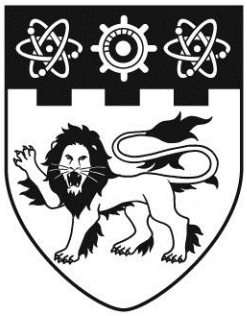

NANYANG TECHNOLOGICAL UNIVERSITY

INTERACTIVE AFFORDANCES AND PLAYER EXPERIENCE IN MASSIVELY MULTIPLAYER ONLINE ROLE PLAYING GAMES: EXPLORATION OF WORLD OF WARCRAFT PLAYERS' EXPERIENCES

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Interactive Affordances and Player Experience in Massively Multiplayer Online Role Playing Games:
Exploration of World of Warcraft Players' Experiences

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ABSTRACT

Contemporary video games such as massively multiplayer online role playing games (MMORPGs) have gained increasing popularity in recent years. For instance, World of Warcraft (WoW) boasts the largest current share of online game subscribers at more than 10 million around the world. The expanding popularity of online games has driven research to discuss various aspects of such games. The game industry has shown particular interest in understanding factors that make playing online games a compelling experience in order to find ways to preserve existing subscribers and attract more people. Academics also have been exploring factors that influence people's gaming experiences. However, the effects of players' actual engagement with specific game characteristics on their experiences and the process that players go through to reach certain experiential states have not drawn enough attention in the literature.

Two main approaches to conceptualizing contextual factors that influence player experience focus on either players' psychological properties or on structural game characteristics. Earlier game research mainly focus on individual factors that influence player experience, such as players' motivations, needs, and individual characteristics. For example, self-determination theory (SDT) and uses and gratifications theory (U&G) suggest that people play online games to meet certain needs and motivations. Motivation-based theories, including SDT and U&G, assume that people have certain basic needs prior to media use, and that those needs motivate people to use a specific medium. However, it is possible that the gratifications users obtain from media are not always driven by their innate, prior needs before using a medium. In recent years, a growing number of game scholars have discussed how structural game characteristics can be more influential as contextual factors than players' psychological properties. This second approach has identified a list of game features that can influence players' in-game experiences and subsequent behaviors.

There are just few studies looking into the effects of structural game characteristics on player experience. The current literature also does not provide insights into how players' actual engagement with game features influences their gaming experiences. There are numerous features in MMORPGs, but players may or may not always use them. In order to

focus on contextual factors related to games that influence player experience, this project identifies prominent action possibilities (affordances) of World of Warcraft with which players actually engage. This research therefore contributes to the literature on structural game characteristics.

Another problem in the literature is that current models and theoretical constructs of player experience do not elaborate on the processes that players go through to reach certain experiential states while gaming. Popular models of player experience have described psychological compartments or intensity of the optimal experiences. Theoretical constructs of player experience have also elaborated on players' experiences such as immersion, sense of presence, engagement, involvement, and flow state. However, in order to truly understand what experiential states such as immersion and flow are like, it is essential to explore players' affective states in such experiential states as well (Ravaja et al., 2006; Riva et al., 2007). This project explores players' affective states and experiential states during actual engagement with interactive game affordances.

To address the above two limitations, this research conceptualizes player experience as a dynamic process consisting of contextual factors, processes, and consequences. Such a conceptualization of player experience is inspired by the tri-partite models of user experience (Chen, 2000; Hoffman & Novak, 1996; Finneran & Zhang, 2005). In this research, contextual factors are defined based on interactive affordances of online games, processes are explored based on players' affective states, and consequences refer to players' various experiential states.

Twenty-five WoW players were recruited to complete a think-aloud protocol and semi-structured in-depth interview. The study found five categories of interactive affordances that players mainly engaged with: achievement, exploration, social connectedness, control, and customizability of difficulty level. Various affective states arising as a result of engagement with interactive affordances are categorized into stimulated feelings, relaxed feelings, and disturbed feelings. Players' experiential states include flow experience, partial engagement, and disengagement. Finally, a model of player experience based on associations among interactive affordances, affective states, and experiential states is presented. Theoretical contributions and practical implications of the findings are provided at the end of this research.

CHAPTER ONE INTRODUCTION

Introduction

Massively multiplayer online role playing games (MMORPGs) comprise a genre of online game in which players create an avatar that evolves and interacts with other players in a persistent virtual world (Billieux et al., 2013). In the rich and unpredictable 3-D virtual environments of online games, players can also interact with artificially intelligent software agents and simulated environments (Lee, Park, & Jin, 2006). MMORPGs are among the most popular form of entertainment around the world. It is predicted that overall worldwide revenue from online games delivered via the PC or video game consoles will grow from $15.7 billion in 2010 to nearly $29 billion in 2016 (DFC Intelligence, 2011). According to the report on video games outlook, the online and offline game market in the Asia-Pacific region, excluding Japan, is expected to grow from $11.2 billion in 2010 to $30.3 billion in 2016 (Dharia, 2012). The MMORPG sector has the most significant retail sales contribution to this revenue (Dharia, 2012). World of Warcraft, with over 10 million subscribers around the globe is the most popular MMORPG (Blizzard Entertainment, 2014).

Such expanding popularity of MMORPGs has opened the doors for research on various aspects of online games. The game industry has shown particular interest in understanding factors that make playing online games an enjoyable experience in order to find ways to preserve existing subscribers and acquire larger audiences (Koeffel et al., 2010). Academics also have been exploring reasons that make playing online games an enjoyable experience (Gajadhar, de Kort, & IJsselsteijn, 2008; Klimmt, Hefner, & Vorderer, 2009; Klimmt, Schmid, & Orthmann, 2009; Przybylski, Rigby, & Ryan, 2010; Ryan, Rigby, & Przybylski, 2006; Shen, Liu, & Wang, 2013). However, less is known about how game-related factors make playing online games a compelling experience for their players. This introductory chapter includes the research problems, research purposes, significance of the research, and definitions of key terms.

Statement of Research Problems

This project investigates player experience in a popular MMORPG, World of Warcraft (WoW). A literature review on player experience illustrates that the effects of players' actual engagement with specific game characteristics on their experiences and the processes that players go through to reach certain experiential states have not drawn enough attention. I discuss such problems in the literature on player experience.

Two main approaches to conceptualizing contextual factors that influence player experience focus on either players' psychological properties or on structural game characteristics. Earlier game research mainly explored contextual factors that influence player experience based on their motivations, needs, and individual characteristics. For example, self-determination theory (SDT) and uses and gratifications theory (U&G) suggest that people play online games to meet certain needs and motivations. Motivation-based theories, including SDT and U&G, assume that people have certain basic needs prior to media use, and that these needs motivate people to use a specific medium (Sundar & Bellur, 2013). For example, studies using U&G found that people play video games to satisfy their needs for challenge, competition, diversion, arousal, fantasy, and social interaction (Lucas & Sherry, 2004; Sherry, Lucas, Greenberg, & Lachlan, 2006; Wu, Wang, & Tsai, 2010). However, it is possible that the gratifications users obtain from media are not always driven by their innate, prior needs before using a medium. When the interactivity of modern media is taken into consideration, the assumption that users are always goal-directed at the beginning of their media use becomes less accurate. Indeed, people tend to develop needs *during* their interaction with media (Sundar & Limperos, 2013).

In recent years, many game scholars have discussed how structural game characteristics can be more influential as contextual factors than players' psychological properties, such as their gaming motivations and personality traits (Billieux et al., 2013; Chumbley & Griffiths, 2006; Clarke & Duimering, 2006; Karlsen, 2011; Wood, Griffiths, Chappell, & Davies, 2004; Wood, Griffiths, & Parke, 2007). Structural game characteristics are defined as those that either induce gaming in the first place or are inducements to continue gaming irrespective of the individual's psychological, physiological, or socio-economic status (Wood et al., 2004). For example, Wood et al. (2007) found that video game complexity, the presence of

various goals, missions, and/or high scores, multiplayer interactions, and plot have a more influential effect on loss of temporal awareness than player characteristics. This approach has identified a list of game features, such as sound, graphics, background and setting, duration, rate of play, advancement rate, use of humor, control options, game dynamics, reward and punishment features, character development, brand assurance, and multiplayer features that players perceive as essential in their gameplay (Wood et al., 2004).

Although there are not enough studies on the effects of structural game characteristics on player experience, the current literature does not provide adequate insights into how players' actual engagement with game features influences their experiences. There are numerous features in MMORPGs, but players may or may not use them. For example, most players know about raiding and arena battles as social features in WoW, but few may be qualified to actually engage in such challenging joint tasks. Therefore, those who have not actually performed a role in raiding and arenas cannot elaborate on social experiences related to such advanced multiplayer features. In order to focus on contextual factors related to games that influence player experiences, this project identifies prominent action possibilities (affordances) of WoW with which players actually engage. This research therefore contributes to the literature on structural game characteristics.

The second problem in the literature is that current models and theoretical constructs of player experience do not elaborate on the processes that game players go through to reach their subjective gaming experiential states. Popular models of the player experience have described psychological compartments or intensity of the optimal experiences. For example, Brown and Cairns (2004) identified three levels of immersion in video games, ranging from engagement to engrossment to total immersion. Emri and Mäyrä (2005) discussed the psychological compartments of immersion in games, including sensory immersion, challenge-based immersion, and imaginative immersion. Theoretical constructs of player experience have also elaborated on players' psychological states, such as immersion (Wan & Chiou, 2006), sense of presence (Fang-Wu & Yi-Shin, 2006; Jin, 2011), engagement (Brockmyer et al., 2009), involvement (Takatalo, Häkkinen, Kaistinen, & Nyman, 2010; Wirth, Hofer, & Schramm, 2012) and flow state (Choi & Kim, 2004; Kim, Oh, & Lee, 2005).

However, in order to truly understand what subjective experiential states such as immersion and flow are like, it is essential to explore players' affective states in such experiential states as well (IJsselsteijn et al., 2007; Ravaja et al., 2006; Riva et al., 2007). For example, Choi and Kim (2004) found that feedback from games is associated with the flow state. However, the psychological processes that players experience during certain experiential states have not drawn enough attention. Feedback from games can entice various affective states, and through different processes, they can influence the flow state. Whereas feedback in the form of attractive rewards can stimulate excitement and foster flow, feedback in the form of character death can make players more cautious and enhance flow. This project explores associations between players' affective states and experiential states during actual engagement with interactive game affordances.

To address the above two limitations, this research conceptualizes player experience as a dynamic process consisting of contextual factors, processes, and consequences. Such a conceptualization of player experience is adopted from the tri-partite models of user experience (Chen, 2000; Finneran & Zhang, 2005; Hoffman & Novak, 1996). In this research, contextual factors are defined based on interactive affordances of online games, processes are explored based on players' affective states, and consequences refer to players' various experiential states. Details about conceptual and operational definitions of player experience will be provided in the theoretical framework section.

Research Purposes

The three interwoven research purposes of this project are: (1) to identify prominent interactive affordances of MMORPGs that players actually engage with; (2) to explore players' affective states when they engage in gaming; and (3) to investigate various experiential states that players have as a result of engagement with interactive affordances of MMORPGs.

Flow theory is synthesized with the concept of interactive affordances as the theoretical framework in this project. Some flow dimensions originally defined by Csikszentmihalyi (1990), such as control, level of challenge, and clear goals, can be

applied to identify specific characteristics of video games that influence the player experience. In addition, the original flow theory elaborated on various experiences such as apathy, boredom, frustration, and control, along with flow state, and can provide insights into understanding various experiential states.

Game scholars discuss that interactivity is the main characteristic of video games that can best explain why games are so popular (Eichner, 2014; Lee et al., 2006; Vorderer, Hartmann, & Klimmt, 2003). Interactivity can be explored based on two types of activities that a medium provides: interaction among media users and/or interaction between a user and media technology (Bucy, 2004; Chung, 2007; Liu & Shrum, 2002; Rafaeli, 1988; Stromer-Galley, 2000, 2004). Interactivity is the most distinct affordance of digital media (Sundar, 2007, p. 85). Affordances refer to the range of action possibilities that sensory stimuli in the environment provide to people. Affordances invite people to interact with objects in certain ways. Based on the definitions of interactivity and affordances, the term "interactive affordances" is conceptualized as the range of action possibilities in MMORPGs that are related to player-to-player interactivity and player-to-game interactivity. Conceptualization of interactivity as affordance helps us to explore how players' actual uses of game features create unique experiences in MMORPGs.

Significance of Research

Online games have become part of daily life for many people. Research has found that people, regardless of age and gender, play online games because they are enjoyable entertainment (Festl, Scharkow, & Quandt, 2013; Nagygyörgy et al., 2013). About 20 million people from different parts of the world regularly pay online subscriptions to play MMORPGs (MMOdata.net, 2012). Research has also found that most players spend more than 20 hours per week playing online games (Meredith, Hussain, & Griffiths, 2009). The expanding popularity of online games makes it essential to explore players' experiences as a result of actual engagement with interactive game affordances.

Existing models and theoretical constructs of player experience have mainly focused on players' psychological properties (motivations, needs, or individual

characteristics) and/or the psychological characteristics of the experience itself to explicate reasons for video games' popularity. The effects of players' actual engagement with specific characteristics of video games on their experiences and the processes that players go through to reach certain experiential states have not drawn enough attention in the literature. This project provides theoretical insights into how to best understand players' gaming experiences based on what players actually do in games, irrespective of their psychological properties. In addition, explaining players' affective states as part of the process of reaching experiential states can contribute to existing models and theoretical constructs of player experience.

Findings about the processes that players go through to reach their subjective experiential states during gameplay can have substantial practical applications. Understanding how actual engagement with interactive affordances of video games influence players' various affective states and experiential states can shed light on players' expectations and desires. Given that WoW is the most popular online game in the world, research into WoW players' experiences can help other online game designers to devise ways to better and more profitably serve their customers.

Definition of Terms

Several key terms need to be conceptualized and clarified in order to make this thesis more understandable. The following terms are essential to my project, and I thoroughly explain them in chapter two. As this research is an attempt to explore player experience through the theoretical synthesis of flow theory and interactive affordances, the key terms include:

- Player experience
- Affective states
- Experiential states
- Interactive affordances
- Game features
- Flow theory

The literature lacks a clear definition of the concept of player experience and scholars have applied different theoretical constructs, such as immersion, presence, or

engagement, to explore it. In this project, player experience is conceptualized as a set of emotional responses, sensations, or experiential states that occurs when players interact with the game or other players. Player experience is operationalized in this research based on contextual factors, processes, and consequences (Chen, 2000; Finneran & Zhang, 2005; Hoffman & Novak, 1996). Contextual factors will be explored based on interactive affordances of MMORPGs. Processes are defined based on affective states that players have when they actually engage with interactive affordances. Affective states are operationalized by questions related to feelings and emotions that players experience when they interact with the game or other players. Consequences of player experience are explored based on immediate, short-term consequences at the time of gaming, and they are labeled as experiential states.

The concept of interactive affordance is the synthesis of interactivity and affordance. Interactivity is conceptualized based on *game features* that influence players' interaction with other players and/or the game. For example, a guild is an in-game feature that allows players to forge strong social bonds with other players. Gibson (1986) first proposed the term, affordance, to discuss how visual stimuli in the environment provide suggestions to users for how to interact with an object. For example, a ladder affords climbing up or down; a softball fitting nicely in our hands affords throwing. The term, interactive affordances, is conceptualized as the range of action possibilities facilitated by game features related to player-to-player interactivity and player-to-game interactivity.

Flow theory was originally developed by Csikszentmihalyi (1988) to account for the pleasure obtained from intrinsically rewarding (autotelic) activities such as playing music, board games, and rock climbing. Csikszentmihalyi (1990) used the concept of flow to describe a moment in which a person is “in control of his or her actions, and in which there is little distinction between self and environment, between stimulus and response, or between past, present, and future” (p. 36). As discussed by Sherry (2004), video games possess ideal characteristics to create and maintain a flow experience. Flow theory is applied in this research because some subcomponents of flow, such as balance between skill and challenge, goals, and control, provide psychologically valid metrics to evaluate player experience related to specific characteristics of video games. In addition, flow theory elaborates on several

experiences, such as boredom, apathy, control, and frustration, along with flow state, which help to explore players' various experiential states.

Dissertation Overview

There are five chapters in this document. In chapter one, main research problems and purposes are briefly described. Chapter two is the literature review, and it includes four major sections. First, conceptualization of interactive affordances is presented and studies on specific characteristics of online games, including structural game characteristics and social interaction, are reviewed. Second, the literature review focuses on players' subjective experiences. Here, studies on subjective experiences such as immersion, presence, and flow are reviewed, and the rationale for choosing flow theory as part of the theoretical framework is presented. In the third section, limitations of the literature are discussed and detailed research purposes to address them are presented. The fourth section is the theoretical framework, which includes an explanation of the synthesis of the flow framework and interactive game affordances. In chapter three, the two qualitative research methods utilized for data collection, semi-structured in-depth interviews and think-aloud protocols, are introduced. The chapter outlines the steps taken to recruit 25 WoW players, describes the characteristics of these participants, and explains the data analysis process. Chapter four presents thick descriptions of five major interactive game affordances—achievement, exploration, social connectedness, control, and customizability of difficulty level—that influence player experience. It discusses how actual engagement with such interactive affordances can influence players' affective and experiential states. Chapter five presents an abstract model depicting the dynamic process of player experience in MMORPGs as a result of engagement with interactive game affordances. At the end of this chapter, theoretical contributions of research findings and practical applications are discussed.

CHAPTER TWO LITERATURE REVIEW

Introduction

This chapter begins with a description of MMORPGs, and specifically World of Warcraft. I review studies on gaming motivations since motivations are introduced as contextual factors that influence player experience, and the limitations of these studies are discussed. The concept of interactive affordances is introduced to articulate contextual factors related to specific characteristics of video games that influence player experience. I review studies on structural game characteristics and social interaction in online games and summarize literature findings about game features that can provide certain affordances. Then, the literature review focuses on players' subjective experiences. Studies that conceptualized player experience based on constructs such as immersion, engagement, presence, and emotions are reviewed, and the rationale for choosing flow theory to explore player experience in this research is discussed. Flow theory and its application to new media studies and game research are described, and the limitations of this line of research are discussed. After discussing major limitations of the literature on player experience, detailed research purposes and questions are introduced. Finally, the flow framework is integrated with the concept of interactive affordances to serve as the theoretical framework in this project.

Massively Multiplayer Online Games

Massively multiplayer online games (MMOGs) comprise a genre that enables a large number of players to become involved in real-time interaction over the Internet. MMOGs have acquired various names and acronyms, including massively multiplayer online persistent world (MMOPW) and massively multiplayer online role playing game (MMORPG) (Chan & Vorderer, 2006). These games include several gameplay genres such as role-playing, strategy, first-person shooting, and social games. In this research, the term MMORPG is used to refer to online games that enable a player to take the role of a character and engage in synchronized interaction and cooperation with other players in the game’s virtual space. Modern popular MMORPGs include WoW, Diablo III, RuneScape, Lineage and Lineage II, Everquest and Everquest II, EVE Online, Star Wars, and Guild Wars 2.

Rise of MMORPGs and World of Warcraft

MMORPGs came into existence as text-based role playing games called multi-user dungeons/domains (MUDs) and their variants (Chan & Vorderer, 2006). In 1978, Roy Trubshaw and Richard Bartle completed MUD1, which was the first multi-user text-based world and allowed connection to an internal network at Essex University. In MUD1, players were able to dial in via modem to a central server to explore the fantasy world and socialize with each other. By the time the World Wide Web appeared, MUDs were so popular that MUD use accounted for 10% of all Internet traffic (Bartle, 2004).

During the 1990s, several MUDs were released for commercial purposes. Online services such as CompuServe in the U.S.A. and CompuNet in the U.K. helped these MUDs to be financially successful ventures by charging players for monthly subscriptions (Hodis, 2009). With the release of Ultima Online in 1997, the doors opened for the creation of many other MMORPGs. This game is acknowledged as the first successful and popular online role playing game, which popularized the term "massively multiplayer" (Meredith et al., 2009). Ultima Online was the first MMORPG that reached 100,000 subscribers, and by 2003 it boasted 250,000 subscribers (Woodcock, 2008).

In the late 1990s, two significant MMORPGs were released: Everquest and Lineage (Bartle, 2004). Lineage was released in 1998 by the South Korean video game developer, NCSoft. It had 3.4 million active subscriptions by 2004 (Woodcock, 2008). Everquest was released by Sony Online Entertainment in 1999. Within the first year, it surpassed Ultima Online's subscription number, and by 2004 had 450,000 active subscribers (Woodcock, 2008).

Within the growing MMORPG market, several key online games were released in the early to mid-2000s (Bartle, 2004). Some of them surpassed the one million active subscriptions mark, such as Lineage II, Final Fantasy XI, and RuneScape (Woodcock, 2008). In November 2004, Blizzard Entertainment released World of Warcraft. In less than one year, WoW surpassed Lineage's subscriptions (Woodcock, 2008). As of April 2014, Blizzard Entertainment reported about 10 million active

WoW subscriptions. The estimate of the total number of MMORPG players around the world is 20 million; 10 million of them play WoW (MMOdata.net, 2012).

Common Characteristics of MMORPGs and World of Warcraft

MMORPGs have specific characteristics such as persistence, physicality, social interaction, avatar-mediated play, and open-endedness that provide players with a unique experience compared to other types of video games (Chan & Vorderer, 2006; Smyth, 2007; Snodgrass et al., 2012). Persistence occurs on at least at two levels in MMORPGs: world persistence (permanence of the virtual world so that the game world is online and accessible to players at any time) and avatar persistence (permanence in the status of characters between play sessions). For example, if one temporarily stops playing WoW, she can continue the game later from the same point she stopped, and of course with the same avatar. Persistence in MMORPGs is dynamic in the sense that the game still changes and other players continue playing even if a player is not present. Physicality in MMORPGs refers to the characteristic of digitally representing material things, though they are not tangible (Chan & Vorderer, 2006). For example, distance exists in WoW, and it must be traversed on foot if other modes of transportation such as mounts are not available.

The third characteristic of MMORPGs is social features, which provide the opportunity to create strong friendships and emotional relationships with other players (Cole & Griffiths, 2007; Griffiths et al., 2011). MMORPGs facilitate interpersonal interaction, collaboration, and teamwork relationships among game players through specific features such as guilds, chat channels, and Voice over Internet Protocol (VoIP) technologies. Social interaction can also extend beyond the game's virtual space to face-to-face meetings, producing strong social connections (Trepte, Reinecke, & Juechems, 2012). Social interaction in MMORPGs takes place through the avatar. An avatar is the representation of players as digital characters in the virtual world (Chan & Vorderer, 2006, p. 86). Players may choose among various avatars with different capabilities. In addition, they can customize their avatars' characteristics, such as face, skin tone, hair color, body type, and garments. WoW players choose their avatars between two opposing factions, Horde or Alliance, 13 different races such as Dwarf, Human, and Blood Elf, and 11 different classes, such as Warrior, Hunter, Druid, Warlock, Shaman, and Priest.

MMORPGs are also open-ended, so that even after completing the in-game goal of achieving the highest possible level, players can continue their existence in the game as though there were no end to it. For example, when a WoW character reach the maximum level, which is currently 100, level advancement is no longer the goal for that character and other activities take center stage. The game offers endless goals to accomplish while leveling a character or after reaching the maximum level. In-game goals generally become more complex, require more time to complete, and offer more attractive rewards as players advance in the game.

Approaches for Exploration of Player Experience: Review of Literature on Gaming Motivations

Studies have explored player experience based on factors related to psycho-social needs and gaming motivations. In this section, studies on gaming motivations are reviewed since motivations are described as contextual factors that influence player experience. The limitations of this line of research are also discussed and I indicate how this project addresses them.

Motivation is described in media research as a driving factor behind why people use specific media or media content. In the case of video games, motivations can encourage players to choose a specific type of game, continue to participate, progress, and stay inside the gaming environment (Paraskeva, Mysirlaki, & Papagianni, 2010). Players' motivations for gaming can be intrinsic or extrinsic. Intrinsic motivations originate from players' desires to play the game as an end in itself (Malone, 1981). Extrinsic motivations involve playing games as the means to an end, such as earning money by selling in-game items (Constantiou, Legarth, & Olsen, 2012; Guo & Barnes, 2009; Lehdonvirta, 2009). Uses and gratifications theory (U&G) provides a list of motivations for playing video games, such as challenge (to experience success following great effort), competition (to defeat other players), diversion (to escape real-life stress), arousal (to experience positive emotions like excitement), fantasy (to have novel and fantastic experiences), and social interaction (to have social experiences) (Lucas & Sherry, 2004; Sherry et al., 2006; Wu et al., 2010).

The established psychological self-determination theory (SDT) (Deci & Ryan, 2000) is also applied in gaming motivation research to understand why people turn to playing video games. SDT posits that people are motivated to play video games in order to satisfy basic human needs for competence, autonomy, and relatedness (Peng, Lin, Pfeiffer, & Winn, 2012; Przybylski et al., 2010; Przybylski, Ryan, & Rigby, 2009; Ryan et al., 2006). In a rigorous series of surveys and experiments, Przybylski et al. (2010) confirmed that playing video games satisfied intrinsic needs for autonomy and competence. In an experimental study, Peng et al. (2012) explored associations between game features and the competence, autonomy, and relatedness. They found that manipulated autonomy-supportive and competence-supportive game features had main effects on gaming motivations and engagement outcomes. Game features that supported players' need satisfaction of autonomy include choice of avatar customization, choice of how to grow strength of avatars, and selection of how to respond to non-player characters, and advance the game narrative by making choices in the dialogue branching (Peng et al., 2012, p. 191). Players' need of competence are satisfied by the game's ability to dynamically adjust difficulty levels based on players' performance and by indicators that show the players' achievements. The concept of competence is consistent with flow theory, which posits that people experience flow when their skills and the task's difficulty level are consistent. Autonomy refers to players' ability to freely choose new content and limitless options, and is similar to the concept of control, which is described as an enjoyable part of video game playing (Klimmt, Hartmann, & Frey, 2007).

The abovementioned needs-based studies have explored gaming motivations based on people's needs and gratifying motives. Needs-based approaches are powerful in explaining motivations for using all sorts of media. However, they hardly explain how the unique aspects of a medium influence users' experiences and behaviors. Each type of media has specific features that can have unique influences on users' experiences. In video game research, a group of scholars has started to look into game features to help understand players' behaviors (Billieux et al., 2013; Chumbley & Griffiths, 2006; Clarke & Duimering, 2006; Karlsen, 2011; Wood et al., 2004; Wood et al., 2007). This project is an attempt to understand how actual engagement with specific characteristics of a popular online game like WoW influences players' experiences.

Some studies have investigated gaming motivations based on specific characteristics of online games. In a pioneering study, Bartle (1996) classified MUD players based on two dimensional motivations: whether players have a focus on the participants in a game or on the world of a game, and whether players are interested in action or interaction. According to Bartle, there are four types of game players: *achievers* who focus on game-related goals, *explorers* who are interested in discovering the game's virtual world, *socializers* who engage in gameplay as a means to have social interactions with fellow players, and *killers* who are interested in competition with other players. Based on Bartle's classification, Yee (2006) empirically grouped motivations for playing online games into three main categories and 10 subcategories: 1) achievement motives, including advancement (progress rapidly), mechanics (analyze the underlying rules and system of a game), and competition (to beat opponents); 2) social motives, including socializing (helping and chatting with other players), relationships (forming long-term, meaningful relationships), and teamwork (being part of a group effort); 3) immersion motives, including discovery (finding and knowing new things), role-playing (creating a persona with a background story), customization (regarding the appearance of characters), and escapism (using the online game to avoid thinking about real-life problems). Yee's research is among few empirical studies to subcategorize broad conceptualizations of gaming motivations based on specific capabilities that online games provide to players. Yee's taxonomy of motivations to play online games has been widely applied in the game literature (Jeng & Teng, 2008; Williams, Yee, & Caplan, 2008; Wu et al., 2010). For example, Wu et al. applied Yee's taxonomy to explore players' motivations for sticking to a specific online game. They found that perception of gratification (i.e., achievement, enjoyment, and social interaction) and the service mechanisms (i.e., fairness, incentive, and security) influence players' motivations to continue playing a game, which in turn have strong impacts on players' proactive dedication to an online game.

Yee's and Bartle's categorizations of gaming motivations are based on characteristics of online games rather than general human psychological needs, and hence they are insightful for understanding players' experiences related to specific characteristics of online games. However, Billieux et al. (2013) argued that further research is needed to explore whether self-reported motives can effectively predict

players' actual behaviors in the virtual game space. For example, players may initially be motivated to play an online game because of their friends, but as they continue to interact with the game features, the exploratory aspects of new virtual environments gratify them more than social interaction. Instead of focusing on motivations as contextual factors of player experience, this project explores how actual engagement with structural game characteristics can influence player experience.

Conceptualization of Interactive Affordances as Contextual Factors of Player Experience

In recent decades, media scholars' attention to the concept of interactivity has dramatically increased. Koolstra and Bos (2009) illustrated the prosperity of research on interactivity by doing a search in the "Web of Science", using the keywords "interactivity" and "interactive". The search results illustrated that before the 1980s, interactivity was seldom addressed, whereas since then, the number of articles about interactivity has increased at a faster rate than the total number of articles included in the database (Koolstra & Bos, 2009, p. 373). Game scholars discuss that interactivity is the main characteristic of video games that can best explain why games are so popular (Eichner, 2014; Lee et al., 2006; Vorderer et al., 2003; Weber, Behr, & DeMartino, 2014).

Interactivity can be explored based on two types of activities that a medium provides: interaction among media users (user-to-user interactivity or social interaction) and/or interaction between a user and media technology (user-to-medium interactivity or personal interaction) (Choi & Kim, 2004; Chung, 2007; Stromer-Galley, 2004). Interactivity in this research is conceptualized based on *game features* that influence players' interaction with other players and/or the game. For example, WoW has included a feature called the Group Finder to the recent expansion pack of the game that allows players to easily join a group of unknown players for difficult joint activities such as raiding. Group Finder allows for casual social ties among unknown players, and hence it can influence the nature of social interaction. Additional game features, such as character customization, influence a player's relationship with the game. When players customize their characters' performance through the feature of hot-keys, provided in WoW's key-binding menu, they can have

more control over their character's movements. Therefore, interactivity in this research refers to various game features that influence social interaction among players and personal interaction between players and the game.

Interactivity is synthesized with the affordance concept, as interactive affordances, in order to focus on what players actually do in the game as the result of using game features. According to Sundar (2007), interactivity is one of specific affordances of digital media. Gibson (1977) first proposed the term, affordance, to discuss how visual stimuli in the environment suggest interacting with an object in certain ways. Gibson (1979) defined the term:

> The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment (p. 127).

An affordance is the action possibility available in the environment to an individual, independent of the individual's ability to perceive this possibility. For instance, the shape and size of an armchair implies that it is for sitting (Gibson, 1977). McGrenere and Ho (2000, p. 2) described two properties of affordances that Gibson implies but never directly states:

- Affordances are binary; they either exist or they do not exist. For example, a stair is climbable by a particular individual or it isn't.
- Affordances can be nested when an action possibility is composed of one or more action possibilities. For instance, an apple affords eating, but eating is composed of biting, chewing, and swallowing, all of which are afforded by the apple.

In his book, *The Psychology of Everyday Things* (*POET*), Norman (1988) presented a different conceptualization of affordance, which has become prominent among human-computer interaction (HCI) scholars. Norman (1988) discussed how the individual's perception may be involved in characterizing the affordance in order to support the idea of "perceived" affordances. He described affordance:

> The term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could

> possibly be used. A chair affords (‘is for’) support and, therefore, affords sitting. A chair can also be carried (Norman, 1988, p. 9).

Thus, according to Norman (1988), real affordances are not as essential as perceived affordances because perceived affordances determine the actions that can be performed and signal to the user how they may be accomplished (Bower, 2008).

When conceptualizing affordance, it is essential to make distinctions between Gibson’s and Norman’s definitions of affordances. In this project, Gibson's original definition of affordance is applied to identify action possibilities that actual game features provide to players, irrespective of players' perceptions. For example, the reward system actually exists in the game, and it affords possessing unique properties, showing off achievements to other teammates, or advancing the character.

The concept of affordances is applied in new media research to describe the various action possibilities that media features provide to users. Sundar and Bellur (2011) conceptualized Internet use based on affordance to refer to the ways in which people engage the features of the media beyond mere perception. According to Sundar and Bellur (2011):

> “Blogs afford the reading of public affairs and opinion information as if from a newspaper. In addition, blogs afford the possibility of browsing archived posts, commenting on someone's post, linking it to other online sources of information, inviting other ‘readers’ to online blogs inhabited by likeminded others, and so on" (p. 486).

Jiow and Lim (2012) discussed that video games offer a series of affordances such as portability, accessibility, interactivity, identity multiplicity, sociability, and perpetuity, and by understanding these affordances, parents can effectively mediate their children's gaming experiences.

Based on the abovementioned definitions of interactivity and affordance, the concept of interactive affordances is conceptualized as the range of action possibilities facilitated by the game features that influence player-to-player interactivity and player-to-game interactivity. For example, a guild is an in-game association that allows a range of affordances that influence player-to-player interactivity, such as high cooperation during challenging joint tasks, social support against players from the

opposing faction, social competition to show off achievements, and playful conversations. In sum, the guild as a real game feature affords bonding social ties, which means that guilds strengthen social relationships with other players. There are a number of customization features in video games, such as speech settings, audio or dialog settings, controller configuration, and advanced graphics options, which allow players to exert more control over the game. Mastery over the character and in-game events can also be defined as an affordance. My conceptualization of interactive affordances is closely tied with in-game features in order to focus on what a game actually allows players to do within it. In other words, the conceptualization of interactive affordances based on real properties of WoW helps to define specific game characteristics as contextual factors that influence player experience.

Review of Literature on Structural Game Characteristics

In the previous section, interactivity was conceptualized based on game features that influence personal interaction between users and a medium (player-to-game interactivity) and social interaction among users (player-to-player interactivity). In this section, the literature on structural game characteristics is reviewed because some game features can influence player-to-game interactivity (Weber et al., 2014).

Research has found that structural characteristics of video games influence players' experiences and behaviors (Choi & Kim, 2004; Kim et al, 2005). Several game researchers even asserted that structural game characteristics play a more important role in the player experience than players' psychological properties, such as needs, motivations, or personality traits. The concept of structural game characteristics is defined as "those characteristics that either induce gaming in the first place or are inducements to continue gaming irrespective of the individual's psychological, physiological, or socio-economic status" (Wood et al., 2004, p. 1). Wood et al. listed the main features that attract players to the game as "sound, graphics, background and setting, duration of game, rate of play, advancement rate, use of humor, control options, game dynamics, winning and losing features, character development, brand assurance, and multiplayer features". Scholars have since explored the role of game features in players' positive experiences, such as gratifications and time loss, and negative experiences, such as game addiction (Chumbley & Griffiths, 2006; King et

al., 2010b; King, Delfabbro, & Griffiths, 2010c; Westwood & Griffiths, 2010; Wood et al., 2007). Wood et al. measured associations between experiences of time loss and factors including gender, age, frequency of play, and certain structural characteristics of video games. They found that the complexity of video games, the presence of multi-levels, missions and/or high scores, multiplayer interactions, and plot have a more influential effect on time loss than players' psycho-social characteristics. Hsu, Lee, and Wu (2005) explored design features for action games that are attractive for game buyers. They found that the features of avatars, novelty and powerfulness, appealing presentation, social interaction, challenge, sense of control, and rewards could appeal to buyers of action games.

Some studies explored the popularity of video games in connection with design features (Dickey, 2005; Dickey, 2006; Malone, 1981). In a pioneering study, Malone found that the three elements of challenge, fantasy, and curiosity are key aspects of design in video games that increase players' engagement. Dickey (2005) found that interactive choices within games increase players' engagement with video games. Interactive choices are defined as the various dimensions of a setting, the roles and characters within a game environment, and "hooks" that afford actions and feedback to the players. In a later study, Dickey (2006) explored how the structure in video games might inform the design of interactive learning and game-based learning environments. He discussed how the trajectory of player positioning or point of view, game narrative, and interactive design are effective engagement strategies in popular games. These studies on game design identified several interactive design elements in video games, such as challenge, fantasy, control, and novel aspects of video games that increase players' engagement.

The European approach for video game analysis is called ludology. It provides a list of specific features that distinguish video games from traditional narrative-based media, such as movies, theatre, and television. The term ludology became popular in video game research with the publication of "Ludology Meets Narratology" by Frasca in 1999, in which he called for a set of theoretical tools that would be specifically applicable to exploring video games. Ludologists generally believe that the pleasure of playing games lies in gameplay rather than narrative, where gameplay refers to "activities conducted within a framework of agreed rules that directly or indirectly

contribute to achieving goals (Ang, 2006, p. 306). Frasca (2003) described two main distinctions between video games and traditional media: representation versus simulation and binary ending versus indeterminacy. He explained that traditional media are representational, as they provide both descriptions of traits and sequences of events. By contrast, video games allow the player to perform actions that will modify the behavior of the system in a way that is similar to the behavior of the actual entity. According to Frasca, traditional media with heavy storytelling elements normally have binary endings: losing or winning. However, the sequences of events in video games are not fixed, and games carry a certain degree of indeterminacy that prevents players from knowing the final outcome beforehand.

Among the pioneering typologies of game characteristics based on a ludological approach (Aarseth, Smedstad, & Sunnanå, 2003; Järvinen, 2003; Salen & Zimmerman, 2004), Aarseth et al.'s (2003) typology is especially concrete and multidimensional. This typology includes 15 ludological dimensions of video games that are grouped under five headings:

1. Spatial representation – camera perspective, topography, and environmental control
2. Time and its function – pace of the game based on a player's will, representation of time that can mimic corresponding actions in the real world or can be arbitrary, and teleology that relates to the final goal of the game
3. Player structure – single-player, two-player, multiplayer, single-team, two-team, multi-team, etc.
4. Control – mutability of the game based on rewards of various types, savability of the game, and determinism based on predictability or randomness of in-game events
5. Rules – three simple meta-rule dimensions: the presence or absence of topological, time-based, and objective-based rules.

Aarseth et al.'s (2003) study provides a set of important game features related to both design aspects and how players interact with game features. The ludological approach has a formalist nature given that its core concepts, including game world and game rules, mostly describe the content of video games (Montola, 2012). This project

further explores how players attribute meanings to the specific content of video games when they engage with gaming.

Research on game addiction also provides a list of in-game features that motivate players to stay longer in video games than initially intended. King et al. (2010b) presented a taxonomy of psycho-structural elements of video games that influence game addiction based on the findings of literature on gambling frequency and expenditure. They argued that features related to socialization, manipulation and control, narrative and identity, reward and punishment, and presentation could be related to game addiction. In a later empirical study, King, Delfabbro, and Griffiths (2010a) found that among their previous long list, reward and punishment features and fast loading times are stronger predictors of game addiction than other features. In a comparative structural analysis of gambling and online gaming experiences, Karlsen (2011) identified two gambling characteristics that also influence game addiction: (1) entrapment, when gamblers of lottery games have some internal sense that they have gone too far to give up now, and (2) near miss, a losing situation which the gambler interprets as being close to winning. In a survey about the influence of specific characteristics of video games on addictive behaviors, Elliott, Golub, Ream, and Dunlap (2012) assessed how excessive gaming varies with game types or genre. They found that playing first-person shooters, action adventure games, role-playing games, and gambling games can increase players' inclination for excessive gaming because of the specific design elements and reward mechanics of such games.

Based on the review of studies on structural game characteristics, game addiction, and the ludic approach to game analysis, some important game features that can serve as antecedents of player experience are summarized and described in Table 1. These findings are essential for my project, as such a list of game features can be helpful for exploring how specific characteristics of MMORPGs influence player experience. It should be noted that Table 1 includes a non-exhaustive list of game features that influence player-to-game interactivity.

Table 1. Summary of structural game characteristics that influence player-to-game interactivity		
Game features	*Definition for MMORPGs*	*Game features defined in the literature*
Control options	Options that allow players to change some parts of the game to their preference so that they feel a sense of mastery over the game.	Control options (Wood et al., 2004); feature-based interactivity (Weber et al., 2014); level of control (Downes & McMillan, 2000); control (Aarseth et al., 2003).
Character customization capabilities	Features that make it possible to customize some aspects of characters. This ability does not necessarily provide players with more sense of mastery. Examples include customization of avatar's gender, appearance, race, class, weapon, etc.	Character customization (Reinhard & Dervin, 2009; Weber et al., 2014); character development (Teng, 2010; Wood et al., 2004); avatar customizability (Bailey, Wise, & Bolls, 2009).
Features for customization of difficulty level	In-game options that allow players to adjust the difficulty level of the game and challenge their competence by engaging in difficult activities.	Artificial intelligence-based interactivity (Weber et al., 2014); challenge (Malone, 1981); competition (Karlsen, 2011; Vorderer et al., 2003).
Advanced aesthetic options	Refers to options for customizing aesthetic qualities such as quality of sounds and graphics.	Appearance (Reinhard & Dervin, 2009); graphics and sound (Wood et al., 2004); presentation features (King et al., 2010); feature-based interactivity (Weber et al., 2014).
Reinforcements	Reinforcements refer to rewards and punishments provided for players' in-game actions. They encourage players to engage with achievable aspects if they game.	Rewards and punishments (King et al., 2010); winning and losing features (Wood et al., 2004); mutability (Aarseth et al., 2003).
Responsiveness	The appropriateness and speed with which the game reacts to players' input. Responsiveness of the game stimulates players to react to in-game events more consciously.	Feedback (Choi & Kim, 2004); controller responsiveness (Weber et al., 2014).

Although there are not enough studies on the effects of structural game characteristics on player experience, the current literature does not provide sufficient insights into how players' actual engagement with game features influences their experiences. There are numerous game features, but players may or may not always use them. For example, players may adjust the sound, graphics, or background settings only one time for a specific game. Or, some players may not be qualified to use advanced character customization options such as forging and transmogrification in

WoW. Therefore, those players who have not actually used the game features cannot elaborate on their experiences. In order to focus on contextual factors related to the games that influence player experience, this project identifies prominent affordances of the game that players actually engage. More specifically, this project contributes to the literature on structural game characteristics by exploring how players' actual engagement with prominent affordances in WoW influences their experiences.

Review of Literature on Social Interaction

Since interaction among players in the virtual space of the game is a specific affordance of online games, many studies have explored the effects of various aspects of social interaction on players' experiences. As identified by Cole and Griffiths (2007), the highly socially interactive environment of online games offers a place where teamwork, encouragement, and fun can be experienced. Guilds and pick-up groups are two main social aspects of online games. A guild is a large, permanent or semi-permanent group of players that often join raids. A pick-up group (PUG) is a temporary group composed of two to five, or sometimes more, players whose members do not know one another. Since relationships among core members of guilds constitute a main portion of social interaction in online games, many studies have explored different aspects of such group relationships. Williams et al. (2006) found that people join guilds for four reasons: extending real-life relationships, meeting new people, making relationships with varying strengths, and using other game players as a means to achieve personal goals. Ang and Zaphiris (2010) explored characteristics of social interaction among players of a guild in WoW. The results of their thematic and content analysis of 1,944 messages in the guild chat channel indicated that the seven types of interactions through which guild members are connected include group management, coordination tasks, asking for help or asking questions, giving help and answering questions, friendly remarks, game chat, and real-life chat. PUGs are a neglected aspect of social interaction in online games. Research has confirmed that players have a low level of social conversation in PUGs, even in down time, as players rush to complete in-game goals for instrumental purposes such as rewards (Eklund & Johansson, 2010).

Several studies on social interaction in online games compared virtual spaces of the game with characteristics of real-life public places (cafes, bars, and clubs), defined by Oldenburg (1989) as third places (Ducheneaut, Moore, & Nickell, 2004; Steinkuehler & Williams, 2006). These studies assumed that in-game social rules and architecture have a significant role in shaping players' social behaviors. For instance, Williams et al. (2006) highlighted that social interaction in the game's virtual space is constrained by game's social architecture. Moore et al. (2009) investigated factors that make certain types of places within the game's virtual environment, namely dance clubs and bars, successful third places. They concluded that there are at least four factors that are critical for success in building a successful place for socialization: accessibility, social density, activity resources, and hosting resources. Yee (2010) discussed that *surface layer* architectures that are readily apparent to players in online games, such as death penalties, and *hidden layer* architectures that strategically manipulate the version of shared space players see can influence how people interact and relate with each other in the virtual world. These studies are based on the theoretical assumption that behavior is largely determined by situational demands rather than people's psycho-social traits (Yee, 2010). Similarly, I assume that social game features play an important role in players' gaming experiences, regardless of players' initial motives for gaming.

Several studies have applied surveys to explore the role of social interactions as independent factors that increase motivations for playing online games (Lee & Tsai, 2010; Taylor & Taylor, 2009; Wu et al., 2010). These studies conceptualized different types of social interaction that might occur both within and outside of online games as items for a social interaction motivation scale. Cole and Griffiths (2007) conceptualized social interaction based on social activities such as attraction to other players, playing online games with real-life friends and family members, and friendships within the game.

Some studies have illustrated different patterns of social interaction through participant observation in online games (Chen, 2009; Chen & Duh, 2007; Ducheneaut, Yee, Nickell, & Moore, 2006a; Nardi & Harris, 2010; Williams & Kirschner, 2012).

A major limitation of previous studies on social interaction in online games is a lack of precise conceptualization of social interaction. As reviewed above, social

interaction is explored in terms of coordination and camaraderie in the game space, real-life practices in connection with online games, or interaction in temporary groups. In Table 2, different types of social interaction in online games are grouped based on association between players (whether players know each other beforehand or not), the place of interaction (whether interaction is only limited to the virtual game space or if it is extended to real life), and the theme of the interaction (whether players interact regarding game affairs or real-life affairs). These findings about various affordances related to social interaction among online game players can provide substantial insights into this dissertation. I will explore how various affordances related to social interaction in WoW influence player experience.

Table 2. Summary of results of literature on social interaction in MMOGs

Some affordances related to social interactions in MMOGs	*Definitions and examples*	*References*
Transient interaction with strangers	Short interaction among online game players who do not know each other. This interaction could be either for fun or for instrumental purposes such as receiving help.	Eklund & Johansson, 2010; Lee & Tsai, 2010; Nardi & Harris, 2010.
Semi-permanent interaction with in-game friends	Refers to the variety of interactions among guild members such as group management and coordination tasks. The theme of interaction could be about real-life affairs or game-related issues.	Ang & Zaphiris, 2010; Chen, 2009; Chen, Sun, & Hsieh, 2008; Nardi & Harris, 2006; Snodgrass, Lacy, Ii, & Fagan, 2011.
Interaction beyond virtual game space	Refers to making friendships and meeting people face-to-face as an extension of virtual relationships.	Huynh, Lim, & Skoric, 2013; Lindtner et al., 2008; Skoric et al., 2010.
Extending real-life friendship to game space	Extending existing relationships with family members, coworkers, or friends in the game.	Cole & Griffiths, 2007; Lee & Tsai, 2010; Williams et al., 2006.

Review of Literature on Players' Subjective Experiences

In the previous sections, studies on structural game characteristics and social interaction in online games are reviewed because they help to identify contextual

factors that influence player experience. In this section, the literature review focuses on players' subjective experiences. I review studies on player experience that used various theoretical constructs and I present my conceptual and operational definitions of player experience.

The term, player experience, is nebulous since it is not a uni-dimensional concept (Wyeth et al., 2012). Player experience in the game literature is explored through constructs such as immersion, presence, engagement, involvement, and/or affective states. These constructs are broadly defined, and thus there is a great overlap among them; as a consequence, numerous challenges exist to understanding and actually measuring them (Takatalo et al., 2010). Presence is defined as "a psychological state in which virtual objects are experienced as actual objects in either sensory or non-sensory ways" (Lee, 2004, p. 27). Presence was initially developed in the context of tele-operations and relies heavily on the metaphor of transportation, that is, a sense of "being there" (McMahan, 2003). Engagement in the game refers to situations in which a player reaches a state of near-obsession with regard to the nondiegetic aspects of the game, such as gaining points, devising a winning strategy, and showing off prowess to other players. Compared to other concepts, immersion is more widely applied in research on player experience. Immersion is defined as "the sensation of being surrounded by a completely other reality… that takes over all of our attention, our whole perceptual apparatus" (McMahan, 2003, p. 68).

Several scholars have presented models of player experience based on the concept of immersion. In a grounded investigation of player experience, Brown and Cairns (2004) described three levels of immersion in video games, ranging from engagement to engrossment to total immersion. Brown and Cairns' model quantifies the depth of immersion in the game, but it fails to take into account negative experiences like disturbance. Emri and Mäyrä (2005) proposed a model to describe the psychological compartments of immersion in games. Their model consists of three different components, including sensory immersion, challenge-based immersion, and imaginative immersion (the SCI model). Sensory immersion refers to the audio-visual execution of games that has a perceptual impact on the player. Challenge-based immersion involves immersion in the cognitive and motor aspects of the game, and it is achieved when there is a satisfying balance between the game's challenges and

players' abilities. Finally, imaginative immersion involves absorption in the imaginary fantasy world of the game, the character, or the game's storyline. In a series of experiments, Jennet et al. (2008) applied cognitive theories such as flow, cognitive absorption, and presence to present a valid questionnaire of immersion. They found that immersion can also be associated with negative emotions and uneasiness (i.e., anxiety) as well.

Current models and theoretical constructs of player experience do not elaborate on the process that game players go through to reach their subjective gaming experiential states. Popular models of player experience, such as those by Brown and Cairns (2004) and Emri and Mäyrä (2005), have described psychological compartments or intensity of the optimal experiences. Theoretical constructs of player experience have also elaborated on players' psychological states, such as immersion (Kim et al., 2005; Wan & Chiou, 2006), sense of presence (Fang-Wu & Yi-Shin, 2006; Jin, 2011), engagement (Brockmyer et al., 2009), involvement (Takatalo, Häkkinen, Kaistinen, & Nyman, 2010; Wirth, Hofer, & Schramm, 2012) and flow state (Choi & Kim, 2004; Kim et al., 2005). However, there is not enough knowledge about the process that game players go through to reach such subjective gaming experiential states.

Some scholars argue that in order to truly understand what subjective experiential states such as immersion and flow are like, it is essential to explore plyers' affective states in such experiential states as well (IJsselsteijn et al., 2007; Ravaja et al., 2006; Riva et al., 2007). In a pioneering study, Malone (1981) discussed that players prefer video games that generate high arousal as a major emotional state. In an experiment on video game players, Chumbley and Griffiths (2006) measured the effects of personality, in-game reinforcement characteristics, gender, and skill on players' emotional states. They found that negative reinforcement, defined as a game condition that is highly difficult and involves challenges leading to failure experiences, had a significant effect on affective states such as excitement and frustration. Jennett et al. (2008) explored the effects of negative feelings on immersion in video games. They hypothesized that faster paced games might be more immersive, although they might also lead to higher levels of anxiety. They found that state of anxiety and negative affect were higher for faster paced games, and they were correlated to the level of

immersion in the game. They highlighted that negative feelings should be studied to understand the immersive appeal of games. Riva et al. (2007) discussed that understanding relationships between affective states and experiences such as immersion and flow provides more insight into players' subjective experiences.

In this research, player experience is defined as a dynamic process consisting of contextual factors, processes, and consequences. Such a conceptualization of player experience is adopted from the tri-partite models of user experience (Chen, 2000; Finneran & Zhang, 2005; Hoffman & Novak, 1996). Contextual factors that influence player experience are defined based on the concept of interactive affordances. Affective states are measured by questions related to emotions and feelings that players have when they engage with interactive game affordances. Experiential states are identified based on original elements of flow theory, such as level of concentration on in-game events, level of perceived control, the balance between skills and challenge, time distortion, and loss of awareness about the surroundings (Nakamura & Csikszentmihalyi, 2009).

Flow theory is applied in this project to address how actual engagement with structural game characteristics influences players' affective states and experiential states. Subcomponents of flow, such as balance between skill and challenge, goals, and control, provide psychologically valid metrics to evaluate player experience related to specific structural characteristics of video games. Original flow theory elaborated on several types of experiences, such as frustration, apathy, boredom, and control, in addition to flow state, and this can provide insights into understanding various experiential states in MMORPGs. In the following section, I describe theoretical assumptions of flow theory.

Flow Theory: Origins and Theoretical Assumptions

Research about the state of flow, simply defined as complete immersion in an activity such that one loses track of time or surroundings, is one of the major topics of user experience in new media research. According to Hassenzahl (2008), the concept of flow is closely related to user experience, given that flow refers to "a positive experience caused by an optimal balance of challenges and skills in a goal-oriented

environment" (p. 12). In this project, flow theory is applied as part of the theoretical framework to explore how interactive affordances of MMORPGs influence player experience.

Csikszentmihalyi (1988) developed flow theory based on researching people who spent large amounts of time and effort on difficult activities without external rewards, such as playing music, rock climbing, chess, dancing, surgery, and many other activities. Csikszentmihalyi used the term, flow, to describe this holistic experience. The interviewees in Csikszentmihalyi's (1997) studies described the flow experience as an enjoyable part of their lives, such that they preferred to do flow-inducing activities nonstop, sometimes for long periods of time, even if they became tired or exhausted. The term, optimal experience, is also used synonymously with flow (Csikszentmihalyi & Csikszentmihalyi, 1988).

People of different ages, genders, cultural backgrounds, and income levels can experience flow in any task irrespective of the task's nature, no matter if the task is creative or routine, unique or practiced by everybody, individual or done with others (Csikszentmihalyi, 1990). In other words, flow can be experienced in any activity that people engage with genuinely and deeply. Two types of motivations are distinguished through describing the flow experience: extrinsic motivations, which depend on bonuses like financial rewards, valuable gifts, attractive sex partners, and all other sorts of positive feedback, and intrinsic motivations, which depend on people's interests and pleasures, when an activity is undertaken for its own sake (Voiskounsky, 2008). People who have experienced flow described that they do the activity for intrinsic motivations, as they do not care about extrinsic motivations.

Nakamura and Csikszentmihalyi summarized eight elements that characterize the flow experience:

> "(1) Perceived challenges, or opportunities for action, that stretch but do not overmatch existing skills; (2) clear proximal goals and immediate feedback about the progress being made; (3) intense and focused concentration on what one is doing in the present moment; (4) merging of action and awareness; (5) loss of reflective self-consciousness (i.e., loss of awareness of oneself as a social actor); (6) a sense that one can control one's actions; that is, a sense that one can in principle deal with the situation because one knows how to respond to whatever happens next; (7) distortion of temporal experience (typically, a sense

that time has passed faster than normal); and (8) experience of the activity as intrinsically rewarding, such that often the end goal is just an excuse for the process" (2009, pp. 195–196).

Two key terms in flow theory are users' skills and the challenge of the task at hand. Skill refers to a person's capability to successfully fulfill a given task, while challenge refers to the amount of attempts that are required to succeed in the task (Csikszentmihalyi, 1990). Figure 1 shows the relationship between skill and challenge for achieving a flow state. If people feel that a task requires more challenge than the level of skill they possess, they are likely to feel anxious and unable to cope with the task. If the task offers a low level of challenge and people consider themselves more skilful than that task requires, they feel bored because they can complete the task with little or no effort. People may feel apathetic toward the task if they have low skill and the task is not challenging, as occurs with routine tasks, despite the fact that skill and challenge match. Flow is experienced only when a challenging task is manageable by a person's skills; in this situation, the level of skill and challenge are both high. In video games, the balance between players' skills and the game's challenge can influence players' experiences. Players can also adjust the difficulty level of the game with some in-game customization options.

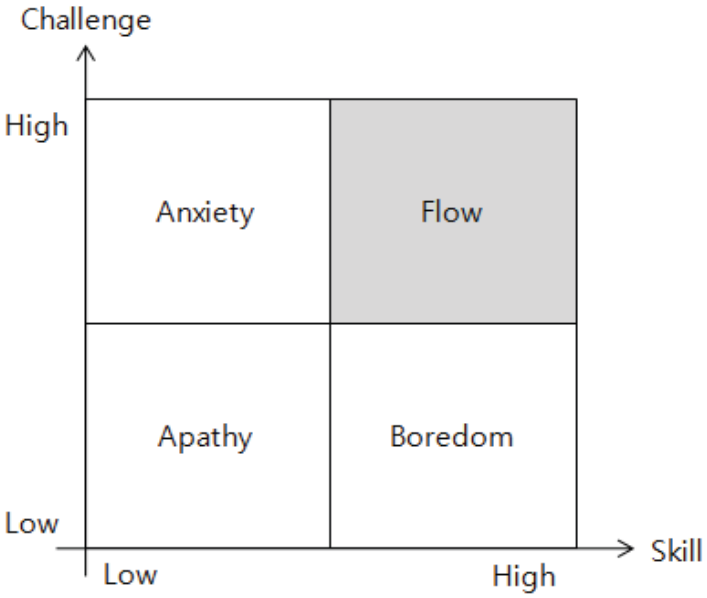

Figure 1. Csikszentmihalyi's (1990) four types of experiences in flow theory

Csikszentmihalyi (1997) later presented a more advanced typology of people's experiences based on low, medium, and high skill and challenge.

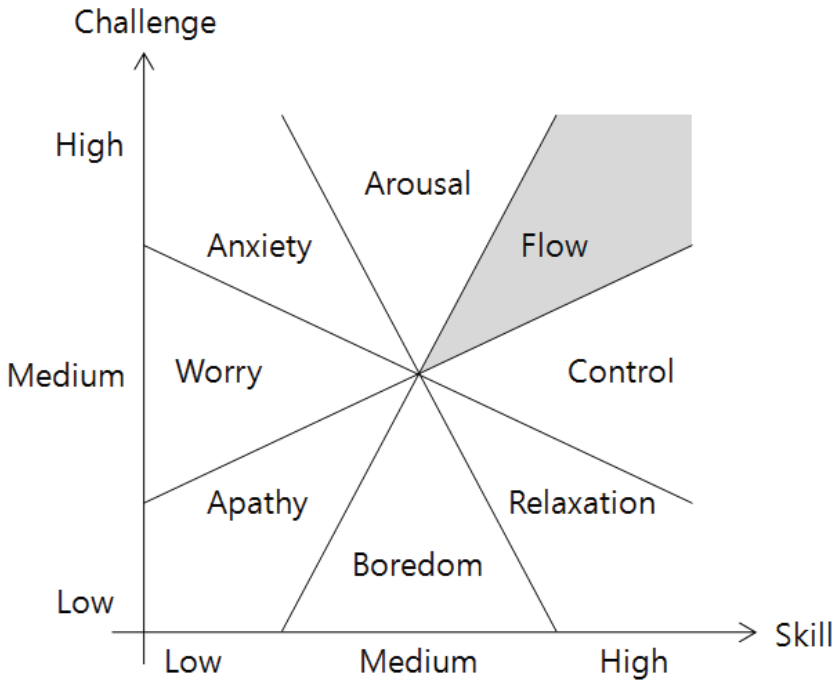

Figure 2. Csikszentmihalyi's (1997) eight types of experiences in flow theory

As Figure 2 illustrates, the eight types of experiences in flow theory include apathy (low challenge and low skill), boredom (low challenge and medium skill), relaxation (low challenge and high skill), control (medium challenge and high skill), worry (medium challenge and low skill), anxiety (high challenge and low skill), arousal (high challenge and medium skill), and flow (high skill and high challenge).

According to Csikszentmihalyi (1990), people experience flow because they have clear goals and there is immediate feedback for their performance. Csikszentmihalyi further explained that certain activities require a long time to accomplish, yet components of goals and feedback are still extremely important for people to reach the state of flow. "In some creative activities, where there are not clear goals in advance, people develop a strong personal sense of what they intend to do" (p. 55). In such cases, people who experience flow can describe what they intend to achieve during a certain activity. Video games are also goal-directed, as players pursue various goals in order to progress in the game. In return for achieving the goals, the game provides various rewards.

Csikszentmihalyi (1990) indicated that "enjoyable activities require a complete focusing of attention on the task at hand—thus leaving no room in mind for irrelevant

information" (p. 58). Straightforward goals and immediate feedback are two reasons that people completely focus on a task. In addition, as a result of high involvement in a task and increased concentration, there is not enough attention left over to allow people to consider the past, future, or any other temporarily irrelevant stimuli (p. 62). In fact, the objective, external duration we measure with reference to outside events like night and day or the orderly progression of clocks is rendered irrelevant during the flow experience. Finally, Csikszentmihalyi described the flow experience as autotelic (from the Greek words, auto, meaning self, and telos, meaning goal), in the sense that people feel that their deep involvement is intrinsically rewarding without expectations of some future benefits. In video games, immediate feedback such as an avatar's reaction to player actions, various rewards and punishments, and auditory and visual responses can stimulate players to intensely concentrate on the game.

Flow theory is not exclusively a motivational theory for exploring why people engage in a particular activity. Csikszentmihalyi and his collaborators undertook serious efforts to present the flow experience in a manifold manner: as a cognitive artifact applied to the holistic description of personal development; as a major factor of bio-cultural evolution and selection; as a theory of creativity, good work, and development of talented adolescents; as a developmental psychology theory; as a basis for psychological rehabilitation practice; and as a high-level methodological construct applicable within and outside the field of psychology (Voiskounsky, 2008, p. 74). New media scholars have applied flow theory both as a theoretical framework and a methodological construct to investigate how people experience flow when they use new media. In this research, eight subcomponents of flow are applied to explore player experience. In the following section, the application of flow theory to user experience of the Web is briefly reviewed and a flow framework is introduced as the theoretical foundation for this project.

Application of Flow Theory to the Web Users' Experience: Flow Framework

Flow theory has been widely utilized in the context of the Internet and people's experience of using the Web. Over 15 years ago, Hoffman and Novak (1996) proposed that commercial websites would benefit by facilitating flow experiences. They

introduced a model of flow experience in the environment of the Web (Figure 3). Based on Csikszentmihalyi's original flow theory, Hoffman and Novak defined primary antecedents of flow as challenges, skills, and focused attention. Based on media characteristics, they added telepresence as the secondary antecedent of the flow experience. According to Hoffman and Novak, the degree of perceived telepresence (i.e., the mediated perception of an environment) is induced by vividness and interactivity (p. 61). They made distinctions among flow states resulting from goal-directed and experiential behaviors on the basis of involvement with a website and search behavior. They labelled goal-directed and experiential behaviors as characteristics of the process of searching the Web. Flow process in their model is defined as a uni-dimensional construct, as they just used the term, flow, to measure the process of users' optimal experience. However, in a later work, Hoffman and Novak (2009) discussed that it is more insightful to conceptualize the flow process as a multidimensional construct. For example, Chen (2000) explored the flow process based on the level of concentration, time distortion, loss of self-consciousness, and telepresence. As summarized in Figure 3, consequences of flow for the Web users in Hoffman and Novak's (1996) model included increased learning, perceived behavioral control, exploratory mindset, and positive subjective experience. Chen (2000) defined consequences as autotelic experience and positive affect.

Most flow-related investigations in computer-mediated environments suggest three stages as the flow framework: flow antecedents, flow processes, and flow consequences (Figure 3).

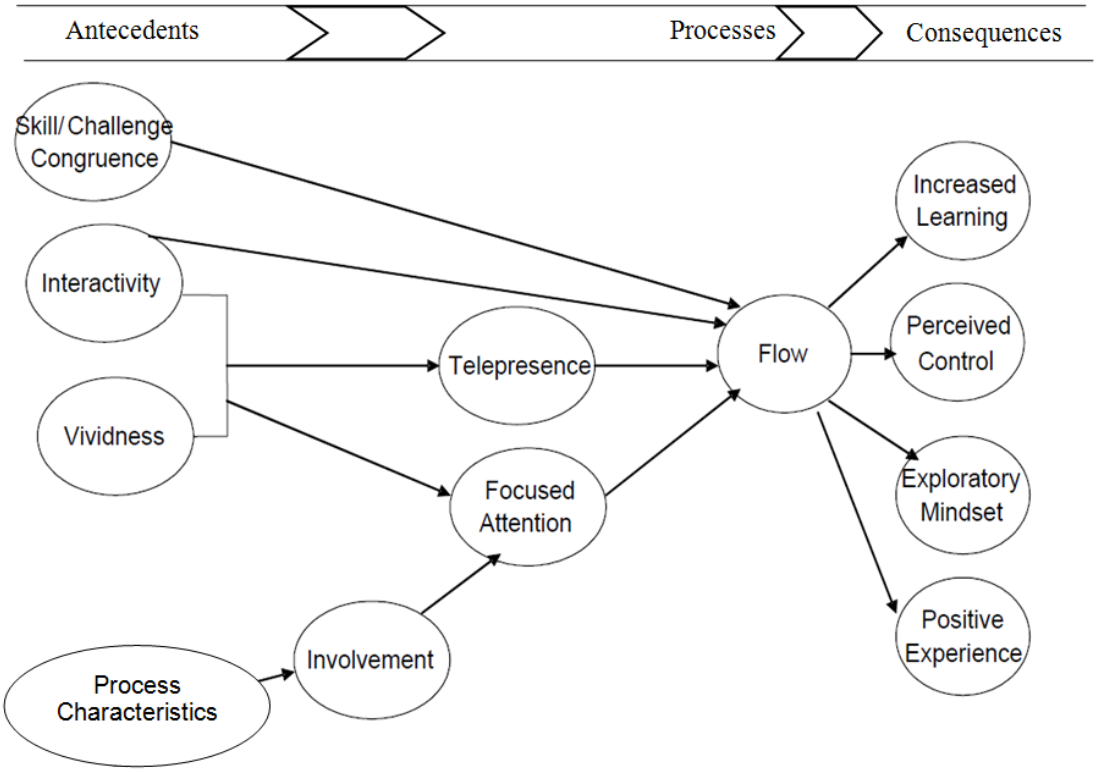

Figure 3. Adapted from Hoffman and Novak's (1996) flow framework

It should be noted that the literature applied different constructs for measuring components of the flow experience in each of these three stages. Some operational definitions for measuring flow antecedents include person (personal characteristics such as trait and state), artifact (such as World Wide Web), and task (such as reading or writing an email) (Finneran & Zhang, 2003); skill, challenge, focused attention, and goal (Hoffman & Novak, 1996; Shin, 2006); interactivity and telepresence (Hoffman & Novak, 1996); speed, ease of use, and attractiveness (Skadberg & Kimmel, 2004); learner attitude, instructor characteristics, and the content to learn (Choi, Kim, & Kim, 2007). In this project, contextual factors defined based on interactive affordances are applied to identify essential structural game characteristics that influence player experience.

As discussed by Hoffman and Novak (2009), processes of user experience in flow research can be measured either as a uni-dimensional construct with one or several elements of flow theory or as a multidimensional construct consisting of different experiences. For example, Skadberg and Kimmel (2004) presented a uni-dimensional definition of flow as an aggregation of time distortion and enjoyment.

Pace (2004) condensed processes and outcomes of flow experience as a multidimensional construct and found that it is composed of the joy of discovery and learning, reduced awareness of surroundings, distorted sense of time, merging of action and awareness, sense of control, mental awareness, and telepresence. In this project, the process of player experience is explored as a multidimensional construct based on players' affective states. Later, in the theoretical framework section, I discuss how investigating players' affective states deepens our understanding of players' subjective experiences.

Flow consequences can be explored based on immediate consequences at the time of using new media or long-term consequences (Hoffman & Novak, 2009). Some immediate consequences of the flow experience can be time distortion or being in a bad mood because of time loss during gaming (Poels, IJsselsteijn, De Kort, & Van Iersel, 2010), perceived behavioral control, and exploratory behavior with websites (Hoffman & Novak, 1996). Some studies confirmed that flow experience leads to long-term positive outcomes such as increased learning (Shin, 2006) and attitudinal and behavioral change (Skadberg & Kimmel, 2004). Long-term negative consequences of the flow experience include addictive behavior in gaming and problematic Internet use (Chou & Ting, 2003; Park & Hwang, 2009). In my project, immediate consequences of actual engagement with interactive affordances are explored based on the elements of flow theory (Nakamura & Csikszentmihalyi, 2009).

The literature has mainly applied flow frameworks as a structural model to measure correlations among constructs in each flow stage. However, as proposed by Hoffman and Novak (2009), conceptual and qualitative research can be helpful in identifying new constructs that constitute the framework of flow experience for new media users. For example, through grounded theory, Pace (2004) found that curiosity for a particular topic, time urgency, goal, interface usability, user’s skill, challenge, distractions, interesting contents, and progress toward the goal are related to flow experience when using the Web for information-seeking.

This project is inspired by the three-stage models reviewed above, but conceptualizes the elements differently in order to understand player experience by looking at contextual factors, affective states, and experiential states. The action possibilities provided by in-game features (i.e., affordances) are discussed as

contextual factors of player experience. For processes of player experience, the concept of affective states is applied. Affective states refer to players' feelings and emotions when they engage in interactive affordances. Experiential states are explored as immediate consequences and are operationalized based on a variety of factors, such as level of concentration on in-game events, level of perceived control, balance between skills and challenge, time distortion, and loss of awareness about the surroundings (Nakamura & Csikszentmihalyi, 2009). Details about the three-stage model will be given in the theoretical framework section. In the following section, the literature on applications of flow to game research is reviewed and the limitations of this line of research are discussed.

Flow Theory in Game Research: Players' Subjective Experiences

As Sherry (2004) asserted, “Some might comment that Csikszentmihalyi seemed to have video games in mind when he developed the concept of flow”. According to Sherry, “games possess ideal characteristics to create and maintain flow experiences in that the flow experience of video games is brought on when the skills of the player match the difficulty of the game” (p. 340). Characteristics of online games that facilitate a flow state include: (1) a set of goals to pursue, namely, leveling up the avatar, defeating monsters, upgrading the avatar's equipment, and collecting rare objects; (2) various tasks with different difficulty levels that suit each player’s skills; (3) immediate feedback such rewards or an avatar’s reactions to players’ actions; and (4) 3-D virtual space with many auditory and visual responses that attract players’ attention. Several studies indeed confirmed a positive relationship between playing online games and achieving a flow state (Choi & Kim, 2004; Chou & Ting, 2003).

Past game research has utilized flow theory to investigate four main aspects of player experience: subjective states, such as complete immersion in the game (Inal & Cagiltay, 2007; Jegers, 2007), consequences of the flow experience related to game marketing, such as customer loyalty (Choi & Kim, 2004; Lee & Tsai, 2010), positive or negative effects of flow experiences on players’ real lives, such as increased learning or game addiction (Chou & Ting, 2003; Wan & Chiou, 2006), and physiological concomitants of flow experiences (Klasen, Weber, Kircher, Mathiak, & Mathiak, 2012; Weber, Tamborini, Westcott-Baker, & Kantor, 2009). Since this

dissertation explores how interactive affordances of MMORPGs influence player experiences, the results of the literature review on subjective experiences are presented in this section.

The majority of studies on the flow experience in video games has focused on associations between people's characteristics and psychological compartments of flow, such as complete immersion in the game or time distortion. Research has explored how elements of the flow experience originally defined by Csikszentmihalyi, such as the balance between challenge and skill and sense of control, influence players' optimal experience. Jin (2011) examined the effects of antecedents of flow, including skill (low, medium, high) and challenge (low, medium, high), on flow states across three different video game genres. She found that important predictors of achieving flow experience were challenge for medical simulation games, balance between skill and challenge for driving games, and empathy and self-presence for character-driven games. Jin measured flow state in this study by giving participants a one-paragraph description of flow and asking participants to rate their levels of engagement with the game on a 7-point Likert scale. In a later study, Jin (2012) found that successful performance and feelings of competence are positive predictors of flow in different genres of video games. She reported that players who have advanced skills experience greater flow with a higher level of challenge, whereas a lower level of challenge results in less flow experience. Sharek and Wiebe (2011) manipulated the level of challenge, and indirectly the level of perceived skill, to create three design conditions in video games: boredom, flow, and frustration. They showed that manipulating game challenge can affect skill development and optimal feelings of flow. Weibel et al. (2008) measured the role of challenge in the flow experience in situations where people played against a human-controlled opponent or a computer-controlled opponent. They found that people who play against a human-controlled opponent experience more flow and other subjective experiences such as immersion as a result of social competition, increased challenge, and feelings of heightened reality. Limperos, Schmierbach, Kegerise, & Dardis (2011) measured the effects of players' perceived control on flow experience. They employed a between-subjects design to explore the relationship between the type of console played (Nintendo Wii or Playstation 2 [PS2]) for similar games and feelings of flow during the gameplay experience. They found that players felt more in control and won more often on the

PS2. The control scheme of the PS2 was a more influential factor for reaching a flow state than players' performance. They concluded that the Wii's more "advanced" technology did not increase the flow experience since players felt a low level of control.

Most of the abovementioned studies manipulated video games in an experimental environment to measure the effects of people's characteristics, such as their skills or level of control on psychological compartments of flow theory. Such findings have practical applications, as they illustrate how designers can manipulate games in order to make gaming a more compelling experience. However, as identified by Hoffman and Novak (2009), many studies have confirmed the role of original flow elements such as control and challenge in users' experiences of websites and other new media. We can contribute to such findings by exploring how actual engagement with specific characteristics of video games can influence player experience. For example, players of MMORPGs can experience flow as a result of the synchronous relationship and high level of cooperation with other players during challenging joint tasks. Although a strong body of research has focused on the psychological compartments of optimal experience such as flow state, further research is needed to elaborate on the process that game players go through to reach their subjective gaming experiential states.

Several studies on the subjective experience of flow during gaming have measured the role of specific features of video games in the flow experience. Choi and Kim (2004) investigated which design features are most closely associated with players' flow experience and customer loyalty. They found that people experience flow in video games if they have pleasant social interactions with other players and effective personal interactions with the game system. Based on problem solving theory, they hypothesized that personal interaction is increased by clear goals, operators, and feedback; social interaction is influenced by appropriate communication tools and appropriate virtual place for social interaction. Choi and Kim's research is among the first attempts to measure flow antecedents based on game features. Kim et al. (2005) similarly explored the effects of interactivity, including social interaction among players and personal interaction between a player and the game, on three elements of flow experience: skill, challenge, and focused attention. They found that

social interaction has a greater impact on the flow experience than personal interaction between players and the game. Choi, Lee, Choi, and Kim (2007) hypothesized that players are attracted to online games for "the shared experience: the collaborative nature of most tasks and the rewards of achieving them collectively" (p. 592). They found that players experience greater flow when the reward they receive depends on the performance of other fellow game players. The studies that measured correlations between game features and flow experience are important for this project, as they have applied the flow fretwork to present a model of player experience. However, their theoretical assumptions and conceptualizations of independent variables such as social interaction and personal interaction neither provide insights about what players actually do in the game nor how action possibilities in the game influence flow experiences. For example, Choi and Kim (2004) found that feedback from the game is associated with flow state. However, the psychological processes that players experience, such as their affective states during certain experiential states, have not drawn enough attention. Feedback from games can entice different affective states, and through different processes it can influence the flow state. Whereas feedback from the game in the form of attractive rewards can stimulate excitement and foster a flow state, feedback in the form of a character's death can make players more cautious and enhance concentration on the game. This project explores players' affective states during actual engagement with game affordances and in certain experiential states.

Researchers from the HCI field have attempted to outline "building blocks" of gameplay based on the elements of flow theory (Cowley, Charles, Black, & Hickey, 2008; Inal & Cagiltay, 2007; Jegers, 2007; Sweetser & Wyeth, 2005). Sweetser and Wyeth presented a model based on elements of flow theory that can be used to design, evaluate, and understand enjoyment in video games. Their "GameFlow model" consists of eight elements: concentration, challenge, skills, control, clear goals, feedback, immersion, and social interaction. They tested this model by evaluating high-rated and low-rated games, and they found that the model can successfully distinguish between popular and unpopular games. Similarly, based on dimensional comparisons of video games and original flow components, Cowley et al. (2008) discussed the following gameplay elements that can influence a flow state: the complete gaming experience (including social interaction), high motivation to play, familiarity/skill with the game, telepresence, any explicit outcome of a successful play

session, well-timed, suitable rewards and penalties, temporally-independent environment, and embodiment in a game avatar. These studies attempted to present a categorization of game features that foster a flow state based on comparative analysis of structural video game features with original flow elements. However, these studies did not elaborate on how players' actual uses of game features influence flow experience.

Limitations of the Literature: Research Purposes and Questions

This project explores how actual engagement with specific characteristics of MMORPGs influences players' experiences. The concept of interactive affordances is introduced at the beginning of this chapter, and studies on structural game characteristics and social interaction in online games were reviewed. Then, studies on players' subjective experiences, specifically applications of flow in game research, were reviewed. Here, the limitations of these studies are discussed in details. Specific research purposes and questions are introduced to address the limitations in the literature on player experience.

A strong body of research has explored the effects of players' psychological properties, such as basic human needs, gaming motivations, or individual characteristics, on their experience. For example, studies utilizing SDT and U&G have investigated associations between players' psycho-social needs and gaming enjoyment and/or gratifications. Needs-based theories provide broad categories of motives, and hence they are powerful in explaining people's motivations for using all sorts of media. For example, U&G shows that the need for social interaction motivates people to use various video games, social network sites, TV, or radio. However, needs-based theories fail to elaborate on how new, nuanced needs are stimulated and satisfied by specific characteristics of new media. For example, online games facilitate various social activities, including camaraderie, social competition, and cooperation. These social activities can create unique experiences for players. Ruggiero (2000) suggests that it is essential to take aspects of technology (e.g., interactivity, demassification, and asynchroneity) into consideration for research on new media users' gratifications because new media characteristics provide researchers with an array of new behaviors on which to elaborate.

Needs-based theories also assume that people have certain basic needs prior to media use, which motivate people to use a specific medium. It is possible that the gratifications that users obtain from media are not always driven by their innate, prior needs before using a medium. New needs can be triggered by specific technological characteristics of new media as well (Sundar & Limperos, 2013). When the interactivity of most modern media is taken into consideration, the assumption that users are always goal-directed at the beginning of their media use is less insightful. Indeed, people tend to develop needs *during* their interaction with the media (Sundar & Limperos, 2013). It is also possible that our gratifying motives change during interaction with media features. For example, we start playing a video game because a friend has invited us to a virtual community. However, during gaming we may become more attracted to the reward system and our character's progression. This project is a response to new media scholars' calls for conceptual refinement in exploring how specific characteristics of new media can influence users' motivations and behaviors (Ruggiero, 2000; Sundar & Limperos, 2013).

In recent years, a growing number of game scholars have discussed that structural game characteristics can be more influential as contextual factors than players' psychological properties such as gaming motivations and personality traits (Billieux et al., 2013; Chumbley & Griffiths, 2006; Clarke & Duimering, 2006; Karlsen, 2011; Wood et al., 2004; Wood et al., 2007). This approach has identified a list of various game features that players perceive as essential in their gameplay (Wood et al., 2004). Although there is a lack of studies on the effects of game features on player experience, as it is a new research area, the current literature does not provide adequate insights into how players' actual engagement with game features influences their experiences. There are numerous game features, but players may or may not always use them. Player experience is influenced by their actual use of game features rather than their mere perception of features. In order to focus on contextual factors related to the games that players actually engage in, the first purpose of this project is to identify prominent interactive affordances of MMORPGs that influence player experience. The first question related to this purpose is:

R.Q.1: What interactive affordances influence players' experiences?

With the first research question, this project contributes to both needs-based theories and structural game characteristics approaches. This research assumes that player experience is influenced by factors available in the immediate behavioral context of gaming. Instead of relying on players' self-reports about gaming motivations or perceptions of game features, this research elaborates on the effects of actual engagement with interactive affordances on player experience.

This purpose responds to new media scholars' recent call for research on specific characteristics of new media to understand flow experiences (Finneran & Zhang, 2005; Hoffman & Novak, 2009). For example, Hoffman and Novak discussed that since the environment of the Web itself has changed radically over the past decade, some media-related constructs are needed for understanding compelling experiences.

The structure of most MMORPGs forces players to have high level of social interaction. For example, the dungeons in WoW are intentionally too difficult for a single player to accomplish, and the help of a group of other players is unavoidable. The original flow theory did not incorporate social interaction into the dimensions of flow. Similarly, most models of flow theory in computer-mediated communication fail to explore how the social characteristics of virtual environments influence flow experiences (Hoffman & Novak, 2009). Many game scholars have highlighted the role of social interaction in maintaining the popularity of online games. For example, Cole and Griffiths (2007) concluded that the highly socially interactive environments of online games offer a place where teamwork, encouragement, and fun can be experienced. Given that social interaction is one of essential affordances of MMORPGs, it can be assumed that social affordances influence player experience.

Some studies have measured associations between social features and players' flow states. For example, Choi and Kim (2004) found that appropriate communication tools, such as guilds, and the design aspects of the game that provide impressions of real-world places, increase flow state. As another example, Kim et al. (2005)

confirmed that human interactivity has an indirect impact on flow experience. They conceptualized human interactivity as the degree of interactivity between two or more players in online games. The current findings about the effects of social interaction on flow state do not provide understanding about how players' actual engagement with social features, such as guilds or PUGs, influences their experiences. Through their specific social features, MMORPGs provide certain social action possibilities, such as performance competition among teammates, support against a team of opposing players, camaraderie, casual conversation, and so on. Whereas the literature has measured associations between some social features and flow state, this research explores how players' actual engagement with the social affordances influences their experiences. As part of the first purpose, another related question is:

R.Q.1.3: What social affordances foster or hinder players' flow experience?

Current models and theoretical constructs of player experience do not elaborate on the process that game players go through to reach certain gaming experiential states. The two popular models of player experience by Brown and Cairns (2004) and Emri and Mäyrä (2005) describe the psychological compartments of the optimal experiences. Theoretical constructs of player experience have also elaborated on players' psychological states, such as immersion, sense of presence, engagement, and involvement. A number of game researchers have also measured associations between game features and flow experiences. However, the psychological processes that players experience, such as their affective states during the use of game features, have not drawn enough attention in the literature.

In order to truly understand what subjective experiential states such as immersion and flow are like, it is essential to explore players' affective states in such experiential states as well (IJsselsteijn et al., 2007; Ravaja et al., 2006; Riva et al., 2007). This project explores players' affective states during actual engagement with game affordances and in certain experiential states. The second purpose of this research is to explore how players' actual engagement with interactive game affordances influences their affective states. The overarching research question for this purpose is:

R.Q.2: How do game players feel when they engage with interactive game affordances?

Player experience is mostly conceptualized in game research based on optimal experiences such as immersion, presence, time distortion, and intense concentration. For example, to explore player experience, Hsu and Lu (2004) provided a narrative description of flow as "a state of mind sometimes experienced by people who are totally involved in some activity… you engage in online games with total involvement, concentration, and enjoyment…" (p. 864). They followed this with survey questions about the frequency of such experience. It is clear that optimal experiences that are operationalized based on complete immersion, indicated by losing track of time and surroundings, comprise a particular sort of experience that may not persist throughout a game's duration (Jennett et al., 2008). A player can be coming in and out of optimal experience multiple times during one gameplay session. As illustrated by Kallio, Mäyrä, and Kaipainen (2011), players can even have different motivations with regard to immersion in the game, such as light casual and light social gaming motivations, and hence they are not always looking for complete immersion in the game. Negative experiences of stressful situations or disturbances in optimal experiences have not drawn enough attention in the research on player experience. As Poels et al. (2007) discussed, negative experiences such as frustration or tension are presumably essential in order for the overall game experience to work (p. 84). Therefore, this study investigates major experiential states that players have when they engage in interactive affordances of MMORPGs. Players' experiential states are explored based on levels of concentration on in-game issues, perceived control over the character or in-game events, the balance between skills and the game's difficulty, and subjective experiences such as time distortion or loss of consciousness about surroundings (Nakamura & Csikszentmihalyi, 2009). In order to explore players' major experiential states, the third question is:

R.Q.3: What are the major experiential states for players when they engage with interactive affordances of MMORPGs?

With these three intertwined research questions, I come across a model of player experience that illustrates influential interactive game affordances, players' affective states, and major experiential states when players are actually playing the

game. In addition, I elaborate on possible associations among players' affective states and experiential states. These research purposes can help to contribute to needs-based theories, structural game characteristics approaches, models, and theoretical constructs of player experience.

Theoretical Framework: Synthesis of Interactive Affordances with Flow Framework

This research explores associations between interactive game affordances, players' affective states, and experiential states. The flow framework applied by scholars such as Hoffman and Novak (1996), Chen (2000), Finneran and Zhang (2005), and Pace (2004) serves as a guiding framework in this project. The original flow framework consists of antecedents, processes, and consequences. As illustrated in Figure 4, the flow framework is conceptualized differently in this project, consisting of contextual factors of player experience, affective states during gaming, and short-term consequences. Contextual factors of player experience are defined based on the concept of interactive affordances that is introduced at the beginning of this chapter. Interactive affordances refer to the range of action possibilities provided by the game features that influence player-to-player interactivity and player-to-game interactivity. For example, guilds are a game feature that can encourage players to engage in a range of social action possibilities, such as camaraderie during joint tasks, playful conversations through the guild chat channel, offering items to other teammates through the guild bank, and so on. The reason that the current project conceptualizes contextual factors based on interactive affordances is to focus on how specific characteristics of MMORPGs influence player experience.

There is not a comprehensive operational definition in the game literature for the concept of affective state, but it is mainly measured as part of players' subjective experiences. In other words, constructs related to flow, sense of presence, and affective states are considered as overall players' subjective experiences (Brockmyer et al., 2009; Craig, Graesser, Sullins, & Gholson, 2004). However, some scholars discussed that if we want to precisely understand what subjective experiences are like, then it is essential to understand the relationship between affective states and experiences such as immersion and flow (Riva et al., 2007). In an experiment, Wirth,

Hofer, and Schramm (2012) found that emotional involvement (low vs. high) as an experimental factor contributes to the formation of spatial presence. Riva et al. (2007) measured relationships between emotional states and sense of presence in the medium of virtual reality. They illustrated a circular interaction between presence and affective states: on one side, the feeling of presence was greater during stimulated emotional state; on the other side, the emotional state was influenced by the level of presence. IJsselsteijn et al. (2007) discussed that some affective states, such as frustration directed at the game (i.e., struggling with the user interface), can draw attention away from the game and break the flow state.

In all, the literature has not defined a clear relationship between affective states and experiences like presence or flow. While the relationship can sometimes be reciprocal, it is possible that certain affective states disturb flow or sense of presence. As Figure 4 illustrates, the concept of affective states is defined under processes of players' subjective experiences, and it is assumed to be in a reciprocal relationship with experiential states. In my empirical research, I explore players' emotions and feelings when they engage with interactive game affordances. In addition, I discuss how affective states are associated with players' experiential states. Such findings can contribute to our understandings about the processes that game players go through to reach certain experiential states.

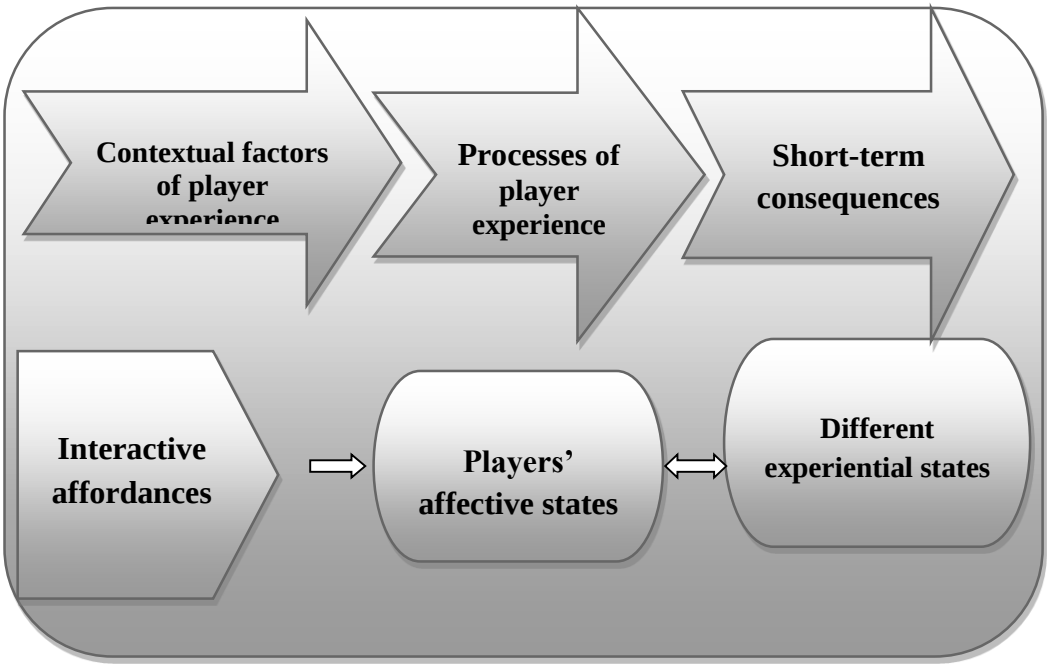

Figure 4. Research Framework

This research is a qualitative exploration of short-term, immediate consequences of players' engagement with interactive affordances of MMORPGs. Consequences will be measured based on elements of original flow theory, such as levels of player concentration on in-game issues, perceived control over the character or in-game events, the balance between players' skills and the game's challenge, time distortion, and loss of consciousness about surroundings (Nakamura & Csikszentmihalyi, 2009). In Figure 4, "different experiential states" refers to the short-term consequences. As discussed by Poels et al. (2010), understanding the short-term consequences of players' engagement with specific characteristics of the game can shed light on players' long-term habits as well.

As summarized by Hoffman and Novak (2009), the flow framework is mostly applied in new media research as a structural model to measure correlations among different constructs in each of the three stages of flow. However, some scholars have applied qualitative methods to explore how a stage of flow can influence the next stage. For example, Pace (2004) presented a grounded theory of flow experience for Web browsers in which the relationships between flow antecedents, such as curiosity and time urgency, and flow outcomes, such as joy of discovery and sense of control, were directional. Similarly, my model is intended to explore how constructs in each stage of player experience can influence another stage. Figure 4 illustrates the overall theoretical framework of my dissertation.

Summary

This chapter is a literature review that summarizes previous findings and discusses gaps in the literature on player experience. In the first section, I conceptualized interactive affordances as the range of action possibilities facilitated by the game features that influence player-to-game interactivity and player-to-player interactivity. Studies on gaming motivations were reviewed since players' psycho-social needs are defined as contextual factors that influence player experience. Then, the literature on structural game characteristics and social interaction in online games

was reviewed given that these can also serve as contextual factors that influence player experience.

In the second section, the literature review focused on players' subjective experiences. The concept of player experience was used to explore players' affective states and experiential states when they engage in interactive affordances. Flow is closely associated with user experience in general and player experience in specific, through which we can explore essential experiences, and it was therefore introduced as part of the theoretical framework. Studies on applications of flow theory in new media studies and game research were reviewed. The flow framework consisting of antecedents, processes, and consequences was also introduced.

In the third section, limitations of the literature were discussed to present specific research purposes for this project. It was discussed that previous studies mostly focused on players' psychological properties, such as gaming motivations, needs, or personal characteristics, as contextual factors that influence player experience. Research about how actual engagement with game features influences player experience has not drawn enough attention in the literature. Second, current models and theoretical constructs of player experience do not elaborate on the processes that game players go through to reach certain experiential states. Third, player experience is mostly conceptualized in game research based on optimal experiences. Hence, the various experiential states, including negative experiences, have not received enough attention. Through the theoretical synthesis of interactive affordances and the flow framework, this project elaborates on the role of interactive affordances in players' affective states and experiential states.

CHAPTER THREE METHODOLOGY

Introduction

In this chapter, research purposes and research methods are described. First, the main research purposes are presented. Then, it is discussed why the two qualitative research methods of think-aloud protocol and semi-structured in-depth interviewing can serve my research purposes. Characteristics of participants and the process of data

collection and data analysis are explained. Finally, procedures that were taken to increase the internal validity and external validity of this research are explained.

Summary of Research Purposes

As described in detail in chapter two, the literature on player experience in video games has at least three main limitations that this dissertation addresses. First, previous studies mostly explored player experience based on human needs, motivations, or personal characteristics. Needs-based theories are powerful in explaining why people use all sorts of media, but they do not elaborate on the effects of specific characteristics of a medium on user experience. Flow-related game studies also measured contextual factors based on players' characteristics, such as level of control or skill. Hence, they failed to explore how specific affordances of video games can influence player experience. A growing number of game scholars have argued that structural game characteristics can have stronger effects on player experience than people's psychological properties. Although there are not enough studies on the effects of structural game characteristics on player experience, the current literature does not provide sufficient insight into how players' actual engagement with game features influences their experiences. The research question related to this problem is what prominent affordances in MMORPGs are that players mainly engage with. Therefore, the first purpose of this research is to contribute to the literature on structural game characteristics by identifying prominent affordances in WoW that players mainly engage with.

Second, there is a dearth of knowledge in the game literature about the processes that game players go through to reach certain experiential states. The second question to address this problem is what players' affective states are during engagement with affordances of MMORPGs. Therefore, this research investigates players' affective states during engagement with game affordances to understand how specific characteristics of MMORPGs influence player experience.

Finally, the literature conceptualized player experience as a rather fragmented construct based on optimal experiences such as complete immersion, sense of presence, or time distortion. However, major experiential states, including negative

experience, have not drawn enough attention in the literature. This research identifies major experiential states that are informed as a result of actual engagement with interactive affordances of the game.

Research Design

Ontological assumptions are essentially related to how researchers look at the nature of reality and how they gain knowledge (Höijer, 2008). Ontology also informs the research method that a scholar chooses for data collection and analysis, and it is defined as "implicit and unproven assumptions about reality" (Höijer, 2008, p. 276). If researchers want to explore the very nature of reality, they are confronted with three ontological assumptions depending on whether they see the phenomena through the lens of a realist, nominalist, or social constructionist. Realists view the world objectively, believing that there is a world outside of our own experience and cognitions. Nominalists see the world subjectively, claiming that everything outside of one's cognition is simply names and labels. Social constructionists straddle the fence between objective and subjective reality, and they consider reality as something that we create together.

As the purpose of this research is to explore how players of MMORPGs attribute meanings to their gaming experiences as a result of engagement with interactive game affordances, the ontological view of "moderate constructionism" informs this study. Moderate constructionists believe that patterns are in people's subjective experiences rather than something materialized out of people' minds (Höijer, 2008). Based on the moderate constructionism perspective, this research argues that players develop stable patterns of meaning for their gaming experiences through their actual engagement with interactive affordances. Given such an ontological perspective, the qualitative research methods of think-aloud protocol and in-depth interviewing best serve the research purposes, as they allow deeper investigation of players' subjective experiences (Wengraf, 2001). In other words, these two qualitative methods provide rich information about players' experiences related to various interactive affordances of MMORPGs.

The think-aloud protocol is applied to record and observe players' in-game behaviors, affective states, and experiential states at the time of playing. In-depth interviewing helps to delve into players' experiences as stable constructs of playing WoW. I chose WoW players for this case study for several reasons. WoW is one of the most popular online games to date, with more than 10 million subscribers worldwide, and many players have remained committed to the game since its launch in 2004. The attractive affordances facilitated by various in-game features, such as guilds, rewards, new expansion packs, and patches, contribute to WoW's commercial success. This game allows players to engage in various sorts of social interaction such as close coordination with core guild members in raiding, loose social relationships within PUGs, competition against an opposing player or a team of players (player versus player combat), and casual talks with guild members or strangers in public chat channels. In addition, as described by Ducheneaut et al. (2006b), fine-tuned incentives and a robust rewards structure optimize player interaction with and within the game and encourage players to be completely immersed. As the level of challenge in the game has gradually increased over several expansion packs, the game has been optimized such that players can experience more of a flow state (Ducheneaut et al., 2006b). In all, the attractive game features related to social interaction among players and personal interaction between a player and the game makes WoW the best choice for my research purposes.

Think-aloud Protocol

Think-aloud protocol (TAP) has been widely used in recent decades to study cognitive processes such as problem solving, human-computer interaction, reading, and writing (Krahmer & Ummelen, 2004). In TAP, respondents are required to continuously verbalize their thoughts and feelings while performing a task. The researchers record all verbalizations, write them down in a verbal report, and then analyze these in a way that depends on the research questions. Data obtained from TAP can be analyzed in either a quantitative or qualitative method. The advantage of TAP is that respondents do not have to recall their thought processes long after completing the task (Baauw & Markopoulous, 2004). In addition, as researchers encourage players to verbalize their current thoughts and feelings at the time of playing, TAP reduces bias and inaccuracies common to player self-reports (Desurvire

& El-Nasr, 2013). Such advantages are helpful in this research to focus on players' subjective experiences as a result of actual engagement with interactive game affordances.

Weaknesses of TAP when used to study entertainment technology include its disturbance to the player and the interruptions it has on gameplay (Mandryk, Atkins, & Inkpen, 2006). To reduce disturbances to players' concentration and interruptions in gameplay, at the beginning of the TAP sessions, I asked interviewees to continually elaborate on their use of in-game features and their feelings. Therefore, I avoided raising many questions in the middle of gameplay, as these might have distracted players. Semi-structured in-depth interviews, which were conducted after the TAP sessions, also provided another chance for players to elaborate on their experiences without being interrupted during gameplay.

In-depth Interview

Interviewing is one of the most widely employed methods in qualitative research (Bryman, 2004). Based on the approach taken by the interviewer, interviews may be structured, semi-structured, or unstructured (Babbie, 2012; Berg, 2009; Bryman, 2012; Wengraf, 2001). What differentiates the interview structures is their degree of rigidity with regard to presentational structure. Structured interviews use a formally structured schedule of interview questions, whereas unstructured interviews do not have a schedule of questions because the interviewer does not have knowledge about all the necessary questions. Semi-structured interviews involve the implementation of a list of questions or fairly specific topics to be covered, but the interviewer is allowed to raise probing questions to go beyond initial answers, and the interviewee is free in how to reply (Berg, 2009; Bryman, 2012). In this project, a series of pre-determined research questions were developed to specifically focus on players' engagement with interactive game affordances and their subjective experiences. I also need to raise various probes in order to draw detailed responses from WoW players during the interview. Therefore, a semi-structured in-depth interview method was chosen to serve the research purposes.

Guides for Think-aloud Protocol and In-depth Interview

The two qualitative research methods of TAP and semi-structured interviewing were conducted with WoW players. Focusing on WoW as the most popular MMORPG with more than 10 million subscribers helps to identify essential interactive affordances that lead to the popularity of the game, which may shed light on player experience in MMORPGs. TAP and interview sessions were conducted back to back for a total of about three hours. The TAP session would last for at least half an hour to 45 minutes. The guiding questions for TAP were unstructured, as I asked participants to join one of several collaborative activities, such as dungeons, raids, player versus player (PvP) battles, or arena battles, and to verbalize their actions, feelings, and thoughts toward what they were doing in the game. I raised some questions at the beginning of TAP sessions. For example, when players chose to play PvP battles, I asked them what they liked or disliked about PvP battles, what they mostly did in PvP battlegrounds, and how they felt about such activity. In the middle of joint tasks, I raised some specific questions about what participants were doing in the game. For example, if a participant's avatar was killed in the battlefield, I investigated her or his feelings toward character death in the game. At the end of TAP sessions, I generally asked participants, "Which in-game features do you consider as important in your gameplay and why?" I also wanted participants to explain their ideas about specific in-game features such as character customization features, character talents, the chat menu, experience bar, spell book, abilities window, and so on. Through the unstructured questions and specific probes during TAP sessions, I identified how various in-game features influenced players' experiences. In addition, I explored why players preferred to engage in certain joint activities such as PvP battles, dungeons, and raids.

The interview schedule was developed based on the theoretical framework, my personal experience of playing WoW, the literature review, and the eight elements of flow theory (Nakamura & Csikszentmihalyi, 2009). The interview schedule is presented in Appendix E. I started playing WoW as a casual player from the beginning of my PhD program in 2009 since I planned to explore online game players' experiences. Within two years, I joined a local guild, and I would chat with my guild members about game-related issues. Such gaming experiences helped me to adjust

interview questions based on specific characteristics of the game. To design the interview schedule based on the research questions, I applied the theoretical framework summarized in chapter two. I also used the results of the literature review about various structural features of online games and social interaction, which are summarized in Table 1 and Table 2, respectively. Nakamura and Csikszentmihalyi (2009) summarized eight elements that characterize the flow experience. I compared these elements with aspects of gameplay that are summarized in the literature (Jegers, 2007; Sweetser & Wyeth, 2005), and based on this comparison, I identified a list of game features, such as social features, control options, and rewards, that can influence player experience. Finally, I consulted my supervisor, who has published several articles on WoW players' experiences, in order to make sure the interview schedule covers the research purposes. It should be noted that the interview guide did not mean that the questions were final. In other words, I changed some of the interview questions in the course of data collection, as I realized that some questions may not be related to player experience. For example, I realized that playing together in the same physical space is not related to player experience, as it is not popular among WoW players. Therefore, I excluded such questions from the interview schedule after the first several interview sessions.

The interview schedule was divided into three sections. It started with general questions about players' actual use of and feelings toward features related to social interaction among players. For example, I asked interviewees about their most memorable experiences of social interaction in the game and what made those experiences the most memorable. This question served as a warm-up since a majority of players could immediately talk about their memorable social experiences. With this question, I also identified factors that make a social experience prominent for players. The probes focused on the game affordances (action possibilities) players were involved in, as I wanted to identify important player-to-player interactive affordances. I also asked questions about with whom participants were playing during their memorable experiences of social interaction. Such questions allowed me to identify the influences of in-game relationships on player experience.

Then, questions about affordances related to social interaction narrow to explore the effects of various social action possibilities in WoW on players' affective

states and experiential states. Different types of social affordances that I covered in the interview included transient interactions with PUG members, structured interaction with in-game friends such as guild members, interaction beyond the game's virtual space in connection with the game, extension of real-life friendships to the game space, competition among in-game friends or unknown players, and unpleasant experiences of social interaction. These types of social interaction among MMORPG players are developed based on the results of the literature review provided in Table 2 and my own gaming experiences. By these questions, I identified how players felt about the affordances related to social interaction in MMORPGs and how such affordances influenced players' experiential states. At the end of the section on the role of social interaction in player experience, I encouraged interviewees to talk about the influences of other types of social interaction on their experiences that I did not cover in the interview questions. By this last question, I ensured that interviewees were provided with enough space to talk about their various experiences related to social interaction in WoW.

In the second section of the interview, I asked questions about the effects of player-to-game interactive affordances on player experiences. First, I generally asked interviewees about the most prominent in-game features that they used and the effects of these features on players' feelings and experiential states. For example, I started the second interview section with, "When you are playing the game, what are the main features (functions) in the game that you use most frequently?" This question helped to identify the prominent game features that influenced player experience. Then, questions narrowed to the effects of specific game features, such as control and customization features, game feedback, and rewards and punishments, on players' experiences. For example, I asked interviewees about character customization features: "What are the game features that you use to customize your characters to your preference?" and "What do you like about being able to customize your characters?" By these specific questions, I explored players' affective states and experiential states when they were engaged in interactive game affordances.

The final section of the interview schedule covered players' subjective experiences. First, I presented a narrative description of the flow experience as:

> Flow is "a state of mind sometimes experienced by people who are deeply involved in some activity. For example, during flow, a player is playing exceptionally well and achieves a state of mind where nothing else matters but the game; the player is completely and totally immersed in the game. Activities that lead to flow completely captivate a person for some period of time. When one is in flow, time may seem to stand still, and nothing else seems to matter (Novak, Hoffman, & Yung, 2000, p 28).

Then, I asked interviewees to elaborate on conditions under which they experienced flow. I raised several probes here to understand what the flow experience was like for interviewees. I also investigated what players were doing in the conditions under which they experienced a flow state and why they had such an experience. By the various probes, I was able to understand the role of interactive affordances in players' flow states. Finally, I investigated players' level of concentration on the game in addition to complete concentration. By this last set of questions, I ensured that players were provided with enough space to elaborate on the various experiential states they had in the gaming session.

Sampling

World of Warcraft was purposively selected as a site for this case study for several reasons. WoW is the most popular MMORPG and many people have been playing the game since its launch in 2004. It can be assumed that the attractive game features, such as various social features, control and customization options, and fine-tuned incentives, are factors contributing to its commercial success. In addition, as described by Ducheneaut et al. (2006b), the game has been optimized over several expansion packs such that players experience more of a flow state. Therefore, WoW players can provide valuable information about interactive affordances and their gaming experiences.

In order to recruit WoW players who could elaborate on their experiences related to various interactive affordances, three sampling approaches were applied: convenience sampling, criterion sampling, and snowball sampling. First, I started recruiting WoW players with convenience sampling. I sent an invitation letter to students in a large university via email in June 2012. More than 50 people emailed me back to participate in the study. The convenience sampling of students was applied as

the initial step despite its several limitations because students are described as the main audience of online games (Hsu, Wen, & Wu, 2009). Research has confirmed that students are hardcore players of online games, such that some even play excessively (Chang, Lee, & Kim, 2006).

I applied criterion sampling in the second step, as chose cases that met some criteria of my research purposes (Marshall & Rossman, 2006, p. 71). I recruited people who had been playing WoW for several months on the official servers of Blizzard, the company that develops WoW. As an inclusion criterion, participants were required to have an active Battle.net account during the time of the study because I wanted them to play the game on their own account with their main avatar. I excluded volunteers who would play on private servers because players on private servers may not access many game features such as guilds and customization features.

Based on convenience sampling and criterion sampling, I recruited 15 players that could serve my research purposes. Then, through snowball sampling, I asked the initial interviewees to invite their guild members to participate in this research. As I wanted to recruit guild members who were experienced in raiding and PvP battles, snowball sampling helped to locate participants with characteristics necessary for my research purposes (Berg, 2009, p. 52). The rest of the 10 interviewees were recruited through snowball sampling.

Using these three sampling strategies, I recruited WoW players who had experienced a majority of in-game activities, such as raiding with guild members, PvP battles, quests, regular dungeons, and heroic dungeons. In addition, interviewees were expected to be familiar with major game features, such as character customization options, control features, and the rewards and punishments systems in the game. For my research purposes, I purposively avoided recruiting novice players. I needed the interviewees to elaborate on their experiences related to using various in-game features, and novice players with low-level characters would not have had the chance to engage in various affordances in the game. For example, in order to truly experience the social world of the game, a player needs to have a character near the maximum level to engage in raiding with guild members, raiding with PUGs, or arena PvP battles. Also, most game features such as transmogrification (ability to change the appearance of characters' items) or forging (ability to melt various metal ores and

produce more powerful items) are only available to advanced characters. TAP sessions and individual interviews lasting about three hours in all were conducted over a three-month period from January to March 2012 in the English language.

Participants

In total, 25 WoW players between the ages from 21 to 40 (mean = 24.5) participated in this research. Their average playing time was about 18 hours per week. Some of the interviewees were undergraduate students, and three graduate students were in my sample as well. On average, participants had been playing WoW for more than three years. Seven of the interviewees had been playing WoW since 2004. Four of the interviewees were female. Five of the interviewees were married or in a relationship. Whereas all interviewees were part of guilds, only six of them were active core members of the guilds during the study. Core members of the guilds regularly met (two times or more per week) in the virtual space of the game for joint activities such as raiding and rated battlegrounds. As core raiders maintain strong social connections in the game, such participants provided valuable information about how social dimensions of the game influence the player experience. Among these core raiders, three were guild masters. These people provided information about how leadership during a joint task can influence player experience. A majority of interviewees played in Oceanic PvP servers, including Barthilas, Dreadmaul, Jubei'Thos, and Thurisan. In Appendix A, the table of interviewees' profiles provides data on gender, age, marital status, level of education, hours spent on WoW per week, years playing WoW, number of characters in WoW, and average hours spent on WoW in one sitting. In chapter four, I use S1, S2, S3,…S25 to refer to my 25 participants.

Procedure

Participants were individually invited to a usability room. Upon arrival, I showed them the IRB approval form to inform them about ethical issues of the study. I also informed them of their right to withdraw from the study at any time they want. The IRB approval is attached in Appendix B. They filled out the informed consent form in Appendix C and were briefed on the study. At this stage, I established rapport with participants by chatting about my own experience of playing MMORPGs, specifically WoW. For the TAP session, participants were requested to log into their

WoW account on a computer and play one of several joint activities, such as raids, dungeons, or battlegrounds, for half an hour or more. To decrease the disturbance to players' concentration on gaming, I asked respondents at the beginning of the TAP session to talk about various game features that they mostly used during gameplay. In several instances when participants fell silent, I encouraged them to verbalize what they liked about game features they were using. In situations like PvP battles when participants had to concentrate harder on the task and were not able to talk, I asked them to elaborate on that specific experience soon after they completed the task. In TAP sessions, participants' voices were tape-recorded and the computer screen was video-taped with the usability testing software, Morae.

After a short break, individual participants came back to join a semi-structured face-to-face interview in the same usability room. Initial questions centered on interactive affordances that players mostly engaged with during gameplay. Then, questions narrowed into specific player-to-player and player-to-game interactive affordances. Further, I asked questions about the flow experience through a narrative description of flow. There were also questions about specific elements of flow in gameplay, such as skill, challenge, control options, rewards and punishments, and so on. As the interview was semi-structured, interviewees were provided with enough space to elaborate on what they were doing in situations when they were completely immersed in the game. There were also questions about other experiences based on participants' level of concentration on the game. Each of the interview sessions lasted over two hours. Interview sessions were audio-recorded by two voice recorders to make sure that if one of the devices failed, I would still have the data. Interviewees were also permitted to take a break during the interview session if they felt tired. At the end of the interview session, participants filled in a short questionnaire about their gaming experiences (see Appendix E). They were offered about US$30 as a token of appreciation.

Analysis

The audio files of TAP and in-depth interview sessions were transcribed verbatim. I analyzed the data using the qualitative software, NVivo 9. Before coding, I read through the transcripts to have a general idea of players' gaming experiences. I also watched the gameplay videos. As stated by Charmaz (2006), coding is the first

step in qualitative data analysis. Coding means naming segments of data with a label that simultaneously categorizes, summarizes, and accounts for each piece of data (Charmaz, 2006, p. 43). Coding consists of at least two stages: initial coding, which is the study of fragments of data; and focused coding, which is selection of the most useful initial codes and testing them against extensive data (Charmaz, 2006). For the initial coding, each individual interview and players' verbalizations of thoughts and feelings in TAP sessions were analyzed line by line. Line-by-line coding is a useful tool for handling detailed data because it helps us to grasp ideas that had escaped our attention when reading data for a general thematic analysis. The initial codes were mainly developed based on interactive affordances (action possibilities related to player-to-player interactivity and player-to-game interactivity), players' affective states (feelings and emotions), and experiential states (based on levels of concentration, perceived control, the balance between skills and challenge, time distortion, or loss of consciousness about surroundings). I developed over 150 initial codes, and most of these codes were descriptive, as they provided a summary of the basic topic of the passage in a word or short phrase. For example, some initial codes for the affordance of achievement in WoW included levelling up a character, collecting weekly points, pursuing rare titles, upgrading equipment, transactions in auction house, and resource collection. Some initial codes for social affordances included concerns not to wipe the group, evaluation of performance by teammates, competition for outperformance, leading a raid, critical role in a joint task, high cooperation in challenging tasks, telling jokes, and making fun of teammates for underperformance. Some initial codes for affective states included feel motivated, feel curious, feel bored, and feel frustrated. Some initial codes for experiential states included increased concentration, low level of attention, time distortion, and excessive difficulty. I also developed in vivo codes, which are the special terms that players used to describe their activities and feelings. For example, some in vivo codes that described disturbing players included “noobs,” which refers to players who are new to the game or are not familiar with their characters’ skills, “griefing,” which means deliberately causing the whole group to die, and “loot ninjas," which refers to players who greedily attempt to possess all items that drop from bosses. As a result of initial coding, I developed over 150 initial codes to describe the various interactive affordances that the game provided to players, as well as players’ affective and experiential states during actual engagement with the interactive affordances.

According to Charmaz (2006), focused coding is the second main step in qualitative data analysis. As I had many initial codes, early interpretation of data was messy. I started focused coding after the initial line-by-line coding to establish some strong analytic directions. For focused coding, I synthesized and explained larger segments of data (Charmaz, 2006). I searched for the most frequent and significant initial codes to find the most salient categories in the data corpus (Saldaña, 2012). The results of focused coding are presented in Appendix F as the codebook. In the codebook, there are eight main themes that resulted from the categorization of initial codes: goals, rewards, players' desire for achievement, characters' death, exploration and sense of curiosity, social affordances, control options, and customizability of difficulty level. These themes describe prominent interactive affordances of the game that players mainly engaged with, in addition to players' feelings and different experiential states. The various sub-themes of these eight main themes are classified in Appendix F as well. For example, "goal" is defined as various objectives that players pursue in the game. The sub-themes for goals include indispensable goals (levelling up a character, collecting weekly points, or upgrading equipment), long-term goals (pursing a unique achievement or completing the achievement system), and light goals (business transactions in the auction house or resource collection). As another example, "disturbing players" is a sub-theme of the broad theme of social affordances. Under this sub-theme, the various affordances related to social interaction that cause disturbances to a player are described. Disturbances include griefing, loot ninjaing, ganking, and noobs. The theme of control options refers to in-game features that allow players to change the game to meet their preferences and exert control over in-game events. There are five major sub-themes for this theme: hot-keys, macros, add-ons, limited creativity in customization, and character customization. Under these five sub-themes, I provide several examples to describe interactive affordances, players' affective states, and experiential states.

Finally, I performed axial coding, by which I specified the properties and dimensions of main codes. According to Charmaz (2006), initial coding fractures data into separate pieces and distinct codes. Axial coding is Strauss and Corbin's (1998) strategy for bringing data back together again in a coherent whole (Charmaz, 2006, p. 60). Axial coding in my analysis started by grouping similar codes related to interactive game affordances, players' affective states, and experiential states. For

example, goals, rewards, and players' desire for rewards are grouped as achievement. As another example, the various affordances related to player-to-player interactivity that are presented in Appendix F are categorized as bonding social ties and casual social ties. Based on axial coding, I developed five main themes for interactive game affordances: achievement, exploration, bonding and casual social ties, control affordance, and customizability of difficulty level. There are three major themes to describe the various affective states that players have when they engage with interactive game affordances: stimulated feelings, relaxed feelings, and disturbed feelings. Three main themes for describing experiential states include flow experience, partial engagement, and disengagement. In chapter four, I describe these five interactive affordances and their influences on players' affective states and experiential states.

As suggested by Saldaña (2012), a qualitative researcher should condense specific categories and produce general themes to construct abstract models or theories. In Figure 10 of chapter five, I provide a general model of player experience in MMORPGs. In this model, I show how players' actual engagement with interactive game affordances influences their affective states and experiential states.

Validity of the Research Design

Similar to quantitative scholars, one of the main concerns for qualitative researchers is to have valid research design and analysis. Validity can simply be defined as the most accurate approximation to the truth of propositions. Campbell and Stanley (1963) defined two types of validity for experimental designs: internal validity and external validity. Internal validity is related to the researchers' concerns that the conclusions drawn from experimental designs may not accurately reflect what has gone on in the experiment itself. External validity refers to the generalizability of experimental findings to the real world (Babbie, 2012). Although internal validity and external validity were developed in the context of experiments, it is possible to use the same terms for qualitative research, but not with the same interpretation of causal relationships among variables (Creswell & Miller, 2000). In qualitative research, internal validity can help to address the "truth value" of a study's findings (Babbie, 2012). In this research, internal validity is applied to demonstrate that interpretations

about interactive affordances, affective states, and experiential states can actually be sustained by the data. I took several steps to increase the internal validity of research design and analysis. One way was to use multiple researchers for the research design and the interpretation of findings. To design the interview schedule based on the research purposes, I regularly met with my supervisor, and we discussed the accuracy of interview questions. I also regularly met with my supervisor during data analysis, and we discussed the authenticity of codes, categories, and themes. I have also documented procedures of data collection and data analysis in order to demonstrate that this research is credible. For example, I have attached the interview schedule in Appendix E and the codebook in Appendix F. In qualitative research, the researcher's prior experience in the area of the case study can help to increase the validity of research design and analysis because the researcher has become more acquainted with the human subjects' experiences. I had been playing WoW for about two years at the time of data collection, and such experience helped me in designing the interview schedule and interpreting interviewees' explanations. However, during data analysis, I tried to refute prejudgements about interviewees' accounts in order to achieve objectivity. I did read through all transcripts before developing initial codes to have a general sense of players' various experiences. I also meticulously avoided jumping to conclusions about how interactive game affordances can influence players' affective and experiential states. In the codebook in Appendix F, several examples are provided for each code in order to demonstrate that I drew my conclusions based on all data, not a few well-chosen examples. In data analysis, I engaged in constant comparative analysis to have more valid findings. In other words, during focused coding, I compared my data in each case, as well as across all cases, to identify dominant experiences and deviant cases. Finally, during axial coding I developed major themes to analyze the data comprehensively and find reasons for deviant cases of the role of interactive affordances in player experience. These steps can help any qualitative research based on semi-structured in-depth interviews to preserve internal validity.

External validity refers to the degree to which the results can be generalized to the wider population or other cases and situations (Cohen, Manion, & Morrison 2007). Some qualitative scholars use the terms, transferability or generalizability, to refer to external validity (Marshall & Rossman, 2006). Several criteria in this research can highlight the external validity of research design and findings. The theoretical

synthesis of the flow framework and the concept of interactive affordance guided the design of interview schedules and data analysis. The flow framework has been tested in both quantitative research (Choi & Kim, 2004; Kim et al., 2005) and qualitative research (Pace, 2004) on various new media such as the Web and video games. This theoretical framework allows other scholars to look for major interactive affordances and their effects on people's affective states and experiential states in similar contexts, such as other new media, MMORPGs, or video games. Thick description of the typicality of the case study contributes to the transferability of research findings to other cases (Marshall & Rossman, 2006). At the beginning of chapter two, I described common structural characteristics of MMORPGs and WoW, and they include persistence, physicality, social interaction, avatar-mediated play, and open-endedness. Such a comparison enables researchers to identify similarities between WoW and other MMORPGs. I have presented a thick description of how specific game features provide generalizable interactive affordances. The findings include five major interactive game affordances: achievement, exploration, social connectedness, control affordance, and customizability of difficulty level. These interactive affordances describe the action possibilities in video games regardless of WoW's unique game features. Finally, I applied two research methods, in-depth interviews and think-aloud protocol, to help me present a thick description of the social context of playing WoW and players' personal interactions with the game. These thick descriptions provide unique aspects of the case study, and they illustrate the transferability of findings about player experience in WoW to different video games or other media.

Summary

In this chapter, I introduced the three main research purposes related to the role of interactive game affordances in subjective experiences. I discussed how the two qualitative research methods of think-aloud protocol and semi-structured in-depth interviews are helpful for this project to identify how specific characteristics of the game influence players' subjective experiences. Characteristics of the 25 WoW players who participated in this research were presented. I described how I analyzed the data to develop codes, categories, and themes related to interactive affordances of WoW, players' affective states, and experiential states. Finally, I described the steps that I took to increase the internal and external validity of my research.

CHAPTER FOUR FINDINGS

Introduction

This chapter answers research questions about contextual factors of player experience, players' affective states, and experiential states during engagement with interactive game affordances. The results of the TAP and semi-structured in-depth interviews with 25 WoW players are presented here. The five main categories of interactive affordances in WoW that participants elaborated on are: achievement (action possibilities related to pursuing in-game goals and achieving rewards), exploration (action possibilities related to discovering new aspects of the game), social connectedness (action possibilities related to initiating and maintaining social ties with varying strengths and for different purposes with other players), controllability (action possibilities related to customizing game features to exert control over the game), and customizability of difficulty level (action possibilities related to adjusting difficulty level of in-game tasks in accordance with skills). In this chapter, I elaborate on how various game features provide such interactive affordances, how players feel when they engage with interactive affordances, and what players' different experiential states are. I use S1, S2, S3,…S25 as pseudonyms for interviewees. A table of the interviewees' profiles is provided in Appendix A.

Achievement: The Affordance for Goals and Rewards

Playing video games is described as a as a goal-oriented process, in which a player tries to achieve different goals such as killing monsters, developing avatar's skill, or collecting resources (Choi & Kim, 2004). Clear goals and subsequent feedback can influence players' experiences. Csikszentmihalyi (1990) described goals and feedback as key components that characterize the optimal experience of flow. According to Csikszentmihalyi (1990), even in some creative activities that goals are not clear in advance, people who experience flow develop a strong personal sense of what they intend to do" (p.55). I developed the theme of "achievement" to explore players' experiences when they pursue goals and seek rewards. Achievement refers to "the action possibilities related to pursuing various in-game goals and achieving rewards".

When players start the game for the first time, one of their concerns is to advance their in-game characters quickly. The "Experience Points" in the game illustrate the level of advancement for a character. If players want to advance to the next level and reach the maximum level in WoW they have to collect a certain amount of experience points. Players have to engage with various in-game activities such as killing mobs, collecting resources, world exploration, and battles against an opposing team of players in order to collect enough experience points for "leveling". Leveling is the term that interviewees used to describe the long and tedious process of reaching the maximum level. The maximum level in "Mists of Pandaria", the most recent expansion of WoW during my data collection was 90. Now the maximum level in the expansion pack of "Warlords of Draenor" has increased to 100.

Several interviewees were developing a new character at the time of interview and their characters were near the maximum level. When I asked them what kind of activities they prefer to do in the game for leveling, they implied that they just prefer to collect more points, regardless of the type of activity. Some of them mentioned that world exploration (traveling around the virtual space of the game) offers a lot of points. Some others would engage in player versus player battles for collecting more experience points. Some interviewees mentioned that they would even engage in grinding (killing monsters repetitively) to collect more experience points, despite the fact that such activity is unchallenging. S5, who was advancing her first new character

at level 80, mentioned that she prefers to engage with quests, especially daily quests because such quests provide more experience points.

When the interviewees logged into their accounts to play the game during think-aloud protocol session, I noticed that some of them had more than one character. It tried to know how such players feel when the develop each of their "toons" -this is the term interviewees mostly used to refer to their in-game character/avatar. First, they mostly confirmed that developing a new avatar is tedious and time-consuming, and they have developed these characters over years of playing the game. Some interviewees clarified that they had to developed new characters for the strategic needs of the guild since the group may need players with different capabilities. Some interviewees also confirmed that their main goal during leveling is to become powerful quickly. S6 mentioned that there are always wild animals around the World of Azeroth, and players at low levels may easily get killed, which is frustrating. There are also players from the opposing faction who enjoy beating weak players. Some interviewees mentioned that they get frustrated when powerful players from opposing faction damage their characters. Therefore, most players try to advance their characters to the maximum level quickly.

Most interviewees clarified that they eagerly wait for achieving the maximum level because they think the real attractive world of the game starts at the maximum level. S7 mentioned that when he was developing some of his six characters, he would feel enthusiastic that there's something waiting for him at the end of maximum level. He mentioned:

> "Indeed, there are certain abilities that you can only get at max level. I would rush for quests and dungeons to increase the experience number to have a fully advanced toon.

World of Warcraft provides players with long-term goals which can take a long time from several sessions to several months to complete, and in return, unique rewards such as rare titles, elegant mounts, durable armors, powerful weapons, or whimsical items are offered. Titles are displayed before or after the avatar's name, and they are indicators of the player's in-game achievements. Some interviewees mentioned that they check websites such as GuildOx.com to get more information about the popularity of their titles among guild members. The rarer a title is, the more achiever a player appears among teammates. For example, S7 has the title of "Hand of

A'dal". He mentioned that he feels quite proud that this rare tile is popular only among 8.5 percent of WoW players.

Although mounts are intended to be the means for convenient transportation around the World of Azeroth, majority of players show intense interests to achieve unique mounts and proudly display them to other players. Whereas popular basic mounts including ground mounts are cheap to buy from in-game vendors, some air mounts will be dropped at very low rates from bosses in challenging raids. S8, who had a red flying dragon as the mount, compared a mount with a personal car in real life. She implied that when a player has a unique mount, he or she appears as a prestigious player. Players attentively try to achieve unique mounts just for the sake of proudly exhibiting their in-game assets.

Gratification from displaying unique achievements to teammates and/or unknown players is such a pleasant feeling that it motivates players to spend long hours on gaming. I asked some interviewees about how their enthusiasm for gaming would be influenced if they were not provided with the chance of displaying accomplishments to other players. Majority of interviewees confirmed that the game would be meaningless and less popular. In other words, players would not feel inspired to spend time on gaming, if they were not provided with the chance of exhibiting achievements. As Ducheneaut et al. (2006a) confirmed, the social worlds of online games is associated with players' ability to construct an identity as an “uber” or “elite” player. Most interviewees admitted that they enjoy obtaining unique achievements to stand out as a superior character/player. For example, S9 implied that he feels quite satisfied that he can show off his unique achievements to other players. He indicated that when he gets a big item, he just puts it on and feels delighted. Sometimes, he would even stay in the city of the game for some minutes in order to proudly invite other players to comment on his achievements. S10 compared his desire for advancement and popularity in the game with satisfaction of success in his studies:

> I think desire for more reputation is a huge part of gaming, analogous to research and science culture in terms of reputation and publication… Achieving a high level character, more goods, better items, higher profession skills and so on are all actual numeric measurements of your accomplishments in the game. That's how we rate ourselves in the game.

Players are provided with several types of rewards when they achieve in-game goals. Rewards highly influence players' positive feelings and level of concentration on the game. Most interviewees revealed that they are quite self-centered for the rewards especially when they play the game with a group of unknown players. Some interviewees revealed that in pick-up groups they are more concerned for their own achievements rather than coordination and camaraderie. S11, who plays WoW as a core member of the guild, mentioned that he doesn't like playing joint tasks especially raiding with PUGs. When I asked why he is not inspired to play with PUGs, he described the relationship among PUG members as:

> They don’t know you, and they’re selfish for loots, even if it is a small upgrade. They just don’t want to give it to you. They just tend to keep everything for themselves.

Several interviewees explained that PUG members would greedily roll for all the items even if they cannot use it for their characters. S5, a female player who has been playing WoW for less than one year, indicated that once she obtained two similar unique items in a dungeon with PUGs, she avoided giving one of them to the other PUG member who asked for it. She agreed that it might be considered as a self-centered behavior, however, it is acceptable in the game because she didn't feel a sense of belonging to the group. In PUGs, players consider rewards as a lucky achievement. Hence, they are not willing to offer their rewards to other unknown teammates. Some interviewees confirmed that if other players were in their shoes they would also avoid passing the rewards to unknown teammates.

Dissatisfaction with loot distribution does not just take place among PUGs. We can expect that players who know each other in the game, especially core members of the guild, should be fair in distributing rewards among teammates. However, several interviewees admitted that some guild masters and officers may not fairly let all group members have the chance of winning rare loots. Some interviewees confirmed that they changed their guilds for dissatisfaction with the loot distribution. They revealed a deep contempt for the corrupt practices in loot distribution. S12 indicated that she would argue with the guild master if dragon-kill points (abbreviated as DKP) are not distributed accurately among group members. DKP system is the most popular method for endgame loot distribution. When players participate in each of end-game guild raids, they are awarded with a DKP. When players win an item, they lose some DKPs.

DKP system helps unbiased distribution of rewards among raid members since it is based on players' attendance in various raid sessions and the recent loots awarded to them. S13 described that he felt discouraged by his first guild because:

> I switched the guild because of the system in which the guild gave out loot from raid bosses… That is one of our major concerns because at the end of the day we continually seek upgrades and particular loot drops. In my previous guild, their looting system just didn't seem fair. They were quite biased because they had their own group of people. The older raiders already accumulated a lot of DKPs. So, the loots will of course go to them first.

The above quotations refute the idea that players engage in online games to merely satisfy their needs for social interaction (Cole & Griffiths, 2007; Griffiths et al., 2011). Various achievements such as unique rewards influence players' social experiences as well. It can be concluded that the need for using other players as just the additional assistance for achieving challenging goals (Williams et al., 2006) and desire for broadcasting achievements to other players (Ducheneaut et al., 2006a) influence the nature of social interaction among online game players and consequently their experiences.

In all, WoW encourages players to engage in the achievable aspects of the game through several types of goals and rewards. The various goals and rewards are categorized in similar groups based on their influences on players' affective states and experiential states. The result of the categorization of various components of achievement is illustrated in figure 5. The first basic set of goals that most players pursue in order to become powerful in the game is defined as indispensable goals. Indispensable goals refer to objectives that players cannot put aside if they want to advance their characters in the game. The most obvious indispensable goals in WoW include collecting experience points and reaching the maximum level. Upgrading equipment, increasing the resilience of armors, and replacing items with more powerful drops are also some indispensable goals that all players seek even if they are at the maximum level.

In return for completing indispensable goals, the game provides several types of points, and I labelled them as routine rewards. These rewards are named routine rewards because players achieve them regularly in their weekly gaming sessions. Players do not feel excited for achieving routine rewards since such rewards are part of

the game requirements. Experience points are one of the routine rewards that most interviewees described as important in their initial stages of gaming. Other routine points for less challenging joint activities include justice points (the currency rewarded for lower level player versus environment activities such as dungeons) and honor points (the currency rewarded for lower level player versus player battles).

The game also provides long-term goals, which require players to play the game regularly over the course of time. For example, some quests require players to complete several objectives over a long period of time. When players collect enough tokens from daily quests, they are awarded with unique rewards such as rare mounts or titles. Players who want to achieve unique rewards from long term goals should play the game regularly.

The game also provides light goals such as business transactions in Auction House, resource collection, and profession development. Light goals in WoW do not require players' complete attention to gaming. Since light goals are not challenging, players do not feel anxious or troubled that their avatars might get harmed or killed when they try to achieve them. I conceptualized these goals as light because players can complete them quickly, right before or after other indispensable goals or long-term goals.

Finally, the game motivates players to play the game more attentively by imposing some punishments. If players engage in a task recklessly it is possible that their characters get damaged by mobs or opposing players, and they may get killed. When the characters' health reaches zero and the status of death takes place in the game, the character turns to a ghost, the sky appears like a white whirlpool, and everything that the player sees in the environment of the game is black and white. In order to return to the game, players should take a long walk back to the place they died, find their characters' corpse, and resurrect them. Or, players can go to a nearby graveyard and ask the Spirit Healer to resurrect them. The durability of the character’s equipment drops after the death. Players also have to pay some in-game money to repair their damaged equipment. S2 mentioned that the pinch of losing money for repairing items after his avatar's death makes him constantly cautious. S6 described the role of avatar's death in his experience as:

> If you didn't have to run back every time you die to your corpse, you wouldn't feel motivated for downing a boss. It is sometimes frustrating, but I think it is important to motivate you to play with more attention.

So, the character's death and other punishment features such as loss of equipment durability, inconvenience to resurrect, and loss of money influence players' gaming experiences. Punishment is categorized under the components of the achievement because it helps to explore players' experiences for failure during pursuing goals. While rewards are encouraging incentives from the game for achieving a goal, punishment is labeled as a negative response from the game to players' mistakes.

The various components of the achievement affordance is summarized in figure 5. It includes indispensable goals, long-term goals, light goals, routine rewards, remarkable rewards, and punishments. In the following sections, I discuss the role of various goals, rewards, and punishments in players' affective states and experiential states.

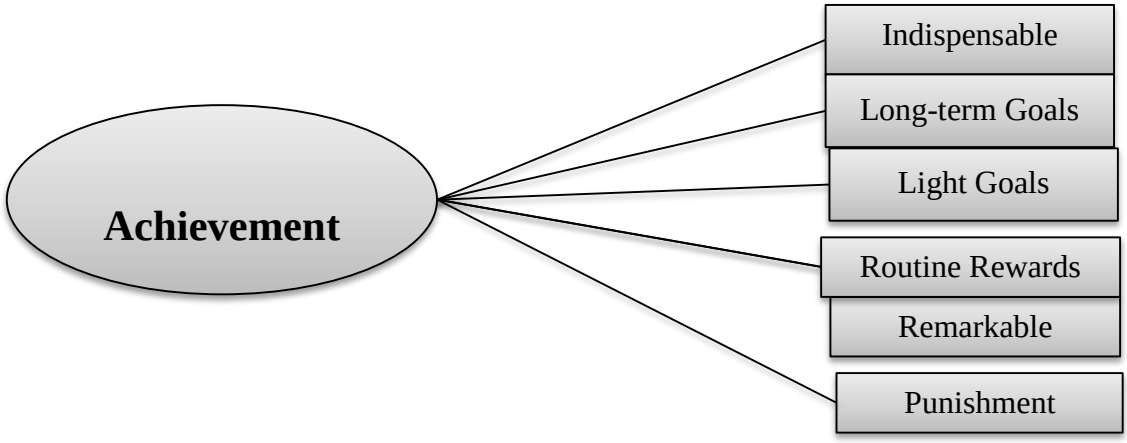

Figure 5. Various Components of Achievement Affordance

Players' Affective States and Flow Experience for Achievement

As stated earlier, when players start developing a character, one of their main goals is to collect experience points and reach the maximum level quickly. Depending on the class of the avatar and the amount of time players spend on gaming, reaching the maximum level of 85 for Cataclysm would take more than one month. For example, S4 mentioned that leveling a character in less than one month was quite

demanding for him, and he had to give up this goal. Some interviewees described that when they were advancing their avatars, they would feel enthusiastic for the maximum level and end-game events because the attractive world of the game begins after the maximum level. The interviewees who were advancing an avatar elaborated on the feelings such as “excitement” and “enthusiasm” to reach the maximum level. The interviewees' quotations also imply intense concentration on the game during collecting experience points and advancing a character. For example, S3 described his experience of advancing his only toon as:

> …When I was leveling, I would play quest and PvPs a lot to gain experience. I had to work hard to get more experience points to get to the end game)).

I developed the concept of "feeling enthusiastic" to describe players' intense interests for reaching the maximum level. Players pay complete attention to in-game instructions to level up the character quickly. Players' concentration on the game is increased when they discover about the avatar's new skills and capabilities. For example, S15 mentioned that each time he receives new set of skills for going to another level, he carefully inspects usefulness of these skills. Therefore, the affective state of enthusiasm to reach the maximum level entices players to play the game with intense concentration.

I developed the theme of "flow experience" to describe the experiential state related to the affective state of enthusiasm during developing a character. Flow experience refers to a holistic experience in which players are so engaged with an activity that nothing else seems to matter; players forget about time and their surrounding as they fully concentrate on an in-game objective. I identified characteristics of flow experience during engagement with the achievement affordance. Several interviewees confirmed that they had an experience that the time has passed faster than normal when they were advancing a new character. For example, S7 explained that when he was advancing his first characters, he became so engaged with the process of becoming powerful in the game that he forgot how many hours he had been playing the game over the weekend.

When there is a new level cap in expansion packs of WoW, players play the game with intense concentration to be among the first players in the server or the guild to reach the max level. Such experience is also labeled as flow. For example, S8

mentioned that when the level cap was increased to 85 in “Cataclysm”, she would feel quite enthusiastic to reach the max level sooner than her teammates. She mentioned that she was so attracted to reaching the maximum level that she lost track of how many hours she was playing WoW.

Even if players are at the maximum level they still need to constantly upgrade their items if they want to achieve more challenging goals. If players are not able to upgrade their items regularly they will get killed in challenging tasks. For example, in the gameplay session S1 chose to play a battleground which was suitable for players ranged between the levels of 80 to 84. However, his character was at level 85. He explained that he was not able to upgrade his armors for some months, and he wouldn't feel confident to cope with challenging events. Most interviewees confirmed that the urge for upgraded items fills them with enthusiasm to play the game with more attention. S2 explained it as:

> A motivation for me to be more attentive in downing these bosses is the gears that drop. They can make my characters stronger. The higher level the boss is, the higher level the items are. It is kind of like a rite of passage to move on to the next harder raids.

As the above quotations imply, enthusiasm to achieve better equipment never ends in WoW since players constantly feel that they need to regularly upgrade their items. Some interviewees mentioned that when they try to achieve a specific item, they play the game with intense concentration as they feel strong desire for the upgraded equipment. For example, S13 clarified that if he knows that a boss doesn’t have anything useful for him he may not feel inspired to pay attention to the boss fight. Players also completely concentrate on the game during upgrading their characters’ equipment since they are concerned that other teammates might take the equipment they need. For example, S21 explained that when his guild-mates down a boss, he anxiously checks other teammates' bags to see if they really need the item. In all, players experience flow in the game when they are attempting to upgrade their avatars' armors and weapons. Flow experience here is characterized by intense concentration on the game, and it is associated with the affective state of enthusiasm.

Players should collect a certain amount of points over the course of a week to complete the weekly point caps. Some interviewees mentioned that they engage with player versus player battleground events or player versus environment instances

regularly over a week to complete weekly point caps. In other words, players feel motivated to play the game regularly in order to collect points in their weekly gaming sessions. Several interviewees confirmed that when the week starts, the first thing they attempt to do is to earn points to complete the weekly point caps. For example, in the think-aloud protocol session, S16 mentioned that he wants to play raids with pick-up groups since he needs to complete the cap for valor pints. He stated:

> Every week, I try to complete everything for point caps in the first few days. So, during my weekends I can take it easy, and just do whatever I like rather than being tied up collecting points.

Players consider completing weekly point caps as a regular duty that they should persistently engage in every week. S17, a guild master who plays about 15 hours per week, also confirmed that collecting weekly points makes him motivated to play the game every week. He stated:

> The fact that I need to cap every week my conquest points for arena does actually encourage me to return to the game. I just keep playing arenas to get whatever amount of points that I need to get every week.

Players engage in collecting weekly points and achieving routine rewards regularly because they can spend the points on buying powerful items, such as weapons and armors. For example, in the think-aloud protocol session I asked S10 why he is motivated to collect the honor points. He referred to his characters' equipment and explained:

> It is enjoyable that I can upgrade my avatar by buying these sword, rings, and trinket in exchange for points.

I developed the concept of "feeling motivated" to describe how players are filled with a strong desire to complete point caps for PvP battles and PvE instances every week. Since players are motivated to complete such indispensable goals regularly, they play the game with increased concentration. Affective states such as feeling inspired and feeling motivated for routine rewards are associated with players' intense concentration on the game.

Long term goals require completing several objectives over the course of time. They motivate players to regularly return to the game. Some interviewees mentioned that they have been playing daily quests, weekly quests or monthly quests for a long

time like several months in order to achieve unique rewards. When players try to complete regular quests, they have a clear long-term goal in their minds. Such goals motivate players to return to the game every day or every week. For example, S1 mentioned that he was motivated to log-into the game every morning before going to school to finish daily quests. Some interviewees mentioned that even if they are busy with real life duties such as exams or class exercises, they try to complete regular quests in their free time. Prolonged desire for rewards from long-term goals makes players purposeful and arouse them to play the game regularly.

Completing the "achievement system" is also another long-term goal that players persistently pursue. The achievement system is based on a series of more than 700 individual goals. Some interviewees mentioned that they have been trying to complete the achievement system regularly. For example, S3 described the role of achievement in his intense interest for gaming as:

> I think achievement system is ingenious to keep you in the game. You'd want to do something even repeatedly for achievement points. You want to accumulate them to show off. They will give others a description of how hard you have been playing the game….

The theme of "feeling motivated" is developed to describe players' prolonged desire for achieving long-term goals. Players intensely concentrate on the long-term goals because they desire to achieve the rewards for such goals. For example, players are awarded with whimsical properties such as a unique pet, eloquent mount, a new tabard, or an honorable title when they manage to complete goals of the achievement system. Interviewees confirmed that such rewards strongly motivate them to play the game every week. S7 confirmed that he has been playing the game for several months to obtain a rare mount. He described it as:

> I obtain only several tokens for completing each quest and I am supposed to get about 250 tokens. I have been trying to complete this goals for the mount.

S9 also described how strong interest for a rare mount stimulated him to persistently follow a goal over a long period of time:

> There's this volcanic mount that we have been trying with my friend for a long time. There are a total of about 20 objectives to get it. I am only left with 2 or 3. Some of them are too difficult, but you just keep doing them to get the mount.

In all, when players pursue long-term goals they experience flow because they are filled with strong motivation to achieve a unique reward. Flow experience in this situation is characterized by intense concentration on the game.

The game also offers remarkable rewards for accomplishing some challenging goals such as raiding. When players manage to kill a boss in raiding, the boss drops some unique items such as weapons, armors, and mounts. The interviewees mentioned that they feel motivated to play the game with intense concentration when they plan to achieve remarkable items in raids. Players are quite excited to eventually achieve unique items in raids. S1 confirmed that remarkable gears motivate him to engage in boss fights attentively. He described his strong desire for winning drops as:

> [When a loot drops], first you figure out if the item is an upgrade for you or not. You get really excited if it is something that you need. But, you start to dread that someone else wins it instead of you…At the moment that you type "Slash roll" you're checking inventory of everyone else in the raid to see who is going to roll on it too. If your score is the highest you're just like "Yes!" You become so excited that you get the loot.

As S1 clarified, players feel highly satisfied for being awarded with a unique achievement. S6 also confirmed that the sense of achievement will stay with players even for several days after achieving a unique reward. S8 mentioned that when she wins a unique equipment, she chats about it with her teammates. She even talks to her real life friends about her remarkable achievements if they are interested in online games. Indeed, when the process of enthusiasm for a reward and intense concentration on indispensable goals is paid off with a unique reward, players feel highly satisfied.

Overall, WoW players experience flow in the game when they attempt to achieve indispensable goals such as leveling up a character, upgrading amours and weapons, or collecting weekly points. These goals are a part of in-game requirements for progression in the game. As players feel motivated to pursue such goals they play the game with intense concentration. Players also experience flow when they are pursuing long-term goals such as weekly quests, monthly quests, and goals of achievement system. Players' prolonged desires for achieving unique rewards from long-term goals foster flow experience. The concept of flow experience refers to a holistic experience during which players completely concentrate on in-game objectives. Players also experience temporal distortion and (or) loss of awareness about surrounding during flow experience. Stimulated feelings, such as "feel

enthusiastic" and "feel motivated", encourage players to play the game with intense concentration. However it should be noted that flow experience for achieving various goals and rewards does not merely originate from players' desire for achievement. Difficulty levels of demanding tasks that gradually increase in line with the evolution of characters' abilities and skills, the novelty aspects of the game that stimulate players' sense of curiosity, and players' desire to compete with teammates and stand out as a unique character create a condition that players intensely concentrate on the game, lose track of time or forget about their surroundings.

Partial Engagement with the Game for Light Goals

When players pursue light goals, they feel secure that their avatars will not get killed by unexpected challenges such as mobs, bosses, or powerful players. Players do not completely concentrate on light goals, and hence they are partially engaged with the game. The theme of "partial engagement" is applied for describing an experience during which players have complete control over an in-game task, and they do not intensely concentrate on the game. During partial engagement, players have affective states such as feeling relaxed or feeling over-confident. In other words, players are not anxious that they cannot achieve the in-game goals.

Since the avatar's skills and capabilities exceed the difficulty level of light goals like some daily quests, players feel over-confident that they can easily cope with such goals. For example, when I asked S10, who was developing a new character at level 30, how he feels about the red quests on his quest log menu given that the red color implies that such tasks might be beyond the avatar's capabilities. He confirmed that he does not face hardship for quests at all because after advancing his character he can return to such quests and easily complete them.

Light goals can keep players pleasantly occupied in the game. It is possible that players feel bored and get distracted from the game during idle hours. Light goals can serve as interesting occupations for players and make them amused. For example, it takes more than 10 minutes for a DPS (damage per second, a class of avatars whose primary role is dealing damage) to be allowed to join dungeons with pick-up groups. During this idle time, most interviewees indicated that they pursue quests, collect

resources, or buy and sell goods in the Auction House. For example, in the think-aloud protocol session, S18 wanted to play as the hunter for a dungeon. It would take several minutes to be able to join a group. He took a portal to the zone of Twilight Highlands to farm some leather. He confirmed that such activity helps to pass the idle time. When I further asked him how he feels when he involves in such resource collection, he implied that the long waiting time becomes less boring. He feels pleasantly occupied with making in-game money as he sells collected resources.

By learning different primary and secondary professions such as fishing, cooking, jewel-crafting, blacksmithing, and alchemy players learn skills to gather, make, or enhance items. Some interviewees mentioned that developing occupation skills and collecting resources for their professions make them amused in the game. For example, S10 mentioned that he enjoys roaming around the jungle of Ashenvale and collecting rare resources such as ore. In the think-aloud protocol session, S7, whose avatar is a miner and herbalist, confirmed that it is entertaining for him to go around the world of the game for mining and finding expensive herbs to sell in the auction house.

Light goals are attractive for players who are developing a new character because such goals provide a lot of experience points for advancing a character. The interviewees who were developing a new character had a long list of quests in their quest log menu. Some of interviewees confirmed that quests are attractive not only for their huge amounts of experience points and rewards but also for the amusing storyline of the game. Quests are also attractive to people who play WoW casually because such solo tasks allow time management. Sometimes, players are urged to leave the game quickly for real life issues. If they are in the middle of quests they can more easily leave the game. For example, several interviewees mentioned that they may have to play the game for half an hour because they are studying for an exam. In this case, they prefer to engage in quests because indispensable goals such as PvP battles and PvE events can take a long time. For example, S8 mentioned that when she is studying for the exams, she tries not to play the game for more than half an hour. With such limited time she is just able to complete some quests.

Light goals also allow players who mostly engage in challenging joint tasks such as raiding to take a rest from demanding tasks. When players engage in difficult

raiding, they may get tired as they have to pay high level of attention to in-game events. Some players prefer to engage in less challenging tasks before leaving the game in order to feel more relaxed. For example, S2 described that resource collection is just kind of taking a break from what he did in the raids since he doesn't need to concentrate a lot on gaming. S17 also mentioned that after a long boss fight, he prefers to do some light activities such as transaction in the Auction House to feel relaxed. Some interviewees also described light goals especially transactions in the Auction House as kind of house cleaning to get rid of the useless items that they collected during dungeons and raids.

In all, the findings in this section illustrate that partial engagement is also an attractive experience that some players seek. It is possible that players get tired of devoting complete concentration to challenging tasks for a long time. Light goals such as quests, business transaction in the Auction House, resource collection, and profession development help players enjoy a relaxed feeling in several ways. Players feel pleasantly occupied during idle hours as they engage in collecting in-game resources. Light goals allow casual players to manage their time and to enjoy achieving rewards and points quickly. Hard-core players can engage with housecleaning and light activities after challenging tasks such as raiding and arena battles. Hence, players can modify their moods before leaving the game through light goals.

Unsatisfactory Rewards and Disengagement from the Game

Sometimes, players' concentration on gaming is disturbed when they are trying to achieve rewards. In this section, I discuss how achievement can disturb players' concentration on gaming. In addition, I will elaborate on psychological processes and players' affective states during disengagement experience.

In WoW, some items can be useful just for a specific class of avatars. For example, druid, rogues, and monks usually wear leather armors, whereas death knights, paladins and warriors can wear plate armors. Sometimes, a player does not achieve any useful equipment for her/his avatar's class over several sessions of dungeons or raids. In such situation, most interviewees confirmed that they feel frustrated that they have wasted their times on gaming without achieving any reward.

For example, S19 described that he feels disappointed of gaming if he expects to achieve an item from a dungeon or raid, but he doesn't achieve it. S14 similarly confirmed that he feels bored and gets disengaged from the game if he doesn't achieve anything after killing several bosses in raids. He described his feelings as:

> There are runs with four bosses, and all four bosses drop leather which is not useful for my character. You feel bored that the guild is running for just other players.

Although players feel bored in such situation, they still continue playing the game for the sense of belonging and commitment to the virtual community. However, players are experiencing "sensory disengagement" from the game for not being properly awarded. In other words, rewards as the main stimuli in the game do not excite players to play the game with enough attention, and players half-heartedly go on with gaming. During sensory disengagement, a player's concentration on in-game events considerably decreases. Players' senses involved in gaming, such as sight and hearing, can easily get distracted. For example, S14 further explained that in such situation he might start checking his Smartphone or browse the web instead of paying attention to the raid.

Players also feel frustrated when the rewards are not fairly distributed among group members, especially in pick-up groups. In earlier packs of WoW, all players could volunteer to obtain any sort of items that would drop after killing bosses. Some players would greedily try to achieve any item even if it was not useful for their classes. Hence, other players who were in need of such items would get upset. For example, S1 described that he joined a pick-up group as the tank, and the boss dropped a tank item that he highly needed. However, another player obtained it to use it for an alternate character. S1 described his feeling for such unfair distribution of the item as:

> You get quite frustrated when people roll on loot that they don't need for their main toons…. I got very disappointed of playing the game when he took the loot that I legitimately needed.

Players expect to be fairly awarded for their attempts in the group. Hence, they feel disturbed if other players can easily achieve items that they do not deserve. In this case, players' concentration on gaming is disturbed. Such experiences mostly take place in pick-up groups, and players may even decide to leave the group. For example, some interviewees confirmed that they stopped gaming for that session as they were

disappointed of the unfair distribution of rewards. Therefore, it is possible that players experience "complete disengagement" from the game for feeling frustrated. Complete disengagement refers to situations that players stop playing a particular activity or the game for a session as they have disturbed feelings.

In some large joint activities such as player versus player battleground fights and raids with PUGs, all players receive even a small amount of points for their participation in that task. Sometimes, players feel half-hearted to actively engage in such activities since they are confident that they can win a small part of rewards even for their passive presence in the game. For example, some players would enter battlegrounds, hide in a corner, and start multitasking on their computers. These players feel assured that at the end of the battle they are awarded with some honor points even without playing the game. In think-aloud protocol session, S1 showed some players who are not taking a role in the battleground:

> There are people like this who go to battleground, and they don't play…The point is just for the honor of winning. There is not honor for losing. Every time the team wins, players get the honor. That motivates people to go afk…

Some interviewees used the term "Ninja AFK" to describe the players that leave the group during a battle or a raid with the aim of receiving in-game points effortlessly. Indeed, desire for more points effortlessly tempt some players to completely disengage from the game during a gaming session. In this case, players do not pay any attention to the game for several minutes as they engage in other tasks on their computers such as browsing the Internet, watching a movie, chatting with a friend through instant messenger, etc.

Some interviewees described situations that they were pursuing long-term goals, but they become tempted to overplay the game to achieve such goals quickly. In this case, players have to spend a lot of time on gaming, which might not be an optimal experience. S9 described how desire to complete weekly point caps in a session urged him to play the game excessively overnight:

> When I wanted to max level all my reputation points over one night, I went into battleground and just spend time inside. It turned to damn boring… Maybe you play 1 or 2 battleground and enjoy them. But when you reach the fifth or sixth ones, you will just start to walk around... I made the game screen smaller and started watching a video on another window just to collect points.

In such situations, players have to engage with repetitive, boring tasks as they plan to accumulate more points. Players feel bored and experience sensory disengagement from the game since the stimuli in the game such as rewards and novelty of the game do not stimulate players to pay attention to the game. In other words, while players are playing the game, their senses involved in gaming are distracted from the game. However, players continue playing the game for the sake of rewards. As the literature confirmed, flow experience is adversely influenced by excessive gaming since over-playing can disturb players' normal gaming style and real life such as sleep and social relationships (Wan & Chiou, 2006).

In summary, disengagement can have several psychological processes. In sensory disengagement, players are physically present in the game, but they are mentally distracted from the game. During sensory disengagement, extrinsic motivations such as desire for effortless rewards or commitment to a group keep players in the game despite the fact that players are feeling bored or frustrated. Complete disengagement is another process that players leave the game for a period of time. Players do not have positive feelings and optimal experience during disengagement from the game. Repeated disengagement from the game can make players less inclined to return to the game. However, according to the interviewees' accounts, disengagement does not take place frequently in WoW. There are limitations on the amount of time that players can be away from the game in a joint task; otherwise they get automatically dismissed from the group. In addition, WoW, like a Skinner box, provides goals and rewards that become more attractive in the course of time. So, few players may lose motivations to take active roles in the game.

Punishment as a Provoking Response from the Game

The game punishes players when they play the game recklessly. When players know that they may be punished if they do not play the game with enough concentration, they get more cautious. Majority of interviewees confirmed that they pursue challenging goals with intense concentration in order to avoid punishments such as characters' loss of health and death. When players engage in gaming, there is a flow of interaction between players and features that warn about loss of characters' health level. Such features stimulate players to pay more attention to their characters'

performance and enemies' activities, and play the game more cautiously. Most interviewees confirmed that they constantly take a glance at the health bar on the character-portrait to see if they need to regenerate their powers and health. During the gameplay session, some of interviewees moved the health bar from the top corner of the computer screen to the middle of the screen to be able to constantly check their characters' health level. When players receive a warning message that the character's health is dropping, they quickly react to it. They either run away from the dangerous situation or they use magical spells to regenerate the health level. For example, S7 described that when he notices that the energy level of his Rouge is falling to zero, he immediately uses some buff to regenerate the energy rate. The intense concentration on a task is one of characteristics of flow experience in the game. Players experience flow partly for the punishment features as they become more cautious and react to in-game events quickly.

However, the character's death can sometimes disturb flow experience. If it takes a long time or a lot of efforts to return to the game after the character's death, some players feel frustrated and they get completely disengaged from the game. In some dungeons, when the characters get killed, players have to take a long walk back to their characters' corpse to be able to start playing the game. It can become confusing for some players to find the way back to the dungeon to start gaming. Players feel irritated at long and confusing process to start gaming again. Therefore, they may decide to leave the dungeon as they are completely disengaged from the joint activity. S5 described that when she was leveling, she died in a dungeon. She became very annoyed that she was not able to find the way back to her character's corpse for a few minutes. S7 admitted that he feels frustrated when he has to take a long walk back to the dungeons after being killed. He confirmed that if he dies a couple of times in a dungeon with PUGs, he will leave that dungeon. S4 mentioned:

> When we wipe in raids several times, it’s irritating because we have to waste about ten minutes for the whole group to resurrect, run back, rebuff up, use expensive buffs and potions. So, it affects everybody’s mood.

However, in recent expansion packs of World of Warcraft, players get less disturbed for the character's death. Hence, the experience of disengagement may not take place so often for players with average skills. S6, who has been playing WoW since 2004, indicated that:

> Death in WoW used to take a long time. Earlier, when you died in the world, it would take a long time to run back to your body. There were very few graveyards. It is good that they've changed that recently to make resurrection a little bit faster.

The balance between provocations to pay more attention to the game and disturbed feelings such as frustration, annoyance, or irritation for the character's death is essential to foster flow experience. If there is not any punishment for reckless gaming, players lose motivations to play the game cautiously. Contrary, in situations with severe punishments, players get completely disengaged from the game as they have disturbing feelings. Some of players may even decide to put aside a particular activity that results in frequent death of the character. Some interviewees confirmed that the character's death in current WoW is fine-tuned, compared to other MMORPGs or older versions of the game. There are many graveyards in which players can quickly resurrect their characters. The in-game money that players spend on repairing items is also quite affordable in WoW. In addition, there are some classes of characters that can resurrect themselves and other players in a joint task. So, the character's death in WoW does not lead to disturbed feelings. Indeed, the character's death encourages players to play the game more cautiously.

Exploration Affordance and Players' Sense of Curiosity

Research on how experiences are influenced by desire for exploration and sense of curiosity has a long tradition among psychologists and philosophers. Berlyne (1954) is one of pioneering psychologists who widely explored the effects of, and reactions to curiosity and arousal. He proposed the rudiments of a theory emphasizing concepts like complexity, novelty, incongruity, and surprise (Berlyne, 1954). In an earlier study on educational video games, Malone (1981) discussed that one of the most important features of intrinsically motivating environments such as video games is the degree to which they can continue to arouse and then satisfy players' curiosity. Research on gaming motivations also confirmed that one of gratifying motives for players is their desire to find and know things that most other players don't know about (Yee, 2006). Explorers include a group of players who prefer to understand more about the game and what they can do in the virtual space of the game (Bartle, 1996). I developed the theme of "exploration" to understand how the game can

stimulate and satisfy players' joy of discovery, and how discovering new aspects of the game influences players' affective states and experiential states.

Csikszentmihalyi did not discuss the role of exploratory aspects of a task and people's sense of curiosity in flow experience. In other words, in the eight elements that he described as characteristics of flow experience (perceived challenge and skills, clear goals, focused concentration, merging of action and awareness, loss of self-conscious, control, distortion of time, and intrinsic rewarding) concepts such as people's joy of discovery and desire for exploration are not discussed. Curiosity is defined as the most obvious intrinsic motive for learning new things (Malone, 1981), and perhaps since Csikszentmihalyi was not specifically dealing with learning, he did not include curiosity to the elements of flow experience. However, scholars confirmed that new media users' sense of curiosity and their attempts to learn new things in the virtual space are closely associated with optimal experiences. For example, according to Pace (2004), people's interests to engage in information-seeking behavior foster sense of flow among Web users.

The theme of exploration is conceptualized as action possibilities that the game provides to players to have a novel experience or to feel curious to play the game. In World of Warcraft, several possibilities for the exploration of the virtual space of the game are provided, and in return specific rewards are offered. When players explore the various zone and sub-zones in WoW, they receive achievement points per zone. When players manage to travel around the entire continents in the World of Azeroth such as Eastern Kingdom, Kalimdor, Northrend and Pandaria, they are awarded with meta-achievement, extra points, or "the tabard of explorer". Exploring the environments that the player previously traveled through offers the title of "the Explorer" and a lot of achievement points. Therefore, the game has several features to encourage players to engage in exploration.

Desire for exploration is also fostered through expansion packs and new patches of the game. Blizzard has been attempting to refresh players’ sense of curiosity and desire for exploration through five expansion packs: The Burning Crusade (January, 2007), Wrath of the Lich King (November, 2008), Cataclysm (December, 2010), Mists of Pandaria (October, 2011), and Warlords of Draenor (November 2013). In expansion packs, new classes and races of avatars are

introduced. For example, during my data collection period, Cataclysm was a popular expansion pack and some interviewees talked about the attractive new races such as "worgen" for Alliance and "goblin" for the Horde. The maximum level for avatars will also increase in expansion packs. For example, some interviewees mentioned that when the level cap increased to 85 in Cataclysm, they played the game enthusiastically to reach to the maximum level faster than their guildmates. There are also changes in the environments of the virtual space of the game. For example, in the Wrath of the Lich King, "Northern" as an icy continent was added to the World of Azeroth. In Cataclysm also several new zones for high level avatars are introduced. New dungeons, new raid instances, and new quests will be introduced in the expansion packs. They provide new storyline and new challenging activities. Sometimes, there are major changes in game features in expansion packs, like Look for Raid that highly influence players' gaming style. Expansions and new patches are part of exploratory aspects of WoW. They allow players to have novel experiences with regard to the avatars, environment of the game, joint activities and storyline of the game.

WoW provides a series of festivities that center around holidays and special events in real life such as New Year, Lunar Festival, and Valentine's Day. The New Year event, named "New Year Celebration", is a one day event taking place on December, 31 every year. Similar to the real world New Year, another year is ending in the World of Azeroth. The game invites players to "laud victories and give remembrance to those lost as countless battles have been fought, and numerous accolades achieved" (WoWWiki, 2012). There are quests for New Year celebration, and they offer new gifts. In the cities of the World of Azeroth, celebration for the New Year is going on. There are free drinks all around the city, and there is a big firework show at night. The game describes "The Lunar Festival" as the "celebration of an ancient victory when an alliance of good races (the night elves, tauren, furbolgs, and earthen) defeated a terrible evil called the Burning Legion" (WoWWiki, 2012). The Lunar Festival takes place every year on the real world Chinese New Year. Majority of interviewees mentioned that they enjoy playing lunar festival over the holidays of Chinese New Year. In figure 6, such events are labeled as specific events.

As illustrated in figure 6, there are two components for the theme of exploration: expansion packs/new patches and specific events. In the following

section, I elaborate on how these aspects of exploration influence players' subjective experiences. First, I describe how and why novelty aspects of the game foster flow experience. Second, I discuss how and why players experience disengagement from the game when the game fails to stimulate the sense of curiosity.

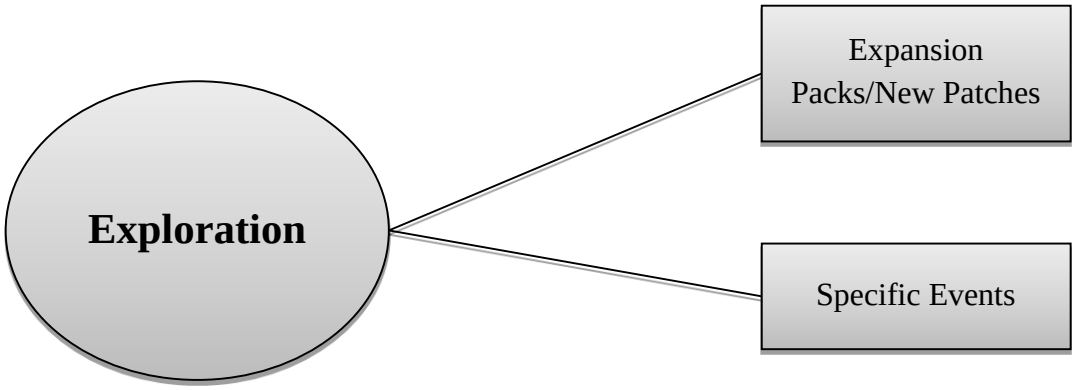

Figure 6. Various Components of Exploration Affordance

Flow Experience for Exploration and Sense of Curiosity

When the content of WoW becomes new in expansion packs and new patches, players become quite curious to explore new aspects of the game. I developed the theme of "feeling curious" to elaborate on interviewees' accounts of feelings like passionate and eager for engagement with expansion packs and new patches. S20 indicated that when Cataclysm, the third expansion pack of WoW, was released in 2009, he was quite eager to go to the dungeons to see how the various aspects of dungeons have changed. This kind of curiosity is labeled as "cognitive curiosity". It describes players' desire to learn about changes in the game before gaming in order to satisfy their sense of curiosity. S7 mentioned that he has been pursuing the storyline of the game since the first series of Warcraft. When the expansion pack of Cataclysm was released, he enthusiastically engaged in quests to see the new events in the storyline of the game. This is also an example of cognitive curiosity as the player has strong desire to satisfy his knowledge about in-game story. In such case, players completely concentrate on new storyline. Another kind of curiosity is "sensory curiosity". Sensory curiosity describes conditions that players are attracted to the game for changes in sensory stimuli such as visual and audio effects, light and sounds, new skills of bosses, and new rewards. For example, S20 mentioned that when he engaged in playing the

new dungeons of Cataclysm, he was completely paying attention to the new mechanics of the bosses, decorations, mobs and new rewards. S16 described his sensory curiosity for changes in the visual stimuli of the game as:

> The main reasons I am attracted to new dungeons and quests in expansions is to look at the new features that have been implemented, the new architecture, and the new mechanics that bosses have.

The integration of cognitive curiosity and sensory curiosity creates a condition that players completely concentrate on the game. Several interviewees confirmed that when they were playing expansion packs, they had spent several hours on gaming without noticing the number of hours spent on gaming.

Players also feel curious to play the game when the geographical zones of the game such as high level zones or the whole continent change in expansion packs. S3 described that he completely concentrated on the game when he was exploring the additional continent of Northrend in the expansion packs because new design and different changes were quite fascinating. S3 mentioned that he would eagerly travel all around Northrend to see different zones. According to S3, the icy world of Northern and snow statues were attractive for him since he lives in a tropical region and he hasn't had the chance to see snow in real world. S11 also described his intense interest for exploring the new geographical zones of the WoW as:

> When you go to new surroundings, you just want to look around and find out what is around you. So, you are very excited.

During the specific in-game events such as New Year Celebration or Lunar Festival, the design and decorations in the virtual space of the game become quite colorful and attractive. In such occasions, the game stimulates and satisfies "sensory curiosity" as there are changes in the light, sound, rewards, and other sensory stimuli of the virtual environment of the game. S5 mentioned that decorations during the Lunar Festival were so fascinating that she spent the whole Chinese New year eve on gaming. She clarified that when she entered the game and realized how colorful the decoration of the city has become, she felt excited to explore the whole city to observe changes. When she started pursuing event-based quests, desire for achieving the new rewards motivated her to continue playing. In addition, casual conversations with pick-up group members about Chinese New Year stimulated S5 to experience flow. She

played the game with intense concentration to enjoy new changes. Several other interviewees also confirmed that they experienced time distortion during the specific festivities. For example, S21 mentioned that he lost track of time when he was playing the game during New Year festival until his family called him for the dinner. Curiosity to explore the new world, sensory stimuli that imply a celebration, the new topics of conversation about real life festival, and novel rewards that are offered once a year in the game create a condition that players experience flow. Flow is characterized by joy of discovery, intense concentration on new events, and loss of awareness about time.

When players engage in gaming for the first time, they experience both cognitive curiosity and sensory curiosity. Players are curious to know what is going to happen in the game before gaming, and hence they start gaming with intense concentration. In addition, when players actually engage in gaming, the various attractive stimuli arouse and satisfy players' sensory curiosity. In cognitive curiosity process, players are motivated to learn or experience new things in order to make their cognitive structures better formed. Some interviewees mentioned that when they started playing WoW for the first time, they expected to experience fascinating events in the game, and hence they started gaming with intense concentration. For example, S22 mentioned that when he bought the game, he expected that there are going to be many different things to explore as his friends talked a lot about the game. When players actually engage in the game for the first time, the various in-game tasks and the attractive virtual space of the game stimulate and satisfy players' sensory curiosity. Sensory curiosity has to do with sensory stimuli in the virtual space of the game such as graphics, music, audio-visual effects, and attractive rewards. S20 described his first experience of gaming as:

> When you just buy the game, it is really awesome because there are so many different things that you can experience and explore…When I just got the game, sometimes I just spent hours playing the game. I just wouldn't go down for dinner even though my mom called me to go down. There were so many interesting things for me to do.

When players plan to engage in a particular activity or a role for the first time, they are motivated to improve their skills and capabilities to get qualified for that role soon. For example, S14 described that when he was trying to take the role of a tank in raids with guild members for the first time, he played the game with intense concentration to complete his character's skill sets. During that particular activity, flow

experience is maintained for the new visual stimuli as well. S14 further explained that when he was taking the role of the tank, he was fully fascinated to the boss' appearance, colors, animation and skills. The first experience of raiding is also a unique experience for majority of players. Most interviewees described that they experienced flow in their first raiding. Players have to try hard to get qualified for raiding because they need to have appropriate items and enough skills. Players' expectations to have an enjoyable, challenging experience in raids motivate them to engage in gaming with undivided concentration. During the first experience of raiding, the various new visual stimuli such as the boss' appearance, his dialogues, his movements, his magical spells, and the conversation among teammates create a condition that players intensely concentrate on the game. Players also lose track of time and surrounding. Several interviewees mentioned that during raiding for the first time they were so concentrating on the game that they forgot how many hours they have been playing the game. For example, S22 described his experience of first raiding as:

> When I played the Dragonsoul for the first time, I became quite attracted to the game. The dialogues that the game heroes are talking to you about are so immersive. Sometimes, your name is inserted in the dialogue, and you listen more carefully. You feel really good about yourself when you know you are part of the storyline.

In all, the action possibilities for exploration are provided in three situations in WoW: when expansion packs and new patches are released, during specific festivities based on real life events, and when players engage in an in-game activity for the first time. Players' both cognitive curiosity and sensory curiosity are stimulated and satisfied for playing the expansions and new patches of the game. As players pursue the news about the expansion pack of WoW several months before the release of the game, they feel more curious to play the game to observe the new changes. In other words, cognitive curiosity at this stage is related to players' motivations to learn about, and directly experience in-game changes in order to make their cognitive structures better formed. When players engage in gaming during expansion packs, their sensory curiosity fosters flow experience. During playing the expansion packs, the new geographical zones, new decorations, new storyline, new bosses and dungeons, new rewards, and some other visual changes stimulate players to intensely concentrate on in-game events. Second, during specific festivities related to real life events, players' sensory curiosity is aroused and satisfied as there are attractive decorations such as

lanterns, firework, free drink, dancing, and so on around cities of the World of Azeroth. In this case, players intensely concentrate on the game, hence, they experience flow. Finally, when players engage in an activity for the first time, the stimulated cognitive curiosity and sensory curiosity foster flow experience. Cognitive curiosity is stimulated before players' actual engagement with that particular activity. As players are motivated to take part in a challenging, new in-game event, they are mentally prepared to play the game with undivided attention. When players actually engage in the activity, various sensory stimuli such as appearance of bosses, attractive architecture of the game, and audio-visual effects contribute to the flow experience.

To conclude, the two types of curiosity including cognitive curiosity (the motivations to experience some attractive activities and events in the game) and sensory curiosity (changes in various sensory stimuli that arouse players' curiosity) highly influence flow experience. The game company stimulates players' cognitive curiosity several months before the release of an expansion pack as player pursue the news about new changes in the game. Since players are kept enthusiastic about the new changes, they engage in the new expansion with intense concentration. During gaming, players experience flow as the game satisfies players' curiosity by the various in-game stimuli. Dimensions of flow experience for exploratory aspects of the game include joy of discovery, intense concentration on in-game events, distortion of time, and loss of awareness about surroundings and real life issues.

Disengagement from the Game for Loss of Curiosity

As discussed above, players' strong desires to have novel experiences and to satisfy their sense of curiosity foster flow experience. However, in several situations the game fails to stimulate players' either cognitive curiosity or sensory curiosity, and hence, players feel bored. In this case, players experience some stages of disengagement from the game. Sometimes, it takes a long time that Blizzard, the game company, releases new patches or expansion packs. Players who have explored various geographical environments of the game lose the sense of curiosity to explore the game. Some interviewees mentioned that the World of Azeroth in Cataclysm is not fascinating anymore because they have explored majority of regions. In this case,

players experience sensory disengagement since the visual stimuli in the virtual space of the game are not novel and attractive any more.

In addition, when players manage to complete challenging tasks such as dungeons and raids repeatedly, they lose interests to actively engage in the game. Several interviewees confirmed that they felt bored of Cataclysm since they have been playing the same raids and dungeons for more than twenty times. S15 described the situation that he experienced disengagement from the game as:

> After playing an expansion for a long time, the game gets boring. It's not as refreshing as when you start playing the expansion enthusiastically. ..There was a time when I stopped playing because there was really nothing new to do. I felt kind of bored. I just stopped for a while, and I waited for Cata to come. When it came out, I returned to the game.

S17 asserted that when his guild members defeat a boss many times like 30 times or more, they lose interests to play the game enthusiastically. He explained that guild members decrease when the game becomes repetitive:

> At the end of expansion in Wrath, it was really boring. So, we went down to ten men. Most of my guild members stopped for a period of one or two months. We really didn't want to play anymore because it became boring. When Cataclysm came out, we came back to the game.

When the game becomes old and repetitive, players start to feel bored even if they have to play the game. Sometimes, desires for achievements encourage players to continue gaming despite the fact that there is nothing attractive in the game. For example, S6 mentioned that he would engage in raids and dungeons that he completed earlier for the sake of obtaining some gold and better items. S17 also confirmed that his guild members continue defeating a boss over and over to be able to obtain items for all group members. When players want to obtain the title of explorer, they have to return to old geographical zones repeatedly. For example, S8 mentioned that when she started travelling around old continents of the World of Azeroth to complete achievement points and title, she felt bored. However, desire for that title urged him to continue gaming.

When players lose interests to continue gaming as they perceive that there is nothing novel and surprising for them in the game, they experience "cognitive disengagement". Players lose motivations to engage in old, repetitive contents of the game as a result of mental process of acquiring knowledge about the game through

previous experiences of gaming. In other words, players develop perceptions and intuitions that the game is boring, and hence they lose motivations to start playing the game. When sensory stimuli do not arouse players to play the game enthusiastically, players experience sensory disengagement from the game. In such situations, despite the fact that players are physically present in the game, they do not play the game with enough concentration as they feel bored of the game. Finally, when players get bored of repetitive and old contents of the game, they may start multitasking during a gaming session, and hence they experience complete disengagement from the game.

In all, when the game fails to stimulate players to explore new aspects of the game, playing becomes repetitive and boring. Consequently, players feel half-hearted to continue playing the game. In this case, they experience cognitive disengagement, sensory disengagement, or complete disengagement. These are three intertwined and non-linear processes that can disturb players' concentration on gaming. However, Blizzard has been attempting to reduce the disengagement from the game by providing attractive rewards such as achievement points, explorer title, and unique items for completing old contents. In addition, through five expansion packs and regular patches the game provides new and challenging joint tasks such as dungeons and raids in order to prevent players' disengagements from the game.

Bonding and Casual Social Ties

In WoW, players can have social relationships with varying strengths and for different purposes. I categorized the various social connections among WoW players based on the action possibilities that social features provide to players. The game allows players to engage in two main types of social connections: bonding social ties and casual social ties. Players can have strong social ties with in-game community members or real life friends. The concept of bonding social ties is borrowed from Putnam (2000) to describe the nature of relationship among close friends and community members in the game and their emotional or substantive support for one another during gaming. Bonding social ties is facilitated through the in-game association named guild. With guilds, players can easily make groups and engage in raiding. The social atmosphere of the guild and high coordination during challenging tasks make the social experience more rewarding. Playing with a guild is a great social

experience as players can find friends, regularly meet community members, share adventures, and request for protection if players from the opposing faction attack them. In addition, there are some advantages for joining a guild even if players do not interact with their group members. Players can benefit from free items, chances for easy group making, access to trade skill masters, fair distribution of drops, and resurrection capabilities. These action possibilities encourage some players to join the guild and try to be a core member of the group for joint tasks.

Players can also have casual social ties with unknown players in pick-up groups. Pick-up group (PUG) is a group of unknown players who cooperate for shared objectives over a short period of time like a gaming session or just one task. Players can easily join and leave this group when they are playing the game. In other words, there is not any sense of commitment to the group to be online at a particular time or continue playing the game up to a certain point. PUGs are usually formed via the match-making systems of the game such as "look for raid" (LFR) or dungeon finder. PUGs are less organized than groups of the guild because players are not familiar with each other, and people with different skills join the group.

When players develop bonding social ties with an in-game association, they become more and more committed to the group over the time. Players are usually respectful to the group members, and they try not to make a mistake during joint tasks. The guild master and members are usually fair for the distribution of loots. Even some players are willing to pass their items to guild members who are more in need of improved equipment. Guild members also try to be on time for scheduled raiding as they feel committed to the group. Players regularly appear for raiding because they know that other guild members need them. S1 described his social commitment to be online for raiding with his guild members as:

> …If you don’t show up, that means they’re going to miss a Healer, and they’re going to have to find somebody else. Maybe they won’t find somebody else…I was pretty punctual and I showed up almost all the time.

Players constantly compare their achievements and performance with their guild members to make sure that they are making good progress in the game. For example, players of the same class such as DPS (damage per second, i.e. a class of players whose role is to attack the bosses) go to training dummies and test the damage

output they can have on different level mobs. During joint tasks, some players use an add-on named "Recount" to measure each group member's performance. The guild masters also encourage players to compare their performance because it helps to improve the proficiency of the group. For example, S17 described how he tries to improve the teammates' performance:

> Among guild members, we do point out mistakes a lot. We try to help them improve their performance. For example, if I see a person is doing low dps, I would say “maybe you can try doing this again, it probably gets better dps”.

Players' performance in guilds can become a subject for mockery as some guild members make fun of players with low performance. For example, S3 described how his teammates tease each other:

> It’s a source of humour if somebody is underperforming. Everybody would say like “hey why are you slacking?” or “what are you doing that you’re not pulling enough dps?” So, we would tease each other over numbers.

Guild members also constantly compare their achievements such as item levels, titles, or mounts with each other. Players with higher achievements feel proud and satisfied as they appear more skillful among guild members. For example, some interviewees mentioned that when they achieve a unique item, they start talking with excessive pride about their achievements in the guild chat channel.

Since the guild is a community similar to real life groups, leaders are needed to organize group relationships. A player named the guild master or guild leader is in charge of administrative affairs of the guild including giving ranks to guild members, giving dragon kill points (DKPs) and other privileges, adding or removing members, and so on. Raiding is a challenging joint task with a number of players from 5 to 40. In raiding, a skillful player organizes coordination and cooperation and provides initial directions about effective strategies to deal with a boss before the game starts. Some of interviewees are guild officers and/or raid leaders such as S3 and S17. Such informants provided valuable information about how the roles like leadership in the group influence player experience.

There are three main roles in WoW: hunting, healing, and tanking. The tank has the role of absorbing damages and preventing teammates from being attacked. Tanks put themselves between the mobs and vulnerable group members, and they

serve as meta-shield. Healers also have a critical role in the community as they use their powers to heal the damaged players and to strengthen teammates' powers. Finally, DPS (damage per second) refers to a class of players whose main role is to apply damages to the mobs and bosses. The role of DPS is also quite critical for the success of the raid party as players with the DPS role use their skills and weapons to kill the mobs. In some particular boss fights, one of these three roles can become more important compared to other players' duties and performance. For example, in some boss fights players with the DPS role have to kill the boss quickly before the boss kills the party. This type of fight is named DPS race. In this race, the tanks have no role of taking the aggros (the aggressive interests of a monster). Leading roles in joint tasks can influence players' experiences.

Difficult joint activities such as raiding require players to have high level of cooperation and coordination. Guild members usually use voice over Internet Protocol (VoIP) devices such as Ventrilo or Mumbai for a more instant interaction during such intensive fights. The guild leader provides instructions, and guild members try to follow the leader in order to be able to defeat the boss. The high level of coordination and cooperation required for challenging tasks can influence players' experiences.

Finally, guild members specially core raiders, usually have playful activities and a lot of casual conversations during gaming. They use the guild chat channel or the VoIP devices to talk about game-related issues, real life matters, or even personal affairs. They tell jokes, use funny emoticon, make fun of each other, and talk about serious real life issues. For example, S8 mentioned that she always has a written chat with her guild members through the guild chat channel. The playful activities and conversations contribute to the social atmosphere of the guild and influence players' experiences.

Playing raids with guild members requires a lot of skills and dedication to the group. When players decide to engage in raiding with guild members, they have to be online at a particular time for the scheduled raids. They even have to continue gaming until they finish some parts of the raid instance. Some players are not able to stay committed to a group of players for reasons such real life duties, time constraints, or personal preferences. For example, some players prefer to join and leave the game at any possible time. World of Warcraft provides flexible social features that allow

players to engage in different group activities. While it is possible to develop strong social ties with in-game friends and guild members, players also have the chance to join PUGs and quickly leave the group after completing the joint task. The game has provided features such as “dungeon finder” and “look for raid” that require less commitment to a group. These features are useful for players who are not able to forge strong bonds with a community for challenging joint tasks. However, the random assignment of players to a groups may cause some problems. Players in PUGs do not have trust to each other, and they may become quite self-centered for the rewards. As players with different gaming motivations and personalities join the group, it is possible that some players display behaviors deviant from the norms of the game. The casual social ties among PUGs can have advantages and disadvantages, and they have different influences on players' experiences.

In summary, a categorization of affordances related to social connections among players is provided in figure 7. There are two main types of social connections among players: bonding social ties and casual social ties. Bonding social ties encourage affordances such as bearing social responsibility, competition among players for outperformance and more achievements, leadership and critical roles in a joint task, high level of cooperation and coordination in challenging tasks, and playful relationship. In casual social ties, there is not any commitment among group members. Disturbance from group members and deviant behaviors also take place a lot in PUGs. In the following sections, I discuss how the various affordances related to social interaction among players can influence players' subjective experiences.

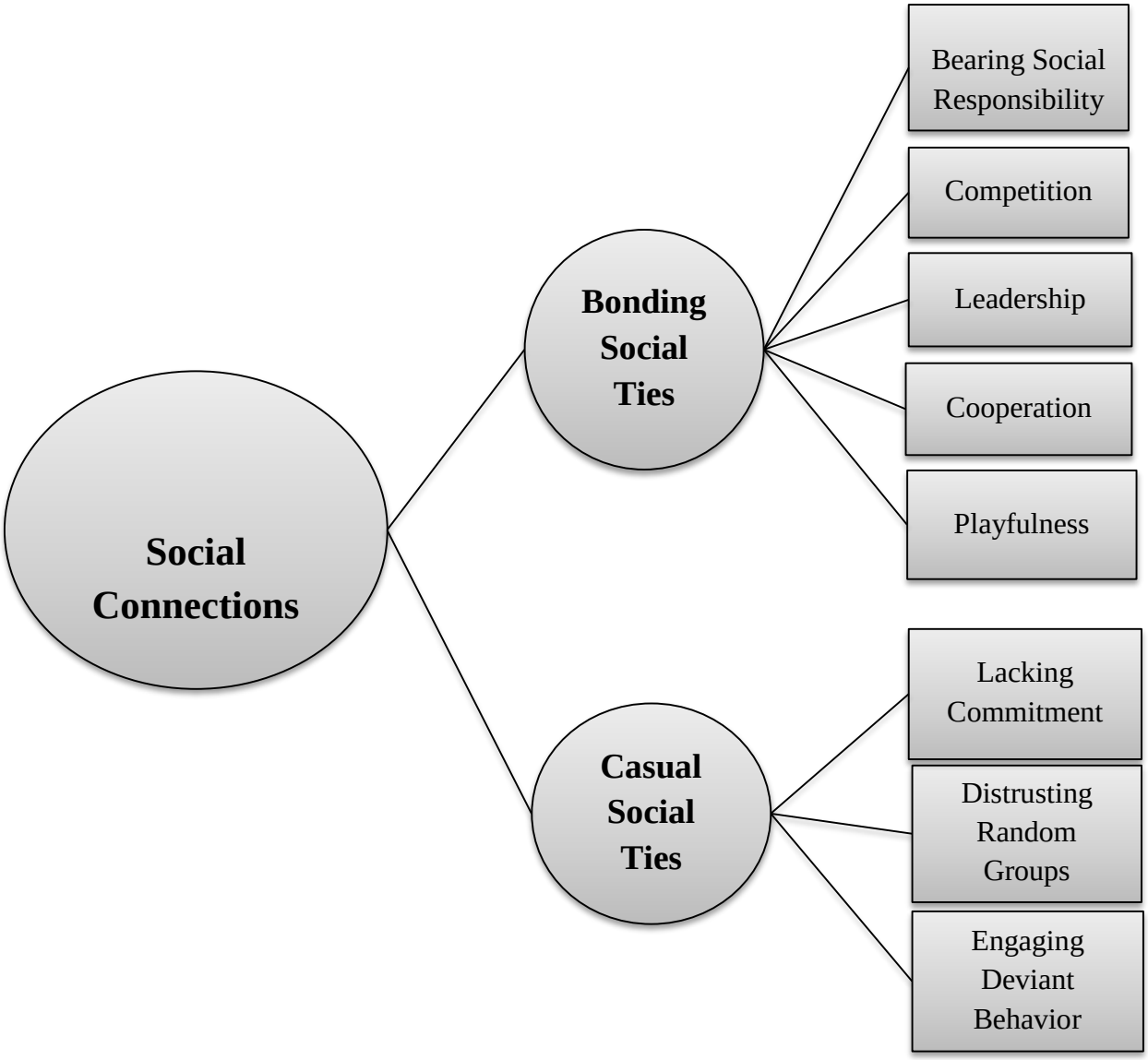

Figure 7. Various Affordances related to Social Interaction among WoW Players

Bonding Social Ties and Flow Experience

Since core members of the guild develop close social ties over a long time, they feel social responsibility to their in-game community. Hence, they play the game more cautiously in order not to cause disturbance to the group. As players intensely concentrate on their in-game duties and roles during joint tasks with guild members, they experience flow. For example, when I asked several interviewees to compare raiding with PUGs versus raiding with guild members, they confirmed that feeling close to guild members and the sense of responsibility stimulate them to play the game with increased concentration. S7 mentioned that in raids with PUGs he doesn't feel

responsibility, and it is alright if his hunter takes aggro (aggressive attacks from the mobs, which should just be taken by the tank). According to S7, even if his character dies or if he causes massive death to the party he wouldn't feel shame for inconsiderate behavior. However, in raids with guild members, if players heedlessly engage in boss fights and cause death to the guild they will feel responsible for the failure. S2 described why he pays more attention to the boss fight when he is playing a raid with his guild members:

> Sometimes, a small slip can kill the entire raid. You need to be quite careful because raiding consists of other people, not just yourself. As it is a team effort, every person that messes up will actually bring down the entire group... By mistakes, you are not just wasting your own time; you're wasting all 24 or 9 other people's time. That's why you need to be more careful not to drag everyone down.

As players feel strong social responsibility to their community members, they will feel embarrassed if they cause death to the entire group. Several interviewees mentioned that they would even apologize to guild members for inconsiderate mistakes that harm the whole group. For example, S17, who described himself as a guild leader, mentioned that he would feel shame for wiping the guild. Wipe is a popular term among WoW players to describe a situation where the entire group members in the raid or party get killed. Flow experience is fostered in raiding with guild members partly for such strong sense of social responsibility to the in-game community. During flow experience, players intensely concentrate on their roles and duties. They are cautious not to get too close to the boss to avoid taking aggro. They also try to use their characters' skills and buffs (temporary beneficial spells or effects) optimally. Several interviewees indicated that they experienced temporal distortion during raiding with guild members. For example, S13 clarified that when he is in a challenging raid with guild members, he will forget how many hours he has been playing the game. Some interviewees reported instances that they experienced loss of awareness about the surrounding during raiding with guild members. For instance, when I asked S2 what happens if someone calls him during a boss fight, he mentioned that he usually puts his phone on the silent mode before the raiding starts. He would even close the door of his room beforehand as well. S3 also confirmed that when he is in the middle of a challenging boss fight, he wouldn't care about issues taking place around him. For example, he wouldn't notice who is coming to his room.

Players attentively try to improve their skills and performance as they have competitive relationship with guild members. When players are playing a joint task like raids with guild members, they compare their characters' proficiency with teammates through third party programs that help measure the performance. Players with the top damage output feel proud to be known as skillful players. S7 mentioned that he plays the game more attentively to have better performance in raids because:

> I would definitely try hard to have the highest DPS [damage per second] in the whole raid. When I eventually do, I'll feel happy to see my damage at the top of the 25 men. It is enjoyable to have a huge number compared to other guild-mates.

Players feel motivated to have optimal performance in the game due to such competitive nature of relationship. Players also feel worried that their teammates may tease them for underperformance during raiding. Such sense of concern encourages players to play the game with intense concentration. S6 described his experience of competition among guild members as:

> I find competition for more damage output the biggest attraction of the game. During the fights or after the fights, we discuss how we can improve our damage. We compare and compete our damage output, and we laugh at each other's damage.

As proficiency is constantly evaluated and commented on by community members and the guild leader, players play joint tasks more attentively. Some interviewees mentioned that they feel worried that they will be replaced by other skillful players for poor performance. For example, S1 confirmed that he plays the game diligently in raiding because he knows that if he is not able to heal the group members properly another healer in the group will take his position. S17 also confirmed that when he is leading the raid, he warns his teammates with low DPS to improve their damage outputs. He stated that they give a chance to the weak players to improve their equipment and skills. If they cannot cope with their low performance they will not be invited to the scheduled raids any more.

Evaluation of players' performance is not merely limited to the core raiders and guild members. In pick-up groups also, people try to have a reasonable proficiency as players with low performance may be kicked out of the group. S19 mentioned that he uses third-party programs to check how players are performing in dungeons or raids. He confirmed that if players with the DPS role are not able to hit the target effectively, or if healers are not able to recover damaged players quickly, the party will wipe. He

mentioned that he immediately votes to kick players with poor performance out of the party. When I asked him if it is fair to dismiss some people from the group for their performance, he reasoned that if some players do not fulfill their roles properly the group will not be able to make progress.

Several interviewees who would play the game with real life friends in small groups of two or three players also confirmed that competition stimulates them to play the game optimally. For example, S22, who started gaming with his classmates and roommates in the dormitory, described that he tries to have better gears and more damage output than his friends as he constantly compares his DPS with them. S20, who mostly plays the game with his colleague, also mentioned that he is attentive not to have lower performance than his friend in dungeons because his friend may make fun of him for his underperformance.

When players are in guilds, PUG parties, or small groups of real life friends, they feel inspired to play the game with intense concentration because they have competitive relationships with co-players. Teammates make fun of player with poor performance. Hence, players should always be concerned for underperformance. The flow experience is partly fostered in joint tasks for such intense concentration on in-game duties to have optimal performance.

When players have to shoulder the most responsibilities for success of the group, they constantly concentrate on their duties. For example, in the gameplay session, some interviewees who had the role of a tank in dungeons mentioned that they have to focus on the mobs' movements cautiously as they have to make sure that their teammates don't take the aggro and damages directly. S4, who has a highly-equipped tank for his main character, described that he warns the DPS players not to rush for attacking the mobs because he may not be able to save them. S19 also confirmed that he concentrates on the mobs’ movement during dungeons with PUGs since he has the important responsibility of pulling mobs and not allowing these enemies to attack other players. Some healers also mentioned that they constantly check the heal frame to make sure all party members' level of health and strength do not drop. The role of raid leadership also stimulates players to pay undivided attention to all happenings in the game. For example, S3 confirmed that he has to concentrate more on the game

when he is leading the raid because he has to be aware of everything in addition to his own performance.

In different kinds of battles in the game, certain skill sets of game characters become more important to the success of group. Some interviewees confirmed that they intensely concentrate on their skills and the enemies' movements as their avatars are what determine the success of a fight. For example, S8 described a race that only players of the DPS class should kill the boss quickly before the boss starts attacking players. She mentioned that it was a 10-men raiding, and as a hunter she felt that her damage output is critical for achieving the victory. She stated:

> Before starting the boss fight, I watched some videos on YouTube to figure out how to use my skills to have the maximum damage output… During the boss fight, I was like 100% paying attention to the boss. I did my best to use all the useful weapons, skills, buffs, debuffs, and so on to hit the boss as much as I can… When we managed to down him, it was such a great feeling…I felt like a hero…Everyone shouting and thanking the DPSes.

In a similar situation, S1 who is main healer for his guild, described that he had the critical role of saving the whole party in a boss fight. He mentioned that they were defeated several times, and he felt responsible to find an intelligent way to keep all players' health level above 10% and below about 25% to trick the boss not to attack each player. He described his experience as:

> …So, this fight was totally Healer fight because the healers were the ones doing everything in this fight. I remember I was paying complete concentration to my duty to keep everyone's health over 10%.

Players completely focus on the game when the success of the group depends on their performance. Such players even try to prepare themselves for the boss fight beforehand as they feel responsible for the success of the group. Players with the leading role in a joint activity intensely concentrate on their duties for the sense of social responsibility, and hence they experience flow. When the guild manages to defeat the boss, players with leading roles feel triumphant as they made victory possible for the group.

During boss fights, players have to listen carefully to the guild leader's instructions because high level of coordination and cooperation is required. Players also closely monitor the boss to notice what is happening during the fight. In this case,

players completely focus on the game for the high level of cooperation that challenging boss fights require. When I asked S4 about situations that he becomes so attracted to the game that he loses track of surrounding, he described raiding as such activity in WoW because:

> … raiding for me is the ultimate expression of co-operation in WoW. I guess immersion has to do with cooperation in raiding because you really have to work closely with your team. It requires high level of co-operation and sort of maximizes your concentration on killing the boss.

Several interviewees also described arena battle as a challenging joint activity in WoW that requires high level of cooperation and coordination. Since arena battles are intensive death-match style fights for a short period of time, some players even use Skype or VoIP devices to coordinate their attacks and defences. S11 described why he intensely concentrates on arena battles:

> …because you really have to have a very good teamwork with your friend in order to win the arena. You have to completely focus on what your friend is going to do, where to run, or what you can do, and what you shouldn't do in order to win.

Coordination and cooperation among guild members in the virtual space of the game leave little space for distraction. When players have a shared goal and their success depends on teamwork and collective efforts, they experience flow as a result of high level of cooperation and coordination.

Guild members may have playful activities and casual conversations during leisure times and raiding maintenance. Some interviewees revealed that they feel more attached to the guild as they have playful conversations with teammates. S17 asserted that he prefers to do dungeons with guild members instead of unknown players because there are "a lot of fun and trash talks". S23 explained that he will miss his guild members if he is not able to log into the game to chat with them for several days. Since players feel close to virtual community members, they talk about various issues with core guild members. The playful conversations among guild members entice players to experience time loss. For example, S3 mentioned that when he is chatting with his guild members during a joint task he doesn't notice how the time is passing. Some interviewees such as S17 and S23 also described chatting with guild members as quite entertaining.

Some game scholars discussed that players' flow experience will be disturbed for other people's physical presence (Cowley et al., 2008; Sweetser & Wyeth, 2005). For example, Inal and Cagiltay (2007) found that when children are playing a game, the presence of classmates around them can break the flow state. If we conceptualize flow as a solo experience, the assumption that social interaction can interrupt complete concentration on video games sounds acceptable. In this research, I have explored players' experiences in situations that collective attempts and high coordination in the virtual space of the game are required. The findings here can address disagreements among game scholar about the role of social interaction in flow experience. It is found that when people in a virtual community are attempting to achieve a shared goal, they intensely concentrate on their duties, and hence, they experience flow. Competition among people in a group to have the optimal performance can also foster flow as people strongly concentrate on the game. Sometimes, people take a leading role in a joint task, and they feel more responsible for the success of the group. People's determination to lead the group to succeed stimulates them to intensely concentrate on their duties. When people engage in a shared, challenging goal, and they have to have high levels of coordination and cooperation for their success, they experience flow. Finally, playful conversations and jokes during a gameplay create a social environment that foster time distortion. Some components of flow experience as a result of social affordances include intense concentration on in-game duties and roles, temporal distortion, and loss of awareness about the surrounding. In all, flow experience is enhanced by feelings such as motivation for outperformance, worries about underperformance, feeling embarrassed for causing disturbance to in-game community members, and feeling close to in-game friends.

Casual Social Connections and Partial Engagement with the Game

Since core members of the guild regularly meet for raiding they develop strong social binds over the time. Such players feel quite attached to their in-game friends so that they miss their friends if they are not able to play a joint task with them for several days. For example, S18 described that he has been playing with his current guild for more than one year. They would meet every Wednesday and Saturday in the virtual space of the game to play raid instances. He mentioned that he knows most of his guild members despite the fact that he never met some of them face-to-face. Players also

feel responsible to be online for the scheduled raids because they know that when they register for a raid session and they do not join the group, the teammates may not be able find another good player. In this case, the whole 10 or 25 players' time might be wasted. For example, S3 described his commitment to the guild as:

> I feel responsible to be online even if I have other things to do because I'm a healer, and we don't have a set date for raiding. So, anytime that majority of the people are online, there'll be Whatsapp message. It means that everybody should go online now, and mostly my attendance is like 95%. Normally, I would drop everything to raid with my guild members.

So, as players do not want to cause inconvenience to their guild members, they have to engage in gaming even if they are busy with some real life issues. In addition, since raid leader punishes inconsiderate guild members by reducing their dragon kill pints (DKPs), players feel obliged to log into the game at a specific time.

When players involve in raiding with guild members, they can hardly leave the group in the middle of the fight even if they have some real life duties. In other words, players are committed to continue gaming up to a certain point before the majority of group members decide to stop the raid session. For example, S15 mentioned that he was not able to leave the raid even though his family called him to join for the dinner. S24 also confirmed that she mostly escaped eating dinner with her family on weekends since raiding schedule and family dinner were at the same time. Several interviewees revealed that this kind of commitment to the guild caused problems for them in real life. S13 indicated that he refused to accompany his sick mother to hospital because he was in a raiding session. Several interviewees clarified that they left the core raid group since they faced some problems for high level of commitment to the guild.

Playing with pick-up groups can decrease commitment to a virtual group. Playing joint tasks such as dungeons and raids with PUGs is quite popular among casual players. Casual players are people who do not invest much time, efforts, or money on playing the game. They cannot be fully committed to group activities and obligations. S20 described himself as a casual player:

> I don't raid [with a guild] because you have to be present at a particular day, at a particular time to be able to raid with them. I cannot put in the commitment because I'm married with kids... Sometimes, I have to go halfway through gaming because the baby is crying and I need to leave the game.

S10 also mentioned that he is not a hard-core player nowadays as he does not have enough time to play more than 10 hours per week. He would even stop playing the game when the load of his studies increases. PUGs allow casual players to engage in joint tasks conveniently. S11, who has turned to a casual player due to school work load, mentioned that raiding with PUGs is helpful for him because:

> Now I don't have so much time to play. I am playing just causally. It is definitely good that I can get into the game and obtain items from the raid finder quickly without spending too much efforts and time on the game.

S22 mentioned that playing with PUGs is a convenient way for him to get into the raid quickly. S1 also mentioned that he is busy with his studies nowadays. Playing with PUGs helps him to spend less time on gaming:

> LFR is definitely good for me because I don't have to spend time on building a relationship with guild members. I can just complete the raid and leave. If you want to form a raiding team, you have to spend time to prepare the group.

As the above quotations illustrate, there are a variety of reasons for players to choose casual gaming style. Some hard-core raiders have turned to casual gaming for real life duties and work load. Some others have personally chosen this gaming style to have a more relaxed experience. For example, some players don't want to be under pressure for high coordination and cooperation in raiding. Some people choose to play with PUGs because they are not able to advance their characters and collect powerful resources such as weapons and armors. In all, some players prefer a gaming style that allows a lot of freedom and flexibility. They turn away from commitment and responsibilities to a social group, and playing with PUGs serves their gaming preferences.

When casual players engage in joint tasks with PUGs, they experience "partial engagement" to the game. The theme of partial engagement is associated with affective states like feeling relaxed as a result of lack of dedication to a group. Lack of pressure for high cooperation and coordination also entices a relaxed feeling and partial engagement. Partial engagement also describes players' complete control over a task when players' skills are to some extent beyond the difficulty level of the task. In this case, players feel over-confident that they can cope with the challenge of the game. During partial engagement, players do not have to fully concentrate on the game

as they can cope with the challenge of a task easily. Also, players do not need to be quite skillful since mobs in dungeons with PUGs are not very difficult.

In conclusion, some players prefer to experience partial engagement with the game in addition to flow experience. Partial engagement has several advantages for players. First, casual players can be engaged in the game and overcome the boredom of solo activities such as quests. Second, players who haven't had the chance to play raids with guild members can boost their self-confidence and get ready for real raiding. Third, when people are playing with PUGs, they can easily join and leave the group, and hence they will spend less time and efforts on gaming. Finally, players can follow the storyline of the game related to the epic battles between big groups of players and violent mobs. In all, partial engagement in the game is associated with affective states such as apathy to the group members' needs and relaxed feelings for complete control over in-game events.

Random Grouping and Disengagement from the Game

As WoW players are randomly assigned to a group for joint activities such as raids and dungeons, they do not know each other. Hence, they do not feel a sense of belonging to the group. They also have quite a low level of social interaction with each other. Compared to situations that people play with guild members, PUG members have no desire for camaraderie and social responsibility. In other words, players feel aloof despite the fact that they are doing a joint activity with a group of players. During the gameplay session, several interviewees indicated that they would hardly say hello, thanks, or goodbye to each other as they feel no gratitude to teammates. PUG members just exchange messages if they are required to express instructions about the in-game events. Therefore, the loose social binds among PUG member do not encourage players to be engrossed in joint activities. S5, who hasn’t had the chance to be a core member of the guild, explained that she feels detached from PUG members. She mentioned that when she completes a task with PUGs, she is more fascinated to the rewards. Indeed, she wouldn’t feel any sense of collective achievement. S17 described his feelings when he has to join PUGs as:

> You really don’t want to spend too much time on dungeons or raids with PUGs. The reasons for you being here is solely items, loots that drop, and point systems. Every time

you join a dungeon to get points which can in turn be exchanged for items. So, we just want to get over it.

Therefore, in PUGs, players feel that they are pursuing a personal goal. In other words, they feel apathetic to teammates' needs and expectations. Several interviewees who are the core members of the guild like S17 and S3 even showed reluctance to join PUGs as they prefer to have casual conversations with guild members during collective activities.

PUG members are also quite self-centered for the rewards. PUGs are formed for a shared goal over a short period of time, and when players leave the group they may hardly see each other again in the World of Azeroth. So, players feel apathetic to a teammate's needs for an item. If players achieve two identical items, they will hardly pass one of them to players who need it. Therefore, such unfriendly environment of the group fosters "cognitive disengagement". When players want to engage in joint activities with PUGs, they expect to face low level of social support and interaction, self-centered behaviors for rewards, and low level of cooperation. They are mentally prepared that the social aspects of joint tasks with PUGs are quite uninteresting. When players start playing the game with PUGs, they try to complete the game quickly, collect their achievements, and leave the group.

Sometimes, players can enormously contribute to the successful and quick completion of a dungeon since their characters have a lot of skills. However, some players are not motivated to consume their resources for a group of unknown players. Some interviewees mentioned that if they realize their teammates in PUGs are not attempting to achieve a shared goal quickly, they feel frustrated. S23 mentioned that he feels disturbed when he realizes that some PUG members do not want to use their various skills to finish the dungeon quickly. He confirmed that it makes him feel frustrated to see some players are just fooling around and not doing a competent job.

Since the game randomly assigns players with any sort of skills and behaviors to a group, it is possible that noobs, loot ninjas, and griefers join the group. Players feel frustrated and consequently they get completely disengaged from the game when they become teammates with such disturbing players. The term noob refers to players who are either new to WoW, or they are ignorant of how to use their characters' skills. Some interviewees mentioned that they are fine with PUG members' mistakes at low

levels like below the levels of 50 or 60 because everybody is trying to get experience. However, at advanced levels, especially at the maximum level, players are expected to be familiar with the game and their characters' skills. Some interviewees mentioned that when players make bad mistakes at advanced levels, it means that they are not familiar with the game. Some interviewees also mentioned that they assume that these noobs have bought their accounts instead of taking the trouble to advance the characters themselves. Advanced players feel frustrated at stupid mistakes in PUGs, and they may leave the group or vote to kick out noobs from the group. For example, S3 mentioned that he would be pissed off to see people who don't bother to learn about a boss fight. He confirmed that he is quite ruthless about such players as he quickly dismisses them from the party. In all, players' level of concentration on the game dramatically diminishes to see unskillful players as teammates. The affective state of frustration is associated with such disengagement experience.

It happens that when players are preparing to start an attack on the boss, a player deliberately shoots the boss, enrages him to attack the party, and causes massive death to the whole group. These people named griefers can be found among the pick-up group members. Several interviewees mentioned that they get frustrated if some players pull the boss before everyone is ready. For example, S22 described griefers as idiots who enjoy disturbing others. When the whole group dies, players have to take a long walk back from the graveyard to their avatars' corpse to revive. Preparation for boss fight and maintenance is time-consuming and boring. Players feel frustrated and experience sensory disengagement from the game for being killed in this way. In other words, while players are preparing for another round of boss fight, their senses of sight and hearing are distracted from the game as they have a feeling of frustration.

When a player is on a PvP realm, it is possible that she or he is hit by one or a group of advanced players from the opposing faction. When the player wants to resurrect, it is possible that an enemy who is waiting near her/his corpse attacks and kills her/him repeatedly. The first situation is ganking, which happens when powerful players kill weak players from an opposing faction. The second instance is called resurrection camping, referring to a situation when a player waits near an opposing player's body to resurrect and easily kills her or him repeatedly. Most interviewees

confirmed that they feel frustrated for being ganked or camped. S5 described her experience of being ganked as:

> I was questing at Twilight Highlands. There was a goblin who kept following me around and attacking me. Every time I resurrected he would come and kill me again. That really bothered me.

S15 described that when he was camped on a weekend he felt extremely frustrated because he was free only on that day to play the game. So, when a disturbing player spoils other players' joy of gaming, players feel frustrated, and they get completely disengaged from the game. Several interviewees mentioned that they had to leave the game for that gaming session as a result of facing disturbing players.

Some players in PUGs greedily volunteer to obtain all the items that are offered in dungeons or raids. In the gameplay session, S6 was playing a dungeon with PUGs, he got frustrated and scorned a player who rolled for an item which was useless for his class. S6 mentioned that he gets disturbed when he sees some players are so mean that they try to obtain everything. WoW players use the terms "loot ninja" or "greeder" to describe players who greedily try to obtain all the items that are offered as reward for killing mobs. The interviewees confirmed that such playing style is not fair. Some interviewees mentioned that they will feel half-hearted to continue the joint activity if there is a loot ninja in the group. Indeed, players experience disengagement from the game when they face such players in a group. S11 described his feelings towards loot ninjas as:

> It pisses me off when I see people who need on all loots that they don't actually need… They just don't reply or ignore you when you tell them. These are people who steal your stuff. You get really pissed about it because you really need the loots.

In summary, when players expect to face unfriendly atmosphere and self-centered behaviors in joint activities with unknown players of the pick-up group, they are mentally disengaged from the game. This type of experience is defined as cognitive disengagement since players are prepared beforehand to have a weak social experience. In addition, when players are in a pick-up group, they may encounter disturbing players. When players see deviant behaviors such as deliberately causing death to the group, taking possession of all items regardless of their use, or killing weak players repeatedly, they feel frustrated, and consequently they get completely

disengaged from the game. In other words, they may leave the group or the gaming session for disturbed feelings such as frustration.

Control Affordances

Research found that perception of control is a factor that can influence people's levels of immersion in interactive media (Klimmt et al., 2007; Wise & Reeves, 2007). Video games are described as a unique medium that can provide high level of control through their interactive features (Grodal, 2000). Perception of control in video games can originate from capabilities to customize everything from the appearance of the avatar to difficulty level of challenging tasks. As described by Klimmt et al. (2007), "being in control means to know about the attributes of a situation, to anticipate its dynamics, and to be able to influence it according to one's goals" (p. 845). In this section, a categorization of essential game features that allow players to customize the game and exert control over it is provided.

In WoW, players can exert control over the game and customize the characters by features originally incorporated to the game as well as by third-party programs called add-ons. During the gameplay session, I asked the interviewees to describe which parts of the game or characters they have customized, and how customization options influence their feelings. Majority of interviewees referred to talent tree as one of important parts of the game that they meticulously customize. The talents are additional abilities or powers that can help players to have a unique character among avatars with the same class. The philosophy to include talent tree to WoW is to allow each player of the same class to develop a slightly different avatar based on specific skills and capabilities. Different talents are beneficial for different tasks such as leveling up the avatar, player versus player battles, or raiding. Without the talent tree system, each class of the character would have identical skills and capabilities, which would remove variety in players' gaming style. Lack of talent tree system also disregards players' preferences for specific abilities. With the talent tree, it is up to the player to design a unique character and become expert in a particular skill. Majority of interviewees confirmed that talent tree influences gameplay a lot, and it helps them to have unique gaming style. For example, a hunter can spend the talent points on Beast Mastery, Marksmanship, or Survival, and each of these skills would have different

functions in PvP (player versus player) battles, PvE (player versus environment) combats, or leveling the character.

Since customization of talent tree can have essential effects on the characters' proficiency in particular activities, most interviewees confirmed that they prefer not to personally design it. In the game forums, some talent builds are proposed as they have been tested earlier for optimal performance. Players usually design their talent trees based on such proposed talent builds. In other words, players do not take the trouble to figure out how to customize the talent tree. For example, S10 revealed that talent tree in WoW has no space for individual customization since some people have done a lot of calculation about what the best talent builds are. He only followed what others recommended in the game forums. When I asked S3 if the talent tree allows customization in WoW, he stated that it is a straightforward part of the game:

> That's limitation of customization in WoW because talent tree has a cookie cutter build. You can go to forums and read about it. They would tell you how to invest your talent points so that you yield more dps or heal…Right now, there is no distinction between an arcane, a frost or a fire mage. They're all just doing the role of dps. While you are just investing talent points into different talent trees, there is no distinction… Now, my talent points are invested based on what I read on a forum.

In all, since players assume that the talent tree highly influences their characters' proficiency, they prefer not to personally figure out how to customize it. Some interviewees revealed that they are not satisfied with customization of talent tree in WoW because the distinctions among talent builds are not clear. In addition, the customization of talent tree doesn't help players to exert more control over the character.

Some customization features can influence the character's performance, but they may not have direct effects on gameplay or gaming style. The interviewees described features like hot-keys, macros, and add-ons as important for reacting to in-game events quickly and conveniently. Generally, a hot-key is a key on the keyboard of the computer which activates a predetermined function or service. In WoW, the hotkeys activate characters' skills or abilities, and they help to begin or end automatic actions. Through the "Key Binding" window available on the Game Menu, players can customize the hot-keys to activate a variety of functions for their characters. Macros allow players to group several commands and execute them by pressing one button on

the keyboard. With macros, instead of using several slash command on the chat channel to perform an action, players can script them to be performed with just one click on the keyboard. Players can define more than 30 macros, which are available to their characters on all servers within one battle-net account. Finally, add-ons also named modifications (mods) can help to customize or improve some aspect of the game's interface. Add-ons can allow players to do a variety of tasks such as adding new buttons to the User Interface, altering the built-in features and party frame, and even completely modifying the standard interface of the game.

Finally, some customization options allow personalization of the game while they have no effects on players' gaming style and performance. For example, players can modify some aspects of the interface such as the graphics or music. Character customization features also allow players to design or modify the avatar based on their preferences. In WoW, players start customizing a character by choosing among the two opposing factions of Horde versus Alliance. Then, players can choose among from more than ten classes such as druid, hunter, mage, paladin, priest, rouge, shaman, warlock, and warrior. Players can also customize the appearance of the avatar such as hair style, skin color, body type, and garments. When players reach the advanced levels, they can customize the appearance of their characters' items like weapons and armors as well.

Based on the interviewees' accounts of game features that allow customization and control over the game, a categorization of control affordance is provided in figure 8. In all, there are three main types of customization options in WoW that allow control over the game or character: options that influence gameplay directly like talent tree in WoW; options that influence players’ performance without directly affecting gameplay like hotkeys; and options that allow personalization of the game without affecting gameplay and performance like character customization features. In the following sections, the effect of such control affordance in players' subjective experiences is discussed.

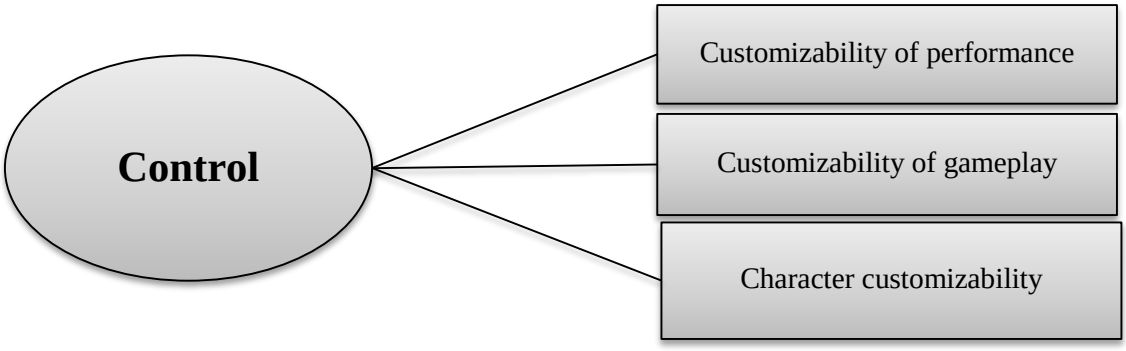

Figure 8. Various Components of Control and Customization Affordance

Control Affordance and Effectance

During playing the game, some customization features allow players to have a sense of satisfaction that they can in principle deal with whatever happens in the game conveniently. This sense is defined as 'effectance'. It refers to satisfaction from being able to impose effects on the intended tasks in the virtual space of the game. The theme of effectance is applied to illustrate the psychological processes of how the control affordance influences players' affective states and experiential states. The term effectance was proposed by White (1959) several decades ago to refer to satisfaction of having imposed an effect on the environment, whether it is turning a light on and off repeatedly by kids or repairing an old car by adults. Among the various customization features described above, options that influence character's performance including hotkeys, macros, and add-ons foster effectance as players feel that they can conveniently cope with the challenge of the game. Most interviewees confirmed that they enjoy being able to control their avatars conveniently by performing every action in the game through hot-keys. Hot-keys allow players to have quick reactions to the in-game stimuli by pressing buttons on the keyboard. Some interviewees mentioned that if they had to move the mouse over different parts of the user interface instead of using hot-keys, reaction to the in-game stimuli would take a long time. S1 asserted that he is satisfied that hot-keys allow him to react to mobs and opposing players more quickly. He would put main spells near W-A-S-D buttons on the keyboard to use them quickly and conveniently. S25 confirmed that he feels that hot-keys help him to have a constant gaming style. As he has been using certain keys for specific actions, skill, or buffs (magical spells) over a long time, he automatically uses hot-keys, without

spending time to remember the place of the keys. Features that allow customization of performance foster effectance as players are satisfied that they can conveniently and quickly react to in-game events. S2 implied how hot-keys foster effectance:

> I customize the hot-keys until it feels second nature for me. So, I do not need to struggle thinking about them because it has already become part of my subconscious. So, there's no need to spend time looking at keyboard with your two eyes down when you press them.

Effectance as a result of customization features means that players are satisfied that they can have automatic reactions to in-game stimuli. In such case, players feel that their in-game movements are convenient and quick. In situations that players have to react to a threat quickly like during boss fights, if they had to spend time to figure out which buttons might help them to deal with the threat, their intense concentration on the game would get disrupted.

Players can use macros to group several commands and executed them by pressing just one button on the keyboard. In this case, macros foster effectance as players impose effects on the character's performance. S10 described his satisfaction from being able to command his avatar through macros as:

> …By making macro, you can really go beyond just "the button-does-this" level to getting three or more functions done in a row by one click. With macros, I feel the computer is doing all the things I want, based on the codes I write.

Macros also foster effectance by allowing player to save the space on keyboard for other actions. S4 explained it as:

> A big part of customization in WoW is the macros because they allow you to perform two or three skills together. I can free up more space in the action bar…I'm not good at typing as my fingers are quite clumsy. With macros I get to do more things better.

In all, macros foster the sense of effectance in two ways. First, players feel that they can make their characters an obedient virtual being or a part of their minds, and their characters perform their commands quickly. Second, convenient use of the keyboard for more skills and spells makes reactions convenient and quick. In this case, players' intense concentration on in-game events would not get disrupted during challenging tasks.

Add-ons are third party programs that majority of interviewees described as critical in their gameplay. Players use add-ons to customize user interface to their preferences. In the gameplay session, some interviewees mentioned that it is somehow disturbing to use others' computers for playing WoW since they are used to their own user interface. For example, S18 described that he used add-ons to move action bars around the center of the screen and to remove the mini map and other unnecessary default features on UI. Customization of UI through add-ons allows players to change the game based on their preferences and gaming style. Add-ons enhance players' concentration on the gameplay since players automatically remember which part of UI to look at for necessary information. S17 described how customization of UI fosters the sense of effectance:

> For my own set-up, I've customized UI such that the character portraits and my target portraits are in the middle. Everything is in the same plane of vision. My spells are at middle bottom, debuffs and buffs are around middle-center, underneath my character. So, it helps me to keep my vision on the middle of the screen.

Add-ons also help players get more information about the goals they are pursuing in the game. For example, several interviewees mentioned that add-ons for fishing or questing help them to find out how to complete the task quickly. Buying and selling goods in the Auction House (AH) become quicker and more convenient with add-ons. S22 described how add-ons allow him to buy or sell stuff in AH conveniently:

> By the add-on of auctioneer, you just hover your mouse over an item. It will tell you what to do with the item. It tells you the market price. You get to know if you should sell it to the vendor, auction it, or even disenchant it. It makes auctioning very easy.

The majority of interviewees confirmed that they have installed a popular add-on named Deadly Boss Mod (DBM) on their computers. This add-on provides vital information about players' in-game performance such as the amount of damage output and the mobs' activities and spells. Gladius is also a useful player versus player add-on that allows players to be more aware of their surroundings. With Gladius, players are able to get more information about opposing players' capabilities such as skill sets and weapons. Players feel that add-ons can equip them with more abilities to monitor in-game surroundings effectively. S17 asserted that his concentration on the boss fight increases for the warning messages he gets from Deadly Boss Mod. S16 also

explained how he becomes more aware about opposing players' skills through Gladius:

> Gladius makes PvP easier. For example I will get to know if the opponent used the trinket… Without Gladius, it is almost impossible to know what kind of skill the opponent is going to use.

In all, customization options that influence players' performance in the game help players feel more confident that they can conveniently handle challenging tasks. I applied the theme of effectance to describe how hot-keys, macros, and add-ons influence flow experience. Flow experience is characterized by the sense of effectance, which is satisfaction from having imposed effects on the character and or on in-game events. Throughout a specific activity like the boss fight, flow experience is maintained as players automatically react to whatever happens in the game through hot-keys, as they quickly respond to in-game stimuli through macros, and as they have increased awareness about in-game events through add-ons.

Character Customizability and Loss of Self-consciousness

Intense concentration is a defining characteristic of flow since during flow attention is totally invested on an in-game event. Hence, action and awareness merge in the absence of spare attention that might allow objects beyond the immediate interaction between the player and the game to enter awareness. One of the objects that might disturb merging of action and awareness is the self; and during flow loss of self-consciousness marks the fading of Mead's "me" from awareness, as attention is completely taken up by the challenges being engaged (Nakamura & Csikszentmihalyi, 2002, p. 92). In other words, people lose reflective self-consciousness and become unaware of themselves as a social actor during flow experience. The embodiment in the virtual characters and strong sense of attachment to them can mark loss of awareness as social actor. In this section, I discuss how character customization options help players forget about their real identity in flow experience.

During the think-aloud protocol session, I asked the interviewees to elaborate on customizability of their characters and how it influences their feelings. Majority of interviewees confirmed that they carefully create their characters. For example, S7 mentioned that he usually spends several minutes on customizing the character

carefully when he wants to create a new character. He would even read the game forums about capabilities of each class of characters beforehand. Some interviewees mentioned that since they can develop their favorite characters by choosing among many races and classes and the two factions, they feel more attached to their avatars. Since players can choose a preferred gaming style through different capabilities of characters, they feel friendly towards their in-game characters. For example, S24 mentioned that as she doesn't like to be close to mobs during fights, she chose a warlock hunter. She uses her pet as a tank and engages in ranged combat. S11 also described that he loves his female 'blood elf priest' because this character is like an angel, and she is quite proficient in healing. In all, as players choose characters that suit their preferences, they feel more attached to them.

WoW provides a feature called transmogrification that allows players to alter the appearance of characters' items such as armors and weapons. Most interviewees asserted that they feel that their characters have become more beautiful as they create an attractive appearance for their characters through transmogrified items. Some interviewees confirmed that they attentively seek items that can be customized through transmogrification feature. S17confirmed that he is really a big fan of the transmogrification feature because he hates his character looks ugly. He is even known among his guild members as a person who would use items for how they look like. S22 explained that when he reached the maximum level, he started hunting for transmogrified gears. He mentioned that he would go to the game forums to find out which gear is nice and where to find it. S11 also confirmed:

> Whenever I have nothing to do, or I am waiting in the queue, I take a glance at my character to see how I can improve on the design…Priests are like angel. I purposely try to get gears that can be transmogrified to make her more attractive.

Several interviewees confirmed that they occasionally go to the barbershop to change their characters' appearance. For example, S5 mentioned that when she sees her character with the same appearance for a long time, she gets bored of him. She would go to the barbershop and pay some in-game money to change her character's hair style. It helps her to have a more attractive character. In the barbershop, players can change the characters' hair color, hair style, and other facial features (such as horns or facial hair). In expansion packs of WoW, new hair styles and more facial features are added to the game to satisfy players who are concerned about their characters'

appearance. Several interviewees mentioned that they like the new features of the barbershop as more options are provided to make the character attractive.

Customization of items is also possible through "forging". Forging allows players to smelt various metal ores that they gather from mining and create an equipment with high resilience. For example, S3 explained that it is very useful for him that he can re-forge and change stats of some items into another stat that suits his playing style. Interviewees also described skills such enchanting, tailoring, and rune-forging as attractive since they can improve the item levels and create better items for their characters. Enchanting is a popular profession among the interviewees, and it allows a player to enchant gears and craft a variety of items. Through enchanting, players can augment the stats of gear such as strength, intellect, and resistance. They can also increase spell damage, healing abilities, or the speed of magical spells. S6 confirmed that he loves some of his character's items as he spent a lot of resources to enchant them.

As players can customize the characters' armors and weapons, they feel completely attached to their virtual beings. Majority of interviewees confirmed that they love their characters, and they feel close to their virtual being. S17 mentioned that during gaming he would zoom out and enjoy seeing how his character is performing. Several interviewees mentioned that they are so attached to their characters that they paid the cost of character transfer to change the race or server instead of developing a new character. S3 revealed that he has been playing WoW with one character for a long time, and he feels uncomfortable to start a new character. He explained that he was initially in the alliance faction, but when he decided to join the horde faction to accompany his friends, he didn't make a new character. He paid about $60 for the character transfer. It reveals that some players are so attached to their characters that they do not like developing a second avatar. S6 also described attachment to his character as:

> I started with him as a Night Elf. He is a carryover from Warcraft 3. I changed the race several times. When Worgen became available, I race-changed it for DPS.

Attachment to a character helps players to put aside the real self. Real self can turn to a disturbing object during the immediate interaction between the player and the game. As a result of the embodiment to the virtual character, when players intensely

concentrate on the game and experience flow, the real-life personal identity does not interfere with complete concentration on the game. Loss of awareness about real identity which is a characteristic of flow experience is fostered through character customization features, transmogrification, forging, and barbershop in WoW. In all, affective states such as sense of attachment and feeling close to the avatar help players to have constant flow experience.

Customizability of Difficulty Level

In WoW, players with different skills can find tasks with appropriate difficulty levels. Some players have quite advanced characters, and they are skillful in gaming. They may prefer to engage in more challnging activities. Some players may not be able to spend enough time on advancing their characters, and hence their character's weapons and armors are not fully upgraded. If such players engage in challenging taks their characters will easily get killed. The game allows players to choose activities with various difficulty levels. Csikszentmihalyi (1990) described the balance between people's skills and the challenge of a task at hand as a key characteristics of flow. Based on the two concepts of skill and challenge, I have categorized game affordances that influence players' subjective experiences. I developed the theme of "customizability of difficulty level" to describe how the game allows players to adjust the level of challenge to their skills. This theme is applied to discuss how players feel when they can match the difficulty levels of game activities with their skills, and how such affordance influences players' affective states and experiential states.

One of game features related the affordance of "customizability of difficulty level" is heroic mode of dungeons. Players can increase the difficulty level of dungeons by choosing the heroic mode. This setting can be selected from the dungeon finder menu. Initially, the only mode available to players for dungeons and raids was the normal mode. Some interviewees mentioned that they were not inspired to play the game with intense concentration because dungeons and some raids became quite easy and boring. When the feature of heroic mode was incorporated to the game in the expansion pack of Cataclysm in 2010, some players became more motivated to play the game with increased concentrations. In heroic dungeons, mobs and final bosses have levels higher than players, and their difficulty levels are much greater than their

levels indicate. Bosses have higher health levels, hit harder, and have additional skills. Even trash mobs can hit well-geared plate tanks quite hard. Hence, fully upgraded items are needed to deal with bosses in heroic mode. Final bosses in heroic mode use various skill, and they often have new, complicated abilities. These bosses drop items with better quality in comparison with the normal mode bosses. If players have appropriate items, they feel confident to choose the heroic mode of dungeons. For example, during gameplay session, S13 chose to play a heroic dungeon. He explained that he can easily play such dungeons because his shadow priest is well-geared.

The second feature related to customizability of difficulty level is arena battlegrounds. The game allows players to engage in several types of player versus player (PvP) battles with different difficulty levels. Arenas are areas in the World of Azeroth that players can make a group of 2, 3, or 5 players and engage in death-match style of competition. Instead of pursuing a set of goals to achieve rewards, arena PvP battles are based on a team's ability to obliterate another team. Since in recent expansion packs of WoW, the arena PvP system groups teams of equal size and ability, players are not able to easily defeat the opponent. Hence, players have to completely concentrate on opponents' skills and performance in order to be able to defeat them. S6 confirmed that arena PvP battles are obviously a challenging part of WoW that few people would feel confident to play because they require high personal skills and appropriate gears.

Contrary to arena battles, regular PvP battles are Horde versus Alliance large-scale fights that most players can engage in. Achieving different objectives such as capturing the flag, burning down enemy's towers, and preserving resources determine the winner in PvP battles. All players, regardless of their characters' level and equipment, can engage in PvP battles because such fights are not very challenging. In addition, players do not need to highly coordinate and cooperate with teammates in normal PvP battles.

Finally, with the expansion pack of Cataclysm the game provided the feature of "Raid Finder" to allow less capable players to engage in raids and boss fights. In earlier versions of WoW, players had to personally make big groups of 25 to 40 players for raiding. Majority of interviewees confirmed that it would take a lot of efforts and time to make such big groups. With Raid Finder, the game randomly

assigns players to pick-up groups of 25 players for raiding. Raid instances provided by Raid Finder are easier than normal modes of raids. These raids are named LFR raids, and they are attractive to less competent players. Players who are not able to constantly upgrade their characters' armors and weapons in normal raids can upgrade their items through LFR raid. Through LFR raid, players can also pursue the storyline of the game without commitment to a virtual community. However, items that drop from killing mobs and bosses in LFR raids may not be as good as drops for normal and heroic modes of raids.

In figure 9, a summary of the three features related to customizability of the difficulty level is provided. Customizability of difficulty level is provided through heroic mode versus normal mode of instances, arena versus regular battlegrounds, and raiding with guilds versus LFR raiding. In the following sections, I explain how customizability of difficulty level influences players' affective states and experiential states. In addition, I discuss what kinds of players choose challenging or less challenging tasks in WoW.

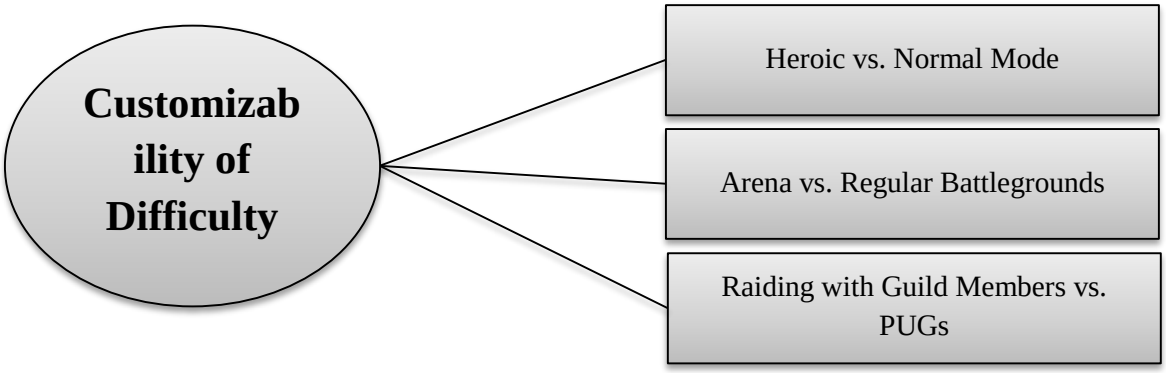

Figure 9. Various Features Related to Customizability of Difficulty Level

Competent Players and Flow Experience in Challenging Tasks

As discussed above, the game offers several challenging tasks that just some players would feel confident to engage in. I tried to identify characteristics of players who prefer to play more challenging contents of the game based on their activities during the gameplay session, the interview transcripts, and responses to the questionnaire of gaming experiences. I define these players as people with high "game

self-efficacy". The theme of "game self-efficacy" refers to players' conviction that they can successfully complete intended tasks in the virtual space of the game. Bandura (1977) proposed the concept of self-efficacy several decades ago to refer to people's conviction that they can successfully execute the behavior required to produce the outcomes. According to Bandura (1977), when people strongly believe that they are able to cope with a given task or situation successfully, they are highly motivated to engage in that task, and they devote more efforts to complete it. Bandura (1977) discussed that self-efficacy is derived from several sources such as sense of superiority during a task and performance accomplishments. Interviewees who showed high game self-efficacy for challenging tasks confirmed that they usually play the game consistently every week to upgrade their equipment. If players are not able to upgrade their characters' items regularly they will not be successful in new raids. Majority of interviewees who were comfortable with challenging raids are core members of the guild. In other words, they play raids with guild members at least two times per week. The analysis of the interviewees' demographics also confirms that these players have been playing the game for several years. Game self-efficacy is enhanced when players achieve high skills, high gear scores, and top character ranking in a realm or on a server. S6 admitted that he feels comfortable with arena PvP battles since his character has good resilience, and he is over-geared. He confirmed that he doesn't feel anxious that his character gets easily killed in arenas. He described his feelings of self-efficacy in the game as:

> …That feels good in a way that you're not afraid of dying. You're not so afraid of not being able to perform to other's expectations.

S18 explained that heroic contents are manageable for him because:

> With this character ranking, I get to know where I stand in the realm itself or on the server itself. I even get to know where I stand among the Priests in my realm. I think that it is quite a deciding factor to play contents on heroic mode.

Some players with high game self-efficacy even prepare themselves for the boss fights in raids beforehand by reading about the boss mechanics in the game forums. Several interviewees confirmed that they try to get information about the skills of bosses before playing the raid as it helps them to be more efficient. For example, S25 explained that for dungeons and raids, there is a dungeon journal in the game, which serves as a guide. He feels more confident when he reads about the skills of the

boss. S18 also confirmed that if he doesn't get information about the mechanics of the boss he feels quite uneasy during the raid.

When players with high game self-efficacy engage in a challenging task, they feel quite motivated to complete the task even if they are defeated several times. As Bandura (1977) discussed, high self-efficacy motivates people in advance to achieve a goal that they started. Most interviewees with high game self-efficacy mentioned that when they plan to clear the content of a raid, they play the game more carefully. S18 mentioned that when his guildmates attempted to defeat a boss on heroic mode, they failed several times. However, since they were decided to do it, they spent a lot of efforts and time to finish it. S6 also described his teammates' resolution to kill a boss as:

> Sometimes, we are not able to down the boss because some of us haven't got the hang of the boss mechanics, and we just screw up. Under those situations, we will try our best to explain the fight to everyone. We make sure that everyone knows the fight. In that situation, we know if we keep trying eventually we will kill the boss.

Players' expectations to be successful, which originate from high game self-efficacy, motivate them to be more attentive in challenging tasks. Despite high game self-efficacy and capabilities for completing difficult tasks, players may still be uncertain about the outcome of their attempts. In other words, players can have a feeling of anxious uncertainty about what may happen in challenging tasks. I define such feeling as a "state of suspense", which motivate players to intensely concentrate on the task at hand. S17, who is a guild master, described his state of suspense in raids as:

> Sometimes, in boss fights we are very close to kill it, but it is also probable that we do not get it killed. Sometimes, occasionally you make a mistake and you fail that night to kill it.

S21 also described his feeling of suspense in raids as:

> In the middle of boss fight, your hopes get higher because you think you can down the boss. You get more stressed, and you focus more because you want to make sure that you don't make any mistakes. Then, when the boss is about to die, you really get excited. You know that he's going to die soon, but still you are not sure. You should not make any mistakes. All of you should concentrate and focus.

For the state of suspense, some players even try to reduce disturbances of surrounding before starting the raid in order to be able to completely concentrate on

challenging tasks. For example, S15 mentioned that he would avoid talking to any person around him when he is doing a new raid with his guild members. S16 also explained that he asks his family members not to come to his room during arena battles because he is concerned that he may lose.

Several experimental studies demonstrated that the balance between skills and difficulty levels of the game across different genres of video games increases flow experience (Jin, 2012; Limperos et al., 2011; Weibel et al., 2008). In this section, I tried to identify the psychological process of flow experience during challenging tasks instead of simply concluding that the balance between challenge and skill results in flow. It is found that when players with high game self-efficacy engage in challenging tasks, they experience flow for several reasons. Since players with high game self-efficacy expect themselves to successfully achieve a goal, they are motivated beforehand, and hence they completely concentrate on gaming. Players also pay undivided attention to the challenging task since they are concerned that they may not succeed. In other words, players are kept in a state of suspense about their success. In such situations, players' level of skill and the difficulty of the game are both high, and players experience flow. Flow experience is characterized by balance between skill and challenge, intense concentration on the game, time distortion, and loss of awareness about surrounding.

Less Challenging Tasks and Partial Engagement for Casual Players

Sometimes, WoW players do not have advanced characters, or their characters do not have fully upgraded equipment. These people are not qualified for challenging tasks such as raiding with guild members or heroic dungeons. I defined such players as "less competent" players compared to players with high game self-efficacy. Several interviewees who were developing their first character mentioned that they mostly play normal dungeons because their characters do not have appropriate item levels for heroic mode of dungeons. Some players are not able to stay committed to a guild to be online at a particular time for raiding. These players that I earlier described as casual players choose to play raids with pick-up groups. Some players personally choose to play easier activities because they do not like to be under pressure for high coordination and cooperation in challenging tasks. Such players prefer a relaxed

gaming experience to change their moods. For example, S11 mentioned that when he comes back home from the work, he plays WoW for an hour or so to change his mood. He confirmed that he doesn't like feeling stressed about success in challenging in-game activities. Finally, some players are not able to find people who are capable of normal raiding. Core members of the guild hardly allow unknown players to join them for raiding. Some interviewees who were not core raiders confirmed that if they want to play normal or heroic raids they have to find skillful players. For example, S10 mentioned that it takes several months to form a guild with capable players for raiding.

To allow less competent players to match their skills with difficulty level of the game, World of Warcraft provides features like “Look for Raid” that requires less efforts and lower level of commitment to a group. Players do not need to have high skills to defeat the boss in LFR raids. Since LFR raids are unchallenging, less competent players mostly choose to play them. In this case, some players feel over-confident that they can easily cope with the difficulty level of the task. In addition, players do not have to spend a lot of time and efforts on gaming. S22 mentioned that LFR is a convenient way for him to get into the raid quickly. He further explained that LFR helps him to build up his game self-efficacy:

> …I can reach the standard of the game through LFR. Raid with PUGs is easier compared to 10-men raids, and it helps me to get better gears faster. It is easy to learn the boss fight, and you can gear faster. You are more likely to play more often because you know you won’t waste all the night just wiping on a raid.

I developed the theme of "partial engagement" to describe less competent players' experiences in easier joint tasks such as LFR raids, regular PvP battles, and normal dungeons. Partial engagement is an experience originating from feeling relaxed and feeling over confident. Players do not need to pay undivided attention to the game because they feel confident that they can deal with the difficulty level of such tasks. They do not feel stressed to play the game optimally or to have high level of coordination and cooperation with group members. Players can even leave the game in the middle of joint tasks given that they do not know pick-up group members. Less challenging tasks allow players to build up their game self-efficacy and get prepared for difficult tasks such as real raids with guild members.

Difficulty Level of the Game and Disengagement from the Game

When players with high game self-efficacy engage in a challenging task, they spend a lot of efforts on the game to achieve it. However, it is possible that some contents of the game are far beyond players' capabilities. If players do not make gradual progress in achieving a challenging goal despite attentive efforts, they start to get frustrated. S17 indicated that his guildmates get demoralized if they are not able to defeat a boss after spending several hours on it:

> Sometimes, we don't have a progression on a raid. For example, we spend three hours straight on a boss, and we just keep dying, dying, and dying. We get really tired… Some of my guildmates get pissed off and say "oh my God this is stupid".

Players disappointedly disengage from the game as a result of frustration for unsuccessful attempts. S7 described his affective state and disengagement experience in challenging boss fights as:

> We tried to finish the boss, but eventually we wiped many times. Then, there were many people who couldn't commit to it since it was getting late. Some of them left, and we couldn't complete it without enough members. Eventually, we just left the raiding session and decided to try again next time...I felt that it was a waste of time.

When players are not able to defeat the boss despite a lot of efforts, their group relationships also get affected. In pick-up groups, some players look for incompetent players and vote to kick them out of the group. In guilds, some players may start complaining about unskillful players. Even, some guild members may decide to leave the guild if they realize that the group is incompetent. S9 mentioned that if they are not able to defeat the boss after spending several weeks on it, his teammates start to blame each other. In such case, players feel frustrated and lose motivations to continue playing the game with their current group. It is similar to the situation that Csikszentmihalyi (1990) described as stressful. If people feel that a task requires more challenge than the level of skill they possess, they are likely to feel anxious since they are not able to cope with the task.

It is also possible that players accomplish a so called challenging task with average attempts. In this case, players feel that their skills are much greater than the level of challenge in the game, and hence they start to feel bored. Several interviewees confirmed that when they manage to defeat the bosses of some raids easily, they feel

disappointed of the game. S2 revealed that he is not motivated to play the game as a hard-core player in recent expansion packs because downing the bosses has become easy. S4 stated that his guild-mates feel bored of bosses that can be defeated after the first attempt. He explained:

> Cataclysm is all about "Deathwing". The first time when we tried it, we were quite excited. But, when we reached the final part to kill the boss head, we were quite disappointed to see how easy it was to kill him.

In all, players' flow experience can be disturbed for the mismatch between skills and challenge. When people with high game self-efficacy attentively make efforts to complete challenging tasks, and they make no progress at all, they feel frustrated. In such situation, players experience complete disengagement from the game as they disappointedly leave that particular task for the time being. Contrary, if players are prepared to face high level of difficulty in a tasks such as end-game boss fights, but they manage to achieve it with average efforts, they feel disappointed of the game. I such situation, players lose motivations to play that particular activity with undivided attention anymore because they faced a boss with average difficulty level. In addition, players' lose motivations to intensely concentrate on the game during playing that particular task, and players' senses involved in gaming get distracted from the game.

Summary

This chapter analyzes how interactive affordances of MMORPGs influence players' affective states and experiential states. I elaborated on five categories of interactive game affordances. Achievement is one of WoW's action possibilities related to goals and rewards. Through several types of goals and rewards, namely, indispensable goals, long-term goals, routine rewards, and remarkable rewards, the game encourages players to intensely concentrate. When players pursue challenging goals and try to achieve a unique reward, they experience flow. Flow here is characterized by intense concentration and time distortion. New patches and expansion packs encourage exploration, through which players can discover new aspects of the game. Players experience flow when they are provided with new design aspects, new storyline, sensory stimuli, or surprising rewards in new versions of the game. The

game affords sociability by allowing bonding and casual social ties. Strong social ties among guild members foster flow, as the sense of community urges players not to make mistakes that cause the deaths of guild members' characters. Also, the competitive nature of relationships among guild members and the cooperative nature of challenging tasks in raids make playing WoW an optimal experience because players attempt to perform their duties and roles proficiently. When players have a leadership role, they completely concentrate on in-game events, and they experience flow. The game also affords control through customization of characters' performance. When players can change their characters' movements and skills based on their preference, they feel confident that they have more control over in-game events. Players with different skill levels can select among various features that suit their skill levels. In this chapter, I illustrated the various affective states that players experience during engagement with interactive affordances of the game. I also described various components of the flow experience, partial engagement, and disengagement.

CHAPTER FIVE CONCLUSION

Introduction

In this chapter, I summarize the findings and discuss their contributions to the literature on player experience. Player experience in this research includes three experiential states: flow experience, partial engagement, and disengagement. Specific characteristics of each experiential state as a multidimensional construct are provided. In a simplified, abstract model of player experience, the dynamic process of how actual engagement with interactive game affordances influences players' affective states and experiential states is illustrated. Based on the review of conditions that may disturb players' compelling experiences, specific suggestions to video game designers are provided. Finally, limitations of this research and implications for future research are discussed.

Experiential States as a Multidimensional Construct

The findings of this research can provide insights into the applications of flow theory to new media research. In the original flow theory, flow is treated as an individual experience given that the main elements of the flow experience describe a personal experience (Nakamura & Csikszentmihalyi, 2009). However, Csikszentmihalyi (1997) confirmed that “interactions have many of the characteristics of flow” (p. 42), and when people share common goals, “it is possible to experience the flow that comes from optimal interaction” (p. 81). As Hoffman and Novak (2009) identified, many studies have measured the effects of users’ personal interaction with new media on flow, but these studies failed to discuss how social interaction among users can influence the flow experience. In game research also, some scholars have defined flow as an individual experience and noted that other people's presence during gaming can be a distraction from complete concentration (Cowley et al., 2008; Inal & Cagiltay, 2007). The findings of this research indicate that the quality of social interaction (casual social ties versus bonding social ties) and desire for achievements (desire for individual achievements versus desire for collective achievements) are two main factors that can influence players' flow experience. For example, when players forge strong relationships with members of an in-game association, they have a strong

sense of responsibility to the group. In such cases, they intensely concentrate on their characters' roles and duties to have an optimal performance, and hence they experience flow. It can be concluded that the flow experience by no means must be an individual experience, as far as the tasks people are involved in and the rewards they pursue depend on the performance of fellow game players. It is essential that research on new media users' experiences conceptualize contextual factors of the flow experience based on social affordances as well.

My research extends flow theory by illustrating that social interaction plays a key role in flow experience. In the original flow theory, flow is treated as an individual experience given that the main elements of the flow experience describe a personal experience (Nakamura & Csikszentmihalyi, 2009). Csikszentmihalyi elaborated on individual experiences such as chess playing and surgery and he didn't conduct a research on tasks with shared goals. In the original flow theory, Nakamura and Csikszentmihalyi (2009, pp. 195–196) described eight individual factors related to flow experience such as perceived challenges, clear proximal goals and immediate feedback about the progress being made, intense and focused concentration on what one is doing in the present moment, merging of action and awareness, loss of reflective self-consciousness, distortion of temporal experience and experience of the activity as intrinsically rewarding, Csikszentmihalyi explained that two key terms in flow experience include individual skills and the challenge of the task at hand. Indeed these elements of flow theory is essentially related to individual experience instead of collective experiences. In a later paper, Csikszentmihalyi (1997) discussed the role of social interaction in flow experience by concluding that "interactions have many of the characteristics of flow" (p. 42), and when people share common goals, "it is possible to experience the flow that comes from optimal interaction" (p. 81). The results of my search for articles about flow experience and group or flow experience and social interaction indicate that there is not any research on flow experience during shared goals such as raiding in online games. Most studies on social interaction in online games elaborated on various types of social interaction that players can engage in. For example, Yee (2006) subcategorized social component of online games into socializing (having an interest in helping and chatting with other players), relationship (the desire to form long-term meaningful relationships with others), and teamwork (deriving satisfaction from being part of a group effort). The findings of this research

confirm that people experience flow in their minds so that they forget about time and their surroundings when they are in optimal social interaction with other people. In my research I found that optimal social interaction refers to talking and collaborating about a shared goal like defeating difficult bosses in raiding or defeating opposing players in PvP battles. One major motivation in flow experience is intrinsic motivations, which depends on people's interests and pleasures, when an activity is undertaken for its own sake (Voiskounsky, 2008). When players are involved in social interaction with fellow game players and they interact with them about a shared goal, intrinsic motivation of accompanying their in-game friends in the form of bonding social ties results in flow experience. Indeed desire for comradery and optimal performance in accompanying in-game friends contribute to flow experience in players' mind so that they have distortion of temporal experience that is a sense that time has passed faster than normal and players forget about their surroundings. During social interaction in joint tasks such as raiding players experience loss of awareness of oneself as an individual actor and a sense that the group can control what happens in the collaborative. It can be concluded that the friendly atmosphere of a task and desire for accompanying group members can result in flow experience. For example during collective goals with unknown group members such as casual social ties players are not concerned about comradery and shared goals so that their experience is mainly influenced by extrinsic motivations such as rewards. It is more insightful that further research explores how people experience flow during shared goals as a result of social interaction with their friends such as group activities like football playing and volleyball playing. Still need to add new material)

Because this research uses qualitative methods, which aims at contributing to theory from empirical data, rather establishing the general validity of empirical observations, I draw from the interviews and observation of participants' behaviors to suggest areas that have been overlooked in Csikszentmihalyi flow theory. Participants in my research are experienced players who had played all three expansion packs of WOW and are active members of their game guilds. The profiles of participants cover a range of players who have various level of gaming history, gaming skills and age range.

Based on the interviewees' accounts of several factors, including level of concentration on in-game events, level of perceived control over in-game events and

characters, balance between players' skills and difficulty level of the game, time distortion, and loss of consciousness about surroundings, three main experiential states are distinguished: flow experience, partial engagement, and disengagement. In the next section, I elaborate on various psychological compartments of these three experiences.

If we want to precisely understand players' expectations, in-game behaviors, and subsequent behaviors, it is essential that we explore their various experiential states (Elson, Breuer, & Quandt, 2014; Poels et al., 2007; Poels et al. 2010). Based on the interviewees' accounts of several factors, including level of concentration on in-game events, level of perceived control over in-game events and characters, balance between players' skills and difficulty level of the game, time distortion, and loss of consciousness about surroundings, three main experiential states are distinguished: flow experience, partial engagement, and disengagement. Here, I elaborate on various psychological compartments of these three experiences.

Flow Experience

In all, I consolidated my findings about the psychological compartments of the flow experience. The results include four elements: intense concentration, loss of awareness, joy of discovery, and sense of effectance. It can be concluded that there are a number of elements such as joy of discovery and intense concentration for bonding social ties among players that are not addressed in Csikszentmihalyi's original flow theory, but they nonetheless characterize flow in gaming experiences.

I applied the theme of flow experience to describe one of the essential experiences that players had as a result of engagement with interactive affordances of WoW. Flow is characterized by several psychological compartments. When some of these compartments are available, the player experience can be described as flow. The first characteristic of flow is intense concentration. As players intensely concentrate on indispensable goals and long-term goals to achieve rewards, they experience flow. Competition among players to be a successful player also fosters flow given that

players must intensely concentrate on in-game events and their characters' performance. Players experience flow when they have to cautiously concentrate on in-game events in order to avoid dangers or punishment from the game.

The second characteristic of flow is loss of awareness. When players are involved in raiding, they may forget how many hours they have been playing the game. They feel that the time has passed much faster than normal time spent on gaming. Indeed, they experience loss of awareness about time during flow experiences. As another example, when players engage with a new expansion pack or new content patch for the game, they become so attracted to the game's new changes that they forget how many hours they have been playing the game. Players also lose awareness about their surroundings and events around them during the flow experience. For example, some players do not notice who is coming in or going out of their rooms during boss fights, as they are completely concentrating on the game. It is also possible that players forget about their real identities as they are embodied in their avatar. For example, since players are able to customize their characters' performance and appearance based on their preferences, they feel so attached to their characters that they temporarily forget about their real identities. In all, I distinguished among three types of loss of awareness: loss of awareness about time, loss of awareness about surroundings, and loss of awareness about real identity.

Third, the flow experience in gaming is closely associated with the joy of discovery, which refers to a player's desire to have a novel experience. When players engage with expansion packs and new patches, specific events related to real-life festivals, or certain activities for the first time, their sense of curiosity is stimulated. During the flow experience, players enjoy discovering new things in the game. For example, when players are exploring a new geographical zone recently added to the game, they experience flow as they curiously concentrate on new changes. As another example, when decorations in the virtual world change for real-life-based festivities such as New Year, the visual attractions of the game entice and satisfy players' desire for discovery.

Finally, a fourth characteristic of the flow experience is the sense of effectance, which is satisfaction derived from imposing effects on intended tasks or the character in the virtual space of the game. The concept of effectance is close to the sense of

control (Klimmt & Hartmann, 2006), and I applied it to illustrate the psychological processes of player experience related to the customizability of character performance and difficulty level. When players are able to customize their characters' performance through features such as hot-keys, macros, or add-ons, they enjoy being able to exert control over the game. Also, when players are able to choose among several tasks with different difficulty levels, they feel satisfied that they can play a proficient role in the game without being killed repeatedly.

Partial Engagement

The second major experiential state is conceptualized as partial engagement. When players engage in less challenging tasks, they partially concentrate on in-game events because they feel that they can easily manage the difficulty level of the game. For example, when players are pursuing a daily quest, they do not feel anxious that dangerous mobs will kill their characters. Therefore, they do not feel the need for completely concentrating on the game. Also, players are less motivated to concentrate on the game when they play with a group of unknown players. In this case, players do not feel committed to the group and are not concerned about high coordination and cooperation with group members. During partial engagement with the game, players are pleasantly occupied in the game, but they are still aware of the time. For example, when players engage in quests or raiding with Pick up Groups (PUGs), they can easily leave the game at any time they prefer. Finally, during partial engagement, players have complete control over in-game events. In other words, since the skill level of the player is to some extent higher than the challenge of the game, the sense of effectance is also quite high. For example, when players with advanced characters engage in normal dungeons or raiding with PUGs, they feel complete control over the in-game events. In this case, players are not concerned that their characters may get killed. In all, the three elements that characterize partial engagement in an activity can be summarized as partial concentration, control over time, and high sense of effectance.

Disengagement

The third main experiential state is disengagement. Whereas existing models of player experience have mainly focused on optimal experiences (Brown & Cairns, 2004; Ermi & Mäyrä, 2005), in this project I have explored conditions under which

players have disturbed feelings and disengagement experience. Disengagement from the game can include three stages: cognitive disengagement, sensory disengagement, or complete disengagement. Cognitive disengagement takes places when players are not interested in gaming even prior to actual engagement with the game because they have a prior perception that they may not have enjoyable experiences. Sensory disengagement occurs when the game fails to attract players' major senses involved in gaming like their sense of sight and hearing. Hence, players lose the motivation to concentrate on in-game events. Complete disengagement takes place when players stop a particular activity or the game for a session or a period of time, as they feel dissatisfied with the game. During the disengagement experience, players' concentration on the game dramatically decreases. Players lose the motivation to explore the game because its content has become repetitive and boring. Finally, players' sense of effectance is disturbed because they perceive having too much or too little control over the game. As stated in the research problems and limitations of the literature, popular models and theoretical constructs of player experience do not elaborate on the processes that game players go through to reach their subjective gaming experiential states. In addition, knowledge about how actual engagement with game features influences player experience is quite limited. This research contributes to the literature on player experience by illustrating players' affective states and experiential states during actual engagement with interactive affordances.

I condensed specific categories described in chapter four in order to present a generalizable abstract model of player experience in MMORPGs. The results are summarized in Figure 10. In this model, there are five themes for interactive game affordances: achievement, exploration, social connectedness, control affordance, and customizability of difficulty level. It should be noted that these interactive affordances are conceptualized as real properties of the game, and this conceptualization is similar to Gibson's (1986) original definition of affordances. Here, I explain the dynamic model of player experience shown in Figure 10.

Achievement affordance in Figure 10 is achievement. The game encourages players to engage in its achievable aspects through three main types of goals: indispensable goals, long-term goals, and light goals. Indispensable goals are objectives that players cannot put aside if they want to make progress in the game, such as upgrading equipment. Flow experience is fostered as players feel enthusiastic about pursuing such goals. Long-term goals require players to pursue several objectives over the course of time, such as pursuing achievement points in WoW. Players have to make repeated attempts and play the game persistently to obtain such goals. As players feel inspired to be persistent in achieving long-term goals, they experience flow.

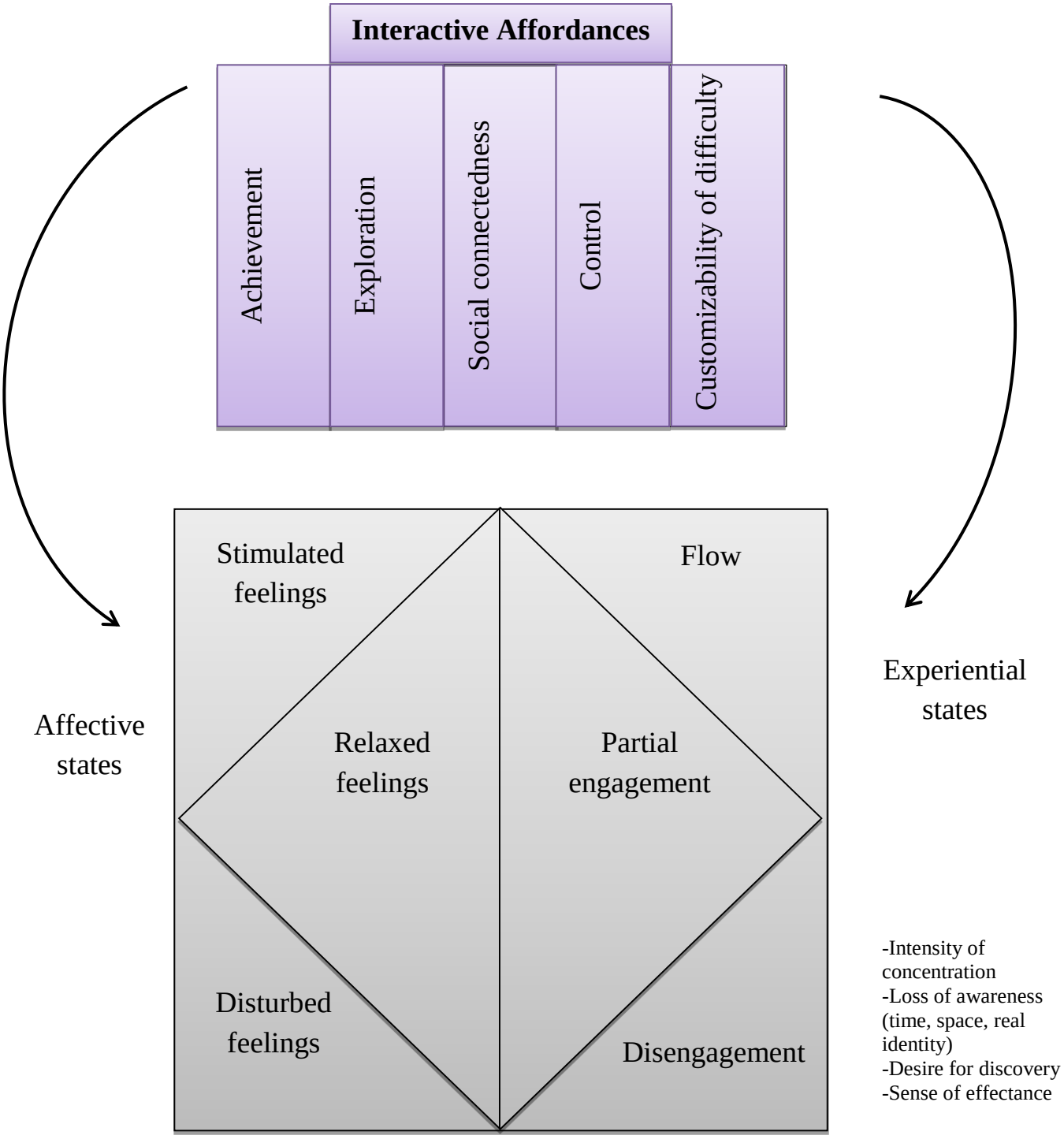

Figure 10. The Model of Player Experience

In response to completing in-game goals, WoW offers two types of rewards: routine rewards and remarkable rewards. Routine rewards are reinforcements that players consider as part of usual gameplay. Indeed, players are not surprised at

achieving routine rewards. These include the various points for PvP battles or group instances. Such points can be spent on buying powerful items and upgrading equipment. When players pursue routine rewards, they concentrate on the game, as points are essentially needed for progress in the game. The urge to obtain routine rewards fosters flow experience. Some remarkable rewards include elegant mounts, rare titles, or unique items. Players experience flow as they intensely concentrate on the game to obtain remarkable rewards. In all, the various codes related to in-game goals and rewards are categorized under the broad theme of achievement. Feeling enthusiastic, motivated, and inspired are grouped as stimulated feelings. Players have these feelings during engagement with achievable aspects of the game. Flow is fostered through engagement with achievable aspects of the game.

The game provides light goals, which are objectives that can be achieved without the need for intense concentration on gameplay. For example, light goals include making transactions in the auction house and completing daily or weekly quests. When players pursue light goals, they do not pay much attention to the game because they feel secure that such goals are not challenging. Players also feel over-confident that they can achieve such goals easily. Over-confidence and feeling secure are categorized as relaxed feelings. Such feelings are in turn associated with partial engagement with the game.

Exploration is the second interactive affordance in Figure 10. Exploration refers to discovering new aspects of the game or engaging in in-game festivities. With the release of new expansion packs, there are changes in the geographical zones of the game, joint activities, and the game's storyline. In this case, players feel curious to discover new aspects of the game. The game also stimulates players' sense of curiosity and fosters flow experiences by providing specific events that center around real-life festivals, such as Halloween or Chinese New Year. On such occasions, the game features novel decorations, attractive music, and other sensory stimuli. When players' sense of curiosity is properly stimulated and satisfied, they have the joy of discovery. Enthusiasm and motivation for discovering new aspects of the game are defined as stimulated feelings. Such feelings are in turn associated with flow experiences.

However, in three situations, achievement and exploration affordances result in disturbed feelings and the experience of disengagement. When the game fails to

provide attractive rewards, players feel bored and lose motivation to play the game enthusiastically. Players feel frustrated to realize that rewards are not fairly distributed among players. When players' enthusiasm to have novel experiences in the game is not properly stimulated and satisfied, they feel half-hearted to continue gaming. In all, disturbed feelings such as frustration, boredom, and half-heartedness are fostered when the game fails to attract players' attention. Such affective states are associated with three types of disengagement: cognitive disengagement, sensory disengagement, and complete disengagement.

Social connectedness is the third interactive affordance in Figure 10. There are two affordances related to social connectedness: bonding social ties, such as relationships among guild members, and casual social ties, such as relationships among unknown players in Pick up Groups (PUGs). Core members of guilds experience flow during joint activities by having a sense of belonging to the group. In this case, players play the game with intense concentration because they want to avoid mistakes that cause the whole group to die. Players in the guild also enthusiastically engage in competition with their teammates in order to appear skillful. Sometimes, certain players shoulder the most responsibility for the success of their groups. In such situations, they intensely concentrate on their duties through a sense of responsibility toward the group. In joint tasks with guild members, such as raiding, high levels of coordination and cooperation are required for the group to be successful. Players completely concentrate on the guild leader's instructions, and hence they experience flow. Finally, as players engage in playful conversations with their teammates during joint tasks or in idle hours, they experience loss of awareness about the time. In all, high levels of cooperation and competition, the social atmosphere of the guild, and the playful nature of relationships among group members stimulate players to feel a sense of belonging and attachment to their guilds. Flow experience is associated with such stimulated affective states during joint tasks with guild members.

Through forming random groups, the game allows players to engage in joint tasks with unknown players. Players feel apathetic to the needs of the group members when they join a group of unknown players. Such feelings are defined as relaxed feelings and help people, especially casual players, experience partial engagement with the game. However, as the game randomly assigns people to a group of unknown

players, it is possible that disturbing players may join the group. Some players feel half-hearted toward continuing to participate in a joint task with PUGs when they encounter players with deviant behaviors. Also, self-interested behaviors exhibited by PUG members for the purpose of acquiring rewards frustrate players. Feeling frustrated and feeling half-hearted are disturbed feelings that make players experience disengagement from the game during PUG activities.

Control Affordance in Figure 10 is the fourth interactive affordance. The game provides the affordance of control through customization features, including performance customization features and character customization features. Players have a sense of effectance when they are able to alter their characters' performance to meet their preferences through in-game options such as hot-keys, macros, or add-ons. Effectance refers to satisfaction derived from being able to impose effects on the character or on an in-game event. Features that allow personalization of the character promote a sense of attachment to the character. While it is possible that one's real identity disturbs the flow of interaction between a player and the game, embodiment in the virtual being can help a player maintain the flow experience. In summary, the senses of character attachment and feeling capable are defined as stimulated feelings related to control affordance. Such feelings can in turn help players to maintain the flow experience.

Customizability is the fifth affordance in MMORPGs. Customizability allows players with different affordance to enjoy the thrill of completing challenging tasks through the customizability of difficulty level. Players with high skill can select especially challenging tasks such as rated battlegrounds, heroic modes of dungeons, and raiding with core members of their guild. When players engage in such challenging tasks, they experience flow for two affective states. First, since competent players feel motivated to successfully deal with challenging tasks, they tend to play the game with intense concentration. Second, since players have a state of suspense about their success, they intensely concentrate on the challenging task. In summary, feeling motivated and being in a state of suspense are grouped as stimulated feelings, and they are associated with flow experiences.

To allow less competent players to more easily engage in joint activities, the game provides less challenging tasks such as raids through the Raid Finder tool or

regular, unranked PvP battles. These types of activities require relatively low levels of concentration on gaming and low commitment to a group compared to more challenging tasks. Since players feel secure that they will not get killed in less challenging tasks, they play the game with partial concentration. Feeling secure is a relaxed feeling that can be associated with partial engagement with the game.

When players realize that they are not able to progress in the game, they feel frustrated and their sense of effectance is disturbed. For example, players feel demoralized and experience disengagement from the game when they feel that the difficulty of the game is beyond their capabilities. On the contrary, when players realize that the game is too easy for them, such that they can achieve every goal with a low level of concentration, they feel bored. In this case as well, players experience disengagement from the game. Frustration and boredom originate from an imbalance between players' skills and the difficulty level of the game. These are grouped as disturbed feelings and they can lead to disengagement from the game.

In summary, affective states, such as feeling enthusiastic, motivated, inspired, curious, responsible, cautious, capable, and having a sense of belonging and character attachment, are defined as stimulated feelings. These feelings are stimulated as a result of engagement with affordances such as achievement, exploration, bonding social ties, control affordance, and difficulty level customization. These feelings are in turn associated with flow experience. Affective states, such as feeling apathetic, secure, or over-confident, are defined as relaxed feelings. Players have relaxed feelings for light goals, casual social ties, and a low level of challenge in the game. These feelings are associated with partial engagement. Finally, feeling bored, frustrated, and half-hearted are defined as disturbed feelings. Players have such feelings when experiencing dissatisfying achievements, unpleasant exploratory aspects of the game, disturbing players in temporary groups, and too much or too little control over the game. Disturbed feelings are associated with disengagement from the game. Figure 10 illustrates the overall dynamic picture of associations among the interactive affordances, players' affective states, and experiential states. As summarized in Figure 10, experiential states are categorized based on intensity of concentration, loss of awareness about time, space, and real identity, desire for discovery, and sense of effectance.

Contributions of Findings to Research on Player Experience

Research on player experience is a growing area since the game industry has shown particular interest in understanding players' preferences in order to preserve existing subscribers and attract new people to online games (Koeffel et al., 2010). Game scholars are also interested in understanding contextual factors that influence player experience, as these shed light on gratifications during gaming and subsequent behaviors, such as customer loyalty or game addiction (Chang, 2013; Huang & Hsieh, 2011; Seger & Potts, 2012; Teng et al., 2012). However, the literature has failed to adequately explore how players' actual engagement with specific game characteristics influences their experiences. In addition, the processes that players go through to reach certain experiential states have not drawn enough attention. In this section, I discuss contributions of my findings to address such limitations of the literature on player experience.

There are numerous features in MMORPGs, as identified by scholars such as King et al., (2010b), Peng et al. (2012), and Wood et al. (2004), but players may or may not actually engage with them. For example, most players know about raiding and arena battles as social features in WoW, but few may be qualified to actually engage in such challenging joint tasks. Therefore, those who have not actually taken a role in raiding and arenas cannot elaborate on their social experiences related to such advanced multiplayer features. In this project, I have focused on the affordances that players actually engage in to understand player experience. The various game features are grouped based on the affordances that players engage in. The various goals, rewards, and punishments in WoW provide the affordance of achievement. The novel aspects of the game in expansion packs and new festivities encourage players to engage in exploration. Two types of action possibilities related to social features include bonding social ties and casual social connections. The customizability of performance and character customization allow players to exert more control over the game. Finally, the various player versus environment activities and player versus player combat with different difficulty levels allow players to choose suitable activities based on their skills. The findings in this research confirm that player experience is influenced by factors available in the immediate behavioral context of gaming. Instead of relying on players' self-reports about perceptions of game features, it is more

insightful to explore the effects of actual engagement with interactive affordances on player experience.

Current models and theoretical constructs of player experience do not elaborate on the processes that game players go through to reach their subjective gaming experiential states. Scholars have argued that if we want to precisely understand what subjective experiences such as immersion and flow are like, then it is essential to explore how players' affective states influence their experiences (IJsselsteijn et al., 2007; Ravaja et al., 2006; Riva et al., 2007). The concept of affective states is applied in this research to explore players' feelings and emotions when they engage in the game's interactive affordances. This research found that players' three main categories of affective states as a result of actual engagement with interactive game affordances were stimulated feelings, relaxed feelings, and disturbed feelings. Affective states can in turn be associated with three types of experiential states: flow, partial engagement, and disengagement. For example, stimulated feelings are associated with the flow experience; relaxed feelings can be associated with partial engagement with the game; and disturbing feelings can be associated with disengagement from the game. It can be concluded that incorporating people's affective states into research on user experience can provide insights into the mental processes that people experience when they engage in specific design features and media characteristics.

Player experience has mainly been conceptualized based on optimal experiences, which fails to take into account different experiential states such as disturbing experiences (Elson et al., 2014; Kallio et al., 2011; Poels et al., 2007). The findings of this research confirm that players can have different motivations with regard to engagement in games. For example, some casual players prefer to have a relaxed gaming session because they want to avoid high responsibility. This finding is similar to Kallio et al.'s (2011) argument that players can have multiple experiences in a gaming session, from casual relaxing to committed entertaining, and all experiences are important to the overall gameplay. It was also found that players can have disturbed experiences during a gaming session. For example, when players are not properly rewarded for their attempts to achieve a goal, they feel frustrated and experience sensory disengagement from the game. Such findings confirm that the user experience consists of several non-linear stages. In order to truly understand user

experience, it is essential that we take into account various dimensions of experiential states.

Finally, the findings of this project can contribute to research on social interaction in online games. Many studies have explored various aspects of relationships among guild members as a semi-permanent virtual community in MMORPGs (Ang & Zaphiris, 2010; Chen, Sun, & Hsieh, 2008; Williams et al., 2006). Such studies assumed that playing with guild members is the ultimate social experience, and this type of activity is what players mostly seek to engage in. The findings of this research confirm that joint activities with guild members, especially challenging tasks such as raiding or arena battles, require high levels of social responsibility, coordination, and consideration of teammates. Some players personally choose not to take on the burden of such a committed style of gaming. They prefer a relaxed gaming experience as a casual player for a variety of reasons, including dealing real-life issues, incompetence for completing challenging tasks, time management, or mood modification. These players can choose to play with PUGs and devote a low level of commitment to a virtual association. Only a small number of studies have investigated players' social experiences in PUGs, despite the fact that a majority of players at all levels spend times in these PUGs doing dungeons or raids together (Eklund & Johansson, 2010, 2013; Linderoth, Björk, & Olsson, 2014). The findings of this research confirm that playing with PUGs can result in an optimal experience for several reasons. Players can overcome the boredom of solo activities, such as quests, as they may easily join a group of players. Playing with PUGs can serve as a preparation stage to tackle challenging tasks and it boosts players' self-efficacy regarding the game. For example, when players engage in raiding through the Raid Finder tool, they can acquire necessary skills for more difficult raiding with guild members. Players can still be engrossed in the game’s storyline without spending much time and effort on gaming. Considering the fact that intentional changes to the social structures of MMORPGs by game companies have invited more casual players to their games, it is essential that more studies explore the various aspects of player experience in PUGs.

Practical Implications for Design of Online Games

As summarized by Sellers (2006), the design abstractions of video games start with a specific idea, which functions as a viable seed for the game. Then, designers try to develop the high-level game concept. This stage takes the form of a design treatment or overview, sometimes accompanied by early graphical mock-ups of what the designer envisions for the final product (p. 17). In this stage, designers can take into account players' psychological experiences that contribute to the success of a video game. The findings of this project can provide insights to designers of online games when they develop high-level game concepts. Based on the findings of this project, I discuss how reducing or eliminating conditions under which players have disturbing experiences can preserve players' compelling experiences.

A main affordance of video games is achievement, which refers to the action possibilities related to pursuing various in-game goals and obtaining rewards. It was found that desires to achieve remarkable rewards or routine rewards encourage players to be enthusiastic and play the game with intense concentration. A popular online game like WoW provides several types of goals, including long-term goals, routine rewards, challenging goals, regular rewards, and unique rewards, that keep players at different stages attracted to the game. For example, in the early stages of gaming, players mainly try to collect experience points and improve their characters' items. At the advanced levels, players try to achieve rare rewards to stand out as unique and powerful. However, when players make diligent attempts to reach an in-game goal, but they are not properly rewarded, they may start to feel bored or frustrated. In such cases, players experience sensory disengagement from the game, which means that in-game stimuli do not motivate players to concentrate on in-game events. If sensory disengagement continues repeatedly, it is possible that people become bored and permanently stop playing the game. It is essential that the game continually provides attractive rewards to keep players enthusiastic and attentive during gaming. This suggestion highlights Ducheneaut et al.'s (2006b) conclusion that the popularity of a game could to some extent be related to its fine-tuned incentives and rewards structure, reminiscent of behavioral conditioning. When designers are developing the high-level game concept, they can think of incorporating various goals with attractive rewards into the gameplay to preserve players' concentration on the game.

Social interaction is a unique affordance of online games, and a strong body of research has confirmed that various types of social interaction occurring both within and outside of online game environments strongly influence players' optimal experiences and enjoyment (Chang, 2013; Cole & Griffiths, 2007; Griffiths et al., 2011; Wu et al., 2010). The findings of this research have implications about how various types of social interaction foster compelling experiences and why designers should deal with disturbing experiences related to social interaction. It is useful for online game designers to know that bonding social ties (strong relationships among in-game friends and community members) have directional effects on positive affective states and flow experiences in four main situations: (1) situations in which the game encourages players to bear social responsibilities and take various critical roles for the success of the group; (2) situations in which players engage in social competition against fellow game players and try to construct identities as elite players; (3) situations in which intense coordination and high cooperation are required to achieve a challenging shared goal; and (4) situations in which players engage in playful activities and social conversations in addition to pursuing shared goals. In order to make bonding social ties a more compelling experience and enjoyable social activity, game designers can think of incorporating these four situations into the gameplay or storyline during the design abstraction stage.

The findings of this research confirm that social affordances can also result in disturbed affective states and disengagement from the game in several situations. It is possible that players' social experiences are disturbed when running into people with deviant behaviors, such as noobs, loot ninjas, and gankers. The majority of deviant behaviors take place in temporary PUGs because players feel apathetic to their teammates' needs and expectations. For example, some PUG members try to take all the items that drop from killing bosses regardless of the usefulness of those items for their characters' class. Such inconsiderate behaviors in PUGs foster cognitive disengagement, where players develop cognitions concluding that playing with PUGs is not worth spending attention or resources. Given that players have disturbed affective states, such as feeling frustrated and half-hearted, when encountering misbehaviors in PUGs, it is essential that game designers provide in-game options so that players can deal with the disturbance. For example, online game designers can allow players to dismiss disturbing people from the group. The game can also

encourage players to upgrade their casual social ties to bonding social relationships. In this case, players feel motivated to become more considering of their group members' expectations. For example, game designers can offer extra points if players continue gaming with the same group members for a session or over a long period of time.

The findings of this research confirm that game customizability, including character customization and difficulty level customization, can entice a sense of effectance. Effectance refers to satisfaction derived from imposing effects on intended tasks or the character, and it is similar to the concept of competence, which is defined in SDT as a basic human need (Peng et al., 2012; Ryan et al., 2006). Klimmt et al. (2007) found that the degree of effectance that a video game offers (i.e., perceptions of causal influence on the game) is an important factor for game enjoyment. It is insightful for game designers to note that in two major conditions, players' senses of effectance and enjoyable experiences are disturbed. Players feel frustrated and experience disengagement from the game when the difficulty level of the game is far beyond their skills. For example, WoW players described that they usually feel frustrated if they are not able to defeat a tough boss after grueling attempts. Frustration at their lack of progress can even deteriorate group relationships. For example, when a guild is not able to progress toward defeating a boss after several gaming sessions, players start blaming each other. Second, when a so-called challenging task turns out to be easily accomplishable, players feel bored of the game and experience cognitive disengagement. For example, some WoW players explained that they were not satisfied to play the game as hardcore raiders because the end-game bosses did not present enough challenge. It is imperative that game designers help players keep the balance between the game's difficulty level and their desire for effectance. Game designers can incorporate various tasks with adjustable difficulty levels into the gameplay, such as regular PvP, arena PvP, regular dungeons/raids, or heroic dungeons/raids, to satisfy players with different skill levels.

Developers of subscription-based online role playing games, compared to other genres of video games, face the additional challenge of creating a player experience that remains novel and appealing over a long period of time (Sellers, 2006). The findings of this research confirm that the desire for exploration and a sense of curiosity essentially influence positive affective states and flow experience in MMORPGs. For

example, when expansion packs or new patches are released for WoW, players enthusiastically engage with the game to satisfy their cognitive curiosity, which involves a desire to learn about changes in the game. In addition, changes in the audio-visual aspects of the game arouse and satisfy players' sensory curiosity. It is insightful for online game designers to note that their games should retain attractive qualities over a long period of months or even over years, like WoW, which has been popular since 2004. This means that online game designers should incorporate novel goals and attractive rewards into the gameplay to invigorate players' cognitive and sensory curiosity. The game designers can refresh players' sense of curiosity by including new storylines, new decorations, new geographical zones, or new characters to the expansion packs and new patches of the game.

Limitations and Suggestions for Future Research

This study explores how specific characteristics of a popular massively multiplayer online game like World of Warcraft influence players' in-game experiences. The findings in this research highlight that research on prominent interactive game affordances can provide new insights into the understanding of players' affective states and experiential states.

As this research is qualitative, it cannot provide causal validation for the relationships among the three stages of players' in-game experiences in the model of player experience in Figure 10. The goal of this project was not to validate a hypothesis, but rather to build theory by taking an open-ended approach to the study of actual behaviors of MMORPG players in the actual gaming field. Hence, "External validity" should be understood as a way to establish that the research findings are credible. Creswell and Miller (2010) defined several different types of validity procedures that increase credibility of qualitative research. I describe them here and explain how I applied them in my research. The first procedure is triangulation when researchers try to provide corroborating evidence collected through multiple methods. I applied two qualitative research methods in data collection and I reported participants' experiences of using game affordances and their experiences. The second procedure is disconfirming evidence, when researchers search for disconfirming or negative evidence. First, I clarified main themes related to various game affordances and player experience and then I looked for major themes that are part of my findings and I found some cases that are not part of main themes of my findings. The third procedure is researcher

reflexivity that researchers self-disclose their assumptions, beliefs, and biases. I played WoW for about one year before data collection and I tried my best that it does not influence my interpretation of findings. The fourth procedure is prolonged engagement in the field. I continued participants' gameplay in think-aloud protocol session and in-depth interview sessions so that I was sure I have achieved players' essential experiences and use of game affordances. The fifth procedure for increasing credibility in qualitative research is thick, rich description. I reported main themes of game affordances and player experience in detail in the finding section. The final procedure is peer debriefing that is the review of the data and research process by someone who is familiar with the research or the phenomenon being explored. My supervisor has reviewed and commented on various stages of my research such as in-depth interview questions and themes of findings.

World of Warcraft has players all over the world, and the qualitative findings can only speak to the type of players that have been interviewed and observed. People who participated in my research are young adults age ranged 21-40 who were active WoW players and guild members who have a history of gaming experiences. Their average playing time was about 18 hours per week and average gaming experiences was about 3 years. World of Warcraft players are chosen because this game is the most popular MMORPG with more than 10 million subscriber around the world. The findings can be applicable to similar massively multiplayer online role playing games such as Diablo III, RuneScape, Lineage, Everquest II, and Star Wars because these games allow players to engage in social interaction through internet protocol devices and pursue personal or shared goals. Players of other games can have experiences similar to WoW players when they engage in the five interactive affordances of the game such as achievement, exploration, social interaction, controllability, and customizability of difficulty level.

The findings can provide a platform to be tested or expanded by future researchers, both qualitative and quantitative. Future research can measure the associations between players' use of advanced game affordances such as raiding and flow experience in the virtual space of the game. For example it is possible that when players are involved in advanced cooperation with fellow game players to defeat advanced bosses they become completely immersed in the game. Based on virtual ethnography in the game of WoW, Chen and Duh (2007) presented an exhaustive list of factors that influence social interactions in the game. They found that contextual factors, including

historical context, interactional area, and level of social aggregation, as well as in-game factors, including instrumental joint acts and rules of conduct, influence social interactions in the game. Based on participant observation, Nardi and Harris (2010) reported that different forms of collaboration in WoW include collaboration with strangers, structured interactions among parties and raids, and playful non-structured relationships in encounters with both friends and strangers, off-line relationships in connection with the game and unpleasant forms of interaction as important forms of collaboration in WoW. Further qualitative research can explore the various affordances that players actually use in several genres of online games such as first person shooting games and compare player experience in different genres of games.

However, I outlined psychological processes that gamers go through to illustrate directional relationships among each stage of player experience. Quantitative methods such as surveys or experiments can test and validate the relationships among interactive affordances, affective states, and experiential states. To have more reliable qualitative research, it is possible to recruit a second coder. In this research, I was not able to recruit another observer to report inter-coder reliability due to the nature of PhD projects and budget constraints. However, I regularly met with my supervisor, and we discussed the codes and categories. I modified several codes, categories, and some of the themes after consultation with my supervisor.

This research identifies major in-game affordances related to player-to-player interactivity and player-to-game interactivity. Interactivity is defined as the key characteristic of new media in general and video games in specific. However, as discussed by Jiow and Lim (2012), video games can offer some other affordances such as portability and accessibility. Future research can continue to explore how various affordances provided by video games influence gaming experiences.

This study is based on players' experiences of only one MMORPG, World of Warcraft. Game scholars tend to agree that most MMORPGs have similar characteristics, such as persistence, physicality, social interaction, avatar-mediated play, and open-endedness (Billieux et al., 2013; Chan & Vorderer, 2006). Hence, studying WoW alone can still make valuable contributions to scholarly discussions. I, however, want to acknowledge that the scope of the findings and their generalization are still limited, as the data came from just one popular game. Future research can

extend the scope of the study to investigate similar issues in other MMORPGs or other types of video games.

Summary

In this chapter, a dynamic model of player experience was presented. The model is composed of three parts: contextual factors of player experience, players' affective states, and different experiential states. There are five interactive affordances in the model: achievement, exploration, social connectedness, control affordances, and customizability of difficulty level. There are three broad affective states: stimulated feelings, relaxed feelings, and disturbed feelings. The three major experiential states include flow experience, partial engagement, and disengagement. Theoretical contributions to the literature on player experience were discussed. Practical implications were provided to designers of online games. Study limitations and suggestions for future research were discussed at the end of this chapter.

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Appendix A: The Interviewees' Profiles

Interviewees	Gender	Age	Marital status	Level of education	Hours spent on WoW per week	Years spent on playing WoW	Number of characters in WoW/Characters' level/Core Raider	Average hours spent on WoW in one sitting
S1	Male	29	Single	Graduate	5	Since 2004	3/Max	1
S2	Male	25	Single	Undergraduate	10	Since 2004	2/Max/Core	2-3
S3	Male	23		Undergraduate	20	4 years	1/Max/Core	2-4
S4	Male	23	Single	Undergraduate	10	Since 2004	6/Max/Core	3
S5	Female	21	Relation	Undergraduate	25	Less than 1 year	1/80	3-4
S6	Male	24	Single	Undergraduate	20	Since 2004	6/Max	2
S7	Male	24	Single	Undergraduate	10	Since 2004	6/Max	2
S8	Female	21	Single	Undergraduate	10	3 years	1/Max	1-2
S9	Male	24	Single	Graduate	15	4 years	4/Max	3

S10	Male	25	Married	Graduate	10	2 years	2/70,30	1-2
S11	Male	23	Relation	Undergraduate	10	2 years	4/Max	2
S12	Female	25	Single	Undergraduate	40	4 years	2/Max	2-10
S13	Male	22	Single	Undergraduate	15	3 years	4/Max	4
S14	Male	24	Single	Undergraduate	10	3 years	2/Max	1-2
S15	Male	23	Single	Undergraduate	20	4 years	2/Max	2
S16	Male	23	Single	Undergraduate	40	4 years	3/Max	4
S17	Male	24	Relation	Undergraduate	15	Since 2004	9/Max/Core	2-3
S18	Male	23	Single	Undergraduate	30	3 years	3/Max	4
S19	Male	21	Single	Undergraduate	10	4 years	1/Max	2
S20	Male	40	Married	Undergraduate	10	4 years	2/70	1-2
S21	Male	24	Single	Undergraduate	20	3 years	3/Max	3-4
S22	Male	25	Single	Undergraduate	25	Less than 1 year	1/Max	4
S23	Male	25	Single	Undergraduate	40	Since 2004	5/Max/Core	5
S24	Female	22	Single	Undergraduate	25	4 years	3/Max/Core	2-3
S25	Male	23	Single	Undergraduate	20	4 years	7/Max	4-5

Appendix B: IRB Approval

NANYANG TECHNOLOGICAL UNIVERSITY

Research Support Office

Reg. No. 200604393R

IRB 12/01/21

31 January 2012

A/Prof Vivian Hsueh-hua Chen
Wee Kim Wee School of Communication and Information

NTU INSTITUTIONAL REVIEW BOARD APPROVAL
Project Title: Interactivity in Massively Multiplayer Online Games: Exploration of Players' Interactivity Experiences
(Amount Approved: SGD$3,000; to be funded by NTU Research Grant)

I refer to your application for ethics approval with respect to the above project.

The Board has deliberated on your application and noted from your application that your research involves collecting behavioral data from participants using online games.

You have also confirmed that informed consent will be obtained from the participants and you have guaranteed the confidentiality of your participants' biodata obtained from them.

The Board is therefore satisfied with the bioethical considerations for the project and approves the ethics application under Expedited review.

Prof Lee Sing Kong,
Chair, NTU Institutional Review Board
encl.

cc Chair, Wee Kim Wee School of Communication and Information
Members, NTU Institutional Review Board

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Appendix C: Informed Consent

NANYANG TECHNOLOGICAL UNIVERSITY

Dear _____,

I am Meghdad Mehrabi, a PhD student in WKWSCI, under the supervision of Dr. Vivian Chen. Our research is about interaction in Massively Multiplayer Online Games. Specifically, we are interested to know about your experiences related to player-to-player and player-to-game interaction.

You must be a current player of World of Warcraft to be qualified for our research.

Your participation in this research will take approximately 3 hours as total, playing World of Warcraft for about 30 minutes and in-depth interview for more than 2 hours. During your game play session you will be asked to share your thoughts and feelings. After a short break, there will be an interview session. In the interview, I will ask you about your experiences of playing WoW and other popular MMORPGs. During this process, feel free to ask for a break if you are tired.

Both the game play and interview sessions will be audio-recorded. Your game playing will also be video-taped. The interview and game play sessions will be transcribed for further analysis. The information gathered from these sessions will be used to write my PhD dissertation and research papers for publication. Your real name will not be used in the paper or be revealed to anyone else. The data will be carefully stored in my personal computer and protected by password at all times. Only my supervisor and I will have access to this data. After 2 years, all the data will be destroyed.

At the end of your participation, you will receive 40 Singapore Dollar as a token of appreciation. If you have any questions concerning this research, please feel free to contact me at 93897232 or via e-mail at megh0004@e.ntu.edu.sg. Alternatively, you can contact Dr. Chen via email at ChenHH@ntu.edu.sg.

If you have concerns about this study or your experience as a participant, you may contact the Institutional Review Board (IRB) at NTU at 65-65922495 (collect calls will be accepted if you state you are a study participant); email: irb@ntu.edu.sg

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Please sign below if you are willing to participate in my PhD dissertation research project outlined above:

Printed name	Signature	Date
_____	_____	_____

Appendix D: Players' Experiences Survey

How old are you? ----------

What is your gender? ----------

Marital Status? ----------

Occupation? ----------

What are the names of MMORPGs you recently played? ----------

Highest level of education:

PSLE 'N' Levels 'O' Levels

Diploma Postgraduate

Others, please specify:

How long do you usually spend on playing WoW in one sitting?_____

How long do you play WoW per a typical week?

5 to 10 hours ☐ 11 to 15 hours ☐ 16 to 20 hours ☐

21 to 25 hours ☐ 26 to 30 hours ☐ 31 to 35 hours ☐

36 to 40 hours ☐ More than 40 hours ☐

How long have you been playing MMORPGs? ---------

How long have you been playing WoW? ---------

How many characters do you have in WoW? ---------

Which level is/are your characters? ---------

Are your characters part of a guild? ------

Which guild do you play with? ----------

Which server(s) do you play on? ----------

Appendix E: Interview Protocol for Exploration of Player Experience

You are invited here today, because your experiences of playing Massively Multiplayer Online Games, specifically World of Warcraft are of great value to us. This interview would center upon your experiences of playing MMORPGs in two parts: social interaction between players, and interaction between player and the game. The interview would take about two hours.

With your permission, I would like to record our conversation to ensure accuracy. I would like to assure you that your name will not be revealed when your comments are used in our research project.

Do you have any questions? If there is no question, let's start:

1. Players' Experiences of Social Affordances (General Question)

1.1. What do you think are the most important in-game features that promote relationship building between players? *(identify players' perception of social features)*

1.2. Describe the most memorable experiences of social interaction in World of Warcraft?*(The purpose is to identify most prominent forms of social interaction in MMORPGs)*

1.3. PROBE: What makes that experience most memorable? *(the interviewer can raise probes about the reasons to be involved in social interaction, whether players' are immersed in the game)*

(Here it is essential to encourage respondents to elaborate more on their actual use of social interactive features)

Various forms of interaction in MMORPGs

2. Transient Interaction with Strangers

*2.1.*Please describe your experiences of interacting with strangers/passersby in the game.

*2.2.*How do you feel when you are involved in interaction with unknown players? *(try to identify possible psychological state induced by transient interaction)*

3. Structured Interaction with in-game friends

*3.1.*Which groups have you joined during playing WoW? *(groups refer to different players joining each other for a shared objective such as dungeons, guilds, pick-up groups, etc)*

3.2.Why do you join those groups?

3.3.What do you gain by playing with groups?

3.4.Discuss how deep is your relationship with other players in the groups you talked about?

3.5.How wide is your social network in WoW?

*3.6.*Discuss situations where you feel responsible to be in the game when the group needs you? (How would the game features make you to be less/more committed to your group relationship?)

3.7.Among in-game features, which ones are helpful in terms of establishing/maintain relationship with other players in a group?

4. Interaction beyond Game Virtual Space

*4.1.*What is your view on meeting up fellow game players face-to-face out of the game? *(We would like to know whether such interaction is popular, why?)*

4.2.Please describe your personal experiences about meeting fellow game players outside of the game.*(If respondents mention that they do not have such experience, it should be asked to discuss experiences that they heard about)*

4.3.PROBE. What pushes you to interact with game players beyond game space*? (Ask this question to identify needs, and how players feel when they are involved in such interactions)*

5. Extend real-life friendship to game space

5.1.Among the list of friends in the game, how many are your real-life friends?

*5.2.*PROBE: Who are these people? *(Family member, classmate, colleague, etc)*

5.3.Describe your experiences of extending your real life friendship to game virtual space.

*5.4.*How would extending real life friendship to game virtual space influence the time you spend on gaming?

6. Play in the same Physical Space

6.1.Please describe your experiences of playing WoW with other people in the same physical space.

6.2.Why do you decide to play WoW in the same physical space?

6.3. What makes you want to play WoW with other people in the same physical space? (It could be personal reasons such as being busy to join others or game characteristics such as the chance to chat with other similar to face-to-face meeting)

6.4. What are the differences between playing with others in the same physical space and in a different physical space?

7. Unpleasant Experiences of Social Interaction

7.1. Describe the experiences of interaction with other players that upset you? *(We want to identify the unpleasant types of player-to-player interaction that is the source of complaint for players such as camming, being fraud, being hit by more powerful players, , misbehavior during interaction, insulting language, etc)*

7.2. How do other players react to such behaviors?

7.3. What are the rules set by the gaming company that deals with misconduct in game?

7.4. *(ask this question when the respondent is talking about his/her experiences of disturbing interactions)* How do these types of negative interaction influence your willingness to continue playing WoW? *(We want to know whether disturbing interactions distracts players' immersion in the game, how).*

In the previous questions, we talked about social interaction between players. Now, I would like to know about your experience of interaction with the game itself.

8. Player-to-game interactive affordances and Players' Experiences (General Question)

8.1. What are the key features in the game system that you use most frequently?

8.2. Which functions or features of the game make you feel that the game is interactive?

8.3. When the game is interactive, what do you usually feel?

9. Affordances related to control capabilities

9.1. What are the features in WoW that made you feel powerful in your game play?

9.2. What are the features that allow you to master or even change the game content? *(We would like to know about in-game features that allow players to feel more domination over the game, feel they are powerful to do what they like, to be able to change the game content)*

9.3. What do you like about current control capabilities in WoW?

9.4. What do you like to change about control capabilities in WoW?

9.5. How would control abilities in the game influence your engagement of playing WoW? *(ask to know whether control affordances increase players' engagement, which needs are satisfied by control capabilities)*

10. Character customization Features

10.1. What are the game features that allow you to customize the game to your preference?

10.2. What do you customize in WoW? Why? (*Ask this question to identify different aspects of customization. Customization is the changes players are able to do to the game and may not necessarily result in more control)*

10.3. PROBE: What do you like about being able to customize characters?*(ask players to describe their feelings induced by character customization abilities, possible senses such as feeling more rapport with the characters)*

11. System Responsiveness

One of characteristics of an interactive technology is its responsiveness. Responsiveness refers to how fast and appropriate the game system responds to players.

11.1. What are the game features that show how fast/slow the game responds to your input?

11.2. Under what condition will the speed of the game responding to you make you feel satisfied about the game play?

11.3. How easy is it to learn and adapt to the game interface?

11.4. If you can improve the game interface to make your play more enjoyable, what will you change?

11.5. Through what mechanism does the game give you appropriate feedback or response?

11.6. Describe an experience where the game was responding to all your input appropriately and you forgot about everything else but the game. *(Whether responsiveness influences the sense of immersion, how. elements of flow theory, feedback)*

12. Advanced Aesthetic Options

12.1. In terms of the aesthetic aspects of WoW (i.e; the graphics), what are the ones that you like?

12.2. What are the ones that you dislike?

12.3. Which game features allow you to customize appearance of the game? (appearance refers to sound options, graphic options, music options, audio or text messages from the game, etc)

12.4. How do you feel about being able to customize aesthetic aspects of WoW on your own?

12.5. If you can improve the customization capabilities related to aesthetic aspects of WoW, what will you change?

13. Challenge and Competition

13.1. Describe a time when you feel like the game presents great challenges to you as a game player.

13.2. How do you feel about challenges in the game? *(ask more questions to identify whether challenge capabilities foster the sense of immersion, if so how, whether players have negative feelings about challenge capabilities and why they have such feelings)*

13.3. Describe your experience of being rewarded in the game?

13.4. When you are rewarded for your in-game actions, how do you feel? *(ask this question to identify if players are immersed in the game by the reward)*

13.5. Describe your experience of being punished in the game?

13.6. When you are punished for your in-game action, how do you feel? *(ask this question to identify how punishment influences layers' immersion)*

13.7. What are the main forms of competition in WoW space?

13.8. Describe your experiences of competition in the game? *(it could be competition with other players or with the game itself)*

13.9. How do you feel when you are engaged in the competition? *(ask questions to identify whether competition capabilities foster the sense of immersion, and whether they have negative feelings about competition capabilities and why they have such feelings)*

14. Interactive affordances that foster the sense of Flow

There are times when we play the game we have "a state of mind that we are deeply involved in the game. For example, we are playing exceptionally well and achieves a state of mind where nothing else matters but the game; we are completely and totally immersed in the game. Activities that lead to such state of mind completely captivate us for some period of time. When we have such state of mind, time may seem to stand still, and nothing else seems to matter.

14.1. Describe a time when you feel like you had such state of mind in WoW.

14.2. What were you doing? Who were you playing with? What game features did you use? *(ask to identify game affordances that foster players' flow state)*

14.3. Which characteristics of the game makes you feel that you need to pay undivided attention to the game? *(specific questions based on elements of flow theory, concentration)*

14.4. Describe a time when you feel like your gaming skill overqualified the game challenges. (It could be the reverse, when the game is too difficult for you so that you feel bored of playing)

14.5. How would you feel when your skill does not match the difficulty level of WoW? *(specific questions based on elements of flow theory, skill)*

14.6. Describe your experiences of feeling that there are specific, straightforward goals in the game

14.7. Discuss how these goals influence your sense of immersion in the game. *(specific questions based on elements of flow theory, clear goal)*

14.8. How would interaction in groups influence your sense of being immersed in the game space?

Finally, is there any other form of interaction between you, as the player and the game that you think we forgot to discuss?

Appendix F: Codebook

Codes related to game affordances, players' affective states, and experiential states	Definition	Example/Reference
1. Goals	**A set of objectives that the game requires players to complete during a gameplay.**	
1.1. Indispensable Goals	Goals that cannot be set aside or neglected if players want to make progress in the game. When players pursue indispensable goals they completely concentrate on the game.	
1.1.1. Leveling up the character	The most basic indispensable goal in WoW is levelling up the character by collecting experience points. When players are attempting to hit the max level which is 100 in the current expansion of "World of Warcraft: Warlords of Draenor", they do the task with increased attention.	One of reasons that I'm play battlegrounds instead of dungeons is that I gain more experience from doing battlegrounds. When I capture the flag, they offer a bunch of points... Also, there are honour points which allow you to buy better items. This sword, these rings, and this trinket have been purchased through honour points. It took me a long time to collect enough points for them. S10\\Gameplay It really gets your heart pumping, makes you feel very competitive to be going against people. It really feels good when you can stay alive against many people. S10\\Gameplay When I was levelling, I would play quest and PvPs a lot to gain experience… I had to work hard to get experience points to get to the end game. S3\\Interview I would feel more motivated in that sense that there's something waiting for me at the end of the level. Indeed, there are certain abilities that you can only get at max level. I would rush for quests and dungeons as I wanted to increase the experience number... [Immersion in the game] was the time where I felt that I want to level up as quickly as possible. S16\\Interview During levelling period I had to play hard. Sometimes, it would become quite demanding and mundane but I would still play daily quest as I planned to get two levels a day. S14\\Interview
1.1.2. Collecting weekly points	Players engage in PvP fights and PvE instances regularly to achieve weekly point caps to buy more powerful equipment and better mounts.	The fact that I need to cap every week my valour points and conquest points for arena does actually encourage me to return to the game. I just keep playing arenas to get whatever amount of points that I need to get every week. S17\\Interview Now, with this valour point here it means that I still need to earn more valour points. It kind of makes me to complete it. Every week I try to complete everything

		for point caps in the first few days. So, during my weekends I can take it easy, and just do whatever I like rather than being tied up collecting points S16\\GamePlay
1.1.3. Upgrading items	The game requires players to upgrade their items continually if they want to stay powerful in the game. Players attentively engage in dungeons and raids to get powerful items from killing the bosses.	A lot of people raid just for gear, just to get gear. I also play a lot to kill bosses every week for drops because I need them to progress S1\\Interview First you figure out if the item is an upgrade for you or not. You get really excited if it is something that you need. But, you start to dread that someone else wins it instead of you…At the moment that you type "Slash roll" you're checking inventory of everyone else in the raid to see who is going to roll on it too. If your score is the highest you're just like "Yes!" You become so excited that you get the loot. S1\\Interview When I know that this particular boss drops this loot that I badly want, I will be more focused when I do that boss. Contrary, when I know that this boss doesn't have anything that I want already, I may not be that eager to down it S13\\Interview
1.2. Long-term goals	It refers to goals that require players to complete several objectives over the course of time for remarkable rewards such as rare titles or mounts. Players have to make a long attempt to obtain such goals. When players pursue long-term goals they become determined to return to the game regularly.	I think achievement system is ingenious to keep you in the game. You'd want to do something repeatedly for achievement points. You want to accumulate them to show off. They will give others a description of how hard you have been playing the game….When I was trying to go for the chef achievement as a meta-achievement, I was immersed in the game as I had to do a lot of other achievements. S3\\Interview I think achievement really immerse you in the game because when you have a goal to get a rare achievement, you'll work towards that goal. Like you'll read up on the raids, you get geared up, you ask your friends to join you, help you to accomplish your goal. Interviews\\S19 I spent a long time playing a daily quest that gives a rare mount. After completing the quests, you get a certain amount of tokens. I was supposed to get maybe 250 tokens. It took me several months because each day that you do the quests, you'd probably get 7 or 8 tokens only. (Interviews\\S7)
1.3. Light Goals	Objectives that can be completed quickly such as **business engagement in Auction House**, **resource collection** and **profession development**. These goals keep players amused during hours that they are not engaged in challenging joint activities.	I am taking a portal to another zone, Twilight Highlands. I'm planning to go and farm some leather just to pass the time. (Gameplay Session\\S18) It keeps you amused in the game. In addition, you make good money when you sell them at the auction house. (Gameplay Session\\S18) When you really need to wait about 30 minutes just to play one dungeon, especially if you are a DPS, it is frustrating S15\\Interview

		Because my profession is a miner and a herbalist, it is fun to go around mining and finding herbs to sell on the auction house. S7\\Gameplay I guess the long time waiting in queues just gives me an excuse to fly around and fishing from here and there. It is just quite fun to collect the quests for fishing. S5\\GamePlay Auction House to change my mood of the challenging boss fight. I buy cheap stuff and sell them at a more expensive price… It is fun as it is not demanding. S17\\GamePlay I would say resource collection is just to kill time... It is kind of like taking a break from challenging raids. I might just not be concentrating on it. So I guess for me I always see it more like a hobby rather than something I would want to get into completely. S2\\Interview These days, I spend more time on the auction house because recently I got a bit bored of raiding. Generally, I spend about half an hour just doing the auctions because there are so many things to sell, buy and sell again. S11\\GamePlay I get engrossed in buying or selling stuff, running all over the place for resources, running back to the AH. S20\\Interview I am running around Ashenvale and mining, which is one of my skills in order to gain ore. I can use them to create items. It is entertaining keeps when you run around the world, find ore, collect it. S10\\Gameplay
2. Rewards	**The game provides different types of reinforcements to players for completing in-game goals successfully.**	
2.1. Routine Rewards	Reinforcements that players consider as part of usual gameplay without being surprised for achieving them. These rewards are part of indispensable goals that allow players to achieve other goals or rewards like experience points and weekly points for buying powerful items.	I don't really see points as a reward. To me, they are something you have to earn. You need the points to get better gears. They are more of work to earn it.(Interviews\\S18) Drops keep people raiding because they want that item, and they'll keep killing that boss every week until they get that item. Interviews\\S1) Justice points and Valour points are indispensable because I need them to buy gears or heirlooms. So, those are quite needed. They are quite predictable because before you complete them you are told that you would get this. There is not really an element of surprise or satisfaction of getting them. They are like the gold that they give out. They are quite standard. Interviews\\S5
2.2. Remarkable Rewards	The game offers remarkable rewards such as mounts, rare items, and rare titles for	I really played attentively for some of my current titles like Hand of Adel. Rare titles are like a milestone for

	completing some challenging tasks. To obtain such rewards, players have to completely concentrate on gaming.	you to hit in the game. So, you will tend to really try for it. S2\\Interview There's this volcanic mount that we have been trying, with my friend for a long time. There are a total of about 20 objectives remaining to get it. I am only left with 2 or 3. Some of them are too difficult, but you just keep doing them. Such mount definitely makes people keep trying it. S9\\Interview
2.3. Unsatisfactory achievements	Players expect to be offered with satisfactory rewards when they spend time on doing a task. If rewards are small or if they are unfairly distributed, players feel frustrated.	There are runs with four bosses, and all four bosses drop leather which is not use for my character. You feel bored that the guild is running for just some players. I feel dissatisfied that I wasted my time and didn't get anything S14\\Interview I'll feel disappointed if I do not get what I want S19\\Interview I will be quite frustrated when people roll on loot that they don't need. I get so disappointed of playing the game when they take the loot that you legitimately needed it. S1//Interview When I am tanking and the tank gear drops. The tank should have first priority in getting it. When DPS needs it, I go crazy and then I will start scolding the guy. S20\\Interview
2.4. Assured Rewards	When player are offered with some amount of rewards such as points even without contributing to the joint activity, they lose motivation and get half-hearted to actively engage in that activity.	There are people who go to battleground, and they don't play…The point is just for the honor of winning. There is not honor for losing. The honor is for free. Every time the team wins, players get the honor. That motivates people to go afk. They are not contributing anything to the fight. Gameplay Session\\S1
2.5. Greedy for achievements	When players are tempted to achieve the goals that require long-term efforts in several gaming sessions, they have to play the game excessively. In this case, they may not enjoy the game.	When I wanted to max level all my reputation points quickly, I went into battleground and just spend time inside. It turned to damn boring. Maybe you play 1 or 2 battleground and enjoy them. But when you reach the fifth or sixth ones, you will just start to walk around... I made the game screen smaller and started watching a video on another window just to collect points in a day. I went on overnight to complete point caps S9\\Interview When I was leveling up my first character, in whatever free time I would just play the game. You really push your schedule. You actually sleep much later than you should be sleeping just to get to the max level quickly…Now I can say it is not fun if you lose yourself in the game. That can actually be detrimental because the game starts to take up your real life.S2\\Interview
3. Desire for achievement	**Players are motivated to play the game to complete goals and obtain rewards.**	

3.1. Desire to "Stand out"	Players who desire to stand out as a unique character in the game for rare titles or mounts have to play the game studiously, with increased concentartion.	I think desire for more reputation] is a huge part of gaming, analogous to research and science culture in terms of reputation and publication. Achieving a high level, more goods, better items, higher profession skills and so on are all actual numeric measurements of your accomplishments in the game. And that's how we rate ourselves in the game. S10\\Interview When I get a big item, I just put it on and feel great. Sometimes you just stand in the city and feel like 'check out my stuff'. S9\\interview I feel good if I get something that is rare that other people don't have. I feel good because I have a chance to display it, and then you know people would know that you have something rare or something good. S5\\Interview
3.2. Desire for Victory in PvP Battles	Some players continue playing battlegrounds for a long time as they hope they will be able to win the opposing team of players in battlegrounds after losing the game several times. In this case, players become more determined to win the opposing faction.	When as a 10 people, we keep on fighting and we are wining, you know at 5 o'clock for instance you're supposed to stop to exercise, but because you've been winning you keep going on. S16\\Interview. The reason why you kept playing for a long time was because you have not won. You need to feel that sense of winning. You need that win, that victory to actually relieve the stress. Sometimes, you keep playing until you attain it so you could go to have a good night sleep. S12\\Interview
3.3. Self-centered for rewards in PUGs	For some players, it is more important to obtain rewards than belonging to an in-game community. However, in semi-permanent communities, players are less self-centered for the rewards.	They don't know you, and they're selfish for loots, even if it is a small upgrade. They just don't want to give it to you because they've had bad experiences themselves. So, they just want to keep everything for themselves. S11\\Interview Once when I was doing some dungeon, two pieces of quite good gears dropped. I needed one of them. I managed to get both of them. Some other player got really jealous or angry. He kept saying, "Give me one of it, or I would leave." And he kept threatening to leave. In the end, I didn't give it to him and he left anyway S5\\Interview
4. Characters' Death	**Whereas the game provide rewards for successfully achieving in-game goals, it is also possible that the game punishes players by characters' death for failure to complete a task.**	
4.1. Get cautious for death penalty	Players get punished by character's death penalty if they make careless mistakes. When the character dies, it loses some resources and points.	The fact that there are some penalty like dying make you more careful S10\\Gameplay I think if there were no punishment at all, people would be much less careful when playing. S1\\Gameplay If you didn't have to run back every time you die, you wouldn't feel motivated for downing a boss. It is

		sometimes frustrating, but I think it is important to motivate you to play with more attention. S6\\Interview It kind of warns you not to destroy your life easily because it costs money. So I guess the pinch of losing money for repairing your equipment after death is a way to teach you a lesson that they shouldn't do stupid things in the game S2\\Interview
4.2. Feel frustrated for death penalty	Players feel frustrated when it takes a long time or a lot of resources to return to the game after their characters get killed.	I'd probably feel frustrated when I have to take a long walk back to the dungeon. If it happens a couple of times, I'd probably quit the dungeon. Gameplay\\S7\\ When we wipe in raids, it's always a chore because we have to waste about ten minutes to have a whole group resurrect, run back, rebuff up, use expensive buffs and potions. So, it affects everybody's mood. S4\\Interview When I was levelling, I died in a dungeon. I had to run my way back into the instance. In some of the dungeons, it is very hard to find entrances. There was one particular occasion that I got very frustrated that I couldn't find it for a few minutes S5\\Interview Death in WoW used to take a long time. Earlier, when you died in the world, it would take a long time to run back to your body. There were also very few graveyards. It is good that they've changed that recently to make resurrection a little bit faster. So, nowadays the death penalty is less frustrating. S6\\Gameplay Death in WoW is fine compared to other MMOs. I used to play Diablo. The death penalty there is harsh as you lose a lot of experience. When you achieve a certain level and you die, you have to start again. Gameplay\\S11 I am dead. Because there are people alive, sometimes they can resurrect you. Instead of running back to the place and wasting time, it is possible that people resurrect me. That also helps the death to be more tolerable Gameplay\\S11 World of Warcraft is a very friendly game in a sense for death penalty. I mean dying is just a matter of losing a bit of gold. s12\\Interview
5. Exploratory aspects of the game and Sense of curiosity	**World of Warcraft arouses and then satisfies players curiosity by encouraging players to engage in exploration of the game. Exploration is facilitated through expansion packs and new patches, surprising rewards, new decoration for specific real life events.**	
5.1. Expansion packs and new patches	Players become more curious to play the game when new	When Cata was released, I was so excited for dungeons...It was exciting for the sort of graphics and

	contents and features are added to the game.	bosses' new mechanics. S20\\Gameplay The expansions are attractive as they release the level cap, new skills, even a new class. S12\\Interview The game becomes more attractive when they change all the old dungeons or quests. The game becomes worth to go back and look at changes. S2\\Interview Whey they release new content in expansion packs, they really change all of the old stuff. I become motivated to redo all of the new low level quests so that you know what has been changed. S6\\Interview The main reasons I go for the Dungeons and quests in new expansions is to look at the new features that have been implemented, the new architecture, and the new mechanics that the bosses have. S11\\Interview When you engage in new contents, your attention is fully on the task and you won't care about your surroundings at all because new designs and new storyline attracts you. Interviews\\S7
5.2. Specific curiosity	When players experience the game or a particular activity such as raiding for the first time, they completely concentrate on gaming.	When you just buy the game, it is really awesome because there are so many different things that you can experience and explore…When I just got the game, sometimes I just spend hours playing the game. I just wouldn't go down for dinner even though my mom called me to go down. S11\\Interview When I was leveling my first character. I got so interested in how he fights or how his abilities work. As new abilities come in, it gets more and more interesting and complex. It happened that just lost track on how much time I spent on it. Sometimes, I would just keep going for about 6 hours before I realized what time it was. S18\\Interview I was so excited when I was tanking in raid for the first time …I was excited to see the boss for the first time; his colors, animation, and his skills S4\\Interview When I played the Dragonsoul for the first time, I became quite attracted to the game. The dialogues that the game heroes are talking to you about are so immersive. Sometimes, your name is inserted in the dialogue, and you listen more carefully. You feel really good about yourself when you know you are part of the storyline. S22\\Interview
5.3. Sensory curiosity	The game changes the light, sound, or other sensory stimuli of the game space during festivities that center around holidays and special events in real life. In such occasions, players become more interested in playing the game.	There are specific calendar events that only last for a week or two. I just want to collect as many rewards like Valentine flower as I can before the event is over. S8\\Interview There was additional continent of Northrend in the expansion pack of Wrath of Lich King. With Cataclysm, they reshaped the entire continents. So, it is an attractive experience to travel these places that you've travelled once before. It is interesting to see the

		different changes…I am fascinated to such changes and go back to new happenings in the game. S3\\Interview When the patch 4.2 just came out, there was Fireland dailies. I became so attracted to do it over and over again, every day, without any missed days. I wanted to get the gear as soon as possible. s24\\Interview When you go to a new surrounding, you just want to look around and find out what is around you. So, you are very excited. S11\\Interview
5.4. Surprising rewards	The game includes surprising rewards to routine activities. Desire to achieve such rewards motivate players to play the game more attentively.	Recently, there was the Lunar Festival event, and I traveled all around the place, looking for the eldest to collect the token. I could trade tokens for a lantern. I was really immersed in collecting the lanterns as I had to keep checking every place to see where the eldest were. I spent a lot of time like flying around and just collecting the tokens without noticing how much time I spent on gaming. These kind of specific events come around like once a year. So I want to make sure that like I get to do whatever I can within that short period of time. S5\\Interview There are usually a lot of calendar events. I would play eagerly to see what kind of pets or mounts I can get. S8\\Gameplay Now because we are in a specific event, Valentine, so I normally do the daily quests to collect Valentine rewards. S16\\Gameplay Now is Valentine's Day. They will have Valentine's festive every year. Within the two weeks or so I have the chance to attain a certain achievement or certain item. That's only attainable during this set week. I eagerly try to collect as many rewards as possible. S12\\Interview
5.5. Feel bored of old tasks in the game	When players play a part of the game for a long time, and there not any changes to the game, they feel bored of the game.	I've done this particular boss at least twenty to thirty times. You really just hope that this goes away. It is really kind of irritating after a while S6\\Gameplay After you play an expansion pack for 1 year or so, it gets somewhat monotonous. S4\\Interview After playing an expansion for a long time, the game gets boring. It's not as refreshing as when you start playing the expansion enthusiastically. ..There was a time when I wanted to stop because there was really nothing new to do. So, I felt kind of bored. I just stopped for a while. I waited for Cata to come, and when it came out, I returned to the game. S15\\Interview Every time you defeat the end boss, it is kind of feeling you just finished the game, and it gets kind of boring. But, when they release a new expansion, I would just feel this urge to buy the game and explore. \S11\\Interview

		I have stopped playing a few times because near to the ends, after you kill the last boss you feel bored. You would say "OK that's it, I have seen everything there". S11\\Interview Raiding tends to get repetitive because every week everyone is doing the same thing. To me who have been playing for like 3 years, raiding's becomes a routine, unless you're fighting a boss that no one has ever killed it. S16\\Interview At the end of expansion in Wrath, it was really boring. So, we went down to ten men. Most of my guild members stopped for a period of one or two months. We really didn't want to play anymore because it got boring. When Cataclysm came out we went back up again. S17\\Interview
6. Social affordances	**Social affordances refer to action possibilities related to social interaction between two or more players in the game space.**	
6.1. Social commitment	Players feel responsible to pay careful attention to their roles in joint activities because if they wipe the whole group they will be scolded by teammates.	Sometimes, in the raid the position I need to stand is quite specific. I have to make sure I am at the right spot. If not, it might cause the raid to wipe. S13\\GamePlay We have people who wipe the raid here and there. We tell them "come on, don't do that again, don't be stupid, and don't wipe the raid". S17\\Interview I have wiped the raid group several times. I feel bad for one week or so. You will feel like oh damn, that shouldn't have happened, but after a while you kind of forget about it. S17\\Interview I'll feel really cautious because I don't want to screw things up. S19\\Interview Sometimes, a small slip can kill the entire raid. You need to be more careful because raiding consists of many other people, not just yourself. As it is a team effort every person that messes up will actually bring down the entire group. By mistakes, you are not just wasting your own time. You're wasting all 24 other people's time. That's why you need to be more careful not to drag everyone down. S2\\Interview
6.2. Assessment by teammates	The group leaders or other teammates continually assess a player's output damage and performance. In PUGs, players with low performance will be kicked out of group. Group evaluations motivate people to play with increased concentration.	I have led the raid several times. One person wasn't that good. He was late and didn't have good DPS. So, I dropped him from my roster and basically black listed him as a bad player. Interviews\\S18 Among guild members, we do point out mistakes a lot. We try to help them improve their performance. For example if I see a person is doing low dps, I would say "maybe you can try doing this again it probably gets better dps" S17\\Interview

		I use DPS Recount. It allows me to see who's doing how much DPS. If they are not doing enough DPS, they'll get kicked out…If you do not fulfill these roles properly we have the right to replace you with someone who is better. Otherwise, we cannot down the boss. S19\\Interview If there's somebody else who comes up and challenges you for your position, like for my Healer role. Well, if he's way better than me then they may replace me with him. So, there's competition to have the best performance in raids because if you underperform they'll boot you out S1\\Interview It's a source of humour if somebody is underperforming. Everybody would say like "hey why are you slacking?" or "what are you doing that you're not pulling enough dps?" So, we would tease each other over numbers. S3//Interview
6.3. Competition for Outperformance	Certain features such as Battleground Stats, Deadly Boss Mod, Achievement Points, and item levels allow players to compare their performance and progress with other players. Such in-game features motivate players to be more attentive.	Competition for damage output is an ego boost as well as aggravation because it is enjoyable when I'm doing better than others. S18\\Interview I have this add-on called recount, which provides information about your DPS and healing. So, you can compare with other characters. For example in the dungeon, you can compare your DPS with group-mates Gameplay Session\\S7 I would definitely play rigorously to have the highest DPS in the whole raid. When I eventually do, I'll feel happy to see my damage at the top of the 25 man. It is enjoyable to have a huge number compared to them. S7\\Interview I would pay more attention to maximise my damage output by dealing with my cool-downs better. In the boss fight, I try to queue spells. Also outside the game, I'll read up and see how I can improve my dps. S8\\Interview I find competition for more damage output the biggest attraction of the game. During the fights or after the fights, we discuss how we can improve our damage. We just compare and compete, and laugh at each other's' damage. S6\\GamePlay I always have one eye on my focus and one eye on recount. So, I'm constantly trying to get as much damage out as possible. I'm always competing with people who are same class as me. I am immersed in the game as I am trying to outdamage everyone. S22\\Interview
6.4. Leading role	Players with the leading role in a group such as a guild leader, main healer or tank feel that they are important to the group. When players have a leading role, they pay	When you raid as a guild leader, you will definitely be more immersed in the game because you are forced to be aware of everything. You cannot be just aware of your own role. (Interviews\\S17)

	undivided attention to their duties.	I think my role as a healer is one of important roles in raids because as long as nobody dies we can kill the boss. S11\\GamePlay If you are the tank, obviously you have more responsibility in the game. You are sort of in charge like a leader. You tell others what to do, what not to do and all that. I am quite deeply connected in guild raids because I'm the tank. S19\\Interview As a Healer, my role is to keep everybody's health over 10% in a particular boss fight. So, this fight was totally Healer fight because the healers were the ones doing everything in this fight. I remember I was immersed in my duty to keep everyone's health over 10%. S1\\Interview Before starting the boss fight, I watched some videos on YouTube to figure out how to use my skills to have the maximum damage output… During the boss fight, I was like 100% paying attention to the boss. I did my best to use all the useful weapons, skills, buffs, debuffs, and so on to hit the boss as much as I can… When we managed to down him, it was such a great feeling…I felt like a hero…Everyone shouting and thanking the DPSes. S8\\Interview
6.5. High cooperation and coordination	Difficult joint activities such as boss fights or arena battles require high level of cooperation and coordination. Players completely focus on the game when a challenge task require high levels of cooperation.	I like the co-operative aspect of raiding because you really have to work together with your team. (Gameplay Session\\S18) I mostly experience such immersion during raiding with my guildies because to me it is the ultimate expression of co-operation in WoW… I guess immersion has to do with cooperation in raiding because you really have to work closely with your team. It requires high level of co-operation and sort of maximizes your concentration on killing the boss. S4\\Gameplay Probably the most immersive experience is when I raid with my guild members. We usually talk about how to raid and how to react during the different phases of the boss encounter. It is actually very immersive if you're doing it with your guild members. S7\\Interview I think I lose track of time when we down the particular boss which we tried so many hours… Raids require a lot of position and teamwork with the rest of your members. It is like a puzzle that everyone has to put in effort in order to be able to solve it. It is really sort of very high tempo that you forget about your surroundings S13\\Interview I actually get quite immersed in rated battles. You just shout across your instruction, let your teammates know

		what you're going to do, what you want them to do. You really need everybody cooperate. S9\\Interview I pay undivided attention to rated battles because you really have to have a very good teamwork with your friend in order to win the arena. You have to completely focus on what your friend is going to do, where to run, or what you can do and what you shouldn't do in order to win. S11\\Interview
6.6. Casual conversation	Players have different social conversations such as jokes, chitchats, and comments on game issues with guild members. They even talk about real life and personal issues with in-game friends. Such social activities increase sense of community and intimacy among teammates.	Every time I log on, there are people talking in the guild channel. It is pretty amusing. So, I always have a conversation with them during gameplay. Gameplay \\S6 Among guild members, there's a lot of trash talk. There is a lot of fun stuff. Even when I run dungeons I prefer to do it with the guild, just because it is more fun to talk and play. S17\\Interview If they are online, like on Ventrilo, I chat with them while I am playing. In that way, I feel like I am more immersed in the game for having good, close friends on the game. S10\\Interview Even if we are not raiding, we sometimes do hop onto Ventrilo and just chat. So, we will be talking about random stuff. I mostly just sit there and listen. Sometimes, the conversation is quite amusing S25\\Interview We actually play and chat at the same time. So, it's more fun. We know each other. It's more enjoyable in a way. S4\\Interview
6.7. Disturbing players	Players feel frustrated at people who have improper behaviours in the game such as ganking, scamming, griefing, and Ninja looting.	The problem with Dungeon Finder and LFR is that you may have people who don't really behave properly. They may be immature, causing trouble for the raid. (Gameplay Session\\S18) Those people are like endless sources of frustration. Gameplay\\S1 In a random group raid, there is a bunch of strangers. You inevitably get people who just cuss, who are mean, who cast people out for nothing. Or, there are Healers who let the tank die easily. These people are endless sources of frustration. S1\\Interview
6.7.1. Noobs	Players feel frustrated when they become teammates with people who are either new to WoW or ignorant of how to play their character.	In dungeons or raids, some players don't know what they are doing. They don't read up about the fights. It really pisses me off. S3\\GamePlay Some of them don't seem to be doing their best, or they don't want to do a competent job. It makes me feel frustrated if they are just fooling around and doing stupid things in a group. S18\\Interview There are times that the healer can't heal me up, or the tank can't tank, and you'll just stuck there and die. You

		get so frustrated of wasting your time. You just leave S14\\Interview
6.7.2. Griefing	Players feel frustrated when a player deliberately cause massive death to the whole group.	I've had a few experiences that people intentionally were doing something wrong to wipe the group. That was irritating. S7\\Interview It is irritating when some people purposefully try to kill a raid. They pull the boss beforehand, when no one is ready S12\\Interview Some idiots just enter the raid and agro the boss and leave. Twenty four people will die. Everyone will really get upset. S22\\Interview
6.7.3. Ganking	Some players feel frustrated when they are levelling up a character, and they are killed by members of the opposing faction repeatedly.	When you're levelling, especially on a PVP server a person from an opposing faction comes and doesn't let you. He just follows you and waits for you at the corpse, and whenever you respawn, he just kills you over and over. S8\\Interview I was questing at Twilight Highlands. There was a goblin who kept following me around and attacking me. Every time. I resurrected he would come and kill me again. That really frustrated me S5\\Interview It really pissed me off because earlier when I only had the weekends to play. If you're going to spend two hours waiting for this guy to leave your corpse, you lose a lot of valuable time. It really pissed me off last time. S3\\Interview
6.7.4. Loot Ninjas	Players feel frustrated at people who role for all items greedily even if they do not need them.	It pisses me off when I see people who need on all loots that they don't actually need. They just don't reply or ignore you when you tell them. These are people who steal your stuff. You get really pissed about it because you really need the things. S11\\Interview It is irritating when people need an item that you really need. They don't give it to others even if it is not useful for their class. S10\\Interview When I encounter ninjas I really get frustrated S20\\Interview
6.8. Options to deal with disturbing players	Players have several options to deal with disturbing player. For example they can blacklist disturbing players, report misbehaviors to Game Master, or vote to kick out players from the group.	I have a whisper from somebody after this second wipe. He said that we should kick the tank. Someone wants to kick the tank because he is not doing a good job. S11\\Gameplay If it is a serious case, like stealing your stuff, you can actually file a complaint against them S12\\Interview When you get frustrated at a raid or a particular task you say I'm just going to turn this off and walk away from this. I'm not going to play this anymore. S10\\Interview It is normal that we shouldn't let one single person affect the gameplay of all 24 other people. If a person

		becomes a consistent problem, the most obvious way is to just remove the person from the game S2\\Interview You can send a ticket to the game masters and you will get refunded whatever you have lost. S3\\Interview If you see that someone is not really behaving ideally you just kick the person. You don't really bother to scold him or anything anymore. You just like, OK, this is it for you, goodbye. S8\\Interview
7. Control and customization options	**Control and customization options refer to game features that allow players to manipulate the game content or their characters to their preferences and needs.**	
7.1. Hotkeys	Hotkeys allow players to define which keys of the keyboard perform which actions or skills. Players feel a sense of control over their characters'' movements and skills through customization of hotkeys.	The fact that you can assign spells and abilities to all the buttons gives you more freedom in choosing how you want to play. It allows you to find your own suitable playing style. S25\\Interview The point of the hard key is to put the abilities that you need to use quickly near WASD, like spread them a moment in places where your fingers can easily reach. (Gameplay Session\\S1) Key-bindings are very convenient as you avoid being a clicker. When you bind the keys to any of the buttons here, you don't have to mouse over them to click, which takes a few second times more. For instance, if I want to dispel someone, it takes some time to click on the dispel skill S16\\Gameplay I customize the hard-keys until it feels second nature for me. So, I do not need to struggle thinking about them because it has already become part of my sub-conscious. So, there's no need to spend time looking at keyboard with your two eyes down when you press them. S2\\Interview Key-bindings make the game almost an extension of yourself. For instance, I need to cast a spell; I can do it without having to think about buttons... So, the sense that keys are part of your body is really important for immersion in the game S6\\Interview The fact that I can set up some key binds help me to play properly. It gives you a lot more flexibility and control over how you want to play S8\\Gameplay My own setup bind is quite comforting because I know where everything is. I know how to react quickly if something happens. I know where to look if I need information. I suppose customization options in WoW gives grant you a lot of mastery in the game. S18\\Interview

7.2. Macros	Macros allow grouping several commends and executing them with one click on a button.	Macros are like writing codes in the game. By making macro, you can really go beyond just the button-does-this level to having three functions to be done in a row by one click. With macros, I feel the computer is doing all the things I want, based on the codes I write. So, that's probably the most fundamental part of feeling control over the game S10\\Gameplay The macro enables you to do several actions simultaneously that otherwise would take a longer time…It is like a short cut. S13\\Interview Macros are important for sense of master because they allow you to cut down the number of buttons that you have to press S11\\Interview A big part of customization in WoW is the macros because they allow you to perform two or three skills together. I can free up more space in the action bar…I'm not good at typing as my fingers are quite clumsy. With macros I get to do more things better S4\\Interview With macros, I can stack some spells together. It is easier to press one button and all 3 spells will be cast together…I think I have a lot of control over my movements, my spell castings with macros. S19\\Interview
7.3. Add-ons	Third-party programs called add-ons or MODs allow players to change the game to their preferences.	Fishing add-on give you information about which areas you have fished and how many items you have retrieved from that fishing pool. Interviews\\S7 The quest add-on will tell you which direction to fly. You do not need to read the whole quest and figure out where to get it. You just fly. It's much faster with that add-on. S11\\Interview By the add-on auctioneer, you just hover your mouse over an item. It will tell you what to do with the item. It tells you the market price. You get to know if you should sell it to the vendor or auction it or disenchant it. It makes auctioning very easy. S22\\Interview Auction house is a lot easier with add-ons. Everything gets automated. You just click a button, and it scans all items. It tells you what you can craft S17\\Interview Add-ons make questing easier, they make tracking your cool-downs easier. Even when you're dpsing, you use add-ons to remind you to do certain functions at different times. S3//Interview Deadly Boss Mod is pretty is pretty helpful in raiding because it provides more cues, informs you to get out of fire, or warns you that something is coming. With DBM, you will get ready beforehand. S17\\Interview Deadly Boss Moss makes you to be more focused on boss fight. It compiles the cool-downs of all the bosses altogether. For example, when the boss is going to cast

		a spell, a pop-up will come out and say that this boss is casting this, interrupt now. S19\\Interview DBM send out aural sounds when something is about to happen, something big that you need to be wary of or you need to get out of. That make you much warier of what the boss is going to do. S22\\Interview Gladius makes PvP easier. For example I will get to know if the opponent used the trinket. Without Gladius, it's almost impossible to know whether the opponent has used the trinket or not. S16\\Interview The Gladius, for arena, shows you what's going on in the arena, what the enemy player is doing, and who the enemies are. During arena, you become more focused on your enemies when you get information about their skills. S6\\Interview
7.3.1. Customization of User Interface by Add-ons	Some add-ons allow players to change the default screen of the game to match it with their gaming habit. In this case, players feel more control over the game.	For my own set-up, I've customized it such that the character portraits and my target portraits are in the middle. Everything is in the same plane of vision. My spells are at middle bottom, debuffs and buffs are around middle-centre, underneath my character. So, it helps me to keep my vision on the middle of the screen. (Gameplay Session\\S17) I've used add-ons to move action bars around, get rid of the mini map and other unnecessary default features on the screen. (Interviews\\S18) Customization of UI is really helpful for your character. When I play a healer, I can move around raid frames to better suit how I see what's going on. s24\\Gameplay Because I am used to my key-bindings I feel more control over the game. When I first started playing WoW, I didn't use the WoW default interface. I downloaded add-ons. I am actually comfortable with my own add-ons and interface. S7\\Gameplay I love my raid frames right in the centre, at the bottom centre. When I play other games like Star Wars and I see the frame at the bottom, I feel very irritated that I can't change it. S6\\Interview Add-ons allow me to move action bars around, get rid of the mini map…I've got too used to having add-ons to make the UI more user friendly. S8\\Interview WoW's default interface is very similar to all the other games' interface. You have the regular health bar, the map, and the spells. But, WoW gives you the ability to customize everything with add-ons. You can put your health bar right beside your manna bar. The whole interface can be changed to your preference S19\\Interview
7.4. Limited creativity in customization	Players do not use their own preferences for customization	That's limitation of customization in WoW that talent tree has a cookie cutter build. You can go on to forums

	of some parts of the game such as talent tree. In this case, players merely follow how others have customized their characters. Limited creativity in customization diminishes sense of effectance.	and read about it. They would tell you how to invest your talent points so that you yield more dps or heal…Right now, there is no distinction between an arcane, a frost or a fire mage. They're all just doing the role of dps. While you are just investing talent points into different talent trees, there is no distinction. Now, my talent points are invested based on what I read on a forum. S3\\Interview I do not think there's much customisation when it comes to talent trees because there is a fixed build online and everyone follows it. For WoW, there's not really much customisation in talents because if you don't add that talent, your tank won't be good. So you have to add that talent, and there's no customisation in it. S19\\Interview Talent trees give you an option to what kind of role you want to play during the dungeons…You can actually look at other character's talents, compare it with your own talents, and if you feel that their combination is better, you change your talents. S7\\Gameplay Within spec there're only three talent trees. Customizability for talent tree and specs are limited. Hopefully, they are going to be a little more options in the next expansion with the new talent system… I think that the fact that you have to have a cookie cutter talent is just quite boring. S17\\Interview
7.5. Character Customization Options	Several options such as transmogrification, specing, race change, reforging allow players to create their favorite character. Such character customization options increase players' attachment to the character.	To be able to customize the character definitely adds a lot of diversity to the game. When you have so many items to use for your character, it creates diversity; otherwise the game would be so boring because everyone is the same. S11\\Gameplay When you can create a character that you like and when you have its own features according to your preference, you feel more attached to it. S12\\Interview I mostly look at how my character is geared. I try to customize so many things of my character with transmogrification. I even change my outfit to look like something else. It allows you to make your character yours and what you want him to be like. S6\\Interview It is very useful for your character that you can reforge and change stats of some items into another stat that suits your playing style. S3\\Interview I'm really a big fan of the transmogrification feature because I really hate the character looks ugly. I'm known in guild to be a person who would use items because of how it looks. S17\\Interview When I got to level eighty five that I could change my appearance, I started hunting for transmorg gears. I would go online to find out which gear is nice and

		where to find it. I tried to transmogrify my items to look as attractive as a I can S22\\Interview I usually spend like 5 to 10 minutes when I create a character. Each time I get to change the hair, the skin, the face. I really like to be able to customize my own character. S20\\Interview The more you look at your character, the more you are attached to her. That's why World of Warcraft has come up with the transmogrification to allow players to customize gears pseudo. I love this outfit of my priest very much. S16\\Gameplay Whenever I have nothing to do, or I am waiting in the queue, I take a glance at my character to see how I can improve on the design. Priests are like angel. I purposely went to get gears that can be transmogrified to make her more attractive.\S11\\Gameplay This character is my main, I've started out with him about four years ago. I changed the race a few times, I also transferred server with him a few times. S18\\Gameplay I started with him as a Night Elf. He is a carryover from Warcraft 3. I changed the race several times. When Worgen became available, I race-changed that for DPS S6\\Interview When you build a character for so long, it just feels strange to start a new one.I was from the alliance, but when I decided to go to the horde I didn't make a new character. I paid for a transfer about sixty over dollars. I did it anyways because I just can't leave my character\S3\\Interview
8. Customization of the difficulty level of the game	**Players can adjust the difficulty level of the game based on their skills and their characters' capabilities**	
8.1. Challenging tasks: Arenas battles	Arena battles are fights between two teams of 2v2, 3v3, or 5v5 players in a death match style. Players with high game self-efficacy engage in challenging tasks.	Arena is obviously a challenging part of WoW that few people would go for. I think it kind of requires your own personal skill in addition to good PvP gears.S23\\Interview To be a good pvper of arenas, you need to have right gear and skill. Without good resilience, people cannot get damage reduction, and they will die very fast in arena battles... When you're over-geared, you're confident. You get to kill people easily. That feels good in a way that you're not afraid of dying. You're not so afraid of not being able to perform to other's expectations. S6\\Interview
8.2. Challenging tasks: Heroic Mode of raids and dungeons	The game allows players to increase the difficulty level of dungeons or raids by choosing the heroic mode. Bosses and mobs in heroic mode have	The current challenging content for raids is Dragonsoul. We have very few people who can currently complete heroic Dragonsoul because it really requires strong gears. Without good gears, it is really difficult to do it. My guild-mates look forward to

	higher health level, hit harder, and have additional skills.	getting better gears to go for the heroic Dragonsoul. S15\\Gameplay I can easily play dungeons with heroic modes because my shadow priest is quite well-geared. It is ranked in this realm on my current gear score. S13\\Gameplay Heroic contents are manageable for me with my current character ranking and gear score. With this character ranking, I get to know where I stand in the realm itself, or on the server itself. I even get to know where I stand among the Priests in my realm. I think that it is quite a deciding factor to play contents on heroic mode. S18\\Interview I have pretty good gear on my main character. I can go back to the Level 80 dungeons which used to be for 10 or 25 men, and I can solo the dungeon. So I can actually try to get rare mounts or rare items from there, which other people would have to do in a group. S11\\Interview You must have the specific skills and ratings to be part of core raiders. If we are more capable and more confident, we'll choose to go for it. When I doing heroics with my guild members, it feels great as we get much better loots and items. People look up to you because they are not capable of doing such difficult tasks. S16\\Interview
8.3. Strong resolution of players with high game self- efficacy	Players who have high game self-efficacy are more determined to complete challenging tasks.	We were trying to progress on a particular boss on heroic mode, but we just couldn't do enough output to be able to down it. We were actually very demoralized at first, but on the other hand we knew that it is mainly because of our gear level. We had to continue doing the normal mode first to gear up some more before we come back to attempt on the hard mode…That was actually quite a motivating factor for us to want to gear up quicker.S13\\Interview Sometimes, we are not able to down the boss because some of us haven't got the hang of the boss mechanics, and we just screw up. Under those situations, we will try our best to explain the fight to everyone We make sure that everyone knows the fight. In that situation, we know if we keep trying eventually we will kill the boss. S6\\Interview When we know it is statically possible to down the boss with our gear, we will try to find a way to defeat the boss despite being wiped several times. We just keep trying and trying until we progress to defeat the boss. S11\\Interview In Blackwing Descent, there are 4 bosses down there. If a boss casts this spell all your teammates have to go to the boss. Soon after that, we have to change the boss, and we have to focus our attention on the other boss. We were decided to complete it. We kept reminding the teammates of their mistakes and wanted

		them to be patient. We keep wiping several times. Finally, we managed to kill the boss, but it took quite awhile after wiping. S19\\Interview Sometimes, when we know other with similar raid rank managed to kill a particular boss, we also become motivated to complete it. We did wipe about thirty times. We would resurrect, repair our items, and continue it. When hear other managed to do it, you become more decided to down the boss. S14\\Interview You know that the boss is not so difficult that you cannot down him, you feel motivated to kill him by more attempts. You get this thirst that you really want to complete it because it's been done before. You watched videos. In your mind, you've run through it. You are still wiping. You keep trying and trying. When you manage to down him, it's very rewarding. S22\\Interview
8.4. Feel suspense during challenging tasks	Feeling suspense refers to situations that players are not sure about the outcome of their attempts. In such occasions, players pay undivided attention to the task to be successful.	We killed the boss in Deathwing by the skin of our teeth. I think only one member was alive at the end of it. The added difficulty that we wiped a few times was so thrilling. S18\\Interview Sometimes, in boss fights we are very close to kill it, but it is also probable that we do not get it killed. Sometimes, occasionally you make a mistake and you fail that night to kill it. S17\\Interview The raid Blackwing Lair was really difficult to down the final boss, Nefarian, in a forty man raid. I think we just did it by few people were left alive…The feeling was like heart in your throat to do it. We had a great feeling of accomplishment after many nights of trying to do it. S\\Interview When it's in the middle of boss fight, your hopes get higher because we are hopeful that we can down the boss. You get more stressed, and you focus more because you want to make sure that you don't make any mistakes. Then, when the boss is finally about to die, you really get excited. You know that he's going to die soon, but still you are not sure. You should not make any mistakes. All of you should concentrate and focus. When you're really able to down the boss, the feeling is really immense. The amount of excitement and satisfaction is really rewarding. S21\\Interview It's a very intense feeling in arena battles because every split second counts. S7\\Interview
8.5. Undivided attention during challenging tasks	Players pay more attention to the game during challenging tasks as they are concerned that they may not succeed.	When you are attacking the boss, you have to focus on what are the boss actions. You have to take note of all movements and skill of the boss, which might take up a lot of your attention. S7\\Interview You have to be really focused on what is the boss casting. For example, after like 25% of his HP, you know it goes to the phase 2. You have to be quite

		focused that before phase 2 everyone is healed up. You have to interrupt perfectly on time; otherwise it would be a wipe. You have to stack when the boss is casting something, or spread if it is casting another spell. S19\\Interview When I go into a raid, I would like just block out everything around me. So, I'm not really bothered about whatever happens around me. I would just concentrate on what is going on in the raid and what my teammates are talking about. S25\\Interview When the opponents are equally good or even better, you really need to put your 110%. You have to be really focused. If you're not focused, you will lose the game… When I'm playing arena, I even tell my parents that I need to concentrate. So, they will not come and talk to me S16\\Interview
8.6. Less challenging tasks	The game provides tasks such as raid with PUGs that are less challenging than raid with guild members. Casual players who cannot regularly play the game feel satisfied of being able to engage in such semi-challenging tasks.	For casual players like me, I can reach the standard of the game through LFR. Raid with PUGs is easier compared to 10-men raids, and it helps me to get better gears faster. It is easy to learn the boss fight. You are more likely to play more often because you know you won't waste all the night just wiping on a raid. S22\\Gameplay Dungeon finders and the raid finders are added to expansions to make the game more appealing to people who cannot spend a lot of time on gaming. S11\\Interview In the past, you actually had to look for friends to join a raid, whereas now they came out with this LFR that allow you to find a group very quickly. S12\\Gameplay I've never ran a raid with guild members. I'm always using the raid finder. I guess I am not very skilful for raiding with guild members. I hope I will be able to eventually do it after getting more experience from raid finder. S5\\Interview
8.6.1. Casual players	Casual players are people who cannot stay committed to a group of players to be online a certain time or continue gaming up to a certain point. These people play the game irregularly since they are busy with real life issues.	I'm just a casual player. I'm not a core raider. I mostly do PUGs. So, if something urgent happens, I can easily leave the group. S2\\Interview There are players who happen to be the same as me, with children or with wives. Sometimes, I have to go halfway through the game because the baby is crying and I need to leave the game. S20\\Interview You have to be present at a particular day, at a particular time to be able to raid with guild members. I cannot put in the commitment because I have to spend more time with my family. S20\\Interview I do not have time to play a lot these days as I need to study and work. Sometimes, I stop playing. When the semester is over in term break, I subscribe again and play for the duration. S10\\GamePlay

8.6.2. Partial Engagement with the game for less challenging tasks	Less challenging tasks attract casual players to the game. They help players not to lose interest in the game for the difficulty level of the game.	In early packs of WoW, the game was less popular. Blizzard tried to make it easier for those who are not so hard-core to go to raids. It used to require a lot of commitment to play. You had to be there 7 to 12 hours continually, and keep wiping and wiping. Blizzard made everything easier. And with the raid finder, people don't lose interest so easily. Now everybody can get some gear. That's one of good things because now I don't have so much time to play. I am playing just causally. It is definitely good that I can get into the game and obtain items from the raid finder. S11\\Gameplay LFR is definitely good for because I don't have to spend time on building a relationship with guild members. So, I can just complete the raid and leave. If you want to form a raiding team, you have to spend time to prepare the group. S7\\Interview Some people who are serious players or hard-core or enjoy the difficult content of the game find LFR an insult because people work so hard to learn about the fights. They really put in time to know about boss mechanics S3\\Interview
8.7. Frustration after hard attempts with no progress	When players with high game self-efficacy engage in challenging tasks, they expect to succeed in it. If they fail despite spending a reasonable amount of time and efforts, they feel frustrated.	Sometimes, we don't have a progression on a raid. For example, we spend three hour straight on a boss, and we just keep dying, dying, and dying. We get really tired. Some of my guildmates get pissed off and say "oh my god this is stupid". S17\\Interview We tried to finish the boss, but eventually we wiped many times. Then, there were many people who couldn't commit to it as it was getting late. Some of them left and we couldn't complete it without enough members. Eventually we just left the raiding session and decided to try again next time...I felt that it was a waste of time S7\\Interview When things don't progress for maybe 4 or 5 weeks, most players get frustrated, and more quarrelling among guild members happens. S9\\Interview When you encounter raid bosses that are new to you, and you don't really know the mechanics, after a few times of wiping you just really give up. You just don't want to continue anymore. After a while, you just get very frustrated. You don't feel like doing it anymore. So, you just give up. S25\\Interview Sometimes, we try for a month and there's no progress because the raid requires high teamwork. So, it gets very exasperating. S11\\Interview
8.8. Feel bored of easy tasks	When players realize that their skills are greater than the level of the challenge in the game, they feel bored.	When the boss is easy, I feel that that it's not to the standard of blizzard. Honestly, I feel quite disappointed with blizzard. For example, Cataclysm is all about the raid Deathwing. The first time when we tried it, we were so excited. But, when we reached the final part to kill the boss head, we were so disappointed to see how

		easy it was to kill him. S4\\Interview In the past, downing the bosses were quite challenging, which I think it has become easier now. That is the reason why I feel less motivated to play the game as hard-core player. S2\\Interview Last night, I went into a dungeon which was 3 or 4 months old. I have out geared the dungeon. I felt it is getting boring.S12\\Interview When I was farming transmogrification items, I had to play a very low level burning crusade dungeon. When I just started off the dungeon, every mob was one shot kill. That became really boring… I was there just for the item to drop. S22\\Interview I'm going to get bored of unchallenging tasks very quickly. But, we go back to easy raids for achievement or points. I do Magtheridon's Lair once a week purely for gold. S17\\Interview Sometimes you are in dungeons that require the item level of 346. But you're wearing gear with the level of about 378. So, definitely your character is more skillful. It will be quite boring. You lose your motivations to perform well. S20\\Interview If I'm level 85 and I choose to do a low level instance to get transmogrified gears I feel really bored. I would tell myself "why should I even bother to do such an instance which I can just close one eye and kill anyone". S16\\Interview