some expansions is there a good

you're interested in some free pigs and chicks on
your [home] street reply below with how many and
which animal you'd

```

Note. Taken from the KWIC index for the Glitch forums.

them, with thicker edges indicating more co-occurrences of those codes across multiple KWIC phrases. Code degree, or the overall number of connections a single code had to other codes, determined the size of its node in the visualization. I then organized or synthesized the codes into larger categories, which were formulated as verb phrases to identify the place-making practices that players alluded to or described.

This analysis was also informed by my own experience as a player of Glitch, as well as my membership in some of the community's post-sunset

social networking groups and my own testing of CoU. Thus, I often drew on my own memory and understanding of the game's mechanics as well as the community's conventions and concerns—indeed, on my own sense of Ur as a place. As I conducted the analysis, I attempted to remain aware of how my own biases and preferences as a player might influence my interpretation of what was and was not a place-making practice. I believe, however, that my prior experience was invaluable in making sense of the data, especially with short KWIC phrases that would have been unintelligible to a non-player or naïve coder. The size of the source corpus also provided diversity in the views and experiences encapsulated in the texts, for added reliability in the analysis.

Findings

Analysis produced seven main categories of place-making practices: basic in-game activities, travel/navigation, out-of-game structural practices, in-game structural practices, sociocultural practices, personal/experiential practices, and world contextualizing.

Basic in-game activities consisted of those routine practices that Glitchen engaged in throughout their characters' or avatars' lifespans. These included learning and understanding the controls, interface, and game mechanics, as well as character development through experience point gain and leveling up, avatar customization, and selecting the branches of the game's skill trees for specialization in a profession. Unlike in combat-oriented MMOGs, Glitchen are not made to choose character classes (e.g., hunter, warrior, mage) or even gender upon creation. Thus, having a varied and unusual wardrobe for one's avatar enabled players to distinguish themselves from one another and express their own identities. Specialization, on the other

Visualization of First-Level Codes Associated with the Keyword “Home”

hand, served to further structure routines. Having no character classes left Glitchen free to learn whatever skills they wanted, but further development in any skill required them to farm or grind for resources, items, and experience points. Additionally, some players engaged in role-play as characters with their own constructed back stories or motivations, such as one player who named their avatar after bacon, designed a bacon-themed home, and collected bacon-themed items. Other basic activities revolved around goals such as completing one's collection of the in-game music blocks and "cubimals", unlocking achievements or rewards, completing quests or goals, and learning the game's narratives or lore regarding the eleven giants and other NPCs.

Customizing one's in-game home was also a literal and conscious place-making practice, at least in the original game. Each player gained access to an in-game home street and house that they could customize with decorations, public resource items such as farm animals, garden plots, and trees, and, eventually, the construction of a tower. These towers served as galleries, meeting places, restaurants, workshops, freebie distribution centers, and so forth, depending on the owner's intentions.

Interacting with a home street was thus not exclusive to its owner. While players' houses were locked to themselves and select friends, home streets and towers were open to any player to visit. It was not unusual for players to leave notes and freebies for others to pick up, or to leave gifts or set up pranks on other players' streets. Developers' home streets were a popular destination: at one point, players built a penis-shaped sculpture out of collectibles on the street of Tiny Speck art director Brent Kobayashi, who was known in the community for penis-related puns. And, as the game's sunset approached, the

street of Tiny Speck founder Stewart Butterfield grew overloaded with gifts and notes of appreciation. For Glitchen in Eleven and CoU, home streets had not yet been implemented, and so players in those forks could only reminisce or look forward to reestablishing these personal places.

Place-making practices related to travel and navigation were important, as Ur's various spaces were designed to contain the various resources Glitchen needed for crafting and progression (e.g., the surreal island of Ix had the most spice trees; the caverns had the most minerals). Learning to navigate the game world, exploring the game world, and eventually feeling familiarity with the game world were vital as the players developed their routines. Travel-related practices were also tied to player progression as access to higher-level forms of transportation—a subway, and the ability to teleport—were only available after a player had invested enough experience in the relevant specializations.

Besides customizing one's in-game home, there were other practices that Glitchen engaged in to influence their and others' experience of the game world. The developers had collective quests known as street projects, which required players to engage in various activities in the game until the goal was reached. Street projects allowed players to participate in the MMOG's design and leave a permanent impact on the structure of the game's spaces, as those who participated could vote on streets' final attributes. Even without street projects, however, players influenced the world by appropriating in-game spaces for other purposes, such as by throwing parties in public spaces, creating scavenger or treasure hunts by leaving clues for other players to find, or simply turning a high-traffic street into a popular meeting spot over time.

Because travelling across Ur to farm/collect resources took up a lot of players' time, some Glitchen also created and committed to resource routes.

Participating Glitchen devoted a portion of their home streets to a specific resource that others could freely harvest and linked their home streets with those of other players who did the same.

Glitch's status as a MMOG in beta testing meant that Glitchen could engage in more overt place-making discourse with the game's and, later, reconstruction forks' developers. This usually concerned resolving bugs or technical issues in the game, but players also felt free to propose new game features and in-game spaces as the MMOG grew in population and content. For Glitchen supporting CoU and Eleven, testing through gameplay was limited, and so engaging in out-of-game discussions about the world and what they wanted in it was often the extent of their connection with these forks.

Glitchen also engaged in place-making practices related to the sociocultural structures of their world. At the most basic level, these practices included using in-game communication channels such as chat and private messaging, and out-of-game channels such as the official forums and social media. Much of the communication itself, on the other hand, promoted the community's ideals of cooperation and fun. The forums especially were a place to be socialized into and participate in the player culture of altruism and kooky, absurd humor, as well as to sanction undesirable behaviors in the game. Notably, a common complaint involved the way some players harvested communal resources from the world's trees and community gardens without replanting and watering them for the next players. Players were also found

discussing and expressing appreciation for what made the community special, the way it was.

This concern with the community grew more earnest when it came to Glitch's sunset, and players explicitly shared anxiety over the current and future state of the community and player base. As noted in other literature on sunsetted MMOG communities (e.g., Consalvo & Begy, 2015; Pearce, 2009), there were attempts under the Glitch fork to regroup on social networking sites and coordinate migration to various destination MMOGs. This was also similar to Nostalrius players' concern with preserving the base and selecting a private server that matched their vanilla ethos. This concern about the community was carried over to CoU and Eleven, with some worries that the forked reconstruction projects would further diminish their sense of cohesion.

Other social practices included facilitating in-game item trade or exchange with other players and creating, participating in, and/or managing groups. As Glitch content was not focused on combat or competition, these groups were unlike the raid- or quest-oriented guilds one finds in other MMOGs and instead served as interest associations and social clubs. Players also used, created, and shared paratexts such as wikis, third-party applications, screenshots, videos, and fan writing about the game, with in-world spaces serving as settings for fan fiction, a player-made transmedial connection to Ur.

Glitchen had personal/experiential practices of sharing positive thoughts and feelings about their time in Ur. These included appreciation for the look and feel of an in-game space, as well as the in-game background music and sound effects. It was not uncommon for them to refer to the game world as a

home. CoU and Eleven Glitchen especially expressed nostalgia as they waited for the development progress in their respective forks. CoU players also often expressed boredom, emptiness, loneliness, and sadness as they sought missing game features, as well as the presence of other players, to fill up the still-unfinished fork.

Glitch and its forks were not closed off from one another or even from other MMOG worlds. Players engaged in contextualizing practices where they related or compared their experiences between the Glitch forks, as well as with other virtual worlds. The latter was a pertinent concern for Glitchen seeking migration destinations to games whose structures—mechanics as well as “native” community—were (or were not) considered “Glitchy” or similar to Ur’s. This mirrors how Nostalrius players were concerned with whether a destination server would be “blizzlike” and thus suit their own community.

It should be noted, though the Glitchen’s place-making practices can be classified under the separate categories described above, the practices themselves were not necessarily separate. Often, they were linked with one another in particular ways of experiencing the world of Ur. For example, the practices of unlocking achievements, exploring and navigating the game world, and proposing new in-game spaces were related in that players were awarded achievements for fully exploring every street in a subsection of the world, and proposing new spaces meant more streets to explore and more achievements to earn. Managing player culture and bad behavior was often related to the (mis)management and theft of resources that Glitchen came to consider communal, as many required these resources to improve and practice their own avatar’s skills/specializations. And, overall, social as well as personal

communicative/discursive place-making practices overlapped with both in-game and out-of-game structural practices.

Study 2: Place-Making in WoW

At BlizzCon 2013, a fan asked WoW's leadership whether they would ever consider making earlier expansions of the game, "as they were then", available in separate servers. WoW's then – vice-president and current president J. Allen Brack answered with a flat, "No. And, you don't want that—to do that, either. You think you do, but you don't." He cited the way players had to coordinate amongst themselves before the streamlined grouping tools were introduced, as well as bugs that had since been repaired. This answer, however, failed to satisfy the vanilla community, which has since used the "You think you do, but you don't" refrain to signify the apparent disconnect between Blizzard and the community, as patronizing corporate insistence on its own way of doing things rather than listening to longtime players and fans.

The community outcry and media coverage of the Nostalrius shutdown in 2016 rekindled hopes among vanilla players that Blizzard would finally reverse its position on legacy servers. Top Blizzard officials even met with members of the Nostalrius development team to gauge vanilla player support and discuss the technical requirements and hindrances to an official endeavor (Morrison, 2016b; Viper, 2016). Finally, at BlizzCon 2017, Brack himself announced the development of WoW Classic and, using an ice cream analogy, said, "I understand that for some of you, your favorite flavor is vanilla." This was followed by an animated video depicting the reversal of key

events in the WoW expansions, including the divisive Cataclysm, and a gnome quipping, “They say you can’t go home again.”

With WoW Classic servers finally opening in 2019, this has been an interesting time to examine sense of place and place-making by MMOG players in one of the genre’s longest-living and arguably most mainstream games. Private servers now co-exist with an official vanilla WoW fork; the “blizzlike” ideal now has a live point of comparison, subscribing vanilla players can indeed “go home again”, and yet private vanilla servers continue to proliferate and thrive. At the time of data collection (March 2020), live WoW players, meanwhile, faced the November release of the Shadowlands expansion, which promised to be as literally game-changing as Cataclysm 10 years before—introducing five new zones, lowering the level cap, and having all new player-characters begin in the same zone, rather than in the separate newbie zones for each in-game race. Thus, to further explore place-making practices in virtual worlds, I continued studying the WoW community, for an example not only of mainstream MMOGs but also of place-making as an ongoing, never finished process (Cresswell, 2015; Pierce et al., 2011).

Methods

Producing a similar list of place-making practices by WoW players required some changes to the sampling strategy and analytic method. Players were found to produce hundreds of thousands of posts on the official forums, across several categories, each week. Therefore, the 20,000 most recent posts were downloaded from the General Discussion sections of both live WoW and WoW Classic, and then 2,000 posts were randomly sampled from each set. To represent private server forks, some 10,000 recent posts were

also downloaded and then 2,000, randomly sampled, from the forums of the Elysium Project (EP) and the Reddit forum/subreddit of Light's Hope (LH). These were themselves forks from Nostalrius Begins following that server's sunset, and LH itself underwent sunset in 2019, ahead of the launch of WoW Classic.

I initially intended to employ the same combination of methods used in the study of the Glitch community's posts. However, each of the WoW forums produced considerably longer KWIC indices, and for a longer set of keywords, rendering that approach impractical for handling a larger corpus under the project's time constraints. I thus chose a different method based on the skip-gram model of word relationships (Mikolov, Sutskever, Chen, Corrado, & Dean, 2013). This is a distributional semantic model, which assumes that the meaning of words can be approximated based on its co-occurrence with other words in text corpora (Bruni, Tran, & Baroni, 2014). The Word2Vec algorithm by Mikolov et al. (2013) assigns each word a vector that tracks these co-occurrences, to train artificial intelligences to infer the meaning of words based on their contexts.

For this project, I used the Word2Vec implementation under the open-source gensim Python library (Řehůřek, 2020) for natural language processing to produce clusters of the 20 words most closely related to each keyword (*area, character, chat, city, community, global, group, guild, home, local, location, map, people, place, player, realm, region, server, space, toon, town, Azeroth, world*, and plural forms of select words). Stopwords, punctuation, and miscellaneous characters were removed from the posts prior to processing. I used default or recommended parameters for dimensionality, context window

size, and number of iterations for algorithm training (Mikolov et al., 2013; Řehůřek, 2019).

Separate models and clusters were produced for each fork's corpus, as well as for the merged corpora, to glean themes from across all included WoW forks. This resulted in 25 clusters for LH, 32 clusters each for EP and WoW Classic, 34 clusters for live WoW, and the maximum 38 clusters for the merged corpora. As an example, Table 1 shows four of the clusters produced by this last model. The smaller cluster count for some forks indicates that the missing keywords did not meet the algorithm's usage frequency criteria for a cluster to be produced—that the players simply did not use those words often enough.

Principles of summative qualitative content analysis (Hsieh & Shannon, 2005) and topic modeling interpretation (Chen & Wojcik, 2016; Ignatow & Mihalcea, 2017) guided the analysis. Rather than coding whole phrases, however, I coded the clusters of words related to keywords for common themes. For example, codes for the cluster/column for "places" in Table 2 include "named places" due to the appearance of the in-game town Goldshire and likely references to the regions known as Burning Steppes, Stranglethorn Vale, and Thousand Needles. Place-making practices were then inferred from the themes. As with the analysis of the Glitch KWIC indices, I visualized the codes and keywords as network graphs in Gephi to aid in the study, using similar rules regarding edge creation and node size (see Figure 8). I could also refer to sample posts containing keywords for clarification. My own participant observation in LH, live WoW, and WoW Classic, as well as past experience playing in a non-vanilla WoW private server, also informed the analysis.

Table 2*Sample Clusters of Words Related to Select Keywords*

map	places	azeroth	world
('valley', 0.861)	('dynamic', 0.895)	('stories', 0.866)	('warcraft', 0.756)
('impossible', 0.843)	('goldshire', 0.892)	('giant', 0.8526)	('buffs', 0.658)
('flight', 0.839)	('adjusted', 0.881)	('wod', 0.838)	('cities', 0.654)
('ibgy', 0.839)	('timers', 0.882)	('outland', 0.835)	('bosses', 0.645)
('shgy', 0.835)	('cut', 0.875)	('mists', 0.835)	('enjoy', 0.632)
('spawning', 0.830)	('steppes', 0.873)	('familiar', 0.834)	('griefing', 0.628)
('alterac', 0.828)	('task', 0.872)	('pandaria', 0.829)	('across', 0.626)
('sf', 0.826)	('disabling', 0.871)	('draenor', 0.827)	('universe', 0.625)
('objectives', 0.825)	('despawn', 0.871)	('arc', 0.826)	('filled', 0.617)
('cave', 0.818)	('continuing', 0.869)	('cataclysm', 0.826)	('frustration', 0.616)
('south', 0.810)	('thin', 0.865)	('lich', 0.822)	('battles', 0.605)
('backdoor', 0.809)	('sees', 0.859)	('impressive', 0.820)	('outdoor', 0.605)
('reinforcements', 0.808)	('titan', 0.858)	('expansion', 0.819)	('coordinate', 0.604)
('guards', 0.807)	('vale', 0.857)	('revamp', 0.818)	('impossible', 0.601)
('over', 0.8017)	('appear', 0.857)	('champion', 0.817)	('engagement', 0.600)
('graveyard', 0.801)	('built', 0.857)	('abandoned', 0.817)	('raids', 0.597)
('dodging', 0.796)	('somehow', 0.855)	('campaign', 0.813)	('trap', 0.596)
('kills', 0.796)	('causing', 0.852)	('grew', 0.811)	('gank', 0.596)
('devilsaurs', 0.796)	('duke's', 0.851)	('exciting', 0.811)	('serious', 0.595)
('sfgy', 0.792)	('thousand', 0.848)	('continent', 0.807)	('falls', 0.595)

Note. Clusters of the 20 most related words to the keywords “map”, “places”, “azeroth”, and “world”, ranked in descending order by similarity/relatedness scores, as determined by project’s Word2Vec model based on all of the project’s WoW corpora.

LDA topic modeling are based on a probabilistic distribution of words across texts, whereas Word2Vec produces models based on how words co-occur in closer context. Though both methods' output may appear similar, I believed this assurance of relation to context—to how the WoW players themselves used these words—was valuable in lending credibility to the qualitative interpretations. Second, while LDA topic modeling is commonly used to suggest the key topics of texts, in this case, I had a preset list of topics (the keywords) and wished to make further inferences from their contexts, something the skip-gram model can approximate (Naili, Chaibi, & Ghezala, 2017).

Findings

As with the Glitchen, I categorized WoW players' place-making practices as basic activities, travel/navigation, out-of-game practices, in-game practices, sociocultural practices, and world contextualizing. However, also as in the previous study, practices often overlapped more than one category and were closely linked to other practices in other categories.

Under basic activities, a primary practice was the development and management of players' avatars, also referred to as characters and toons. This included not only the initial race and class selection at the start of each avatar's life but also levelling up, grinding for experience points by completing quests or goals, and further specializing through skills and professions. Farming resources for crafting, actually crafting and collecting equipment, and farming (repeatedly killing) certain enemies for a chance at better equipment also supported the development of a player character. Some players also appeared to go a step further with role-play. Other practices were related to

experiencing WoW's narratives, understanding its lore, and playing content from new expansions.

Travel and navigation practices centered on exploration, developing familiarity with the game world, and gaining access to higher-level forms of transportation (i.e., mounts and flight). Crafting resources, enemies/targets or *mobs* for fighting, as well as the names of bosses appeared in the word clusters, suggesting the importance of knowing where one would be able to find these elements in Azeroth. Similarly, the clusters also often included the names of capital cities, towns, regions where early-to-midgame players spent time levelling up, dungeons or raid sites, and PVP battlegrounds.

Perhaps because of WoW's size and maturity in contrast with Glitch, out-of-game practices appeared to feature more discussion of Blizzard and its parent company Activision. Closer examination of some posts suggested a more distant relationship between players and Blizzard, including its developers, customer support staff, and game staff (e.g., game masters or moderators) than that enjoyed by the Glitchen. Discussions, proposals, and complaints about game features, including future changes, seemed more speculative than optimistic.

Given the importance of developing one's avatar(s), character transfers were a common theme in private as well as retail forks. As levelling up characters takes considerable time (the live WoW level cap was 120, prior to Shadowlands' returning it to vanilla's 60), some players seek to preserve their progress by having characters simply transferred between servers or realms. A few months after data-gathering, Blizzard (2020) allowed players to transfer characters out of overpopulated realms for free.

Though the Glitchen had various in-game practices to shape the spaces they played with, this study suggested only one such practice among WoW players: building and customizing one's garrison, and only in the live retail fork at that. This is not only because garrisons were a feature introduced after vanilla, but also because of WoW's general orientation toward combat and player-character progression. Both the Glitch home street and the WoW garrison benefit players with specific specialization or crafting goals. However, whereas players' skills and crafted items were often their own ends in Glitch, specialization and crafting in WoW are usually put toward the longer-term improvement of an avatar's performance in battle. Additionally, WoW does not feature quests like Glitch's street projects nor the customization elements that allowed the Glitchen to make a lasting impact on certain spaces in Ur. This is not to say that players in combat-oriented MMOGs do not at all devise their own practices, conventions, or rituals involving interaction with the structures of virtual space; past researchers have observed and documented the contrary (Hayot & Wesp, 2009; Taylor, 2006; Yee, 2014).

Besides using in- and out-of-game communication tools, sociocultural practices were again related to maintaining community and player culture. Clusters related to other people/players suggested that dealing with undesirable behavior was a major concern. Ganking (beating greatly disadvantaged or underleveled players), camping (staying in an area for a long time, sometimes to repeatedly gank a player) and griefing (intentionally disrupting others' play to make it less enjoyable) appeared in the clusters, as did references to multiboxing (cheating by using more than one computer/account to have more than one character at play simultaneously),

twinking (having characters with higher-level equipment earlier than culturally acceptable, usually through the help of higher-level players or multiboxing), and bots. On the other hand, it was also possible that these practices were normalized or condoned by the community, as suggested by other researchers (Chen & Ong, 2018).

Other sociocultural practices included PVP play, trade/exchange with other players, joining groups and/or guilds, managing and recruiting others for one's guild, and completing dungeons or raids as a group. Mentions of "soloing" suggested a general awareness that certain game content was indeed designed for group play. Moreover, as with Nostalrius and Glitch, expressing concern about the state of the community, player base, or population was common. Layering, sharding, and queues were often mentioned, suggesting that these technical issues related to WoW's population continued to influence players' perceptions of the game space.

Finally, WoW players had contextualizing practices through relation with other WoW forks, as well as with other games both MMO and non-MMO, though still under the Blizzard umbrella. Though a player-created wiki appeared in the clusters, other paratextual or transmedial world practices related to Azeroth did not surface in this analysis.

Synthesis

Following these studies, lists of each MMOGs' place-making practices were compared and then merged into a potential taxonomy for the questionnaire to explore relationships among factors of sense of place. The resulting 80-item list (see Appendix A) was reworded to be applicable to

various MMOG genres. Personal/experiential practices were no longer included as they were not common between Glitch and WoW. Table 3 displays the categories of place-making practice practices derived from these analyses, with some examples from each MMOG. I report the results of the pilot and final surveys in the next chapter.

Table 3

Categories of Place-Making Practices Across Both Glitch and World of Warcraft

Category	Definition	Examples	
		Glitch	WoW
Basic in-game activities	Routine practices players engage in throughout their characters'/avatars' lifespans	Collecting ingredients to craft items and level up one's crafting skills, such as cooking or alchemy	Fighting mobs to level up and become strong enough to fight even more challenging enemies
		Customizing the avatar's wardrobe/costume and in-game home	Earning, collecting, upgrading, and customizing better weapons and armor for one's avatar
travel and navigation	Practices related to movement across different spaces within the game world	Exploring different regions and their individual streets	Exploring different regions and their cities/towns
		Unlocking access to the subway or the dinosaur digestive tract shortcuts between major regions	Acquiring access to personal mounts, such as a bear, panther, or horse, to speed up travel on foot
out-of-game structural practices	Using out-of-game channels for conscious discussions of how the MMOG might be improved	Using official forums to interact directly with developers (more frequent in Glitch), air grievances about mechanics, and/or propose ideas	
in-game structural practices	Practices that had a relatively persistent influence on a player's and others' experience of the virtual world	Occupation of the street called Cebarkul over time, initially due to its proximity to rare materials, until it became a known public hangout	Garrison customization (live fork only)
		Player creation and maintenance of resource routes, a network of personal home streets providing free crafting materials	

(continued)

Table 3 (continued)

Categories of Place-Making Practices Across Both Glitch and World of Warcraft

Category	Definition	Examples	
		Glitch	WoW
Sociocultural practices	Using as well as creating and/or modifying sociocultural structures of the virtual world	Using in-game communication channels such as chat and private messaging	
		In-game trade/exchange of items and resources/materials with other players	
		Turning the use of Random Kindness, a boost to another player's mood meter with no benefit to one's own avatar, into a commonly exchanged greeting	Camping in areas where other players will likely reappear after death in order to kill them again
World contextualizing	Conscious discursive practices that set one's MMOG experience in the context of other forks, MMOGs, or non-MMO games	Discussing how the fork under development (e.g., Children of Ur) might be similar to or different from the original Glitch	Comparing the community in one's chosen WoW fork to that of another
		Ahead of sunset, discussing possible MMOGs as migration destinations and whether they and their communities were similar to Glitch	Comparing WoW to other MMOGs such as FFXIV
		Describing and often celebrating differences in mechanics and culture that set Glitch apart from other MMOGs	Discussing other Blizzard games

Chapter 5

Testing the Theoretical Model of Sense of Place

To recall, in Chapter 3, I proposed a framework describing how MMOG players might develop sense of place in virtual worlds. I hypothesized that game design patterns, the “natural” structures of the virtual world, would facilitate this development with the mediation of spatial presence and place-making practices. Spatial presence would directly influence sense of place (H1) and, as a mediator (H2), would compensate for players’ inability to physically act in and interact with virtual world structures. Place-making practices would similarly predict sense of place (H3) and, as a mediator (H4), would give form to players’ interaction with game design patterns to make the spaces of the virtual world meaningful. I was also interested in identifying specific game design patterns (RQ1a) and place-making practices (RQ2) that would influence sense of place. I also sought to determine whether place-making practices and sense of place differed among players of different MMOG forks (RQ3).

Methods

To examine the possible relationships in the proposed model of MMOG players’ sense of place, I conducted an online survey. The place-making practices taxonomy and a list of game design patterns, as well as the sense of place scales, were first deployed in a pilot survey for further refinement. This survey collected 156 responses from MMOG players by the time of analysis (December 2020). Of these responses, 117 were complete (75% response rate). Following questionnaire refinement, the final survey was answered by 439 and completed by 291 players (66% response rate). Both questionnaires

were deployed using the Qualtrics platform (2020). I recruited respondents through university and research interest group e-mail lists, gaming forums, Discord chat servers, student survey exchange networks, social media, and referrals through individual gamers and chat groups.

Respondents answered questions about their fork preferences and time spent playing, then the importance of various game design patterns and place-making practices to their experience of their chosen MMOGs (e.g., “Below are some elements of game design and virtual environments. How important are they to your experience of your MMOG world?”). I chose to focus on importance rather than presence of specific patterns because it is ultimately the meaning associated with the structures of a space that make it into a place. Respondents also completed an adapted Spatial Presence Experience Scale (SPES; Hartmann et al., 2015) and an abridged set of Bott’s (2000) psychometric scales of sense of place. Prior to these measures, they were asked to identify the MMOG they had spent the most time playing in the past six months, and each measure subsequently prompted them to think about the world of that MMOG as they answered.

Tables 4 and 5 provide demographic data about the pilot and final survey respondents, respectively. Most or 255 respondents were from Singapore; 11, from other Asian countries; 15, from North America; 9, from Europe; and 1, from Africa. Tables 6 and 7 display the breakdown of final survey respondents’ play history and fork preferences. Participants were asked which fork of their MMOG they had spent the most time playing in the past six months and whether they spent most or all of their time there or if they divided their time between multiple forks (“versions” to participants). There was

Table 4*Frequencies of Pilot Sample Demographic Data*

Age	Gender		
	Female	Male	Declined to Disclose
21-25	19	70	2
26-30	3	13	0
31-35	1	6	1
41-45	0	1	0

Note. $n = 116$; missing = 1. A third option for Gender, "Other", was available but never chosen.

Table 5*Frequencies of Final Sample Demographic Data*

Age	Gender			Declined to Disclose
	Female	Male	Other	
21-25	74	124	2	3
26-30	20	28	1	0
31-35	7	16	2	0
36-40	2	3	0	0
41-45	0	3	0	2
46 or over	3	0	0	0

Note. $n = 290$; missing = 1. The participant with missing data appears to have terminated the survey after completing all measures but prior to providing demographic data.

no significant difference in sense of place between those who played multiple forks and those dedicated to just one ($t(289) = -1.37$, $p = .17$), partially answering RQ3. Whether fork-related place-making practices influenced sense of place is discussed in the latter part of this chapter.

Table 5*Time Spent Playing the Chosen MMOG*

	<i>n</i>	%
Less than 1 month	10	3.4
1-3 months	24	8.2
4-6 months	13	4.5
7 months to 1 year	42	14.4
2-4 years	65	22.3
More than 4 years	137	47.1

Note. *n* = 291.

Table 6*Participants' Fork Preferences*

time division	Fork				
	official live/retail	official legacy	official sequel	private live/updated server	private legacy server
dedicated	170	41	24	16	12
divided	15	3	3	5	2

Note. *n* = 291. Dedicated players spent all or most of their time playing their chosen fork. Divided players divided their playtime among multiple forks.

Because the respondents comprise a self-selected sample, the results reported in the subsequent sections might be biased and not necessarily representative of the global MMOG player population. However, probability sampling is difficult without the collaboration of game companies and, even then, might be limited to and thus over-representative of select MMOGs or communities (cf. Khazaal et al., 2014) given the sheer number of MMOGs on the market and their varying lifespans. Correction by weighting with the use of prior reference data (Bethlehem, 2010) was impossible given the novelty of the

game design pattern and place-making practice taxonomies, as well as the new context for Bott's (2000) sense of place scales. One prior study has used these scales among MMOG players but used a physical place, not the virtual world, as respondents' referent (Bowman et al., 2020).

Nevertheless, self-selected samples recruited through online media continue to be used in survey studies of gamers (e.g., Fox & Tang, 2017; Shin, 2019; Vahlo, Kaakinen, Holm, & Koponen, 2017), likely due to practicality and convenience. Future replications might increase this and other studies' validity. Additionally, concerns regarding the normality of scores' distribution, particularly for correlation and regression tests, might not be relevant given that these tests are generally robust to normality violations, provided that their residual values are normally distributed, and considering a sample size of over 10 per observed variable (Nefzger & Drasgow, 1957; Schmidt & Finan, 2018).

Survey Development

Game Design Patterns

As discussed in Chapters 2 and 3, game mechanics can be analogous to the natural and built environment of physical spaces. Prior researchers have proposed design principles or criteria that would facilitate the development of sense of place in virtual worlds (Chen & Kalay, 2008; Kalay & Marx, 2005). Others have focused on specific mechanics that potentially influence players' experiences of virtual worlds (e.g., Lammes, 2008; Scharkow et al., 2015). However, a lack of common terminology makes it difficult to determine which mechanics might in fact facilitate a player's sense of place in virtual worlds. To this end, Björk and Holopainen's (2005) "activity-based" (p. 7) inventory of

game design patterns—after the fashion of pattern languages in architecture and engineering—serve as a shared vocabulary that can be used to describe various MMOG mechanics, regardless of MMOG style or genre.

Björk and Holopainen (2005) identified hundreds of possible game design patterns and classified them under 11 different categories of player activities, from objects and resources to player learning and meta-game reflection. For the purposes of this study, I drew primarily those mechanics that were related in some way to a player's experience of virtual spaces or worlds as well as elements (e.g., characters) that players were likely to encounter within virtual space. I also chose some patterns suggested by the MDA framework (Hunicke et al., 2005; Ralph & Monu, 2015) and other prior literature (Calleja, 2011; Kalay & Marx, 2005; Salen & Zimmerman, 2004), as well as by the content analysis to uncover place-making practices. The latter suggested specific game mechanics, structures, or patterns players engaged with as they inhabited their virtual worlds. This selection process yielded the following, whose definitions are also adapted from Björk and Holopainen (2005).

- Patterns of objects players can manipulate, and/or which define the area(s) of a game's reality or environment:
 - Game world. A virtual space where the player can move, interact, and play.
 - Reconfigurability. The player can modify part or all of the game world in some way.
 - Moveable tiles. Spaces in the game world that move or that the player can move.

- Levels. Parts of the game world where things happen until the player reaches a goal or endpoint.
- Inaccessible areas. Parts of the game world the player can detect or sense but cannot enter.
- Consistent reality logic. There are no contradictions or irregularities in the way the parts of the world work together.
- Alternative reality. The game world has a reality different from our own.
- Units. Elements that the player controls, like chess pieces, soldiers, pets., etc.
- Tools. Elements that allow avatars/units to perform actions.
- Deadly traps. Game events that kill avatars/units/characters within the area of effect.
- Enemies. Other avatars/units/characters that try to stop the player from reaching goals.
- Boss monsters. More powerful enemies players must defeat to reach certain goals.
- Obstacles. Game elements that get in players' way.
- Control elements. In-game objects like buttons, switches, and doorknobs in fixed locations that allow avatars/units to perform actions.
- Alarms. Abstract elements that provide information about particular changes in the game state.
- Pick-ups. Elements like resources and weapons that avatars/units can pick up.

- Power-ups. Elements that give temporary advantages, like buffs.
- Clues. Elements that give information about how to reach goals in the game.
- Strategic locations. Areas in the game world that give advantages to players who control them.
- Outstanding features. Elements players cannot control but which give some information, like signs and landmarks.
- Chargers. Locations in the game world that would affect levels/amounts of player resources.
- Resource locations. Locations in the game world where players find resources.
- Goal points. Locations in the game world reached during or after completing goals.
- Save points. Locations in the game world where players' progress is saved.
- Safe havens. Locations in the game world where enemies cannot affect players.
- Spawn points. Locations where avatars/units/characters/resources appear or reappear.
- Patterns related to a player's emergent narrative experience:
 - Avatars. Elements representing the player(s).
 - Characters. Elements representing persons or beings with a purpose or story.
 - Character development. The improvement of characters' skills or knowledge.

- Planned character development. Character development that players can control, including for their avatars/units.
- Narrative structures. Elements of stories that unfold while playing the game.

Respondents were asked to rate the importance of these patterns to their experience of their respective MMOG world on a five-point Likert scale, from 1, meaning "Not important at all" to 5, "Extremely important". To refine the inventory, I then conducted an exploratory factor analysis (EFA) with maximum likelihood extraction in jamovi (The jamovi project, 2020), which is based on the R language for statistical computing (R Core Team, 2019; Revelle, 2019). Bartlett's test of sphericity was significant ($\chi^2(465) = 1,923, p < .001$), and the Kaiser-Meyer-Olkin measure of sampling adequacy was high ($KMO = 0.81$), suggesting it was acceptable to continue with factor analysis of the pilot data. Assuming the factors were correlated, promax rotation was used. Initially, six factors with Eigenvalues greater than one were produced. A series of factor analyses were conducted, removing items in stages until no items were cross-loaded nor had factor loadings less than 0.4. This threshold was selected based on McCroskey & Young's (1979) recommendation of liberal cutoffs for exploratory studies. Bartlett's test remained significant ($\chi^2(78) = 576, p < .001$), and KMO was adequate ($KMO = 0.74$). Besides Eigenvalues, Cattell's scree plot inspection, cumulative variance explained, and conceptual interpretation guided the decision regarding factors to retain. The most interpretable solution was found in a four-factor structure.

The first factor had an eigenvalue of 3.75 and accounted for 19.12% of the variance in the data. I named this factor *immediate play* as it consisted of

game design patterns that players must closely and frequently engage with as they go about their activities in the game world. Example patterns in this factor are *control elements*, or in-game objects such as buttons and switches that allow player avatars or units to perform actions; and *enemies*, or other avatars, units, or characters (whether controlled by other players or not) that try to stop a player from reaching their goals.

Factor two had an eigenvalue of 0.89 and accounted for a further 14.50% of variance. This factor was named narrative play. It included the patterns *characters* and *narrative structures*, which both provide pre-determined narrative context to gameplay in the form of storylines and non-player characters who might be part of them. It also included *avatars*, the player-characters who embody and facilitate players' own participation in and shaping of the narrative they actually experience.

The third factor was named *key locations*, as the game design patterns described in-world locations that might serve as reference points and destinations for players. For example, the pattern *spawn points* indicates where avatars, mobs, or resources tend to appear or reappear. MMOG players spend considerable time hunting specific mobs and resources in order to progress, with quests in combat-oriented MMOGs like WoW often featuring a quota (e.g., kill 10 "crocolisk" mobs). Thus, learning where a target creature spawns helps direct play in the game world. *Safe havens*, on the other hand, refer to locations in the game world where enemies cannot affect players. These havens may take the form of a named town, building, etc. but might also be indicated by less visible borders specified by programming. Thus, players' awareness that the enemies in one zone will not chase them beyond a

certain hill might designate the foot of that hill a safe haven. This factor had an eigenvalue of 0.72 and explained an additional 12.72% of variance.

Finally, the fourth factor, with an eigenvalue of 0.50 and accounting for 10% of the variance, was structure play, involving game design patterns that involved changes to the game world itself. These were *reconfigurability*, or the extent to which a player can modify the game world in some way, and *moveable tiles*, or spaces in the game world that move or that the player can move.

Table 8 displays the final obtained pattern matrix and measures of internal consistency (overall *Cronbach's* $\alpha = .82$; *Mcdonald's* $\omega = .83$). Some items were removed from the immediate play factor based on reliability analysis. I also considered parsimony regarding the length of the final survey as well the conceptual overlap between items. For example, the pattern *boss monsters* was removed given the inclusion of *enemies*, and the pattern *deadly traps* was omitted because such traps can be interpreted as another form of *obstacles*. For the factor Structure Play, the Spearman-Brown coefficient (SBC) is also provided, as this is considered a more appropriate measure of a two-item scale's reliability than Cronbach's α (Eisinga, te Grotenhuis, & Pelzer, 2013). The SBC tests in this project were performed with IBM SPSS Statistics (IBM Corp., 2017) or with the multicon package (Sherman, 2015) in R.

Place-Making Practices

As with the game design patterns, respondents rated the importance of each place-making practice (presented in the survey as an "activity") on a five-point Likert scale. To reduce the items for the final survey, this data was also

Table 8*Results of a Factor Analysis of Game Design Patterns*

Items	Factor			
	Immediate Play	Narrative Patterns	Key Locations	Structure Play
Obstacles	.94			
Enemies	.65			
Control elements	.63			
Clues	.60			
Outstanding features	.54			
Characters		.91		
Avatars		.83		
Narrative structures		.46		
Safe havens			.84	
Save points			.68	
Spawn points			.63	
Reconfigurability				1.01
Moveable Tiles				.54
Cronbach's α	.82	.78	.76	.70
Mcdonald's ω	.82	.81	.77	.70
SBC				.70

Note. SBC = Spearman-Brown coefficient.

subjected to EFA (maximum likelihood extraction, promax rotation). Though the KMO measure of sampling adequacy was unacceptable ($KMO = 0.50$), Bartlett's test of sphericity was still significant ($\chi^2(2,485) = 4,954, p < .001$). Initial eigenvalues suggested 11 factors, yet Cattell's scree plot criterion suggested six or fewer.

Thus, further reductions and analyses were in order. Nine practices were first removed for having low ($r < 0.3$) or no significant correlations with other items. More items were removed in subsequent iterations of factor analysis until no items were cross-loaded nor had factor loadings less than 0.4. Final KMO reached an acceptable level ($KMO = .69$), and Bartlett's test remained significant ($\chi^2(253) = 1,064, p < .001$). A five-factor structure

provided the most interpretable solution. Table 9 displays the final pattern matrix and measures of internal consistency (overall *Cronbach's* $\alpha = 0.79$ and *Mcdonald's* $\omega = 0.79$). As with the game design patterns, items were dropped from the final inventory in the interest of improved reliability and parsimony.

The first factor had an eigenvalue of 3.65 and accounted for 12.61% of the variance in the data. I named this factor *conscious place-making discourse*, as it included practices where players explicitly discussed structural changes they desired. Examples include *proposing changes to existing game features* and *proposing new in-game spaces/locations*.

The second factor, *transmedial engagement*, had an Eigenvalue of 2.11 and explained 10.22% of the variance. This factor was composed of practices related to the consumption and production of alternative actualizations or depictions of the game world and related paratexts. These practices pertained to both official (e.g., *reading/viewing other official media such as novels and comics set in the same world/universe*) and fan- or player-made actualizations (e.g., *creating art, fiction, and/or other content about the game*).

The third factor was named *world engagement* because it concerned practices of familiarity and interaction with the virtual world itself. It had an Eigenvalue of 1.78 and explained 8.66% of the variance. Some of the practices under this factor included *learning how to navigate the game world*, *knowing the names of the world's spaces/locations*, and *participating in activities/quests that leave a lasting effect on the game world*.

Social interaction, the fourth factor, consisted of practices involving other players in the game world. This factor had an Eigenvalue of 1.13 and accounted for 8.75% of the variance. Some of the practices under this factor

Table 9*Pattern Matrix of a Factor Analysis of Place-Making Practices*

Item	Factor				
	Conscious Place- Making Discourse	Transmedial Engagement	World Engagement	Social Interaction	Social Affective Practices
proposing changes to existing game features	0.85				
proposing changes to existing in-game spaces/locations	0.82				
proposing new in-game spaces/locations	0.80				
proposing new game features such as quests, mobs, skills, activities, and controls	0.73				
expressing complaints about game features	0.50				
reading/viewing players' art, fiction, screenshots, videos, streams, and/or other content about the game		0.79			
reading/viewing third-party media about the game (e.g., gaming news sites, critics' reviews)		0.71			
reading/viewing other official media set in the same world/universe (e.g., novels, comics, movies)		0.67			
creating art, fiction, screenshots, videos, streams, and/or other other content about the game		0.62			
playing other official games set in the same world/universe		0.53			

(continued)

Table 9 (continued)*Pattern Matrix of a Factor Analysis of Place-Making Practices*

Item	Factor				
	Conscious Place- Making Discourse	Transmedial Engagement	World Engagement	Social Interaction	Social Affective Practices
feeling familiarity with the game world			0.71		
knowing the names of the world's spaces/locations			0.64		
exploring the game world			0.64		
learning how to navigate the game world			0.50		
participating in activities/quests that leave a lasting effect on the game world			0.45		
participating in group raiding or dungeon-clearing activities				0.75	
being part of a group, guild, clan, etc.				0.66	
trade/exchange with other players				0.55	
hanging out with other players in the game's public spaces/locations				0.53	
hanging out with other players in designated/private spaces/locations				0.51	
feeling appreciation for the community					0.86
feeling appreciation for other players' behavior					0.79
feeling disappointment in other players' behavior					0.57
Cronbach's α	0.86	0.79	0.71	0.74	0.80
McDonald's ω	0.86	0.80	0.73	0.75	0.81

included *being part of a group, guild, clan, etc., participating in group raiding or dungeon-clearing activities, and hanging out with other players in the game's public spaces/locations.*

I named the final factor *social affective practices*, as these involved feeling either appreciation or disappointment in other players or in the player community. While it might be strange to think of emotion or feeling as a practice, place researchers have recognized the role of such *affective practices* in cultivating people's sense of place (Duff, 2010; Jones & Evans, 2012; Wiess, 2019). This factor had an Eigenvalue of 0.67 and accounted for 8.24% of the variance.

Sense of Place Scales

Bott's (2000) original sense of place measure consisted of 90 items across four domains and 15 scales. Cottrell and Cottrell (2015) managed to nearly halve the measure to 55 items, but as the current project required participants to complete other measures, this abridged version was still considered too long and tedious to complete. I included 50 items in the pilot survey, omitting some items that had low reliability according to Cottrell and Cottrell's (2015) findings or appeared inappropriate to the MMO gaming context. Other items were reworded, while items from the built environment and purposive scales were returned and reworded in order to explore relationships between those dimensions of sense of place and the other factors in the project's proposed framework. The purposive subscale item in particular was to account for player motivations as a component of sense of place, instead of using a separate measure such as Yee's (2006) MMOG player motivation taxonomy.

Table 10*Results of Reliability Analyses for Abridged Sense of Place Psychometric Scales*

Item	Item-total correlation	α if delete d from scale	α	Spearman- Brown Coefficient	Cottrell & Cottrell's (2015) α	Bott's (2000) α
<i>Natural Setting Domain</i>			0.70			0.89
Built Environment Scale			0.60	0.60		0.85
has objects that fit the setting	0.43	0.43				
has attractive buildings/features	0.43	0.18				
Character Scale			0.78	0.78	0.75	0.89
peaceful	0.64	0.64				
harmonious	0.64	0.41				
<i>Cultural Setting Domain</i>			0.79			0.85
Inherent Sociocultural Scale			0.70		0.64	0.82
authentic	0.52	0.63				
has a spirit of the players	0.55	0.58				
fits within the context of game lore	0.51	0.63				
Transactional Sociocultural Scale			0.77	0.77	0.92	0.86
part of the community	0.63	0.63				
a sense of belonging	0.63	0.39				

Note. α = Cronbach's α . Cottrell & Cottrell (2015) did not report reliability scores for the domains. Nor did they include any Built Environment or Purposive items.

(continued)

Reliability analyses of the pilot participants' data were then used to determine additional items to remove, based on whether a subscale's reliability would improve following removal. Table 10 displays the resulting proposed 28-item measure, with the previous researchers' reported alpha values for comparison.

Table 10 (continued)*Results of Reliability Analyses for Abridged Sense of Place Psychometric**Scales*

Item	Item-total correlation	α if delete d from scale	α	Spearman- Brown Coefficient	Cottrell & Cottrell's (2015) α	Bott's (2000) α
<i>Affective Individual/Personal Domain</i>			0.90			0.91
Significance Scale			0.72	0.73	0.75	0.84
meaningful	0.57	0.57				
significant	0.57	0.33				
Existential Scale			0.81	0.81	0.86	0.87
a sense of connection	0.69	0.69				
a sense of my identity	0.69	0.47				
Memory Scale			0.56		0.84	0.76
memorable	0.40	0.41				
like I know it well	0.38	0.47				
a sense of nostalgia	0.35	0.49				
Aesthetic Scale			0.80	0.80	0.66	0.93
beautiful	0.67	0.67				
pleasing to look at	0.67	0.45				
Transcendental Scale			0.81	0.81	0.83	0.93
inspired	0.67	0.67				
fulfilled	0.67	0.46				
<i>Functional Individual/Personal Domain</i>			0.80			0.88
Purposive Item						0.74
meets my expectations of a MMOG						
Informational Scale			0.75	0.75	0.50	0.75
provides a sense of direction	0.60	0.60				
has distinct landmarks	0.60	0.36				
Prospect Scale			0.68		0.62	0.82
like there are opportunities for me here	0.46	0.62				
like exploring	0.54	0.53				
a sense of mystery	0.49	0.60				
Well-Being Scale			0.84	0.84	0.81	0.95
peaceful	0.73	0.73				
a sense of comfort	0.73	0.53				

Final Survey Results

Reliability Analyses

Prior to correlation tests and hypothesis testing with the final survey data, I conducted reliability analyses of the survey measures. Although Cronbach's α is sensitive to skewness and kurtosis, the sample size supports at least moderate reliability, and the values of α might in fact be underestimated (Sheng & Sheng, 2012). Moreover, transformations to address the data's moderate to high negative skewness resulted in very small changes (at most ± 0.03) to the results of reliability analysis. As an alternative measure of reliability, McDonald's ω was also calculated to account for unequal weighting between items within factors (Hayes & Coutts, 2020).

Table 11 displays reliability analysis results for the original, non-transformed game design patterns data (overall Cronbach's $\alpha = 0.82$ and McDonald's $\omega = 0.83$). Pilot survey respondents suggested the inclusion of *audio* (background music and sound effects) among the game design items. Björk and Holopainen (2005) did not consider audio a separate game design pattern but rather one of the ways that such patterns are rendered (e.g., as clues and alarms), yet it was clear that the participating MMOG players perceived it as an important part of their experience of virtual worlds. Audio was thus included in the final survey under immediate play. However, reliability analysis suggested it was poorly related to the other items, so it was omitted from subsequent statistical tests.

Table 12 displays the reliability analysis results for the final survey data of place-making practices (overall Cronbach's $\alpha = 0.85$ and McDonald's $\omega = 0.85$). As with the game design patterns, the place-making practices data were

Table 11*Results of Reliability Analyses for Game Design Patterns.*

Items	Item-rest correlation	α if dropped	ω if dropped	α	ω	SBC
<i>Immediate Play</i>				.71	.71	
Obstacles	.53	.63	.64			
Control elements	.46	.67	.67			
Clues	.46	.66	.67			
Enemies	.41	.68	.68			
Outstanding features	.49	.65	.66			
<i>Key Locations</i>				.72	.73	
Save points	.51	.67	.69			
Safe havens	.55	.63	.64			
Spawn points	.57	.62	.64			
Goal points	.43	.70	.73			
<i>Narrative Play</i>				.68	.72	
Characters	.62	0.438	0.438			
Avatars	.42	0.687	0.69			
Narrative structures	.46	0.638	0.641			
<i>Structure Play</i>				.69	.69	.69
Reconfigurability	.53	.50	0			
Moveable tiles	.53	.57	0			

Note. α = Cronbach's α . ω = McDonald's omega. SBC = Spearman-Brown coefficient.

moderately skewed, but data transformations to correct this resulted in negligible changes to Cronbach's α (at most $\pm.02$). Under conscious place-making discourse, the practice of *expressing complaints* was dropped from the taxonomy to improve the factor's internal consistency. Under social interaction, *trade/exchange with other players* was removed for the same reason, and under social affective practices, *feeling disappointment in other players' behavior*. The practice of playing other forks of the game (stated as *playing alternate versions of the same MMOG* in the survey) was omitted by mistake from the pilot survey, but its re-inclusion under transmedial engagement was

Table 12*Results of Reliability Analyses for Place-Making Practices*

Items	Item-Rest Correlation	α if dropped	ω if dropped	α	ω	SBC
<i>Conscious Place-making Discourse</i>				.89	.89	
proposing changes to existing game features	.75	.87	.87			
proposing changes to existing in-game spaces/locations	.74	.87	.88			
proposing new in-game spaces/locations	.80	.85	.85			
proposing new game features such as quests, mobs, skills, activities, and controls	.77	.86	.86			
<i>Transmedial Engagement</i>				.79	.79	
reading/viewing players' art, fiction, screenshots, videos, streams, and/or other content about the game	.61	.73	.74			
reading/viewing third-party media about the game (e.g., gaming news sites, critics' reviews)	.54	.75	.76			
reading/viewing other official media set in the same world/universe (e.g., novels, comics, movies)	.61	.73	.74			
creating art, fiction, screenshots, videos, streams, and/or other other content about the game	.60	.73	.75			
playing other official games set in the same world/universe	.46	.78	.78			

Note. α = Cronbach's α . ω = McDonald's omega. SBC = Spearman-Brown coefficient.

(continued)

Table 12 (continued)*Results of Reliability Analyses for Place-Making Practices*

Items	Item-Rest Correlation	α if dropped	ω if dropped	α	ω	SBC
<i>World Engagement</i>				.79	.80	
feeling familiarity with the game world	.57	.75	.76			
knowing the names of the world's spaces/locations	.61	.73	.75			
exploring the game world	.58	.75	.76			
learning how to navigate the game world	.64	.73	.74			
participating in activities/quests that leave a lasting effect on the game world	.46	.79	.79			
<i>Social Interaction</i>				.81	.81	
participating in group raiding or dungeon-clearing activities	.45	.81	.82			
being part of a group, guild, clan, etc.	.55	.78	.80			
hanging out with other players in the game's public spaces/locations	.62	.76	.76			
hanging out ... in designated/private spaces/locations	.72	.73	.73			
hanging out ... in in-game homes/bases	.62	.76	.76			
<i>Social Affective Practices</i>				.82	.82	.82
feeling appreciation for the community	.70	.69	0			
feeling appreciation for other players' behavior	.70	.71	0			

Note. α = Cronbach's α . ω = McDonald's omega. SBC = Spearman-Brown coefficient.

ultimately unnecessary, according to the reliability analyses. Players might have perceived some overlap with the practice of playing other official games, and a more specific phrasing (e.g., “playing in private servers of the game”) might be more meaningful.

Reliability analyses suggested that the abridged sense of place scales were a highly reliable measure of MMOG players' overall sense of place (Cronbach's $\alpha = 0.93$), but several subscales fell short of the acceptable threshold of reliability (see Table 13). This suggests that measures of these dimensions of sense of place might need further development and testing. While adding items might increase a scale's α values, doing so might also be inefficient and would not always add actually useful information (Taber, 2018), and pilot participants complained about the time these scales took to complete. Rather than restoring some of the removed items, I would explore items that might not only reduce redundancy but also be more appropriate to the context of virtual worlds.

For example, pilot participants questioned the inclusion of the item “peaceful”, and more than once. It appears as part of both the natural setting – character subscale (“For me, this game world is peaceful”) and the functional – well-being subscale (“This game world makes me feel peaceful”) and is thus to measure different dimensions of sense of place, but this difference might still be too subtle to be useful. Conceptually, pilot participants noted terms like “peaceful” and “harmonious” also did not feel appropriate to describe their MMOG worlds, where action and combat were not only frequent but often desired. On the other hand, while I did note this feedback prior to conducting the final survey, I still chose to use the concerning terms because the reliability

Table 13

Results of Reliability Analyses for Abridged Sense of Place Psychometric Scales

Item	Item-total correlation	Cronbach's α if deleted from scale	Cronbach's α	Spearman-Brown Coefficient
Overall Sense of Place			.93	
<i>Natural Setting Domain</i>			.60	
Built Environment Scale			.59	.60
has objects that fit the setting	.43	.43		
has attractive buildings/features	.43	.19		
Character Scale			.68	.69
peaceful	.52	.52		
harmonious	.52	.27		
<i>Cultural Setting Domain</i>			.74	
Inherent Sociocultural Scale			.56	
authentic	.35	.48		
has a spirit of the players	.39	.41		
fits within the context of game lore	.36	.47		
Transactional Sociocultural Scale			.74	.74
part of the community	.59	.59		
a sense of belonging	.59	.35		
<i>Affective Individual/Personal Domain</i>			.85	
Significance Scale			.69	.69
meaningful	.53	.53		
significant	.53	.28		
Existential Scale			.77	0.78
a sense of connection	.64	.64		
a sense of my identity	.64	.41		
Memory Scale			.61	
memorable	.41	.52		
like I know it well	.46	.46		
a sense of nostalgia	.41	.56		
Aesthetic Scale			.73	.73
beautiful	.58	.58		
pleasing to look at	.58	.33		
Transcendental Scale			.66	.66
inspired	.50	.50		
fulfilled	.50	.25		
<i>Functional Individual/Personal Domain</i>			.79	
Purposive Item				
meets my expectations of a MMOG				
Informational Scale			.59	.60
provides a sense of direction	.43	.43		
has distinct landmarks	.43	.18		
Prospect Scale			.63	
like there are opportunities for me here	.41	.58		
like exploring	.54	.41		
a sense of mystery	.40	.62		
Well-Being Scale			.64	.65
peaceful	.48	.48		
a sense of comfort	.48	.23		

analysis of the pilot data suggested they were still more reliable than others that might have been more suitable (e.g., under Character, “distinctive” and “balanced”). It might also be that Bott’s (2000) instrument still reflects the romantic bent to conceptualizing sense of place (Manzo, 2005; Relph, 1976), though I did choose it because, unlike other available measures, it recognizes sense of place as potentially negative as well as positive. Qualitative responses to the final survey, discussed in a later section, also suggest that feelings of peace and serenity are still relevant to MMO gamers’ place experiences.

Regression and Mediation Analyses

Finally, to test the proposed model of factors influencing MMOG players’ sense of place in virtual worlds, sense of place was regressed on the mean scores of game design, place-making practices, and spatial presence. I controlled for the background variables of gender, age, and history, or how long respondents had been playing their MMOG. Though it is unclear which factor might affect sense of place in chronological order, I entered game design patterns at the second step, spatial presence at the third, and place-making practices at the fourth step of the regression.

Diagnostic tests suggested the data were suitable for regression. The Durbin-Watson statistic was 1.76, suggesting independence of observations. Visual inspection of normal probability plots suggested that residuals were normally distributed. Plots of standardized residuals versus standardized predicted values suggested the data possessed homoscedasticity. Collinearity statistics suggested there were no multicollinearity problems. Casewise

diagnostics in SPSS revealed two outliers, but removing them from analysis led to little appreciable difference in the regression results.

The overall regression was significant ($R^2 = .37$, $F[6, 283] = 28.11$, $p < .001$). Table 14 displays the detailed results. Background variables initially accounted for 5% of the variance. Game design patterns accounted for a further 15%; spatial presence, an additional 12%; and place-making patterns, 6% more variance. Spatial presence was a significant predictor of sense of place ($\beta = .29$, $p < .001$), even at the final step of the regression. This supported H1. Additionally, players' history ($\beta = .17$, $p < .001$) remained a significant predictor of their sense of place. Place-making practices were also a significant predictor of sense of place ($\beta = .29$, $p < .001$), supporting H3.

Using the PROCESS macro, model 4 (Hayes, 2020), in SPSS, parallel mediation analyses were conducted to verify these interpretations. Once again, gender, age, and history were entered as covariates. A 95% bias-corrected confidence interval based on 5,000 bootstrap samples indicated significant indirect effects of game design patterns on sense of place through spatial presence ($a_1b_1 = .13$) and place-making practices ($a_2b_2 = .21$) were above zero ($[.06, .21]$ and $[.12, .31]$, respectively). In terms of relative influence, neither mediator had a significantly greater effect than the other. Both mediate the relationship between game design patterns ($c' = .19$, $[.04, .35]$) and sense of place, supporting H2 and H4. Player history (unstandardized $b = .08$, $[.03, .12]$) also continued to have significant direct effects. Figure 9 illustrates these results.

To further explore these relationships and address RQ1a, I performed another multiple regression, this time with sense of place on the separate

Table 14

Hierarchical Regression Results for Game Design Patterns, Spatial Presence, and Place-Making Practices as Predictors of Sense of Place

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Step 1						.05	.05**
Intercept	1.10***	.76	1.45	.18			
Gender	.02	-.11	.15	.07	.02		
Age	-.09*	-.17	-.01	.04	-.13*		
History	.09***	.04	.15	.03	.20***		
Step 2						.20	.15***
Intercept	-1.08**	-1.74	-.41	.34			
Gender	.03	-.09	.15	.06	.03		
Age	-.04	-.12	.03	.04	-.07		
History	.09***	.04	.14	.03	.19***		
Game Design Patterns	.54***	.39	.68	.07	.39***		
Step 3						.32	.12***
Intercept	-1.45***	-2.08	-.83	.32			
Gender	.06	-.05	.17	.06	.05		
Age	-.05	-.12	.02	.04	-.07		
History	.08***	.04	.13	.02	.18		
Game Design Patterns	.37***	.22	.51	.07	.27***		
Spatial Presence	.3***	.22	.39	.04	.36***		
Step 4						.37	.05***
Intercept	-1.91***	-2.54	-1.29	.32			
Gender	.03	-.08	.13	.05	.02		
Age	-.04	-.11	.02	.03	-.06		
History	.08***	.04	.12	.02	.17		
Game Design Patterns	.20*	.05	.35	.08	.15		
Spatial Presence	.24***	.15	.33	.04	.29***		
Place-Making Practices	.39***	.24	.54	.08	.29***		

Notes. CI = confidence interval; LL = lower limit; UL = upper limit.

* $p < .05$. ** $p < .01$. *** $p < .001$.

factors of game design patterns and place-making practices. The overall regression was statistically significant ($R^2 = .45$, $F[13, 276] = 15.44$, $p < .001$). The variables altogether accounted for 45% of the variance in players' sense of place. Table 15 displays the detailed results. Of the control variables, history

Figure 9

Parallel Mediation of Spatial Presence and Place-Making Practices in the Relationship Between Game Design Patterns and Sense of Place

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

had a significant influence on players' sense of place ($\beta = .15$, $p < .01$). After the control variables, game design factors accounted for an additional 23% of the variance, but only structure play ($\beta = -.15$, $p < .01$) and narrative play ($\beta = .22$, $p < .001$) were found to be significant predictors of sense of place. These findings help answer RQ1a regarding which game design patterns predict or facilitate sense of place in virtual worlds.

Spatial presence explained an additional 12% of the variance at step 3 of the regression. As determined earlier, it was a significant predictor of sense of place ($\beta = .31$, $p < .001$). Place-making practices accounted for 5% more of the variance in sense of place. Only the factors world engagement ($\beta = .16$, $p < .01$) and social interaction ($\beta = .13$, $p < .01$) had significant influence, however.

Table 15

Hierarchical Regression Results for Game Design Factors, Spatial Presence, and Place-Making Factors as Predictors of Sense of Place

Variable	B	95% CI for B		SE B	β	R ²	ΔR^2
		LL	UL				
Step 1						.05	.05**
Intercept	1.10***	.76	1.45	.18			
Gender	.02	-.11	.15	.07	.02		
Age	-.09*	-.17	-.01	.04	-.13		
History	.09***	.04	.15	.03	.20***		
Step 2						.28	.23***
Intercept	-1.37***	-2.01	-.72	.33			
Gender	.05	-.06	.17	.06	.05		
Age	-.06	-.13	.01	.04	-.09		
History	.07**	.03	.12	.02	.16		
GDP - Structure Play	-.01	-.09	.07	.04	-.01		
GDP - Narrative Play	.42***	.31	.54	.06	.41***		
GDP - Key Locations	.04	-.08	.17	.06	.04		
GDP - Immediate Play	.15*	.01	.29	.07	.13*		
Step 3						.40	.12***
Intercept	-1.81***	-2.41	-1.21	.30			
Gender	.10	-.01	.20	.05	.08		
Age	-.06	-.13	.01	.03	-.09		
History	.07**	.02	.11	.02	.14**		
GDP - Structure Play	-.10*	-.18	-.03	.04	-.14		
GDP - Narrative Play	.35***	.24	.45	.05	.33***		
GDP - Key Locations	.03	-.08	.14	.06	.03		
GDP - Immediate Play	.15*	.02	.28	.06	.13*		
Spatial Presence	.32***	.24	.41	.04	.38***		
Step 4						.45	.05***
Intercept	-2.36***	-2.98	-1.73	.32			
Gender	.07	-.03	.17	.05	.062		
Age	-.05	-.11	.01	.03	-.07		
History	.06**	.02	.11	.02	.13**		
GDP - Structure Play	-.11**	-.19	-.03	.04	-.15**		
GDP - Narrative Play	.23***	.12	.35	.06	.22***		
GDP - Key Locations	1.57 ⁻⁰⁴	-.11	.11	.06	1.55 ⁻⁰⁴		
GDP - Immediate Play	.12	-.01	.25	.07	.11		
Spatial Presence	.26***	.18	.35	.04	.31***		
PMP - World Engagement	.19**	.06	.32	.07	.16**		
PMP - Social Interaction	.11**	.03	.19	.04	.13**		
PMP - Conscious Place-Making Discourse	-.02	-.09	.06	.04	-.02		
PMP - Social Affective Practices	.04	-.04	.13	.04	.06		
PMP - Transmedial Engagement	.08	-.03	.18	.05	.08		

Notes. CI = confidence interval; LL = lower limit; UL = upper limit; GDP = game design patterns; PMP = place-making practices.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Qualitative Responses

At the end of the final survey, participants were given the option to answer two open-ended questions: "In thinking about 'sense of place', what specific places, zones, or areas in the world of [chosen MMOG] come to mind for you?" and "Is there anything else you would like to add about how you feel about the virtual world of [chosen MMOG]?". The first question had 163 responses, and the second, 83. Responses consisted of short phrases or one to three brief sentences. Participants were not given a definition for "sense of place" to avoid priming, though it might also be safe to assume the preceding measures sufficiently acquainted them with the concept. As with the previous textual data in this project, I conducted two-cycle qualitative content analyses (Hsieh & Shannon, 2005; Tracy, 2013) with the aid of code network visualizations to extract major themes from these responses (see Figure 10). When participants gave little or no elaboration, Web searches of place names provided additional context from official game resources as well as player-made paratexts. Participants quoted below have been assigned pseudonyms.

Prior to the open-ended questions, I had asked survey respondents to think of their chosen virtual world as a whole, rather than of a specific, named in-world location. Many MMOGs do indeed feature continents or regions with named towns and cities, but this is not always the case. For example, *Star Wars: The Old Republic* (Bioware Austin, 2011) provides players multiple planets to explore; *EVE Online* (CCP Games, 2003), whole star systems and constellations; and *Manyland* (Lenssen & Lowe, 2013), a decentralized, near-infinite sandbox of player-designed spaces navigated through hyperlinks and often blind exploration. Having participants think of the world in general, then,

Figure 10

Network Visualizations of Codes Derived from Participant Responses on Named Places

was to avoid excluding participants who played MMOGs of less conventional environments or designs.

However, sense of place does vary according to scale, and simply naming a place is a conscious place-making practice that gives space meaning (Cresswell; 2015; Tuan, 1975, 1977). So, the first open-ended question was to explore the meanings players associated with such close, key locations in their respective virtual worlds. Based on my analysis, these meanings tended to cluster around four major types of places: player housing, social places, major towns and cities, and places associated with player-character development.

Player housing refers to areas in the virtual world that the developers have designated a player's private, personal space. Respondents who played Final Fantasy MMOGs, for example, mentioned "my personal house" or "my personal housing area". Like the garrisons noted in the Nostalrius pilot study, these are customizable areas where players can store items, perform some avatar maintenance tasks, and simply relax. Depending on the degree of customization available, player housing gives MMO gamers a space for free self-expression that cannot be accommodated by the mechanics of other spaces in the rest of the MMOG world. Player homes are also usually safe havens, free from attack by other players and enemy characters/mobs. They can additionally serve as social spaces for private interactions with friends the player invites into their virtual home.

Social places refer to those areas that participants associated with social interaction and group activity. These places were often public areas in

the game world where players congregated for casual social interaction, and the first quotation below suggests they were not always named spaces:

The old hangout/hunting spots where everyone would come together and chat for hours (MapleStory player Alex)

[The city of] Henesys. Or [the area called] free market. Its always fun to talk to random people in a safe environment. Sometimes you get to know more about what's happening in society and others that you may not encounter in your day to day basis. (MapleStory player Li)

Semi-private spaces designated for a player-character's particular race, class, faction, guild, etc. also fell under the category of social places because these were areas where players met and interacted with others on similar trajectories or quests. I also considered dungeons, raid areas, and group quest areas to be social spaces because participants mentioned these in connection with social or group activity. For example, Guild Wars (ArenaNet, 2005) players mentioned "Crystal Desert, because that's where my first guild hall was located", as well as the Mistlock Sanctuary, a lounge that required a special pass to enter and which also featured access to dungeons.

It is perhaps not surprising that major cities and towns with proper names comprised the third category of key spaces in participants' virtual worlds. Players gather there to trade with both fellow players and non-player characters (NPCs), to level up their avatars' skills or professions, and to access transportation services. Cities/towns also serve as and contain many of the social spaces described above, and in MMOGs that do not offer player housing, players often treat cities/towns as home bases. In classic WoW, for

example, players may bind an item called a hearthstone to a city/town's inn to set it as their home location. They may then activate their hearthstone to return there, regardless of how far they have travelled in the game world. Also, players derive some of their player-character identities from environmental and narrative structures that MMOG developers use to make in-world cities/towns distinctive:

the fact that different areas have different musical themes, architecture, etc. Thunder Bluff looks like Tauren [race] built it and live there, Dalaran looks like wizards invented it, etc. Orgrimmar has a sense of the Horde [faction], Alliance [faction] areas look like Alliance, etc (World of Warcraft player Jay)

Currently in the new expansion (shadowlands), I am playing a Troll Elemental Shaman in the Necrolord Covenant. Their homeworld, Maldraxxus, and covenant sanctum (Seat of the Primus), is the first place that comes to mind. (World of Warcraft player Ari)

Interestingly, MapleStory players also frequently named physical places: Japan, Korea, China, Singapore, and Malaysia. This was because the MMOG featured depictions of those locations in its distinctive cartoony miniature style. One participant from the region noted, "It provides me with a sense of place and familiarity to hangout with friends."

The fourth type of space that emerged from participants' responses is the player development space. This type contains three subtypes: starting zones, midgame or levelling zones, and endgame zones. These spaces are all

associated with the life, progression, or development of a player-character or avatar over time. Participants seemed to recall these spaces because they were associated with the general, routine practices for levelling up, gaining experience, grinding or farming for resources or points, and so forth. And, as Taylor (2006) noted, particular zones can contain memories of one's player-character at a particular stage in their virtual life. One RuneScape player, Dee, also provides examples:

Lumbridge, the area where new beginners spawn and start the game, and one of the few areas in which I spent some time in to grind the low-level monsters, and honing certain aspects like woodcutting and fishing. The next area is the Grand Exchange in Varrock, where most exchanges took place between players. I learn the meaning of supply and demand while doing trading for in-game currency here.

These categories of places were not exclusive, as some of the quoted players have already suggested. One particular MapleStory player's response captures overlapping place associations based on their player-character development and social practices, from an in-world city to endgame areas. Ming said, "Used to be [at the city] Henesys as I was a heneh0e¹⁴ :) but now with all the new maps, arcana and lachein are my favorite afk/chatting spots". Arcana and the city of Lachelein are endgame zones, suited for players reaching or at the level cap. While Lachelein would be a safe haven, Arcana contains monsters that would be very dangerous to anyone below level 225.

¹⁴ self-deprecating portmanteau of Henesys and hoe (whore), used here to indicate how frequently the player spent time in the area

Among gamers in general, nostalgia is associated with needs to feel competent and related to others (Wulf, Velez, Bowman, & Breuer, 2018). It is one of several motivations for playing private MMOG servers, particularly classic or legacy ones (Lin & Sun, 2011). Place scholars, on the other hand, consider nostalgia part of the affective dimension of sense of place (Bott, 2000); it is a sign that lasting attachment to a place has been formed (Chawla, 1992; Marcus, 1992).

Nostalgia emerged as a major theme in this study perhaps because of the longevity of the players' chosen MMOGs as well as the years spent developing their player-characters. Over 15 years have passed since the launch of MMOGs like WoW and MapleStory. For those with memories of playing when such MMOGs were new—when vanilla was the only flavor available—returning to their chosen worlds might very well be returning to places of their youth and childhood, with all the nostalgia such returns evoke. Many players specifically used the words “nostalgia” or “nostalgic” and “childhood” to answer this question, with one MapleStory player declaring in all capitals: “MAPLESTORY IS A CHILDHOOD GAME FOR MAJORITY OF US IN THE 2000s”.

The second theme, atmosphere, involves participants' feelings of appreciation and immersion. Participants described scenic and beautiful vistas, evocative background music, and feelings of peace and serenity as well as freedom and excitement as they travelled across their MMOG worlds. They also mentioned feeling immersed in the game world, which I interpret not as the extent of sensory engagement with a virtual environment (Biocca & Delaney, 1995; Lombard & Ditton, 1997) but as the broader, holistic absorption

in gameplay, environment, and narrative (Adams, 2004; Calleja, 2011) that gamers mean when they refer to immersion. One Star Citizen (Cloud Imperium Games, 2012) player's response exemplifies these ideas:

Immersive environment that gives you a sence of freedom but also a sence of danger at the same time. As a space nut, it calms and relaxes me when im travelling through space in the game world.

Social interaction continued to be a focus of MMOG players' experiences. The responses that generated this theme highlighted both cooperative (i.e., group/party questing) and competitive (i.e., PVP) group or social activities. However, casual interactions such as hanging out and chatting also emerged under this code category. Being able to spend time with one's friends in the game world was important, giving feelings of community and comfort. For one Final Fantasy player, friendship was even enough to overcome their actual dislike of MMOGs: "I largely play to stay in contact with a group of friends, and generally find the design of MMOs uninspiring."

Lastly, participants shared complaints about their virtual world experiences. Some were about technical problems or a desire for new content. Complaints could also be tied to nostalgia in that players expressed their dislike of or resistance to changes in their MMOGs' mechanics over time.

Some complaints were about the need to grind in order for their avatars to progress, while others were about the MMOGs' so-called "pay-to-win" mechanics. These issues are themselves related. In recent years, online games have employed a freemium business model where the games are free to download, but players may make small transactions or *microtransactions* for

additional content. Pay-to-win describes the aspect of this model that allows players to purchase better equipment/items and boosts to their performance. This “monetize[s] player impatience” (Evans, 2016, p. 563) by effectively reducing the need to grind for the experience and items one needs to play well and progress through storylines or competitions. As we have seen among the Nostalrius players, some MMO gamers associate grinding with true experience, skill, and commitment and thus derive status from the activity. Pay-to-win schemes threaten that status by allowing players with enough disposable income to buy what others spend months or even years grinding to achieve (Howard, 2019).

Personally I don't think that many who play MapleStory do so for the lore, but rather for the character progression and perhaps nostalgia factor(me personally). Unfortunately over the years the game has devolved into a pay-to-win mess and has really deterred me from playing. (MapleStory player Pat)

Summary

This chapter reported the results of the survey to test the proposed theoretical model of MMOG players' sense of place. Spatial presence and place-making practices were indeed found to significantly influence sense of place, supporting H1 and H3. They also mediated the relationship between game design patterns and sense of place, thus supporting H2 and H4. Additionally, game design patterns as well as player history have direct influences on sense of place even when the other factors of the model have been accounted for.

Qualitative responses to the survey reveal additional insight to players' experiences of virtual worlds, with players finding player housing, social spaces, named cities/towns, and spaces associated with their own in-game development to be meaningful and important. In general, nostalgia, atmosphere, social interaction, and complaints also characterized their experiences.

The next chapter discusses these results further and concludes this dissertation by examining its implications, limitations, and future research directions.

Chapter 6

Discussion

The central goal of this project was to understand how MMOG players develop sense of place in virtual worlds. This is the relationship a person has to a place, and it describes their understanding and appreciation of and emotional connection to that location, with all its interactions, processes, and meanings (Relph, 1976; 1997). It emerges as a person engages in the place-making practices by which they and their community or culture interact with the structures of a space, which in turn is invested with those meanings (Lew, 2017; Pierce et al., 2011).

Prior literature on sense of place and place-making in virtual worlds has tended to frame these concepts as a designer's concern, with the aim of facilitating certain activities and experiences for end-users (Chen & Kalay, 2008; Kalay & Marx, 2005), rather than recognizing that places are a never-finished product of the various and often unexpected practices that people and cultures perform there, changing its meanings over time (Cresswell, 2015; Friedmann, 2010; Manzo, 2005). Games themselves can be considered unfinished products, co-authored by developers and players. That is, games need players to play them for games to be experienced (Bowman, Kowert, & Ferguson, 2015), and every combination of mechanics, dynamics, and aesthetics results in a unique, personal gameplay experience (Hunicke et al., 2005). Moreover, theorizing about sense of place in virtual worlds reveals key differences from traditional models of sense of place in physical spaces. Though all our place-making is bounded by the physical world and performed in physical bodies, the mediation of place experience in virtual worlds sets

limits on bodily action and interaction. Yet the boundaries of virtual worlds also do not contain the variety of place-making practices MMOG players might perform, and virtual worlds themselves can be copied and/or reconstructed as forks for distinct sub-communities of players.

I thus developed a new conceptual framework to understand sense of place in MMOG communities, through a series of studies that culminated in the development of variables and quantitative measures to explore the factors that might influence sense of place. Literature review and a preliminary study of online discussions in the *Nostalrius Begins* community suggested that game design patterns (Björk and Holopainen, 2005), place-making practices, and spatial presence are the key factors that influence MMOG players' sense of place. Mixed-methods content analyses using qualitative interpretation of KWIC indices and Word2Vec-modeled word clusters based on MMOG players' use of spatial language in online forums identified specific place-making practices that, through subsequent factor analyses, suggested five main categories of such practices: conscious place-making discourse, social interaction, world engagement, social affective practices, and transmedial engagement. Game design patterns, on the other hand, can be classified under four factors: immediate play, key locations, narrative play, and structure play. The proposed theoretical model was tested and finalized through an online survey.

Regression results showed that game design factors influenced MMOG players' sense of place, but the factor of key locations was never a significant predictor. Narrative play and structure play showed influence on sense of place, and immediate play's influence appears to be mediated by spatial

presence and place-making practices. Relative to the other factors, narrative play also had the next-largest impact after spatial presence on sense of place. This suggests that being able to develop one's own player-character and narratives is more important to sense of place than whatever game-mechanical configurations the virtual world might actually take. The non-significant result for the key locations factor is also consistent with the proposition that sense of place can develop without much conscious or intentional attention to the natural and built structures of a space (Cresswell, 2015; Relph, 1976).

Second, spatial presence significantly influences MMOG players' sense of place. This implies that perceiving one's experiences in the virtual world as though those experiences are unmediated can increase one's sense of that world as a place. As an important research contribution, this confirms a then-untested proposition by prior researchers (Bowman et al., 2020; Plunkett, 2011; Teng, 2010; Turner et al., 2013) regarding the relationship between sense of place and spatial presence. Moreover, as spatial presence mediates the relationship between sense of place and game design patterns, we better understand how spatial presence supports the connection between a player and their virtual world. Given the importance of bodily interaction with space to the development of sense of place (Seamon, 1980; Tuan, 1977), spatial presence might serve as a perceptual bridge between these game design patterns that involve the control and manipulation of a player's virtual body. On the other hand, this result does not fully resolve the gap in the literature regarding whether spatial presence indeed predicts sense of place or vice

versa, or if both develop and are experienced in tandem as a person experiences a virtual environment. This ought to be explored in future studies.

Third, place-making practices also predict sense of place in virtual worlds, but only practices related to world engagement and social interaction had a significant influence in the regression results. These results support the idea that the ordinary routines and rhythms of traversing and inhabiting a space can serve to cultivate a person's sense of place (Cresswell, 2015; Relph, 1976; Seamon, 1980), perhaps more so than conscious place-making efforts. They also underline the importance of socializing with other members of the MMOG community in cultivating a player's personal connection to the world where those interactions take place.

One reason game design patterns continued to have direct effects, beyond the mediation of spatial presence and place-making practices to sense of place, might be that the patterns of narrative play are so integral to players' gameplay and experience. The narrative structures and non-player characters (NPCs) provided by developers establish the MMOG's initial context for each player and the practices they might later develop and perform. More importantly, however, avatars embody players' intentions of acting and interacting with and within MMOG structures. They are also the medium that allows players to identify one another, be identified themselves, and thus participate in community and other sociocultural processes in place. Developing one's own avatar or character is the focal point of most MMOG play, all the way to the endgame, and it is the process of this development that leads players to explore and engage with the virtual world and with one another—for example, when a newbie has levelled up enough to leave the

starting zone and travel toward their race or region's capital city for the first time.

This is related to another variable that also showed significant direct effects on MMOG players' sense of place over and above the proposed mediators: players' history with the MMOG. As place is space made meaningful over time (Cresswell, 2015), it stands to reason that the more time a MMOG player spends in their virtual world, the more meanings they might invest in it. People's sense of place is also known to change as they go through different stages in life (Gustafson, 2001) and significant, life-altering events (Manzo, 2005). This interpretation is supported by the qualitative responses to the survey, where participants provided place meanings related to strong nostalgia as well as player-character development and friendships over time. Players' personal and social histories in their MMOG worlds cultivate their sense of place.

The lack of significant influence for key locations as a game design pattern is challenging to explain. It is difficult to conceive of performing the world engagement and social interaction place-making practices without reference to some spaces those practices might occupy and even center on (e.g., the dungeons that groups or guilds would raid together). This finding might suggest that MMOG players experience only incidental outsidership (Relph, 1976) after all—experiencing the virtual world as merely background for gameplay and interaction rather than as a meaningful place. On the other hand, it might also signify the existential insidership where “place is experienced without deliberate and self-conscious reflection yet is full with significances” (Relph, 1976, p. 55). This difference is difficult to determine by

use of a survey alone and might instead be revealed through deeper exploration with interview methods.

The qualitative responses, at least, give some insight to how MMOG players relate to key locations in virtual worlds. Their own words suggest that player housing, social spaces, named cities/towns, and player-development spaces constitute their important locations. The specific key locations derived from factor analysis—save points, spawn points, safe havens, goal points—instead appear at these locations in various combinations. Named cities/towns, for example, can serve as a safe haven from monster attacks, as a spawn point for players logging back into the game, and as a goal point for players completing quests given by city/town-dwelling NPCs.

Similar reasoning might be used to infer why conscious place-making and social affective practices did not significantly predict MMOG players' sense of place, even though social places and interaction were major themes in their qualitative responses. Benson and Jackson (2012) have described how place-making can take the form of discursive practices that “enact and reinforce particular understandings of place” (p. 797), but they have also suggested that it is actions in place that embody those understandings. That is, place-making in virtual worlds through social interaction and world engagement might channel the influence that more conscious or overt practices have on sense of place.

Another potential conflict comes from the negative influence of structure play on sense of place. These game design patterns comprise mechanics that allow players to modify the game world itself, and interacting with the

structures of space supposedly facilitates the development one's sense of place (Cresswell, 2015). Here, they appear to have a dampening effect.

Why structure play might have this influence on MMOG players' sense of place merits further investigation. Customization is said to be a motivation for MMOG players (e.g., Yee, 2006) and to influence loyalty to a MMOG (Teng, 2010). However, prior studies have tended to focus on the customization of the avatar (e.g., Turkay & Adinolf, 2010) or of units under the player's control (e.g., spaceships in Kim et al., 2015) rather than of the virtual world or game environment itself. Turkay and Adinolf (2010) have found that interface customization is important to those MMOG players who consider the interface itself important to their enjoyment of the game. But, the broad conceptualization of interface used in that study includes player control mechanics as well as the game environment. It is difficult to determine the extent to which mechanics under structure play as a form of interface customization might influence enjoyment there. Studies of sandbox multiplayer games, where spatial structure customization and/or construction are a focal point of play, suggest that such game design patterns also encourage players' connection to their virtual worlds (e.g., Boellstorff, 2008; Pearce, 2009). Studies of modification or *modding* of non-MMO games also link modding to players' connection to their chosen games, particularly through feelings of ownership (Paiva, 2015; Postigo, 2007; Scacchi, 2010; Sotamaa, 2010) as well as enjoyment (Zhou & Lindgren, 2013).

One study that might help explain why structure play had a negative influence on sense of place in the current project is Kretzchmar's (2019) work on modding in Skyrim (Bethesda Game Studios, 2011), an action role-playing

game with sandbox elements allowing considerable structure play with the game world. Kretzchmar (2019) found that though modding increased Skyrim players' attachment to the game, they also experienced what he referred to as sandbox fatigue:

When this happens, gamers become burned out with what they perceive to be the same repetitive options that they perform ad nauseum even if the game promises many choices. The illusion of freedom and control becomes visible when this occurs, and the gamer will have to find other ways to restore qualities that made the base game worth playing. (p. 144)

It might be that structure play similarly breaks the illusions mediated by MMOG play and facilitates outsideness rather than insideness for the players in this study. This might especially be the case considering that most of the respondents named MMORPGs rather than sandbox MMOGs. Sandbox mechanics in MMORPGs tend to be seen as tangential to the main focus that is player-character development and progression.

Prior literature has also described how the transmedial production and access of an imagined world shape the way people relate to that world. Encountering that world through various media can inform a person's gestalt conception of it (Wolf, 2012), and other forms—or forks—of that world can be judged by how well they conform to that conception (Klastrup & Tosca, 2004)—in other words, by how well they fit in with one's sense of that world as a place. Transmedial Engagement, however, was only weakly correlated with and did not predict MMOG players' sense of place. Also, though the Nostalrius

study as well as other private server studies (Crenshaw & Nardi, 2016; Debeauvais & Nardi, 2010; Lin & Sun, 2011) implied that the specific transmedial practice of playing in multiple forks might somehow influence sense of place, there was no significant difference in sense of place between dedicated players and players who divided their time between multiple forks of their world.

It seems likely that transmedial engagement is simply not important or at least not in the foreground of player's concerns as they go about their in-world time-space routines. MMOG mechanics offer no rewards for these practices, and so devoting time to them can even be irrelevant and even counterproductive to player-character progression (MacCallum-Stewart & Parsler, 2008). Other place-making practices related to the virtual world gestalt, such as learning about lore and engaging in role-play, were dropped from the taxonomy following the factor analyses. One might imagine that these are related to players' Narrative Play, but this study found only a weak correlation between those factors.

Limitations and Future Directions

Despite the attempts to retain a connection to keywords' context through the use of concordances and the skip-gram model, there was still considerable loss of detail or nuance in interpreting the findings of the content analyses. In particular, while uncovering practices across forks was quick and simple, the practices that might have set one fork apart from the others were harder to infer, and thus the aim of revealing differences in sense of place and place-making between MMOG forks (RQ3) remains somewhat unresolved.

Also, as stated above, the survey method falls short of clearly showing where players' sense of place appears on Relph's (1976) spectrum of insideness and outsideness to describe sense of place.

Future work on sense of place in virtual worlds might thus benefit from more in-depth investigation. In particular, extensions of this project can employ in-game *walk-along* or *go-along interviews*. Place and mobilities researchers have used the go-along to understand the relationships between participants' experiences, the spaces where those experiences occur, and the meanings that come to be associated with such spaces over time. Such researchers have found that go-alongs help to contextualize the interview for both researcher and participant, as they help to make a space and a participant's interactions with that space more salient to him or her than might be in a sedentary interview (Carpiano, 2009; Evans & Jones, 2011; Hein et al., 2008). Go-alongs also surface participants' experiences, practices, and meanings associated with a space that might not be found or understood through a researchers independent observation (Kusenbach, 2003). Such methods would also make the research process more participatory, as informants would literally and figuratively lead the way in understanding and interpreting their sense of place in virtual worlds.

During the content analysis studies, I encountered errors in text processing that I was unable to correct: there were miscellaneous characters or words not stripped from the texts even despite hard-coding in Python to do so. These errors might have subsequently affected the word relatedness scores in the resulting Word2Vec models. Indeed, some gibberish words appeared in some of the clusters analyzed to derive place-making practices.

However, many of these were actually acronyms for locations or quests in WoW and were thus still relevant to analysis. In other cases, I deemed the nonsense terms negligible; they were often only one word in one 20-word cluster, among the total 161 clusters in the analysis.

Qualitative feedback from study participants suggests that the definition of MMOG has itself evolved in the past 15 years, at least for the gaming community. World persistence was considered “the critically distinguishing design quality that separates MMOGs from other types of games” (Chan & Vorderer, 2006, p. 86). With player-character perpetuity, this persistence was thought to allow player identity, culture, community, and history in virtual worlds to develop in continuity. Yet survey respondents, asked to identify the MMOGs they played, sometimes named games that lacked world persistence, avatar perpetuity, or both. Multiplayer online battle arena (MOBA) games such as League of Legends (LoL; Riot Games, Inc., 2009) and Dota 2 (Valve Corp., 2013) feature neither criterion but, perhaps because of their online multiplayer features, appeared in the responses. Other would-be participants said they declined or terminated the survey because they felt their “MMOG” did not qualify them for the study. On a practical level, this might pose some difficulty for continuing research on MMOGs and participant recruitment as gamers’ own idea of what is and is not a MMOG changes with trends in game development and gaming culture. On a conceptual level, it may be worth investigating whether persistence and perpetuity are even necessary to players’ sense of place in virtual worlds, particularly in light of this project’s findings that the game design patterns pertaining to a virtual world’s “natural” structures are not as important as those that facilitate personalized character

and narrative development, social interaction, and the engagement of exploration and travel.

Reflexivity

I have noted that my past experience as both a Glitch and a WoW player (not to mention time spent sampling MMOGs of various sizes and genres since adolescence) informed the content analyses in particular and this project in general. However, I also suspect such immersion might have led me to take for granted elements of the virtual world experience that other, non-player researchers might uncover. Moreover, analyses based on participant observation through gameplay were to have composed a significant portion of this study, particularly given the importance of personal bodily and perceptual experience (Relph, 1976; Tuan, 1975, 1977) and participation in place-ballet (Seamon, 1992) to the development of one's sense of place. Yet, during the gameplay sessions and subsequent review of my gameplay recordings or field notes, I struggled to find fresh insight, or to bracket (Fischer, 2008) my prior knowledge of the games as well as the findings and assertions of previous MMOG literature.

I also recognized that my personal preferences and habits as a player might have been quite different from those of the average MMO gamer, and these might have affected my overall perspective. Taylor (2006) has noted how something as simple as avatar race choice can influence the trajectory of a player-character's life across the virtual world and how the player interprets it—what more the influence of one's general play style? I consider myself a mid-core gamer (Yee, 2018) more interested in exploration, crafting, and

narrative than in the more social/community practices, or in the endgame, high-tier equipment, PVP, and dungeon/raid questing that drive some hard-core players. Relying instead on player-produced data from the forum posts, as well as the empirical findings from the survey, provided an additional degree of objectivity I felt necessary for the project's credibility. Indeed, these data often contradicted some of my personal assumptions about how one develops sense of place in virtual worlds.

I am somewhat a chronic migrant, having moved physical abodes at least once or twice a year since 2008. My permanent addresses on official documents belong to relatives who have what I now consider the luxury of their own home. Because my experiences of place have been so often disrupted by various circumstances and/or opportunities, I find myself attending to the characteristics of places with the desire to not only (re)create my personal time-space routines quickly but also to appreciate the spirit of each place for itself, at least before I need to move again. I thought often about what gave places "character" long before I learned the concept of spirit of place, or that place as a concept was the focus of an entire field of study.

At some point in the 2010s, I realized that virtual worlds had more permanence for me than did my physical places. (And yet, these worlds were also mobile; wherever I went, there they also were.) I was unable to settle down in physical space, but I could still raise 10 generations of a single family in the Sims or farm several seasons in Stardew Valley. When I heard that a game designer I admired, Keita Takahashi, was helping develop a MMOG, I joined Glitch. Soon, I was sharing my experience of a virtual place with others also "there" in real time. Because of Glitch's atypical mechanics and the wacky

player culture that developed around them, I felt attachment and belonging to a virtual world that seemed unlike any other. And then, when Glitch underwent sunset, I learned that my virtual places could be unstable, too.

These interrelated, personal experiences of place were the primary inspiration for this study. I acknowledge, attempting to demonstrate the potential for meaningful place-making in virtual worlds often seemed like a bourgeois preoccupation compared with more urgent place-related challenges in the physical world. Nonetheless, I have found this a personally meaningful endeavor and hope this work contributes in some small way to our understanding of how we relate to places, even if they might be made up of pixels, code, and cranky players.

Conclusion

This project began as an attempt to bridge theoretical gaps in place studies as well as game studies pertaining to players' relationship to the virtual world as a place. To that end, I have developed a conceptual framework that shows how game designs, place-making practices, and spatial presence promote MMOG players' sense of place. Sense of place as a construct encompasses the physical, sociocultural, and personal aspects of place experience (Bott, 2000; Gustafson, 2001; Proshansky et al., 1983), and the framework I produced with this project similarly serves to unify past work on how game design, MMOG community and culture, and individual factors work together to cultivate a person's sense of place in virtual worlds. I have also identified specific place-making practices that facilitate this process, demonstrating that players' own dynamics in virtual worlds invest them with

meaning and indeed turn virtual space into place, and that place-making is not the work of virtual designers alone. These are contributions to a larger trend toward interdisciplinary understandings of the relationships among media, places, mobility, and people's experiences of these (Ash et al., 2016; Lindell, 2015; Sheller & Urry, 2006; 2016).

To invest space with meaning and develop sense of place, people must first encounter and engage with a space's prior structures. In virtual worlds, these structures first take the form of the game mechanics or design patterns with which users or players interact. Prior researchers have proposed various game design criteria that might facilitate the development of users' or players' sense of place (Chen & Kalay, 2008; Kalay & Marx, 2005; Relph, 2007). This project has shown that game design patterns under narrative, structure, and immediate play serve to cultivate MMOG players' sense of place. Narrative Play patterns include not only the pre-determined elements that provide narrative context to gameplay but also those that facilitate a player's shaping of and participation in the narratives that actually unfold through gameplay, through the control and development of an avatar or player-character. Structure Play includes mechanics that similarly allow players to modify what make up the natural/built environment of virtual space. Immediate Play is composed of mechanics players closely engage with to produce the dynamics of emergent play experience.

The influence of game design patterns on sense of place is mediated by spatial presence, the perception that the experience of a virtual environment is unmediated (Lombard & Ditton, 1997). That is, having one's sensory perceptions and dynamic manipulation of game design patterns correspond

with one's mental model of virtual space and movement (Biocca & Delaney, 1995; Calleja, 2011) can facilitate the influence of those patterns on one's developing sense of the virtual world as a place. These links between game design, spatial presence, and sense of place also suggest a new way of framing or clarifying the relationship between (1) immersion as sensory experience and factor of presence and (2) immersion as holistic gameplay experience (cf. Adams, 2004). The first kind of immersion serves as a mechanism for the game design that purportedly facilitates the second kind, which in turn might allow players to develop meaningful associations with the environments where they feel immersed.

Place theorists have also emphasized the role of personal and sociocultural practices in establishing both tangible and intangible structures of space and giving it meaning (Cresswell, 2015; Pred, 1984), yet few studies of place and place-making in virtual worlds have recognized the ways players participate in the process within and often around or beyond the constraints and expectations of the world's prior designers. This project has shown the influence of this neglected factor: place-making practices, particularly those of world engagement and social interaction, not only directly promote sense of place but also mediate the impact of game design. Actually exploring and learning about one's chosen MMOG world, and spending time interacting with other players in that world, are key practices that cultivate one's sense of that world as a place.

This project's methodological contributions include the demonstration of large-scale, computer-assisted methods to support the qualitative analysis of textual data and development of survey measures. By themselves, the use of

KWIC indices and skip-gram modelling facilitated the efficient identification of themes and place-making practices from thousands of player forum posts across two MMOGs and multiple forks. The content analyses can thus serve as illustrative cases for the future use of such methods in contexts where researchers wish to explore people's or communities' discourse surrounding specific topics and/or using particular words or language (Chen & Wojcik, 2016; Ignatow & Mihalcea, 2017; Leech & Onwuegbuzie, 2007; Shahin, 2016). The subsequent development of the content analysis results into questionnaire items also recommend these methods' utility in producing scale/survey items when other content analytic methods (i.e., traditional quantitative and qualitative methods using interview and focus group transcripts and other textual data) are inadequate or unavailable.

On more personally and socially relevant levels, interest in how people act and interact in virtual worlds has been reignited amid the pandemic caused by coronavirus disease 2019 (D'Anastasio, 2020). Gaming and consumption of gaming-related media such as e-sports live streaming increased as millions of people worldwide spent extended time in quarantine and at home (Nielsen, 2020; Smith, 2020). Researchers have been revisiting the conception of online multiplayer worlds as third places (Steinkuehler & Williams, 2006; Yee & Sng, 2020) now that public health and safety protocols have served to mitigate face-to-face social gatherings. The framework I have proposed for sense of place in virtual worlds can help researchers and the general public alike to understand how people can find—and make—their experiences in mediated spaces meaningful.

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APPENDIX A: Synthesized List of Place-Making Practices**Basic In-Game Activities**

learning controls and interface

learning character skills or professions

farming resources

unlocking achievements/rewards

crafting objects

managing player-character's inventory

learning game story/lore

completing quests/goals

completing game content through player-vs-environment (PVE) play

collecting special items, gear, or other collectibles

customizing one's avatar

customizing an in-game home/base

role-play

competing through player-vs-player (PVP) play

Travel/Navigation

learning how to navigate the game world

exploring the game world

knowing the names of the world's spaces/locations

knowing where objects, resources, mobs, NPCs, etc. are found

unlocking and using higher-level transportation (e.g., mounts, trains, flight, teleportation)

developing personal travel routes and shortcuts

feeling familiarity with the game world

finding secret locations

Out-of-Game Structural Practices

interacting with developers, game masters, moderators, and others who keep
the game running

discussing developers', leaders', or the game company's activities/behavior

becoming/being a developer, artist, company member, etc. behind the game

proposing new game features such as quests, mobs, skills, activities, and
controls

proposing changes to existing game features

proposing new in-game spaces/locations

proposing changes to existing in-game spaces/locations

expressing complaints about game features

expressing complaints about in-game spaces/locations

reporting bugs/problems

In-Game Structural Practices

participating in activities/quests that leave a lasting effect on the game world

appropriating / coming up with new uses for in-game spaces/locations

developing one's own activities using the world and its objects

Sociocultural Practices

using in-game chat

forming friendship with other players

sharing information about yourself with other players

discussing the player/community culture

discussing undesirable behavior among players/community

discussing management/treatment of communal resources (e.g., mobs,
lootables/harvestables)

socialization / discussing how new players can learn the way things are done

sharing memories of things one did in the game

feeling appreciation for the community

feeling appreciation for other players' behavior

feeling disappointment in other players' behavior

not missing out on social activity/interaction

comparing your character, skills, gear, etc. with other players

feeling/expressing concern about the state of the community

feeling/expressing concern about the player base/population

giving gifts/freebies to other players

helping / showing kindness to other players

cooperating with other players for a goal

trade/exchange with other players

hanging out with other players in the game's public spaces/locations

hanging out with other players in designated/private spaces/locations

hanging out with other players in in-game homes/bases

seeking information about in-game activities

seeking information about in-game travel/navigation

seeking information about the game's technical aspects

sharing information with other players

creating groups, guilds, clans, etc.

being part of a group, guild, clan, etc.

recruiting other players for a group, guild, clan, etc.

leading a group, guild, clan, etc.

participating in group raiding or dungeon-clearing activities

engaging in activities like ganking, camping, and trolling

using the game's official forums

using social media for reasons related to the game

creating art, fiction, screenshots, videos, streams, and/or other other content

about the game

reading/viewing players' art, fiction, screenshots, videos, streams, and/or other

content about the game

using game guides/wikis by the players/community

creating / contributing to game guides/wikis

World Contextualizing

using the game's official website

playing other official games set in the same world/universe

playing forks of the MMOG

reading/viewing other official media set in the same world/universe (e.g.,

novels, comics, movies)

reading/viewing third-party media about the game (e.g., gaming news sites,

critics' reviews)

using official game guides/wikis

comparing the game with other MMOGs

comparing the chosen fork with other forks of the same MMOG (e.g., live vs. classic vs. private server)

APPENDIX B: Final Questionnaire

Online Survey Consent

After Sunset: Understanding MMOG Diaspora Experiences

NTU-IRB ref no. 2019-05-03

You are invited to participate in a research study on the experiences of players of massively multiplayer online games (MMOGs) that have existed in multiple versions, such as relaunches and private servers. This study is conducted by Vivian Chen (Associate Professor) and Katrina Alvarez (PhD Student) of the Wee Kim Wee School of Communication and Information at Nanyang Technological University.

This study will take approximately 15-20 minutes of your time. You will be asked to complete an online survey about your experiences and preferences as a player. About 500 people will be recruited for this phase of the research.

Your participation in this study is completely voluntary, and you have the right to withdraw from the study at any time without any penalty. You may skip any questions you do not wish to answer. If you do not wish to complete this survey, just close your browser.

Your participation in this research will be kept confidential, and data will be averaged and reported in aggregate. Your responses will be anonymous, and IP addresses will not be collected to guarantee complete anonymity. Possible outlets of dissemination may be academic journals, conferences, and/or books. Although your participation in this research may

not benefit you personally, it will help us understand how players and their communities feel connected to virtual worlds.

You will be compensated with cash (for participants in Singapore only) or an electronic voucher worth SG\$5 for the time and effort to participate in the study. A redemption code will be sent to you through the email address you provide at the end of the survey. This email address will be used only to coordinate with you for this token of appreciation. It will not be associated with your responses during data analysis and reporting.

There are no risks to individuals participating in this survey beyond those that exist in daily life.

If you have questions about this project, you may contact Vivian Chen (+6567905833; ChenHH@ntu.edu.sg) or Katrina Alvarez (ALVA0002@e.ntu.edu.sg).

This project has been reviewed and approved by NTU-Institutional Review Board. Questions concerning your rights as a participant in this research may be directed to the NTU-IRB at IRB@ntu.edu.sg or call 6592 2495.

Please print a copy of this consent form for your records, if you so desire.

- ☐ I have read and understood the above consent form. I certify that I am 21 years old or older and, by clicking the next button to enter the survey, I indicate my willingness to voluntarily take part in the study.
- ☐ I do not wish to participate in this study.

This survey will ask you about your experiences with massively multiplayer online games (MMOGs) and virtual worlds. It has three parts.

If you have not been playing MMOGs in the past six months, please exit the survey now by closing the browser tab/window.

Part 1: Your MMOG History

The following MMOGs exist or have existed in multiple versions.

MMOG	alternate versions
World of Warcraft (WoW)	Wow Classic, private server WoW
Final Fantasy MMOG(s)	Final Fantasy XIV, Final Fantasy XI, private server FF MMOGs
Star Wars MMOG(s)	Star Wars: Galaxies, Star Wars: The Old Republic, private server Star Wars MMOGs
Glitch	Children of Ur, Eleven Giants
MapleStory	MapleStory 2, MapleStory M, private server MapleStory
EverQuest (EQ)	EverQuest 2, Project 1999, private server EQ
ArcheAge	ArcheAge: Unchained, private server ArcheAge
Guild Wars	Guild Wars 2, private server GW
Ragnarok Online (RO)	RO Revo-Classic, or private server RO
RuneScape	RuneScape 2, RuneScape 3, RuneScape Classic, Old School RuneScape, private server RuneScape
Lineage	Lineage II, Lineage M, Lineage 2: Revolution, or private server Lineage

[01] Which of these MMOGs have you spend the **most** time playing in the past six months? Alternate versions included.

- World of Warcraft
- Star Wars MMOG(s)

- Glitch
- MapleStory
- EverQuest
- ArcheAge
- Guild Wars
- Ragnarok Online
- RuneScape
- Lineage
- Other: [Text field]
- I have not played any MMOG that has multiple versions like the above. [survey terminates]

[02] How long have you been playing [answer from 01]?

- Less than 1 month
- 1-3 months
- 4-6 months
- 7 months to 1 year
- 2-4 years
- More than 4 years

The following are some different versions a MMOG might have.

official live/retail version	Usually the most updated version of the MMOG. The game company might have released some patches, expansion packs, and/or additional content since launch.
official sequel	A separate new version released after the original MMOG.
official legacy version	An earlier version of the MMOG relaunched or supported by the game company. Other terms include "classic" and "vanilla".
private servers	Unofficial versions of the MMOG, usually run by an independent group or community.

[03] Which version of your MMOG ([answer from 01]) have you spent the **most** time playing in the past six months? If you think your MMOG is a mixed type, choose the answer that seems closest.

- ☐ official live/retail version
- ☐ official sequel
- ☐ official legacy version
- ☐ private live/updated server
- ☐ private legacy server

[04] Which of the following statements best describes you?

- ☐ I spend all or most of my time in [answer from 01] playing this version ([answer from 03]).
- ☐ I divide my playtime between multiple versions of my chosen MMOG.

Part 2: You as a MMOG Player

[05] Think about how you spend your time in the world of your MMOG

([answer from 01]). How important to you are the following activities?¹⁵

	Not importa nt at all 1	Unimporta nt 2	Neutr al 3	Importa nt 4	Extremel y importan t 5
being part of a group, guild, clan, etc.	☐	☐	☐	☐	☐
participating in group raiding or dungeon-clearing activities	☐	☐	☐	☐	☐
hanging out with other players in the game's public spaces/locations	☐	☐	☐	☐	☐
hanging out with other players in designated/ private spaces/locations	☐	☐	☐	☐	☐
hanging out with other players in in-game homes/bases	☐	☐	☐	☐	☐
trade/exchange with other players	☐	☐	☐	☐	☐
proposing new game features such as quests, mobs, skills, activities, and controls	☐	☐	☐	☐	☐
proposing changes to existing game features	☐	☐	☐	☐	☐
proposing new in-game spaces/locations	☐	☐	☐	☐	☐
proposing changes to existing in-game spaces/locations	☐	☐	☐	☐	☐

¹⁵ Darker borders indicate a page break in this section of the questionnaire. At the top of each page, the name of the respondent's MMOG was displayed in parentheses above the question, "How important to you are the following activities?" Similar breaks and prompting were used throughout the questionnaire.

expressing complaints about game features	☐	☐	☐	☐	☐
discussing undesirable behavior among players/community	☐	☐	☐	☐	☐
discussing how new players can learn the way things are done	☐	☐	☐	☐	☐
discussing management/treatment of communal resources (e.g., mobs, lootables/harvestables)	☐	☐	☐	☐	☐
feeling disappointment in other players' behavior	☐	☐	☐	☐	☐
feeling appreciation for other players' behavior	☐	☐	☐	☐	☐
feeling appreciation for the community	☐	☐	☐	☐	☐
reading/viewing other official media set in the same world/universe (e.g., novels, comics, movies)	☐	☐	☐	☐	☐
reading/viewing third-party media about the game (e.g., gaming news sites, critics' reviews)	☐	☐	☐	☐	☐
reading/viewing players' art , fiction, screenshots, videos, streams, and/or other content about the game	☐	☐	☐	☐	☐
creating art, fiction, screenshots, videos, streams, and/or other content about the game	☐	☐	☐	☐	☐

playing other official games set in the same world/universe	☐	☐	☐	☐	☐
playing alternate versions of the same MMOG	☐	☐	☐	☐	☐
feeling familiarity with the game world	☐	☐	☐	☐	☐
knowing the names of the world's spaces/locations	☐	☐	☐	☐	☐
exploring the game world	☐	☐	☐	☐	☐
learning how to navigate the game world	☐	☐	☐	☐	☐
participating in activities/quests that leave a lasting effect on the game world	☐	☐	☐	☐	☐
just checking: select Neutral for this item	☐	☐	☐	☐	☐

[Spatial Presence Experience Scale (Hartmann et al., 2015)]

[06] Still thinking about your most recent time in ([answer from 01]), how much do you agree with the following?

	Strongly disagree 1	Disagree 2	Neither agree nor disagree 3	Agree 4	Strongly agree 5
I felt like I was actually there in the game environment.	☐	☐	☐	☐	☐
It seemed as though I actually took part in the action.	☐	☐	☐	☐	☐
It was as though my true location had shifted into the game environment.	☐	☐	☐	☐	☐
I felt as though I was physically present in	☐	☐	☐	☐	☐

the game environment.					
The objects in the game gave me the feeling that I could do things with them.	☐	☐	☐	☐	☐
I had the impression that I could be active in the game environment.	☐	☐	☐	☐	☐
I felt like I could move around among the objects in the game environment.	☐	☐	☐	☐	☐
It seemed to me that I could do whatever I wanted in the game environment.	☐	☐	☐	☐	☐

[Game Design Patterns]

[07] Below are some elements of game design and virtual environments.

How important are they to your experience of your MMOG world

([answer from 01])?

	Not important at all 1	Unimportant 2	Neutral 3	Important 4	Extremely important 5
Game World. A virtual space where you can move, interact, and play.	☐	☐	☐	☐	☐
Reconfigurability You can modify part or all of the game world in some way.	☐	☐	☐	☐	☐
Moveable tiles. Spaces in the game world that move or that you can move.	☐	☐	☐	☐	☐
Audio.	☐	☐	☐	☐	☐

Background music and sound effects.					
Alternative reality. The game world has a reality different from our own.	☐	☐	☐	☐	☐
Avatars. Elements representing you / other players.	☐	☐	☐	☐	☐
Characters. Elements representing persons or beings with a purpose or story.	☐	☐	☐	☐	☐
Planned character development. Character development that you can control, including for your avatars/units.	☐	☐	☐	☐	☐
Narrative structures. Elements of stories that unfold while playing the game.	☐	☐	☐	☐	☐
Goal points. Locations in the game world reached during or after completing goals.	☐	☐	☐	☐	☐
Save points. Locations in the game world where your progress is saved.	☐	☐	☐	☐	☐
Safe havens. Locations in the game world where enemies cannot affect you.	☐	☐	☐	☐	☐
Spawn points.	☐	☐	☐	☐	☐

Locations where avatars, units, characters, or resources appear/reappear.					
Still here? Select "Extremely important".	☐	☐	☐	☐	☐
Enemies. Other avatars, units, or characters that try to stop you from reaching goals.	☐	☐	☐	☐	☐
Obstacles. Game elements that get in your way.	☐	☐	☐	☐	☐
Control elements. In-game objects like buttons, switches, and doorknobs in fixed locations that allow avatars/units to perform actions.	☐	☐	☐	☐	☐
Clues. Elements that give information about how to reach goals in the game	☐	☐	☐	☐	☐
Strategic locations. Areas in the game world that give advantages to players who control them.	☐	☐	☐	☐	☐
Outstanding features. Elements you cannot control but which give you some information, like signs and landmarks.	☐	☐	☐	☐	☐

[illegible]

[10] This game world makes me feel ...

[illegible]

part of the community	☐	☐	☐	☐	☐	☐	☐
like exploring	☐	☐	☐	☐	☐	☐	☐
a sense of belonging	☐	☐	☐	☐	☐	☐	☐
a sense of nostalgia	☐	☐	☐	☐	☐	☐	☐
a sense of mystery	☐	☐	☐	☐	☐	☐	☐

[11] What is your gender?

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Prefer not to say

[12] What is your age?

- ☐ 21-25
- ☐ 26-30
- ☐ 31-35
- ☐ 36-40
- ☐ 41-45
- ☐ 46 or over

[13] What country are you from?

[dropdown menu]

[14] Please provide a valid e-mail address so that we can contact you for the token of appreciation for answering the survey.

It might take a few weeks for us to get back to everyone, but we will e-mail you!

[text input]

Your responses have been recorded. Thank you very much for taking the time to share your thoughts with us.

If you have questions or comments, you can:

- download the consent form: [link]
- contact Katrina Alvarez [e-mail address]