Gameplay preferences : a mechanics driven approach to understanding the processes behind game preference formation

Tan, Ryan Rui Yang

2018

Tan, R. R. Y. (2018). Gameplay preferences : a mechanics driven approach to understanding the processes behind game preference formation. Master's thesis, Nanyang Technological University, Singapore.

<http://hdl.handle.net/10356/75913>

<https://doi.org/10.32657/10356/75913>

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**GAMEPLAY PREFERENCES: A MECHANICS DRIVEN APPROACH
TO UNDERSTANDING THE PROCESSES BEHIND GAME PREFERENCE
FORMATION**

Ryan Tan Rui Yang

Wee Kim Wee School of Communication & Information

A thesis submitted to the Nanyang Technological University
in partial fulfilment of the requirement for the degree of
Masters of Communications Studies

2017

Abstract

Existing studies on video gaming experiences often highlight psychological constructs of gameplay or explore motivations for general videogame play behaviour. However, these studies do not adequately explain the processes that underlie subjective gaming experiences; in particular, the preferred gaming experiences that individual players seek. Past literature also often treats game mechanics as a marginal component that contributes to videogame experience rather than a necessary facilitator. Game mechanics are an integral enabler of gaming experiences, without which players would not be able to interact with. Gamers construct their subjective conceptualizations of what a preferred gameplay experience entails by engaging with various game components and the mechanics that facilitate them. This process is often subconscious or unknown to players and is understudied in present literature. By investigating both the conceptualizations and engagement of preferred gameplay experiences, as well as the types of game mechanics that facilitate them, this study will further our understanding of how and why videogame players play specific games and develop preferences for one over the other. This study also introduces the use of input-data tracking alongside more traditional qualitative methods to more holistically examine the gameplay process. Thematic analysis will be employed to help identify important factors of preferred gameplay experiences, the mechanics that facilitate these experiences; as well as the relationships between these experiences and players' videogame play preferences.

Keywords: game preferences, videogame, game mechanics, gameplay experience

ACKNOWLEDGEMENTS

I am deeply grateful to my supervisor – Dr. Vivian Chen, who has helped streamline my thought processes, disciplined my writing, and encouraged my academic endeavours, as overly-convoluted as they may be. It has been a privilege and a pleasure to have had you as my supervisor.

I would also like to thank Dr. Liew Kai Khiun for introducing me to Dr. Vivian, for encouraging me to pursue a career in Academia, and for the support and affirmation that I am on the right track.

I also owe a debt of gratitude to Dr. Joseph Walther. Joe, thank you so much for your Philosophy of Research class. It was a harrowing experience but it serves as the basis for my approach and interest in research. Thank you for taking the time to be a friend.

To my friends and colleagues—Jeremy and Kat – my games research senpais; Cliff and Jody – my hobo office buds; ZJ – my fellow hobbit researcher; and to everyone else inhabiting the 5th floor offices—thank you! Many of you have lent me your companionship, advice, and stationery, and all of you have played a part in making my journey enjoyable and fruitful.

To Eunice, thank you for being with me every step of this journey. Thank you for lending me your keen editorial eye and for being so willing to play and discuss games with me despite it not being your preferred experience. You are a constant source of inspiration for me and your academic discipline and excellence motivates me to be better.

Finally, to my family: Gloria, Mum and Dad. For providing me with your endless support and putting up with my long stressed induced baths; for trying to keep me alive when I am holed up in my room working on some last minute assignment – I am profoundly grateful. My academic journey would not have been possible without you.

TABLE OF CONTENTS

ABSTRACT	2
ACKNOWLEDGEMENTS	4
TABLE OF CONTENTS	6
LIST OF FIGURES	8
CHAPTER ONE INTRODUCTION	9
CHAPTER TWO GAMEPLAY EXPERIENCE REVIEW	11
The Player's Experiential Processes	12
Video Gameplay Dimensions	14
CHAPTER THREE GAMEPLAY PREFERENCE REVIEW	19
Player Experiences (1.1) – The Importance of Prior Experience	20
Brief Note on Preference vs Enjoyment (1.2).....	21
Player Experience Preferences (2.1) – Current Literature.....	22
Player Experience Preferences (2.2) – Subjective Motivations for Play and Preference.....	24
CHAPTER FOUR RECONCEPTUALIZING EXPERIENCE.....	27
Duality of Gameplay Experience.....	27
The Embodied Virtual Experience	28
The Virtual Embodiment Process – Convergence, Presence, Agency	29
CHAPTER FIVE CONCEPTUALIZING GAME MECHANICS	37
Current State	38
Understanding Game Mechanics	42
Towards a Model of Game Mechanics	47
A Conceptual Map of Gameplay Experience	56
CHAPTER SIX THE PRESENT STUDY	58

CHAPTER SEVEN	METHOD.....	59
	Data Gathering Methods.....	60
	Data Analysis	66
CHAPTER EIGHT	DATA ANALYSIS & RESULTS	67
	Constructing a Preferred Gameplay Experience.....	68
	Evaluating Preferable Gameplay Components.....	85
	Factors Influencing Player Perception of their Preferred Gameplay Experience...	93
	Patterned Engagement with Mechanics during Preferred Gameplay Experiences	97
CHAPTER NINE	DISCUSSION	103
CHAPTER TEN	CONCLUSION & LIMITATIONS	112
APPENDICES		116
REFERENCES		124

LIST OF FIGURES

Figure 1	<i>Gameplay Model of Embodied Virtual Experiences</i>	50
Figure 2	<i>Whatpulse Heatmap and Keylist</i>	56
Figure 3	<i>Iographica – 1 Hour of gameplay in ‘Don’t Starve’</i>	57
Figure 4	<i>The Division (Left), StardewValley (Middle), Don’t Starve (Right).....</i>	73
Figure 5	<i>Mouse tracking data overlaid with game screenshot.....</i>	89
Figure 6	<i>LC mouse tracking data.....</i>	91
Figure 7	<i>SK mouse tracking data.....</i>	91
Figure 8	<i>Dota2 gameplay screenshot.....</i>	92
Figure 9	<i>Keyboard tracking data – LC (Top), SK (Bottom).....</i>	93
Figure 10	<i>Conceptual Model of Gameplay Preference</i>	97
Figure 11	<i>Skyrim Mouse Tracking Data</i>	104

CHAPTER ONE INTRODUCTION

Ever since the emergence of video games in the 1980s, scholars have been interested in understanding the processes behind why people play videogames and what happens during gameplay experiences. With more than two billion videogame players in 2016 (Newzoo, 2016) and more than 450 million different games played on Steam (a game publishing platform) alone (Orland, 2014), video gaming has become a huge industry and an immensely popular pastime for many individuals. Players across increasingly broad demographics enjoy videogames, with 40% of all adults playing videogames, the average player age of 33 in the United States (Williams, Yee, Caplan, 2008), and with females comprising 40% of all players (Williams, Consalvo, Caplan, & Yee, 2009). In addition, while many people may play the same or similar games or game types, each videogame creates different experiences for each player (Sherry et al., 2006; Apperley, 2006; Bartle, 1996). Furthermore, there is a huge pool of different video game titles for players to choose from. For example on Steam, a video game publishing platform, players have access to more than 450 million different games, which can be bought or played free of charge. With the diversity of individuals engaging in videogame play (Oliver et al., 2016; Williams, Yee, & Caplan, 2008; Sherry et al., 2006) and the vast range of games available, it is important that game studies attempt to account for the dynamism and subjectivity of game experience preferences.

A key concern for communications, media, and game scholars is the underlying process behind videogame players' preference for certain types of media experiences. While current literature has had success in explaining and predicting general videogame play behaviour—such as the constituents of meaningful play

experiences (Oliver et al., 2016) or the intrinsic psychological needs fulfilled by video game play (Tamborini et al., 2010)—existing scholarship has only begun to scratch the surface of the processes behind subjective preference for different gameplay experiences. Studies on gameplay experiences often focus on psychological constructs that may play important roles in these experiences—such as immersion (Ermi & Mäyrä, 2005) or flow (Sweetser & Wyeth, 2005)—but have so far not attempted to account for the subjective development of gameplay preferences. Existing studies that do account for player preferences often do so by investigating the motivations behind playing specific genres (Kahn et al., 2015; Yee, 2006), the link between personality traits and types of gameplay (Bartle, 1996; Jeng & Teng, 2008), and between personality and genre preference (Peever, Johnson, & Gardner, 2012). However, while these studies help explain why people play videogames in general, a gap exists in our understanding of players develop preferences for specific types or styles of gameplay experiences.

In addition, current studies on gameplay experiences often subsume game mechanics as a component of videogame experiences (Almeida et al., 2013), draw unclear relationships between mechanics and experience, or elide their relevance completely (Ermi & Mäyrä, 2005). However, game mechanics are a vital component of any video game experience and provide a useful node of comparison across games and gameplay experiences. While there are a great variety of different games and each player is driven by subjective motivations (Oliver et al., 2016; Williams, Yee, & Caplan, 2008; Sherry et al., 2006) core game mechanics remain a constant across most—if not all—video games. Furthermore, game mechanics serve as the method by which players interact with and affect a game's state (Sicart, 2008). As such they are

integral to any gameplay experience and serve as the means by which players engage with their desired experiences.

This study therefore proposes refinements to the conceptualisations of what gameplay experiences entail, taking into consideration the facilitative influence of game mechanics, to holistically explain the process and components involved in the development of gameplay preference. Utilizing a mechanics-oriented approach to understanding how players engage with games to construct preferred gaming experiences, this paper highlights certain weaknesses and gaps in current studies on videogames that game mechanic approaches to studies on gameplay preference can potentially fill. By investigating the possibility that players' subjective engagement with game mechanics shape their preferences for specific gaming experiences, this study attempts to further our understanding of what gameplay experiences players prefer and how these preferred experiences may be facilitated or created.

CHAPTER TWO GAMEPLAY EXPERIENCE REVIEW

Before exploring the specific factors that potentially construct what players conceive as preferred gameplay experiences, it will be important to review existing research on gameplay experience. Gameplay experiences have been defined as “an ensemble made up of the player’s sensations, thoughts, feelings, actions, and meaning-making in a gameplay setting” (Ermi & Mäyrä, 2005, p.2), and gameplay—the interaction between player and game—is meant to provide enjoyable experiences for players (Nacke, Drachen, & Göbel, 2010). In many early studies of gameplay experience, videogame players are collapsed into sweeping and simplistic archetypes

(Yee, 2006) that assume a high degree of homogeneity and passivity in game seeking/playing behaviour. Yee highlights that this potentially facilitates sweeping generalizations of player behaviours and videogame effects, it ignores the fact that players play games for different reasons and a single game could hold different meanings or consequences for different players (2006, p. 774). When players are differentiated, it was often only through broad categories such as gender (Okagaki, 1994) or cultural variances (Anderson et al., 2010). However, videogames create iterative experiences, with each instance of play influencing a player's perception and understanding of the next. Relying solely on the more static characteristics of players like gender and personality potentially results in an incomplete picture of players' gameplay experience. Additionally, different players play games for different reasons, and choose different types of games to fulfil their respective gaming/entertainment needs. In order to explore how certain gameplay experiences become preferred by different players, it will be important to understand gameplay as the subjectively variegated and developmental experience it is.

The Player's Experiential Processes

A substantial amount of game studies research has focused on conceptualizing and analysing the possible psychological and cognitive elements in a player's experiences (Nacke, Drachen, & Göbel, 2010). Constructs like immersion (Ermi & Mäyrä, 2005), flow (Sweetser & Wyeth, 2005), competition (Vorderer, Hartmann, & Klimmt, 2003), and effectance (Klimmt, Hartmann, & Frey, 2007) have been identified as important—or even essential—psycho-physiological elements in enjoyable videogame experiences. The diversity and extent of studies devoted to identifying and explicating these important elements is a testament to the complexity

of videogame experiences. These elements each foreground players' different sensations, actions, or feelings experienced during a gameplay experience.

However, because of the wide range of different gameplay dimensions that are continually being discovered or redefined, game studies research on gameplay experiences is highly fragmented. It is plausible that for a player, a gameplay experience is a sum of the aforementioned psychological and cognitive experiential states. However, none of these experiential states taken individually can explain fully how player-subjective videogame experiences are constructed. The specificity of each individual element and its potential for being a highly subjective factor for player preference reveals only a singular aspect of gameplay experience. It is therefore perhaps only through looking at player preference development as a combination and synthesis of these individual states that players seek out for repeat engagement that we can identify the process by which preference is arrived at. Players play games for different reasons, and repeatedly engage with different aspects of gameplay in order to achieve their desires in gameplay (Sweetser & Wyeth, 2005). During gameplay, the various psychological processes contribute to a unique experience of gameplay that cannot fully be accounted for by the individual psychological states or experiences. For example, the enjoyment of competition in a video game, highlighted by Vorderer, Hartmann, and Klimmt (2003) is certainly not one shared by every player. Many players could completely eschew competitive aspects of video games and may even use games to escape from the competitive aspects of daily life (Oliver, 2008) by specifically preferring experiences from games that remove competition as a factor. However, it would certainly be one of the important factors in the development for or against gameplay experiences that involve competition or challenge.

Existing literature identifies numerous important elements in player experiences that potentially play a major role in determining preference development, but few studies (if any) seem to attempt to incorporate these elements as individual factors in an procedural model of preference development. This study therefore seeks to synthesize some of these various experiential states identified by existing literature into a model that takes into consideration both the iterative nature of preference development and the specific experiential states that individuals may subjectively seek to engage in.

Video Gameplay Dimensions

Research has also shown the importance of game design elements in shaping gaming experience (Frasca, 2003). All gameplay experiences involve a dynamic interaction between player and game. The player's psychological experiences are therefore not the only factors contributing to the variance of individual's gaming experiences and the preferences these players develop. In order to explore how different players construct their subjective gameplay preferences, it will be important to identify not only the psychological processes of the player, but also the interaction between the player and the structures of the games they play.

The design elements of games and the unique manifestations of these elements in various game titles likewise influence players' subjective gameplay experiences and preferences. Sweetser and Wyeth's gameflow model (2005) highlighted eight elements in video games that made them enjoyable: *the game as a task to be completed, concentration, challenge, control, clear goals, feedback, immersion, and social interaction* (Sweetser & Wyeth, 2005). The study then unpacked the game design criteria for the facilitation of flow and enjoyability in games, listing out what elements

a game should contain or do in order to facilitate enjoyment. For example, in order to be enjoyable, a game needs to provide the player with challenge. In order to provide challenge, “the level of challenge should increase as the player progresses through the game and increases their skill level” (Sweetser & Wyeth, 2005, p. 5). However, the gameflow model only listed important criteria for creating an *enjoyable* gameplay experience and does not provide an understanding of the process by which games enable these enjoyable gaming experiences.

In order to validate the model, the study employed it in an evaluation of two games: Warcraft 3 and Lords of EverQuest (Hallford, 2003). Warcraft 3 fulfilled more of the gameflow model’s enjoyability criteria than Lords of EverQuest, which validated the effectiveness of the model for evaluating a games’ potential to create enjoyable experiences. The model distinguished Warcraft 3—the game with a higher rating and greater popularity (according to GameRankings, 2004)—as being more likely to create enjoyable gameplay experiences (Sweetser & Wyeth, 2005).

However, while useful in understanding important criteria for creating an *enjoyable* gameplay experience, the gameflow model—as with most models explaining gameplay experiences—does not account for players’ engagement with game experiences that are potentially less enjoyable and cannot fully explain why players prefer some gameplay experiences over others. While it was capable of establishing that Warcraft 3 had greater potential to create enjoyable gameplay experiences, it does not explain why some people still preferred to played Lords of EverQuest or rated it highly (7.6/10 user score on Metacritic.com). The diversity of player evaluations on numerous games would seem to indicate that any blanket evaluation of a game experience would inevitably fail to account for different player

preferences and that perhaps enjoyment, in and of itself, is not a suitable basis for determining game dimensions. This highlights the need to identify specific elements at a higher granularity within games (at a mechanical level) that trigger or inspire preference in various individuals.

Furthermore, existing studies on game design elements or components often neglect the game structures that facilitate a game's interaction with the player. For example, Ermi and Mäyrä's (2005) SCI-model (Sensory, Challenge-based, Imaginative) for gameplay experience focused primarily on immersion as a key component of gameplay experience. Their study focused primarily on the narrative, visual, and audio aspects of the gameplay setting, but paid little attention to the mechanics that govern a player's interaction with all three aspects. Game mechanics are the "rules, processes and data at the heart of a game" (Adams & Dormans, 2012, p. 1) that "create gameplay" (p. 6), implementing the living world of the game and determining the effects of a player's actions on that world. Ermi and Mäyrä's (2005) study acknowledged this interactivity as a game design element that defines gameplay experiences. However, the SCI-model still did not identify the ways by which immersive qualities of a game can be facilitated by the game design structure itself. Player interactions with a game define the resultant gameplay experience; however most existing studies do not focus on the game design elements that make this interaction possible and undeniably influence players evaluations of gameplay. In not addressing the integral nature of game mechanics in any gameplay experience, current models neglect to address a key and defining aspect of videogame experiences.

As highlighted, videogame experiences are essentially interactions between players and game elements. During gameplay, player and game respond continuously to player

input and game feedback in an interactive exchange that evokes constant experiences of effectance (Klimmt et al., 2007). While games contain multiple elements such as graphical renditions, auditory simulations, and narrative progression, a player only interacts with these elements through the mechanics that determine the feedback a player receives. Existing game design models often identify mechanics as an integral facilitator of gameplay experiences (Hunicke, LeBlanc, & Zubek, 2004; Shell, 2008). Shell's (2008) elemental tetrad mode highlights mechanics and story as two important facilitators of gameplay, and the eponymous MDA framework places mechanics as the primary facilitator of a player's experience of any game's dynamics and aesthetics (Hunicke, LeBlanc, & Zubek, 2004).

Almeida et al. (2013) proposed a gameplay experience model in which they highlighted the twofold nature of gameplay experience—as both an interactive experience and an emotional one. Almeida et al.'s (2013) gameplay experience model introduced mechanics, interface, and narrative as three components under its *videogame element*, alongside the three *player element* components—motivations, background, and expectations. This model highlighted the role of game mechanics, however the conceptualization of mechanics is debatable. Almeida et al.'s (2013) study positioned mechanics as a component on the same level as the elements of interface and narrative. Interface—defined in their study as the look and feel of the game, and narrative—the part of the story told to the player, are both elements that are facilitated by game mechanics (Almeida et al., 2013). A game's look and feel are determined by the game mechanics that allow players to interact with the game environment, giving visual and control feedback. However, the functions of a game interface are only made possible through game mechanics that facilitate the player's

actions and the reactions of the game state. It is therefore not appropriate to conceptualize interface and mechanics at the same level.

Narrative in particular is an element in gameplay that would not be possible without the facilitation of game mechanics. Game narratives determine much of the tone of gameplay through the themes and characters (Almeida et al., 2013; Green, Brock, & Kaufman, 2004). Game narratives provide the player with a story world that overlays the virtual world of the game, one that certainly makes gameplay more enjoyable (Green, Brock, & Kaufman, 2004) and often helps bind other game elements together (López-Arcos et al., 2014). Interaction between player and story – including concepts like player progress within the story world or characterization – only take place because specific mechanics allow the player to do so. Story elements lie dormant until brought to life by the player's interaction with the relevant mechanics. As such, game mechanics should not be identified as being a game element at the thematic level of the game narrative and visual design, but should be highlighted as a necessary facilitator of gameplay experience.

We can therefore often see that existing studies neglect to elaborate on the influence of game mechanics in gameplay experiences (a la SCI-model) or subsume game mechanics as a component of videogame experience— a component to be experienced— rather than as an integral enabler of such experiences (a la Almeida et al., 2013). While these studies are useful in informing our understanding of enjoyment in video games or enjoyable game design, current gameplay experience models do not provide a cohesive systematic understanding of the underlying processes that governs gameplay experiences. Existing models highlighting specific components of gameplay experiences or dimensions of video games may thus perhaps not be adequate for the

understanding of what individual players prefer in a gameplay experience. The current study approaches gameplay from the basis that it is being facilitated by the game mechanics that form the foundation of gameplay experience and provides features and facilitates the experiential states that players can then prefer.

CHAPTER THREE GAMEPLAY PREFERENCE REVIEW

As highlighted in the introduction and by the review of current literature, three gaps exist in studies on gameplay experiences that need to be addressed in order to better understand subjective videogame preferences and preferred experiences. Existing studies (1) have not examined the influence of prior gameplay experiences on players' formation of preferred/ideal gameplay experiences, (2) do not incorporate a range of experiential factors in a way that can be easily adapted to understanding the development of subjective player preference, and (3) do not account for the influence of game mechanics on gameplay experience. In order to further our understanding of the process behind player preference for specific gameplay experiences, this study will attempt to address these gaps. First, as this present study seeks to understand player evaluation and preference of experiences, the importance of prior gameplay experience will be evaluated and taken into consideration. Second, studies regarding a range of experiential states will be used to guide this project's approach to understanding the preferences players may form through their prior experiences. Existing studies on experiential factors in gaming present us with a host of experiential dimensions that can serve as the vocabulary by which subjective gameplay experience can be

described, and the gameplay preferences defined. Third, this study will identify the types of game mechanics that facilitate players' (prior/preferred) experiences and highlight the plausible relationships between mechanics and preferred experiences.

Player Experiences (1.1) – The Importance of Prior Experience

When investigating preferences and preference formation, the relational comparisons inherent in the concept necessitate the examination of more than one item of interest. Preferences are comparative evaluations formed when we categorize and establish relationships between objects (Druckman & Lupia, 2000). An individual's preferences are for the objects that our "perceptive capacity allows us to differentiate, that our experience gives us an incentive to differentiate and recall, and that our cognitive capacity allows us to remember and evaluate" (Druckman & Lupia, 2000, p. 4). As such, any study of video game or gameplay preference necessitates an exploration of a range of experiences across various games or gameplay.

Gameplay preferences should therefore be conceptualized as constructs informed by layers of different and/or repeated gameplay experiences. For example, many early players of the immensely popular MMORPG- World of Warcraft (Blizzard Entertainment, 2004) would have likely played—or at the very least heard about or seen—gameplay of Lineage (NCsoft, 1998) in the eastern gaming sphere, while those in the west would have likely encountered games like EverQuest (Sony Online Entertainment, 1999) or Runescape (Jagex, 2001). With videogames being an extremely popular and common past time (Vorderer, 2001; Williams, Yee, & Caplan, 2008; Ortiz de Gortari et al., 2015), it is important to consider player experiences within the context of a prevalent videogame play culture. Approaching videogame studies without the consideration of players' holistic videogame history elides the

influence of prior gameplay knowledge and experience on player motivations. Many other factors between play experience and the external experiences exist, such as the political or social contexts in which a game is played. However, in an attempt at parsimony this present study will focus on highlighting the importance of relationships between an individual's game play experience in relation to his/her other experiences with videogames.

Brief Note on Preference vs Enjoyment (1.2)

It is also important to note that this study approaches game experience from a preference rather than an enjoyment perspective. A number of factors derived from studies focused on enjoyable videogame experiences overlap with the factors focused on in this paper. Competition-challenge for example, overlaps with the competition factor identified by Vorderer, Hartmann, and Klimmt (2003). Effectance, and important factor in enjoyable videogame experiences (Klimmt, Hartmann, & Frey, 2007), overlaps with achievement feedback. In fact, many of the motivational factors are nearly isomorphic to the enjoyment factors highlighted in Csikszentmihályi's seminal flow model (2008) and the gameflow model derived from it (Sweetser & Wyeth, 2005). However, this study is more interested in the factors that motivate the formation of preferred experiences, regardless of these experiences' ability to facilitate enjoyment. For example, a player may not specifically enjoy social interaction, but may prefer game experiences in virtual-social environments because prior experiences highlighted that social environments allowed for certain experiences of game elements that single player games lacked. In addition, there are many players that prefer sad or horrific games that while not completely enjoyable, do create meaningful play experiences (Oliver et al., 2016). This study will therefore approach videogame

experiences based on experience preferentiality rather than experience enjoyability in its attempt to further our understanding of gameplay experience preferences.

Player Experience Preferences (2.1) – Current Literature

As mentioned earlier, different players play games for different reasons, and prefer different types of gameplay experiences to fulfil their respective gaming/entertainment needs (Kahn et al., 2015; Yee, 2006; Ruggiero, 2000). While existing models of game experiences seldom apply themselves to examining the diversity of player preference, player typology and play motivation studies have quite thoroughly investigated the creation of subjective gameplay experiences. Bartle's taxonomy of player types (1996) serves as a seminal example of the subjectivity involved in player preferences in gameplay experiences. Bartle's work categorized players into four groups based off the play experiences sought by respective players—achievers, explorers, socializers, and killers. Achievers sought to fulfil game related goals, explorers set out to find out as much as possible about the world, socializers enjoyed the interpersonal aspect of gameplay, and killers focused on acting upon other players within the game world (Bartle, 1996). The study found that players drifted between the four categories depending on mood and preferred styles of playing but highlighted that many, if not most, had a primary style and would only deviate into other styles if it furthered the enjoyment criteria of their player type (Bartle, 1996).

However, the potential for correlation between player types and the permeable divisions between their preferred gameplay experiences (Yee, 2006) makes it difficult to conduct accurate studies utilizing just player typologies (a la Bartle) and prevents the typology from being a reliable approach to understanding why players prefer certain gameplay experiences.

Other studies have since expanded upon Bartle's player typology and delved into the motivational processes behind different preferences for specific gaming experiences. Nick Yee (2006) for example derived a list of forty questions pertaining to player motivations based on Bartle's Player Types and quantitative information from earlier surveys conducted with Massively Multiplayer Online Role-Playing Games (MMORPG) and collected data from three thousand players from popular MMORPGs. Using factor analysis, Yee identified three primary components for online gameplay motivation: achievement, social, and immersion (Yee, 2006). Players that scored high on any of the main components did not necessarily score low on other components and the factor analysis revealed that play motivations do not necessarily suppress each other as was suggested by Bartle's study (Yee, 2006).

Current studies have provided researchers with a wealth of tools to categorize and understand different preferences a player could have. While existing research has highlighted a range of possible motivations for play that structure players' preferred play experiences (Kahn et al., 2015; Sherry et al, 2006; Klug & Schell, 2006; Yee, 2006), scholars have yet to dive into the deep syntheses of these experiences in the development of gameplay preferences. The existing play motivations do not inherently explain why players prefer certain specific video game experiences over others, and how these specific game experiences are facilitated by their respective games, and are primarily concerned with general play behavior. These motivations are instead intended as stepping-stones to be used as "analytical tools to describe and understand the preference for and effects of gameplay for different kinds of players" (Yee, 2006, p. 774).

Player Experience Preferences (2.2) – Subjective Motivations for Play and Preference

An important distinction needs to be made between motivations for videogame *play* and motivations for videogame *preference*. Play motivations are inevitably broader and more generalized because they govern an overarching behaviour or action. It is important to note that motivations to engage in videogame play may not be isomorphic to the motivations for a player to engage repeatedly with specific types of gaming experiences or gameplay factors. For example, Sherry et al.'s 2006 study utilized a uses and gratifications approach to predict game use and game preference. However, while it highlighted certain motivations that govern why a player plays videogames in general, the factors identified by the study do not directly predict players' preference for specific gameplay experiences. While useful in its potential to account for many different types of play experiences, these motivations have not been applied to explanations of game experience preference. As mentioned earlier, experience preferences and game play should not be conflated. For example, arousal, challenge, competition, diversion, fantasy, and social interaction (Sherry et al., 2006) could be the reason for a player to play Pac-man (Iwatani, 1980), just as much as it could serve as the motivation for a player to prefer playing OverWatch (Kaplan, 2016), despite both titles being extremely different types of games and facilitating very different play experiences. Therefore, while current play motivation studies and typologies are useful in understanding general play experiences, they should not be taken as necessarily being predictors of game experience preferences.

Many existing studies attempt to draw links between play seeking behaviour and facilitative genres of games (Kahn et al., 2015; Peever, Johnson, Gardner, 2012; Sherry et al, 2006; Klug & Schell, 2006; Yee, 2006). However, prior literature has mostly ignored the processes governing the formation of specific game experience preferences. It is also important to note that many individuals play video games across a range of different genres and studies focusing on singular genres also often suffer from further weaknesses that will be highlighted in the next section.

This paper therefore posits that the motivations governing the subjective choices and preferences for certain game experiences that each player has, while potentially derived from play motivations, also take into consideration existing (preceding or current) gameplay experiences and players' subjective preference for specific game elements. When players choose a new game to try, it is not unlikely that they would look for games that contain elements that they found enjoyable in earlier gameplay experiences, and exclude games that do not include these elements. This is possibly what results in many players' interest in multiple games—or simply progressing from one game to another—within the same genre. Take for example, Defence of the Ancients (DotA), a customized mod for Blizzard Entertainment's Warcraft 3: Rein of Chaos (Blizzard Entertainment, 2002), based off the Aeon of Strife custom mod for StarCraft (Metzen, 1998). Players liked elements in their gameplay experiences enough that it spawned and popularized an entirely new genre of games—Multiplayer Online Battle Arena (MOBA). When new titles such as League of Legends (Riot Games, 2009), Heroes of Newerth (S2 Games, 2010), and DotA2 (IceFrog, 2013) arose within the newly formed genre, the original player base of DotA became segregated as players chose specific games within the new genre.

Players therefore possibly derive concepts of preferred gameplay experiences they seek from past and current experiences.

This study sees gameplay as a continuous process wherein players continuously integrate new experiences and knowledge to inform their perceptions of desirable current and future play experiences. Lindley, Nacke, and Sennersten conceptualize gameplay schema as “a cognitive structure for orchestrating the various cognitive resources required to generate motor outputs of gameplay in response to the ongoing perception of an unfolding gameplay experience” (2008, p. 2). There could therefore be a game preference schema that is a cognitive structure for preferential gameplay experiences based of scripts formed through existing gameplay experience. It seems plausible that information regarding a desirable gameplay experience is gleaned during gameplay, which then becomes integrated into an overarching preference schema that governs players’ preferences for certain games and game experiences.

This study posits that existing gameplay experiences help inform and construct subjective preferences for different elements in gameplay that constitute a player’s preferred gameplay schema. In order to identify the relationships between a player’s preferred gameplay experiences and the mechanics within a game that facilitate these experiences, this study proposes some refinements to our conceptualisations of what *gameplay experiences* and *game mechanics* entails and offers a model of the processes behind their interactions.

CHAPTER FOUR RECONCEPTUALIZING EXPERIENCE

In a gameplay experience, engaging with the virtual structure of game design and the players' subjective psychological experiences are essentially and inevitably interrelated. During gameplay, a game's mechanics, visuals, interface and other aspects of its design influence a player's mental and affective process, triggering psychological experiences like immersion (Ermi & Mäyrä, 2005) or flow (Sweetser & Wyeth, 2005). Likewise, a player's subjective psychological experiences (e.g; immersion or flow) affect their perception of and engagement with a game's design elements. At its most basic level, a gameplay experience involves a relationship between a player and a game. However, the process by which a player's mind interacts with the game is complex. It is through interaction with a games' facilitative mechanics that games reveal their full content with which players create their subjective gaming experiences. Game mechanics are therefore essential in explaining gameplay experience.

Duality of Gameplay Experience

Human experiences can be placed into three categories: real experience, virtual experience, and hallucination (Lee, 2004). Real experience is the physical sensory experience of objects in the real world; virtual experiences are sensory or non-sensory experiences of virtual objects; hallucinations are non-sensory experiences of imaginary objects (Lee, 2004). Gameplay experiences are both physical and virtual. The interaction between player and game takes place both as an intangible virtual and psychological experience as well as a physical one. As such, gameplay can be seen as a dualistic experience that extends across both real and virtual worlds (Morie, 2007).

A player engages with a virtual world of the game and this interaction influences both player and the game state. A game state is a snapshot of the game experience, and the state of the game changes if any object or value in the game changes, be it through course of pre-programmed game progression or through player interaction. Players interact with the game's mechanics that facilitate and determine a player's action within these virtual spaces (Hunicke, LeBlanc, & Zubek, 2004; Shell, 2008). Player actions have an influence on the game state, and the game's feedback influences players' actions, thoughts, and emotions. It is this level of interaction that the current study investigates to understand gameplay experience.

Gameplay experiences can be said to occur simultaneously in both real and virtual worlds (Biocca, 1997). This paper therefore conceptualises gameplay experiences as embodied virtual experiences. Embodied virtual experience (EVE) involves a player inhabits both physical body in the real world, and an embodied virtual self in the virtual world during gameplay. This embodied virtual self extends players' experiences and influence from real world to that of the virtual world. The virtually embodied player interacts with the game mechanical facilitated virtual world of the game.

The Embodied Virtual Experience

Embodied representations of the self in video games is not a new idea in game studies (Biocca, 1997; Yee & Bailenson, 2007; Morie, 2007; Yee, Bailenson, & Ducheneaut, 2009). Yee and Bailenson's (2007) seminal study on the proteus effect for example, highlighted the behavioural effects of having an embodied representation of the self in a video game context. These existing studies usually focus on embodied experiences through the lens of avatar representation. Avatars, a term borrowed from

Hindu mythology denoting incarnation of the spiritual form in physical body (Morie, 2007), are usually defined as being player characters controlled in a game (Ryan, Rigby, & Przybylski, 2006), controllable 3D bodies (Ducheneaut, Wen, Yee, & Wadley, 2009), or representative bodies in games (Morie, 2007).

There are, however, gameplay experiences that occur without the use of avatars in any of these forms. In real-time strategy (RTS) games for example, a player has no definitive body or representational character, and instead controls groups of units, and experiences the game from a top-down view of the game world. This is also true in puzzle games like Tetris (1984), which utilises no discrete characters or any identifiable unit representation. Yet in these games, even without the use of avatars, players still are capable of experiencing meaningful and engaging gameplay and interacting with the virtual world. This indicates that embodied gameplay experiences without the use of player avatars are possible. To account for gaming experiences that do not include direct representational characters for a player, this paper proposes the concept of a virtual embodiment process (VEP). While the player inhabits the real world, through interaction with the game, the player undergoes a virtual embodiment process that extends their experience and influence into the world of the game. This extension allows them to experience the virtual game world in a manner at least reminiscent of the real world and act upon their virtual environment in meaningful ways. This virtual embodiment process both facilitates and mediates a player's experiences of gameplay

The Virtual Embodiment Process – Convergence, Presence, Agency

VEP is conceptualised as a process by which a player becomes embodied in the virtual world. This process occurs not only through visual representation (i.e., via

avatar) but also through non-visual elements (i.e., aural, narrative, etc.), through a player's interaction with other virtual agents, or simply through interaction with any other game mechanic that governs a player's experience of the virtual world.

While the player can become virtually embodied through a variety of different game mechanics, what it allows the player to experience should remain fairly consistent across different players and different games. Studies on gameplay experience have highlighted the importance of a number of important psychological and affective factors in the construction of a player's experience (i.e. flow, immersion, satisfaction, etc.). This paper proposes that during any type of meaningful gameplay when a player interacts with game elements, we can identify three basic experiential states of gameplay. These three are the experience of agency (Norman, 2013; Ford, 1992; Bartle, 1996), presence (Ermi & Mäyrä, 2005; Lee, 2004), and convergence (Oliver et al., 2015; Yee, Ducheneaut, & Nelson, 2012; Sherry et al., 2006).

Agency refers to player control (and perception of control) over gameplay and influence on the game state through his/her interaction with game elements. Presence refers to the (possibly illusory) perception of physicality within the virtual world of the game. Convergence branches into two important sub-categories that are both of key importance: identity convergence and value convergence. Identity convergence refers to the alignment of player identity and self-concept with their virtually constructed identity or player characters. Value convergence refers to the alignment of the player's value systems, objectives, and goals with those within the game. The experiences of agency, presence, and convergence constructed during the virtual embodiment process serve as the key components of a player's gameplay experience.

Agency. Traditionally, agency has referred to the experience of control over one's actions, and through these actions events that happen in the external world (Haggard, Tsakiris, 2009) and is a fundamental underpinning of one's interaction with the world (Synofzik, Vosgerau, & Voss, 2013). Our choices of physical action and our perception of our choices' effects help construct our perception of self-agency (Gallagher, 2000). In gameplay, players extend his/her agency into the world of the game. When a player chooses to interact with the game world, he/she utilizes this extended agency to influence the game world and receives feedback on their actions.

An avatar is a visible extension of the player into the world of the game (Bailenson & Blascovich; 2004) that serves as the player's embodied agent (Lee & Reeves, 2010). If the visual representation of the player moves according to a player's choice, and is able to act upon its surroundings, the player perceives and experiences self-agency. Without the visual aid of an avatar, like with many puzzle games, a player experiences agency through interaction with game mechanics that allow action. In Tetris, for example, the game affords the control of descent speed, position, and orientation of the descending blocks. This allows player choice to act upon the game world. In response, the visual representation of the blocks movement and the accompanying auditory cues provide the player with feedback on their agency within the world of the game. This action-feedback experience facilitated by the game's mechanics and enacted through the player's embodied will in the virtual space of the game serves as the experience of agency in the embodied virtual experience of gameplay.

Virtual agency can also be experienced through the customization and control of meta-gameplay options. Difficulty levels, sound options, graphical options, naming

options, etc., all provide opportunities for the player to experience a sense of control over the game state and the flow of gameplay. This may serve to characterize the player's virtual embodiment, in that the projected desires and motivations of the player changes the game state. These projections need not be isometric with the player's actual self-concept, but are simply the player's chosen and constructed persona in the gameplay interaction. Through these forms of control, the player moulds the gameplay experience in a way that is defined by the virtual embodiment process.

Presence. Early conceptions of presence describe it as the perceptual illusion of non-mediation, perceiving non-physical objects or experiences as though they were physical (Lombard & Ditton, 1997). However, the original definitions have since been revised to identify presence as a psychological state (Tamborini & Bowman, 2010; Lee, 2004) in which “virtual objects are experienced as actual objects in either sensory or non-sensory ways” (Lee, 2004, p. 37). Presence is divided into three primary categories – spatial (Tamborini & Bowman, 2010), social, and self-presence (Biocca, 1997; Lombard & Ditton, 1997).

During gameplay, the virtual embodiment process influences their feeling of spatial, social, and self-presence in the game world. Self-presence in gameplay refers to the experience of the virtual self as an actual self (Tamborini & Bowman, 2010; Lee, 2004). Self-presence has been used to refer to the effect of virtual embodiment on user's mental models of the self (Biocca, 1997). Self-presence is most often studied through the visual representations of the self that are available in games through virtual bodies like avatars (e.g., Lim & Reeves, 2010; Yee & Bailenson, 2007; Morie, 2007; Biocca, 1997) which can serve as the primary identity cue (Yee & Bailenson, 2007). However, it can also be experienced through interaction with various game

mechanics without the use of avatars. One way the experience of self-presence is facilitated is through the design of game heads-up-displays (HUD). Game HUDs are virtual interfaces that are often designed to reflect the aesthetic of the virtual world, despite the HUD being a largely extradiegetic element. In *Starcraft* (1998) for example, the player can choose to play as one of three races. Each race has a HUD that reflects the design theme of the race, biological nightmarish *Zerg*, advanced alien *Protoss*, or human industrial *Terran*. The HUD provides visual cues as to the nature of the player's virtual embodiment and bridges the player's experience of being themselves present in the game world despite the mediation of physical and virtual interfaces.

In gameplay, spatial presence refers to the experience of virtual space as though it were physical space and being able to interact with virtual objects as though they were real (Tamborini & Bowman, 2010; Lee, 2004). For example, in the game *Bastion* (2011), the avatar of "the kid" visually and virtually represents the player's embodiment, interacting with objects in the virtual city of Caelondia and exploring other game environments. The visual embodiment allows the player to perceive movement and interaction in virtual space in a way that is recognizably similar to the experience of the real world. The avatar runs or walks to traverse virtual space, and is obstructed by virtually represented walls and objects in a manner similar to physical interaction with real objects.

Even when the player's embodiment is not visually represented, it still can facilitate a player's feeling of presence in the virtual space of the game. In the game *Myst* (1993), for example, the player experiences the game from a first person view of the game world but is not presented with a visual body. Instead, the interaction

between mouse cursor, the game's environmental mechanics, and the camera perspective presented to the player help construct the experience of presence in game. The shifting of the camera perspective and the visual progression of position within the corridors of the game world creates the experience of movement within virtual space, and the cursor allows interaction with virtual objects as though they were actual objects. Clicking on a switch in the game flicks it up or down in simulation of the physical act of flipping a switch. As long as the actions and perspectives of the player are represented in some way or another, visual representation of the embodied player are not necessary to engender the experience of spatial presence in the virtual world.

Social presence refers to the experience of other virtual social actors as though they were real social actors (Tamborini & Bowman, 2010). Just as with spatial presence, both visual and non-visual representation of embodiment facilitate the experience of other virtual agents in the game. Visual representations of player avatars and their proximity and interaction with other player avatars help create the sense that the player is directly interacting with another social actor and experiencing a shared space (Mennecke et al., 2011).

Even before visual representations of virtual actors were technologically possible, computer mediated communication scholarship has long investigated the experiences of social presence in virtual space through non-visual representations such as text, voice, or other cues (e.g., Media richness theory, Daft & Lengel, 1986). It is therefore possible for the embodied player to experience social presence with or without visual cues. In addition, the responses of other virtual social actors to a player have a role in the VEP. When a virtual social agent responds to a player according to

their virtual identity, the feeling of being embodied in the game world can be greatly enhanced (Lee, 2004).

With regards to a player's experience of spatiality, social interaction, and the self in game, the virtual embodiment process constructs and facilitates the player's 'presence' in the virtual world, allowing interaction with and experience of virtual space, virtual social agents, and an embodied self (with or without the use of an avatar).

Convergence. Convergence refers to the alignment of player with their virtual self. This concept draws heavily from existing understanding of identification in media in that it is based off the degree to which a player begins to feel cognitively and emotionally connected to a virtual and mediated self (Cohen, 2001). Hefner, Klimmt, and Vorderer (2009) suggest that for the duration of gameplay, players can adopt the identity of a target character and temporarily perceive or imagine themselves to be characters in the virtual world and have the traits and values that these idealised characters possess (2007). A key purpose of identifying with a virtual self is to reduce self-discrepancy during media exposure – to overcome or reduce the recognition of being different from the self the player finds ideal or strives for (Hefner, Klimmt, & Vorderer, 2007). This paper proposes that during the VEP the player adopts the character traits and values of an ideal self in the game world context. By adopting these traits and values during gameplay, the virtually embodied player begins to converge with game and facilitates what Klimmt, Hefner, and Vorderer (2009) call "true" identification – in which the link between player and their virtual embodiment is more direct and active than in any other media experience.

During the VEP convergence takes two interrelated forms – identity convergence and value convergence. Identity convergence is the alignment of the player's self-concept with their virtual embodiments in game, while value convergence is the alignment of the player's value systems, objectives, and goals with those within the game. These alignments can determine two important aspects of gameplay. First, the convergence of player self-concept with elements of virtual embodiments should determine their cognitive and emotional connection to their in-game experiences. When a player feels strongly connected to their in game character—interacting with the game while perceiving themselves as being empowered with the ideal traits and characteristics of their virtual superhero, elite soldier, master chef, or hotel manager characters for example—the player is experiencing the game *as* the virtual self, the virtual agent (Hefner, Klimmt, & Vorderer, 2007; 2009). Conversely, if the virtual character controlled by the player holds no inherent traits or characteristics (e.g., custom role-playing game characters, virtual paddles in pinball or block destroying games, characters without backstory), convergence occurs when the player imposes or attributes personal or idealized traits and characteristics on these nodes of their virtual embodiment. Identity convergence determines how much a player feels like the experiences in game are truly happening to them.

Value convergence simultaneously determines how a player evaluates this experience. If players align their goals with the value system of the game, they are probably more likely to evaluate their experiences based on the values of the gameworld. For example, in *Sonic the Hedgehog* (1991), game progression is determined by the clearing of each platform level. From the perspective of someone that is not experiencing any virtually embodied convergence, success and failure is determined by overcoming the game's mechanical obstacles and reach the end of each

stage. However, if a player undergoes the process of virtual embodiment and adopts the goals and value system of the eponymous hedgehog, the player's will more likely adopt the esoteric story based goals of Sonic. Rescuing the forest critters from their robotic prisons, collecting power rings, and defeating Doctor Ivo Robotnik then become the determinants of how the player experiences achievement, success, and failure, rather than the just progression in game stages.

If a player perceives themselves to possess the characteristics and traits of their virtual character, or if the player evaluates personal success and failure based on the virtual value system of the game, then he/she seems more likely to feel virtually embodied, and by extension feel present and experience agency within the virtual world. It is therefore this process of virtual embodiment that facilitates this experience of convergence and in doing so facilitates the necessary gameplay experiences of agency and presence.

CHAPTER FIVE CONCEPTUALIZING GAME MECHANICS

The process of virtual embodiment that players engage in during gameplay is facilitated and constructed through interaction with the game's mechanics – “methods invoked by agents for interacting with the game world” (Sicart, 2008). In Pong (1972) for example, the virtual paddle is the method by which the player is allowed action within the game. The movement of the ball—an artificial agent within the game—moves within the game and interacts with player paddles and the walls based off mechanics governing the virtual physics of the game. The digital scoreboard tracks a match's win condition while informing players of how many more points they need to win. With a simple video game like Pong that does not make use of many visual,

audio, story, or characterization elements, player interaction with mechanics constitutes pretty much the entirety of the virtual embodiment process. Agency is experienced through player control over the paddle. Presence is experienced by the collision interaction between the controllable paddle and the virtual walls and ball of the game. Value convergence occurs when the game's scoreboard becomes adopted as relevant and motivating feedback on success or failure. Identity convergence occurs when the player begins attributing success or simply begins perceiving the paddle as part of themselves (i.e., thinking "I barely missed the ball that time"). This study therefore posits that in any gameplay experience, the player interacts with several key types of game mechanics to construct a virtually embodied experience of the game.

Current State

Rather than a typology of games or game genres, this study will focus on the game mechanics that characterize or facilitate certain types of play experiences within videogames. Traditionally game studies focus on specific titles, genres, or game types. While in-depth, studies focusing on a typology of games or game genres very often suffer from low ecological validity, because motivations, preferences and experiences tied to specific games do not necessarily carry across into other games, even within the same genre. For example, Shirazi, Ahmadi, and Mehrdad's study on the effects of using videogames for language learning posited that videogames create suitable language learning environments (2016). While the study did empirically demonstrate that the use of a specific videogame to teach a foreign language did have a significant impact on student's acquisition of certain speech acts, it elided the process behind its effectiveness and merely established a relationship between a videogame's use and player performance on a task. Students were asked to note down speech elements

(apologies and requests) they came across during gameplay experience and eventually apply their learning in answering a questionnaire. The study found that students in the experimental group demonstrated higher speech acquisition than those in the control group.

While the educational function of the specific videogame title used—*The Walking Dead* (Vanaman & Rodkin, 2012)—was highlighted, the processes behind videogame assisted meaning-making—arguably the more important and relevant element in the study—were completely neglected. While sufficient for the scope of the study—to test if the use of videogames as a facilitative tool for developing language competence had any effect on acquisition of speech acts—this study drew conclusions that held very little external validity, both in terms of videogame effectiveness and player experience utility. It perhaps would be more accurate to say that the study was effective at testing if the use of *The Walking Dead* for the specific educational purpose expressed in the study. The effectiveness videogames would certainly not extend to titles with no narrative focus such as *Forza* (Microsoft Studios, 2005), or if dialogue was difficult to follow as with *Divinity: Original Sin* (Vincke, 2015). Utilizing specific titles as benchmarks of videogame effectiveness or gaming experience is therefore often an inaccurate practice.

In order to avoid the overly-specific nature of using single titles, other studies utilize genres as a convenient categorization of videogames that could be used, experienced, or enjoyed in the same way. Peever, Johnson, and Gardner's study attempted to demonstrate that certain personality types (following the five-factor model of personality) preferred specific genres (2012). Their study found that extraverted people tended to prefer casual, music, and party games, while less

extraverted people tended to prefer MMORPGs, action role-playing games, and real-time strategy games (Peever, Johnson, & Gardner, 2012). While Peever, Johnson, and Gardner did not explore the underlying processes for how these preferences may emerge, their study's findings foregrounded the need to better understand why players with different experience preferences choose certain games and genres.

While avoiding the overly-specific focus on specific titles, videogame genres are often difficult to define, are too broadly defined, or are often open to personal interpretation. In addition, games may belong to multiple genres or, in the absence of any clearly generic features, be inaccurately tagged. The genre of *indie* games for example, loosely refers to games developed by smaller development studios that operate independent of large corporations, producing games usually under lower budget conditions. Indie games often fall into other genres such as *action*, *adventure*, or *simulation* as well, since the *indie* tag only refers to the nature of its development and not specific gameplay types. In addition, videogames within the same genre may not attract the same players—as highlighted earlier with regards to MOBA differentiation.

Apperley identifies that the marketing oriented categories of videogame genre often loosely organize games into categories based on their similarities to prior forms of entertainment media (2006). He argued that conventional videogame genres rely on the representational characteristics of each games—that is, the game's visual aesthetics and narrative framing—and in doing so obscure the defining features of video games as a new medium (Apperley, 2006). While visual aesthetics and narratives are indeed an important part of videogame experiences and preference of games, Apperley suggests that more attention needs to be paid to elements that are specific to video

games. Through an analysis of the primary conventional videogame genres of simulation, action, strategy, and role-playing, Apperley foregrounded the need to investigate the nonrepresentational, or more specifically, interactive elements in the categorization and discussion of videogames (2006). Drawing from Espen Aarseth's notion of ergodic interactivity—the “non-trivial efforts” that allow players to interact directly with the videogame—Apperley highlights the importance of identifying and understanding the elements within videogames that facilitate direct interaction with the game (2006, p. 7) and creates unique gameplay experiences. To industry practitioners, game players, and many game scholars, these elements belong to the currently somewhat amorphous concept: game mechanics.

A better understanding of the game mechanics that facilitate desirable experiences is therefore needed to help shed light on why different types of people prefer different games. Rather than relying on the over specificity of singular titles, or the over generalized groupings offered by the concept of video game genres—both thematic and presentational genres—a game mechanic oriented approach to understanding gameplay provides an important tool for any examination of gameplay processes. Game mechanics are an essential element of any game, and are the key facilitating factor in the construction of a player's gameplay experience. As a result, approaches to games research that takes into account game mechanic's integral role in games and gameplay experiences allows for a deeper understanding of the underlying digital and psychological processes that define games and the experiences they provide. In the present study, game mechanics potentially play a huge role in governing players' desired/preferred gameplay experiences. Because of their defining role in gameplay, the use of a game mechanic oriented approach to understanding

players' gameplay experiences and preferences should be more effective than simply relying on genre or thematic based categorizations.

Understanding Game Mechanics

Unlike with the presently weak (Apperley, 2006) genre categorizations and the ecological invalidity of generalizing from specific games to other titles, game mechanics are an essential and common element in all games while being much more specific and easily defined. One of the most often used definitions of game mechanics is the "methods invoked by agents for interacting with the game world" (Sicart, 2008). In Pong (Alcorn, 1972) for example, the virtual paddle is the method by which the player agent is allowed action within the game. The movement of the ball, an artificial agent within the game, moves within the game and interacts with player paddles and the walls based off mechanics governing the virtual physics of the game. The digital scoreboard tracks a match's win condition while informing players of how many more points they need to win. With a simple video game like Pong that does not make use of many visual, audio, story, or characterization elements, player interaction with mechanics constitutes pretty much the entirety of the game experience. Because they both govern and enable any interaction with the game itself, every player's experience of a video game involves game mechanics. The ubiquity of game mechanics alone could perhaps be said to be enough justification for their consideration in any study concerning videogame experience. In this segment, this paper conceptualizes and explicates game mechanics for use in game studies. Drawing from classical game literature, communication literature, as well as modern game design literature, this

segment builds toward a model for better understanding game mechanics as seminal building blocks of any video game and facilitators of any gameplay experience.

Before we can explicate the concept and typology of game mechanics, it is first important to address what a game entails. As mentioned earlier, game mechanics are integral to gameplay and as such, understanding the dimensions of a game that these mechanics potentially facilitate will help in developing a typology of game mechanics. In game studies, numerous scholars have identified various aspects of what defines a game and the act of playing a game. Huizinga identified gameplay as proceeding according to fixed rules in an orderly manner (1950, p.13). A number of other scholars including Robert Caillois (1961), Bernard Suits (1978), as well as Salen and Zimmerman (2003) share this notion of game rules as a defining aspect of games. Rules are what separates games from free-form play experiences (Juul, 2003). Without set rules, a game would not function, and it is through these rules that a game has structure and substance for its players. Another important aspect of games is that the value of its outcome are distinct and separate from reality. Triumphs, achievements, and resources garnered within a game are valuable because of their relationship with the game and do not hold inherent independent value in the real world. This separation of game value and real world value is what distinguishes games from war or stock market trading (Caillois, 1961; Huizinga, 1950). The third key aspect of games is that it allows player effort and interaction to have an influence on the game state (Kelley, 1988; Crawford, 1981; Suits, 1978). Players can act within the boundaries of the game and have their actions influence outcome of the game. This distinguishes games from books, hypertext, and film. In a game, a player can influence and control the flow of its experience, while the reader and audience of other media content are constrained in their effect on the outcome of the media experience.

So far, this segment has identified three definitive aspects of a game: rules, separated outcome value, and effect on experience. In video games, these three aspects are governed by game mechanics that implement and uphold rules, track and feedback values in game, and allow players to affect the world of the game. These aspects are governed by game mechanics in a manner that is distinct not only from any other activity but from physical games such as card or table-top games as well. In physical games, rules are set out clearly and often have to be fully understood by players before meaningful gameplay can take place. A game of chess for example can only be played if both players understand the win condition and what each chess piece is capable of doing. Likewise in the popular pen and paper game: Dungeons & Dragons, rule books exist for both players and dungeon masters to memorize or at the very least read, reference, and understand.

In video games however, much of what can be done in the time-space of the videogame is not revealed to the player at the outset. Instead, action possibilities are learned through play experience and learning the rules of the game often becomes part of the gameplay experience. The player does not necessarily have to remember the rules to continue playing and the game itself upholds the rules and determines what happens in response to player action (Juul, 2003). Real-time strategy (RTS) games are often considered the video game analogues of chess—pitting two players against each other on a set playing field with pices that each player controls in an attempt to secure advantageous positions or take down key pieces of the opponent. Similarly, most modern online role playing games can trace their roots back to Dungeons and Dragons. These video game manifestations of traditional gaming archetypes often (if not always) incorporate far more rules and complex interactions between controllable pieces, characters, and items than their traditional counterparts. The rules governing

each interaction are seldom fully spelled out for the player, and the interactions and their effects occur regardless of a player's knowledge of the rules. In chess, each player controls only six different types of pieces: 1 king, 1 queen, 2 rooks, 2 bishops, and 8 pawns. In an RTS Games like Warcraft 3 (Blizzard Entertainment, 2002) or Lords of EverQuest (Hallford, 2003) however, players are given access to a large variety of different units, each with different roles, abilities, and attributes. In a single faction (of which there are four) in Warcraft 3, there are more than 10 different units and 9 different structures. Each unit and structure has a small subset of rules defining its purpose and limitations in the game. Unlike with chess—where meaningful gameplay can only be experienced when both players understand and keep track of adherence to the rules, RTS gameplay can take place with two players having no knowledge or understanding of the games rule-set. Keeping track of all of the complex rules in a video game would be tedious if not for the fact that all rules are tracked, governed, and facilitated by the virtual mechanics of the game.

Similarly, values and outcomes in a videogame are calculated, displayed, and made relevant to the games' progress through the game system. This allows for very complex and intricate interactions between values in the game. Dungeons & Dragons utilizes a range of dice and relies on players and dungeon masters to track values such as currency, health, and damage output. This reliance on human processing—and often human ad-libbing and improvisation—is a huge part of the charm and enjoyment of such table-top games, but places a limit on how complex and precise value interactions in a video game can be. In contrast, videogame media supports gameplay by tracking, calculating, and implementing interactions between multiple values in game (Juul, 2003). In a raid event in the online videogame World of Warcraft, each player's ability power values interact with damage modifiers, buffing auras, weapon attributes, enemy

resistances, and more at a level of complexity impossible (or at the very least exceedingly tedious) to replicate in a physical game.

This in turn influences the complexity and veracity of a player's impact on game outcomes. The videogame system automatically and immediately calculates the value of a player's actions, continuously providing the player feedback throughout gameplay. This level of immersive interactivity would be much harder to achieve in a physical game and would only be possible with extremely proficient and skilled players and game masters. These differences between physical games and video games highlight the integral role of game mechanics in gameplay, and in particular, demonstrates the distinctive role of video game mechanics in providing unique gameplay experiences.

In videogames, game mechanics govern players' experiences of all aspects of the game. Without mechanics that fulfill these three purposes, the player's interaction with the game state becomes superficial and without consequential interactivity. Unlike in physical games where physical artefacts such as cards or boards or player pieces are immediately available for a player to look at, touch, and play with, none of a videogames' resources are available until a player interacts with the mechanics that control them. Players experience game design elements such as narrative, graphics, or music through the mechanics that trigger the manifestations of those design elements in the game. For example, a player only experiences a game's story by engaging with the mechanics that grant control of or interaction with story characters and mechanics that govern progress with the story world. A game's graphics resources likewise manifest themselves through the mechanics that facilitate visual exploration within the

game world. Each gameplay experience involves the facilitating presence of game mechanics employed and utilized in a wide variety of different ways.

The difficulty in using game mechanics as a means to evaluate gameplay experiences arises from the number of different mechanics there are in any given game, and in determining which of these are (or are perceived to be) core/defining aspects of gameplay—specifically the ones that are key to the construction of a preferred videogame experience. Relying solely on general definitions that can apply to any mechanic can make it difficult to identify specific game mechanics' roles in video game experiences. It is therefore important to explicate a core typology of mechanics and their roles in facilitating gameplay. Having these initial categories will allow for more efficient discussion and effective identification of important mechanics present in different gameplay experiences.

Towards a Model of Game Mechanics

This study therefore proposes the grouping of the plethora of specific mechanics according to the definitive aspects of videogames they govern or facilitate. All game mechanics consequently fall under at least one of the following three categories: *rule-sets*, *value systems*, and *affordance mechanics*. These three game mechanic categorizations are important for two reasons. First, these categories are fairly intuitive and can help players negotiate their personal experiences of game mechanics. Second, these categorizations classify the mechanics that create gameplay according to their specific effect on gameplay, allowing researchers to examine how certain preferred gameplay experiences can be facilitated through specific game mechanics, or a combination of a number of different mechanics.

In this study, some of these categories will be highlighted as being comprised of *higher-order*, *base-order*, or *lower-order* mechanics to give an indication of how influential the mechanics in each category are likely to be. Higher-order mechanics operate much like what Adams and Dormans (2012) term core mechanics, which influence gameplay to a great extent and often determine how other minor mechanics work. Base-order mechanics are essentially middle management, determined by higher-order mechanics and influencing the utility of lower-order mechanics. These lower-order mechanics in turn have less influence over a range of other mechanics but are necessary in a player experiences and their influence of the game state. It is important to note that the three categories this paper proposes are not isomorphic with the order of the mechanics. It is possible that any of the categories contains mechanics that are of a range of orders, and it is possible that mechanics of a particular order have multiple roles or perhaps even roles not specified in this paper. The three categories group mechanics according to their roles, the label of *order* highlights the range of influence the mechanic has over other mechanics. In addition, it is important to understand that while potentially containing mechanics of a lower order, the mechanic categories highlighted in this paper are all necessary for gameplay (as highlighted above). There are three overarching game mechanic that influence a range of mechanics of different order.

Rule-sets (RS). Mechanics that fall under the category of rule-sets are often high-order mechanics that determine thematic and overarching rules driving a game. Rule-sets govern how the player interacts with base and lower-order mechanics or determine when these mechanics are triggered. RS mechanics operate much like conventional game rules in that they are general but impactful guidelines for gameplay. Mechanics governing win conditions, for example, would fall under the

category of rule-sets because they determine the general flow of gameplay and the goal of the game. These mechanics would influence lower-ordered mechanics that govern player interaction with the game state towards the goal of victory. In the classic paper and pencil game tic-tac-toe for example, a key rule is that setting down three of a players' symbols in a row on the game grid is the win condition. All actions and reactions that take place in the game revolve around achieving this win condition. In the videogame Warcraft 3, an RS mechanic governs the win condition of eliminating all enemy buildings. In governing the win condition, it determines the utility of a myriad of other base and lower-order mechanics such as those governing how much damage can be done to buildings, where buildings can be placed, and the size of these buildings etc. All gameplay actions revolve around achieving the game state that fulfils the RS mechanic governing the win condition.

Other possible examples of rule-set mechanics include player-turn determination (rules governing whose turn it is for action), lose-conditions, player number restrictions, player character restrictions, hard limits on resources, and game world size. Flow theory proposes that clear and well delineated objectives to be achieved and tasks to be completed are necessary for player's achievement of optimal experience states (Csikszentmihályi, 2008; Sweetser & Wyeth, 2005). Rule-set mechanics therefore possibly set out the conditions for a player's achievement of these enjoyable gameplay experiences. In addition, by facilitating gameplay objective fulfilment and progression, rule-set mechanics potentially facilitate feelings of achievement (Yee, Ducheneaut, & Nelson, 2012; Sherry et al., 2006) and agency (Norman, 2013; Ford, 1992; Bartle, 1996), both highlighted earlier as key factors of gameplay that motivate preference.

Value systems (VS). Mechanics that govern, calculate, implement, and provide feedback on the numerous virtual values in the game fall under the category of value system meta-mechanics. Value system mechanics control the numbers and parameters of resources in a video game. Remaining health points, money a player has, money an item cost, damage an item does, numerical representation of physical attributes (i.e., 10 strength, 10 agility) are all governed by value system mechanics. VS mechanics determine the value of their actions within the virtual world and influence a player's sense of agency in a gameplay experience by providing feedback and meaning to player action in game. VS mechanics are often governed by higher-order mechanics that determine what a sufficient, ideal, or useable accumulation of resources entails. In turn, VS mechanics influence lower-order mechanics that may govern aspects like specific actions in game (i.e., rock throwing mechanic). If a lower-order action requires resource to be carried out, VS mechanics determine if and when that action is possible (i.e., if player has rock, player can then throw rock).

As important as it is to track, tabulate, and implement these values, another facet of value system mechanics' importance lies in the presentation of feedback for the player. A player's perception of value plays a big role in determining his or her choices in gameplay. The expectancy value model proposes that performance of tasks, persistence in pursuing a task, and choices of tasks are predicted by the value that a person attaches to the success of a task (Eccles et al., 1983). As with rule-set mechanics, VS mechanics possibly contribute to feelings of achievement (Yee, Ducheneaut, & Nelson, 2012; Sherry et al., 2006) by providing feedback on the value of a player's actions, game state, and attributes. Furthermore, the manner by which different value-system mechanics provide feedback will influence feelings of presence (Ermi & Mäyrä, 2005; Lee, 2004). By providing graphical rather than numerical

feedback, value-system mechanics can influence the immersive qualities of gameplay experiences and determine how present in the virtual world a player feels.

Affordance (AN). Affordance mechanics govern what a player can or cannot do in a videogame's virtual world. These mechanics enable a player's action possibilities within a game, interact with all other forms of mechanics, and tend to be of a lower-order – being governed by resource values and overarching rules, which constrain and influence player interaction with these affordance mechanics. As existing conceptualization of affordances falls under two different categories—Gibson's conceptualization of ecological affordances (1986) and Norman's concept of perceived affordances (1988; 2013)—affordance mechanics can be divided into two subcategories. Gibson's concept of affordance refers to the action possibilities an environment offers an organism (1986). In videogames, AN mechanics that govern the objective reality of the virtual space a player interacts with can be called *actual affordances* (ANa). This refers to the mechanics governing the virtual ecology of the game world and control aspects such as gravity, friction, weight, inertia, momentum, and many other elements of the game world. ANa mechanics influence how experiences in a game 'feel' to a player and determine the experience of presence and agency within the game world. A game with ANa mechanics causing low gravity and friction for example will make motion in the game world feel smooth but impede precision of movement. Videogames that take place in outer space settings often utilize such ANa mechanics to immerse players in extra-terrestrial environments. As with Gibson's affordances, ANa mechanics determine the virtual reality of a game's environment.

The second subcategory of affordance mechanics are akin to Norman's conceptualization of perceived affordances. Gibson's (1986) affordances are part of the objective nature of an environment that do not need to be known in order to be experienced. In a different sense, Norman's (2013) perceived affordances innately help people figure out what actions are possible through what Norman calls signifiers, borrowing terminology from semiotics. These perceived affordances cue individuals as to the action possibility of an environment or items within that environment. In video games, mechanics that do so can be called *perceived affordances* (ANp). These mechanics either are themselves easily perceptible in their operational outcomes or indicate the action possibilities of ANa mechanics. An example of an ANp mechanic would be outline highlighting. Outline highlighting occurs when objects, characters, paths, or any other element in a game are foregrounded to the player by distinguishing them from the rest of the environment through color-coded highlights or effects. Elements with outline highlighting are made perceptibly usable and relevant to players. This is often seen with regards to doors, chests, and other objects that can be opened or manipulated by players and inform players that there are action possibilities available with the object. As with ANa mechanics, ANp mechanics influence players' senses of presence and agency during gameplay.

It is important to raise a point here that mechanics of a lower-order are not necessarily less important than mechanics of higher order. In Pong, affordance mechanics allow player directional control of the virtual paddle. This paddle mechanic is only possible when the player has 'lives' left. This is determined by higher-order rule-set mechanics governing lose conditions, which in determine the resource valuation and tracking of the base-order value system mechanics that count and display player lives left. However, without the player control over the paddle,

gameplay wouldn't exist. If anything, these lower-order affordance mechanics are often most visibly the determinants of how player's interaction with the game.

Validation via principles of game design. The three game mechanic categories (RS, VS, AN) encompass the different types of possible mechanics in a game and help group them in a way that makes their role in gameplay immediately evident. In this segment, existing categories of game mechanics used by game developers will be corresponded to the RS, VS, and AN categories in order to highlight the veracity of the typology proposed in this paper. In game design, core mechanics are mechanic types that are the most influential to a game. Core mechanics govern multiple aspects of the game and interact with other less important mechanics (Adams & Dormans, 2012). Core mechanics together govern the player's experience in game and are almost always necessary for video game experience. The five core mechanic categories in game design are progression, internal economy, physics, tactical manoeuvring and social interaction.

In Shigeru Miyamoto's Super Mario Bros (1985) for example, all five of the core mechanic categories are present. *Progression mechanics* "dictate how a player can move through the game world" (Adams & Dormans, 2012, p. 6). Progression mechanics restrict leftwards movement in the game—the screen remains fixed if a player moves to the left and only pans to the right as you move rightwards. How far a player progresses in the game is therefore determined by how far rightwards a player is able to advance in a level, as determined by the progression mechanics of the game. In the present project, progression mechanics as per game design literature fall under affordance and rule-set mechanics.

Upon moving continuously rightwards to the end of each level, the player is awarded with points based off items collected in the game and how quickly he/she reaches the end, measured and quantified by the *internal economy mechanics* of the game—which represent game elements that can be consumed, collected or accomplished. These internal economy mechanics track and account for the player's numerical score, listed in the top left corner of the screen. Internal economy mechanics overlap cleanly with the value system category proposed by the present project.

The *physics mechanics* govern the physical properties of elements in games. Collision detection—the mechanic whereby a game detects when objects in the game collide—also falls under the category of physics mechanics. These mechanics prevent Mario from dropping through floors or phasing through other objects. The speed of the fireball that Mario can launch, the height of Mario's jump and its trajectory, each of these elements are also governed by the physics of the game. Physics mechanics correspond to the *actual affordances* category that the present study proposes.

Tactical manoeuvring mechanics deal with the placement of units in game in order to gain strategic advantage. In Super Mario Bros, these mechanics dictate that standing on the floating blocks prevents collision with the incoming walking enemy turtle while simultaneously putting the player in the position to jump on and kill enemies. They define the positions in which Mario will be safe from enemies or incoming projectiles, and together with physics mechanics govern combat in game. Tactical manoeuvring mechanics can be subsumed under this paper's proposed rule-set and affordance mechanic categories.

In modern multiplayer video games, game mechanics exist that govern friend-lists, inter-player communication, player-to-player interaction and many other features

of *social interaction mechanics*. In older games, the ability of game console or personal computer to afford complex multiplayer interaction were very limited. As such, the social interaction mechanics generally afforded less options of interaction. In Super Mario Bros (1985) for example, the game allowed a two player mode where players would take turns playing and their scores would be matched against each other. The game also had a leader-board where player scores could be compared. This final game mechanic category while not covered by any singular category proposed in the present study, does fall under the combined influence of affordance and rule-set mechanic categories. The possibility of interaction with other players is afforded via game mechanics that determine the nature of the virtual environment and the mechanics that govern the number of players the said environment is meant to support.

As such, the categories proposed by this study should be able to help organize the range of specific mechanics based experiences that players can more easily identify as preferential (i.e., double jump mechanics and sprint mechanics would be classified under affordances). They should also allow certain generalizations to be made regarding desired/preferred game experiences (i.e., perhaps players who seek immersion prefer more realistic affordance mechanics or rule-sets). Through employment of the categorizations of game mechanics proposed here, this study seeks to examine how mechanical elements within games facilitate preferred gameplay experiences for players. This research will attempt to populate the a typology of game mechanics under the RS, VS, AN categories that will be highlighted through this study's investigation of the elements that construct players' preferred gameplay experiences.

A Conceptual Map of Gameplay Experience

With these theoretical constructs explicated, the following develops a conceptual map for gameplay experience and preferences. During gameplay, the player undergoes a virtual embodiment process which extends the player's experience and influence into the world of the game and allows them to experience a convergence

Figure 1: Gameplay Model of Embodied Virtual Experiences

of their identities and values with those of the game. This embodiment process involves the unfolding interaction between the player and the game – actuated through player's virtual embodiment, and the games mechanics. Three primary types of game mechanics are rule-sets, value systems and affordances. Together these three types of mechanics facilitate the virtual embodiment process and help construct the player's embodied experience of the virtual world.

It is important to note that the three factors of experience influence each other. Convergence, for example, influences the experience of presence and agency. Agency also likely influences a player's experience of presence since being able to affect an environment should render the environment more recognizably physical. Likewise, the different game mechanic types likely influence the facilitating power of the other

mechanic types. Affordance mechanics are tracked by value systems and governed by rule-sets, value systems rely on rule-sets to define the parameters for various values, and so on.

More importantly, the mechanics and factors of experience are more likely than not to influence each other in the creation of virtually embodied experiences. This potentially occurs in both directions. For example, a player experiencing a convergence of their identity with in-game personae likely feel a greater sense of presence when interacting with the game's affordance mechanics within the virtual world. These affordance mechanics likewise are potentially what initiates a sense of convergence – when a player carries out an action in game and its consequence on the game state are evident, the player is more likely to feel present in the game and align themselves more closely with their in game embodiments. The feedback of value system mechanics should also have an impact on value convergence in that the alignment of values between player and game are likely influenced by how much of game determined value is visible and quantifiable to the player and how much of it can be influenced by the game's affordance mechanics. The experience of agency and the affordance mechanics seem to be most closely interrelated – a sense of agency is afforded by the mechanics that allow players to have efficacy in the world of the game. Overarching rule-sets also likely determine the extent to which affordance and value-system mechanics allow players to encounter the various factors of experience. Gameplay experiences are complex interactions between player and games and the interconnectivity of the factors that construct these experiences have yet to be systematically explored.

CHAPTER SIX THE PRESENT STUDY

The important experience factors that may contribute to preference (*convergence, presence, agency*) and the mechanics that facilitate the experience of these factors (RS, VS, AN) are in themselves not sufficient in explaining preferred videogame experiences. The experiential factors and game mechanic groups only serve as the building blocks of preferred gaming experiences. As highlighted earlier, this study posits that existing gameplay experiences—involving subjective engagement with game mechanics that they perceive as most desirable—help inform and construct subjective preferences for specific elements in gameplay that constitute a player's preferred gameplay schema. In order to identify the relationships between a player's preferred gameplay experiences and the mechanics within a game that facilitate these desirable experiences, this study focuses on the experiences players have had in their interactions with games.

In the earlier chapters of this paper, I proposed a theoretical model that conceptualizes the process of gameplay as embodied virtual experiences involving three key elements of gameplay experiences, and facilitated by three types of mechanics. In this study, I therefore focused on identifying preferable factors in gameplay experience, and the relationships between these factors and the mechanics that potentially facilitated them. Throughout this endeavor, I attempted to illuminate the relationships between the dimensions of the virtually embodied experience, and sought to refine the model's utility in expanding our understanding of gameplay experiences. Thus,

Research Question 1: What constitutes a preferred gameplay experience?

Research Question 2: What are the factors that influence a player's perception of a preferred gameplay experience?

Research Question 3: What are the game mechanics that facilitate these experiences?

Research Question 4: How do players engage with certain game mechanics to create preferable gaming experiences?

CHAPTER SEVEN METHOD

Prior studies on the motivations behind game experience preferences and motivations often utilized self-report surveys and factor analysis to identify and categorize elements in players' motivations for play in order to highlight potential personality traits or tendencies that influenced game preference behaviour (Kahn et al., 2015; Sherry et al, 2006; Yee, 2006). However, in order to develop a deeper understanding of the underlying processes that govern the formation of preferences, I utilized multiple qualitative methods and focused on players' perceptions of gameplay experience and the mechanics that facilitated gameplay experiences in order to generate insights into why players prefer specific games or elements in games.

Participants for the study were recruited by advertising on social media based game groups, online game forums, and university undergraduate email chains. Interested parties were asked to fill out a pre-study questionnaire detailing their playing habits and the eventual participants were selected based on how long they had been playing games, the type of games they played, and the platforms they played on. Players who preferred to play on mobile phones, older consoles, and handheld

platforms were excluded because of the limitations of game data collection methods – this will be explicated on in the next section.

This study involved 22 individual participants each with more than a year of gaming experience. The pre-study eventually showed that all participants had more than 5 years of gaming experience, but the goal of setting an experience requirement was to ensure that the participants had a sufficiently long time to develop some specific preferences for individual games, experiences, or game elements. The participants chosen preferred a diversity of different games, genres, and game types, but were cognizant of a wide range of games outside their preferences. Because of this study's focus on the processes behind preferred gameplay experiences and the formation of these preferences, an accurate and proportional representation of player base was not a consideration. To explicate: players who preferred less popular titles were accepted just as often as players who preferred widely played and mainstream popular titles. Having an even distribution regarding games preferred was the goal of the selection process. This was to attempt to account for a broad range of different preferences and potentially different preference formation processes. Selected participants were then individually scheduled for a three-hour gameplay and interview session. Participants were logged and identified in this study according to a rough, two-letter abbreviation of their in-game monikers. A list of the participants containing their basic demographic and the games played during their sessions is provided in Appendix A.

Data Gathering Methods

This study incorporated aspects of the gameplay review method (GRM) developed by Kirschner and Williams, which was designed to illuminate the

relationships between player interpretations of their gameplay experiences, the game's design, and player's engagement with the game (2014). As with the GRM, this study utilized the collection of individual players' gameplay recordings alongside interview data, but also included new avenues of data collection that will be expanded upon below. Having methods that encompassed players' perceptions of their preferred experiences, their active engagement with game elements, and their potentially subconscious preferred courses of action within game is appropriate in achieving the purpose of understanding players' gameplay preference in depth.

Unlike the standardized office condition used in Kirschner and Williams study (2014), each participant's session was held at a location that they identified as being a preferred location. Most participants chose to have their sessions at their homes, but four expressed no preference for playing at home and instead opted to have their session conducted in a small university meeting room. The option to specify a preferred session location was given to allow participants to be studied in an environment that most closely resembled their normal playing conditions. This was in the hopes that participants would feel more at ease and reduce the interruptive stress of playing under the conditions of a study by cutting out the adaptation needed for playing in a new location. It also had the added benefit of allowing the researcher to observe the physical spaces that framed participants' gaming experiences and the specific interface equipment that players preferred; for example, the types of monitors and gaming peripherals used.

Each session with the individual participants lasted around 3 hours and consisted of a gameplay segment, an in-depth interview and reflection segment, and a game-selection segment. During the gameplay segment, players were told to play a game that they prefer over most—if not all—other games. The gameplay segments

generally lasted between 1 and 1.5 hours, depending on the typical session/round length of the game played. Some games typically required an hour to complete a single round of play (i.e., Dota2, League of Legends), while others were based off in-game ‘days’ (i.e., Stardew Valley). In a few cases wherein the initial game the participant chose had a short game typical round length (i.e., Overwatch with 15 minute rounds, KillingFloor2 with 20 minute rounds) the participants requested to play a different game and were allowed to do so but were asked to justify why their preferred game of the moment changed. Interview segments lasted between 45-90minutes, varying because of time remaining after the gameplay segment, participant fatigue, or depending on the responses given by the participant. During each interview segment, participants responded in a semi-structured interview that incorporated reflections on gameplay recordings, gameplay data and field notes recorded during the gameplay segment. Finally, during the selection segment, participants spent between 3-10 minutes in the process of selecting a hypothetical new favourite game. Participants used any tools and platforms normally at their disposal to search for new game to play that they believed could potentially become a preferred game.

Borrowing from the GRM, I used participant observation, think-aloud protocol, interview, and gameplay data collecting methods in tandem (Kirschner & Williams, 2014) during the various segments in order to identify relationships between the factors of preference formation during and over the course of gameplay experiences.

Gameplay Data Collection. This study introduces a novel approach to capturing gameplay data that perhaps more accurately encapsulates the diversity of player actions and renders patterns of gameplay behaviour more apparent. Before the start of the gameplay segment, three types of data collection software were installed on the participant's personal computer (PC) or laptop: gameplay capture, keypress capture, and mouse tracking. The gameplay capture software used for each participant

Figure 2: Whatpulse Heatmap and Keylist

varied slightly based on the capabilities of the machine used, and simply what was already available on their setup. Overall, three different programs used for gameplay capture – FRAPS, NVidia Shadowplay, and OBS. Each fulfilled the same purpose of recording the visual and audio outputs of the games played. A program called WhatPulse was used to capture each participant's keypresses during gameplay. This program tracked every button pressed on the keyboard and provided a heatmap and a list of the top keys pressed. This provided data on the way players physically interfaced with the games they played and provided an element upon which participants could reflect during the interview segment. Lastly, Iographica was used to track mouse movements in game. The program traced mouse movements and clicks

across the screen and helped highlight patterns of action in various games that relied heavily on the mouse for control and interaction.

Given that players are granted access to any action, mechanic, or feature through their input-devices, this method of tracking input data alongside gameplay data was developed with the aim of highlighting specific actions that players may

Figure 3: Iographica – 1 Hour of gameplay in 'Don't Starve'

subconsciously prefer or that they consciously choose to repeat. It is currently fairly impossible to track every interaction between player and game mechanics given that doing so would require access to proprietary systems and data of the games played. In lieu of directly tracking this interaction with the game state, this study utilized tracking of keyboard and mouse input data which – when overlayed with the visual feedback recorded from the monitors – captured a pattern of input and user interface behaviour that provided insight into the preferred actions of the players.

Participant Observation and Think-aloud Protocol. During the gameplay segment, I observed participants' in-game behaviour and physical actions. Participants were asked to think-aloud, vocalizing their thought processes throughout gameplay.

The think-aloud method, which consists of the player thinking aloud while performing a task or problem solving (van Someren, Barnard, & Sandberg, 1994; Nielsen, Clemmensen, & Yssing, 2002), allows players to express their gameplay experience in real time, and in doing so give the researcher insight into players' perception of the experience. In order to explain what I wanted to participants, I often would tell them to pretend they were voice casting or commentating on their own gameplay, as many online game streamers often do. After interesting or important moments in gameplay, I would prompt participants to talk me through the event and their perceptions regarding it. This became a necessity towards the latter half of the participants' gameplay segments as they became fatigued or immersed and less forthcoming with their commentary. Alongside the gameplay data and recordings, the participants' think-aloud commentary and interaction with me was recorded and time stamped. Additionally, I would take down field notes based on particularly relevant events in game, or insightful comments from the participants. These field notes, together with the data recorded were then used as focal points for participants' reflections during the interview segment. These observations and participant commentary also provided real-time insight into player thought process governing their preferred actions and the nature of preferable gameplay experiences.

Interview. During the interview segment, the participants were provided with various gameplay clips recorded from their gameplay segments and time-stamped in the accompanying field notes. I invited participants to reflect on these specific moments and discuss why they chose to act in a certain way and whether what had happened was something that constituted a preferred gameplay experience. I also went through a list of questions based on the VEP framework proposed earlier in this study

and used these questions as a basis for further discussion regarding the participant's specific preferences and preference formation process.

Data Analysis

Audio recordings of the sessions were transcribed verbatim, and the transcribed data, field notes, and memos taken by the researcher during the sessions were then analysed. Transcriptions of the sessions were iteratively and thematically analysed—seeking to identify and integrate emerging patterns across the qualitative data (Braun & Clarke, 2006). Braun and Clarke (2006) describe 5 phases to thematic analysis that were adapted to guide data analysis in this study. During the first phase—familiarization with data—I reread and re-watched gameplay and textual data recorded during the interview sessions. This began from after the first transcript was completed and continued on throughout the entirety of the study. The second phase was concerned with the generation of initial codes, during which important relationships and factors were identified. Coding helped identify important features such as commonly preferred gameplay factors and the mechanics that facilitated them, as well as the types of relationships between factors and mechanics. In the third phase, I looked through the codes established from the data set and searched for emergent themes. Different codes were sorted (and often re-sorted) into emerging themes that highlighted groups of preferred gameplay factors and categories of mechanics that facilitate gameplay. These themes were then reviewed and refined in the fourth phase, for internal homogeneity and external heterogeneity, which allowed for the establishment of clear categories for preferred gameplay factors and game mechanic utility (Braun & Clarke, 2006). Finally, I defined and named these themes so that the

essence of each thematic group could be identified and attempted to identify the mechanical and psychological processes behind them.

CHAPTER EIGHT DATA ANALYSIS & RESULTS

Gameplay preferences are often highly subjective and individually constructed, but the components and evaluations involved in the construction of these preferences stem from very similar elements in games and the gameplay process. Players pick and choose the elements they most prefer, and from these common elements construct and evaluate the unique and engaging experiences that characterise their personal types of preferred gameplay.

NE: Check this out. This is hilarious! He's just- he just woke up and a guy is zapping him to death man.

Interviewer (I): So this game provides you with quite a wide range of tools to do things with. And the only reason why you settled on lightning was because it was funny?

NE: Isn't it?

While this study investigated a variety of different players playing a variety of different games, thematic commonalities emerged over the course of iterative reviews of the data. These themes identified certain common components and evaluations that constituted preferred gameplay experiences, foregrounded common factors that influenced players' perceptions of preferred gameplay, and highlighted the mechanics

that facilitated these experiences. The following sections of this chapter groups the identified themes according to their relevance to the research questions (RQ1 and RQ2) alongside the respective relationships between these themes and the mechanics that facilitate them (RQ3). In addition, the innovative inclusion of gameplay data in the form of recordings and input tracking alongside traditional interview data and field notes taken during participants' gameplay segments allowed for an examination of the ways players engaged with certain game mechanics during the gameplay experiences that they preferred (RQ4). This will be elaborated upon in the latter section of the chapter.

Constructing a Preferred Gameplay Experience

BX: Actually, story was one of the things that interest me at first. But after that it didn't matter so much already, like after midgame, after you complete the story mode, it didn't matter so much to me, it's more about looting, levelling up, getting better items and trolling people.

A preferred gameplay experience is often a liquid concept for a player. Preference develops over the course of gameplay and often multiple different components will be identified and discarded in turn as being the foci of a player's preference. Despite the mercurial nature of preference, the basic components that help structure and define player's preferential evaluations are fairly consistent across different players and games, and across gameplay progressions. As mentioned earlier in the study (Chapter 1.1), preference is fundamentally a comparative evaluation of a gameplay experience. In order to prefer a game, a player has to have a means of comparison – something to be preferred over. And in order to form comparisons, players naturally and perhaps subconsciously identify components of gameplay as the

basis for comparison. In their comparisons between experiences, players' perceptions of these identified components serve to construct the player's overarching gameplay preferences.

In this study, five themes emerged that served as components which constituted overarching preference for specific gameplay experiences. These five components were commonly highlighted in participants' expressions of preference for specific gameplay experiences. They are: *the Story and Narrative World; Game Affordances; Visual Aesthetics; Tactile Control; Social Interaction*. Alongside these components were three evaluations of the player's experience with the components based on their ability to provide the following: *enjoyment, progression, and challenge satisfaction*. Players' concepts of their preferred gameplay experiences were constituted by the application of these evaluations to the five key components.

The story and narrative world. Video game stories are often highlighted in game studies as a key component of gameplay experiences (Green, Brock, & Kaufman, 2004; Ermi & Mäyrä, 2005; Almeida et al., 2013). With modern technology allowing for dynamic game stories that have multiple endings based on player decision (i.e., Mass Effect 3, Far Cry 4, Life is Strange), and with the development of new games that incorporate storytelling elements into non-story driven gameplay (i.e., Overwatch, Dota2, League of Legends), the role of game stories and narrative worlds in any gameplay experience is becoming increasingly more important. Most games contain either/both explicit and implicit stories. Explicit stories refer to the overarching narratives that drive the game. Titles like Bioshock or Life is Strange for example, are games with their rule-set mechanics designed to drive a central explicit story, and the player's gameplay experience revolves around the advancement of the

plot and character developments toward a final plot end. Implicit stories are simply narrative elements embedded in gameplay that are not necessarily tied to the overarching rule-set mechanics that govern gameplay progress but instead explain or add colour to various features or elements in the game. While the explicit stories told through video games are inherently an important component for the narrative seeking gamer, the implicit narratives embedded within non-narrative driven games are potentially just as important when it comes to the creation of a preferred gameplay experience.

I: What makes this your favourite game?

BR: Actually it's very different from the other games. Firstly the story tells- it tells two stories at the same time 'cos it's Ezio and Altair, and also Desmond Miles, who is out-of-the-universe character, but is also actually the main character. This is why the Assassin's Creed story is very interesting. [...] Altair is actually my favourite character, surprisingly, but you only get to play as him for maybe 10 percent of the game but those parts of the game are actually quite valuable

Explicit stories. Games like the Assassin's Creed series place heavy emphasis on the development of the central driving narratives as well as the characters involved. For players like BR, these stories play a big role in their development of gameplay preference. BR highlighted the plot and characters of the Assassins Creed series as the reason for his preference of the games over other story-driven titles. BR also added that "before Assassin Creed 1, there was Prince of Persia, and the game[play] is pretty much the same but story wasn't that great." This resulted in him switching from the Prince of Persia series to Assassin's Creed. Apart from the draw of specific narratives

however, players also expressed a preference for specific means of navigating and interacting with the explicit story or narrative world of the games they played.

Player choice and narrative structure were two important story subcomponents brought up during this study. For JJ, games are like interactive films in which the player has some measure of control over the outcome, “I like to watch films a lot, so playing a game to me means like my actions affect how the movie is going to play out – that is a game to me.” Having a good explicit story was not a sufficient basis for preference and without the ability for his actions to heavily influence the plot and its progression, JJ stated that he “might as well be watching a movie instead of playing a game”. TD similarly voiced preferences for story driven games that allowed players to make important character decisions, even if the plot was fairly predetermined. TD said that as far as story-driven games was concerned, he preferred how “in Dragon Age you can choose to be a douche character or like in Mass Effect I can choose like one of the renegade options” rather than stick to conventional heroic approaches to the story. Having affordance mechanics that allowed player influence of key story elements was therefore an important aspect of creating preferred gameplay experiences for players like TD.

Alongside having specific preferences for how the game’s mechanics afforded their choices an affect on the story of the games, players also expressed a preference for different styles of narrative structure – in particular, linear and non-linear storylines. Linear storylines firmly guide gameplay from one plot point to the next, while non-linear stories provide either a variety of plotlines to follow or simply provide plot points that a player can go through at their whim.

FR: I prefer open world storylines. Because there's more possibilities, there's more things to do like let's say you have Call of Duty. Call of Duty is where you are forced to follow story line all the way, there is no deviation at all. Here [in Destiny 2] right, you can take a break from the main story line, you can go and do like events with people, you can do side quest that kind of thing, and you can run around, find things. It's like open world ah, you can do whatever the hell you want.

FR stated that she only plays a story-driven game if the story can be experienced in non-linear fashion. For FR, having non-linear approaches to completing a story “is better because that means there's variety; just because I buy one game doesn't mean I'm forced to do one thing the whole way.”

Implicit stories. In games that have gameplay structures that are unlinked to the progression of a story, implicit story worlds are often provided in the form of game lore and backstory. These lore and backstory elements are often either woven into gameplay in the form of flavour text and in-game interactions, or are provided as separate from the actual gameplay experience – through accompanying media (i.e., Overwatch characters story trailers). Flavour text refers to text based information that is presented alongside features in the game that usually provides a tutorial as to its use, or background information regarding its role in the game's story. EQ acknowledged that “sure you know it might be completely redundant but flavour text is so important to me”, highlighting that having these implicit backstories is an important part of establishing the game's world, even if the actual gameplay did not necessarily involve its exploration. These narrative elements essentially served as the vocabulary for the game's value mechanics, giving name to values like currency and hit-points.

Interaction with these value system mechanics were shaped by the narrative overtones that flavoured the experience in a manner most palatable to players looking for an experience of implicit stories in gameplay. MT stated that “reading the lore kind of makes me feel like there's a, like it's not just a game that was made to be played, it's not made for the sake of being made, you know.” For MT, it was not important for the lore to be expressed within the game itself, “it doesn't have to be in the gameplay, I just want to be able to read up on it”. While EQ and MT play games (and game modes) that are not narrative-driven, they often seek out backstories surrounding the games they play and prefer when the game worlds they inhabit during gameplay are fleshed out through implicit story worlds.

Mechanical facilitation of stories. Implicit game stories were usually experienced separately from game mechanics. While they sometimes occurred alongside mechanics as a means to explain or add narrative relevance to various mechanics, they were primarily experienced either outside gameplay, like in the case of MT's backstory readings, or tagged to mechanics à la EQ's flavour text preference. Explicit game story experiences however, were facilitated primarily through gameplay objectives. Because of how narrative-driven games structure gameplay objectives—according to the structure of the story—participants in this study that preferred narrative driven games often identified game structure as story structure and vice versa. For example, KF identified his gameplay experience of Bioshock as “just following the story objectives”, advancing gameplay by advancing the story. This however, entailed a wide range of different gameplay activities in order to satisfy conditions to advance. As mentioned earlier, the story objectives were facilitated primarily through rule-set mechanics that governed win-lose conditions of each individual objective. In order to advance both the story and his gameplay's progress,

KF had to clear specific areas of enemies, solve puzzles to unlock doors, find switches to unlock new areas and interact with a range of various affordance and value-system mechanics in order to satisfy the rule-set conditions.

While KF's preference for linear and structured stories differed greatly from FR and BR's preference of non-linear stories, both linear and non-linear story structures seemed to be facilitated by largely the same mechanics – with the exception of the overarching rule-set of the 'open world'. The open world is an overarching game rule-set that determines the way players are allowed to explore the virtual environment and navigate with gameplay objectives. In contrast with linear gameplay, which restricts access to new objectives until preceding objectives are satisfied, games operating under the open world rule-set are generally given access to most, if not all, objectives and are allowed to choose which to accomplish at any point of time. In both linear and non-linear story driven games, progress is determined by the completion of objectives. The primary difference is simply the order in which these objectives had to be completed. By allowing greater decision making control over the way players access parts of the story, the open world rule-set mechanic facilitates the non-linear story driven preferences of both FR and BR as well as numerous other players.

Game affordances. One of the most common components of preference were the specific features that players perceived as definitive for specific games. These features were essentially affordance mechanics that defined preferred gameplay and distinguished it from any other gameplay experiences. In this study the features that a variety of participants preferred can be divided into two subcomponents of game features: *customization possibilities* and *action possibilities*. Customization possibilities refer to the game's capacity to allow customization in regard to gameplay,

player-character appearance, and player abilities or weapons. Action possibilities are the features that specifically allow certain actions or types of actions in game.

CR: I love how they have this thing where we have our space ships and they have this pad thing and they have legendary weapons, like exotic, legendary and rare weapons. And they have like subclasses. [...] So you can customize and make your labelling nicer because from here as you can see, they have different kind of emblems. So it depends on you, whether you wanna be having a cute emblem, or having a cool emblem. [...] Basically my favourite cause can decide how I wanna do things.

Customization possibilities featured frequently as a source of preference, with participants deciding on favourite games based off the depth of customization allowed by the game. Gameplay customization allowed players to decide the way they engaged in gameplay. For example, during NE's gameplay segment, he ran into a section of gameplay that he found frustratingly difficult. "So there's a mechanic in this game, if I'm having too hard a time like this, I just go to the difficulty setting like this and I just go down and they get less health," he said, while revelling in how easy the customization allowed gameplay to be "everyone plays a videogame to feel like a badass right. And like in those moments it's when you feel like the ultimate badass."

Character customization allowed players to design avatars that they felt were unique and reflected their preferences. BR emphasized how important it was to him. Customizing a character was what made him feel the most immersed in his gameplay and was something he looked for in any game that he played.

BR: I love to customise. I love to customise stuff in games that's why like those RPG (role-playing games) games where you personalise your character, I

find it very fun. ‘Cos you are not playing as an existing character, you are creating your own.

Having customizable player abilities and weapons also emerged as a preferred game feature to have. Some, like KT and AB, prioritized character customizations that in turn influenced the types of gameplay they could experience. These customizations changed not only the way the characters looked, but also the way the players could interact with other players and the game.

KT: So one of the reasons why I like Skyrim a lot is because I can have different kinds of characters, so I can choose what armour sets, different weapons or different magic combinations because I know what that character is gonna do.

For example, an important feature of the game Player Unknown Battlegrounds (PUBG) that made it one of AB’s favourite games was the customizability of weapons his character could build and carry in the game. He had expressed a general preference for gun combat in the games he plays and highlighted that PUBG in particular allowed for unique customizations. “Yea, it kind of gives me the perspective as though I have the flexibility to choose how I want my gameplay to be like? According to different preferences, some people like hip firing, some people like ADS (Aim-down-sights).” Through the various weapon attachments and modifying accessories that could be picked up on the battlefield, players could customize their weapons to best suit their preferred playing style.

Action possibility was another recurrent feature that participants emphasized as important in the games they preferred. Action possibilities are affordance mechanics that allow players to carry out interesting actions during gameplay. These actionable

features range from being definitive for gameplay, to having only subtle influence on gameplay. However, regardless of the influence they have on gameplay, the action possibilities that a game features play a significant role in players' development of preferences for the game. For certain types of games, a single core action possibility sometimes was the deciding factor regarding a preference for the game.

KF: I prefer focused games that target specific audiences because they tend to be more- they tend to have a certain mechanic that they are really strong at. That I would probably find appealing.

Participants like BD and KF are players who enjoy games created by independent (indie) developers. BD explained that these smaller production companies focus on standing out and as such "are more motivated to come out with new creative mechanics".

BD: *Fez* drew me in because of its perspective shifting [mechanic]. I like how when I enter the room, I need to think twice and change perspective and yeah it's a very unique mechanic, which I have never seen in any other game.

The unique mechanic that BD refers to is the driving feature of the game *Fez*, wherein players can toggle between four viewing perspectives to realign platforms and solve the games' puzzles. The perspective shifting feature defines most of the players' gameplay experience and BD emphasized it as the reason for his preference for the game.

Action possibility features that are much less influential for gameplay still potentially play an important part in the construction of a preferred gameplay experience. For example, LC preferred *Dota2* over most other games because of the

many “intricate features” the game provided. These interesting action possibilities allow the player to influence the game in numerous small ways. LC explained that while individually insignificant, together these actions amounted to unique and engaging gameplay experiences.

LC: Like even if you- whether you decide to block creeps or not, that kind of thing. Even though individually it actually doesn't have a lot of impact, the fact that you can try to change something in the game, that wasn't even intended in like the original game. Feels like you've beat the creator you know?

LC cited the recent patch that altered some features of the game, removing “stats in favour of the talent tree” as being something that reduced his preference for the game. The feature of stats was replaced during the game’s recent update in order to implement a new feature that streamlined gameplay. “I think it's quite limiting actually”, he said, highlighting that he preferred the old feature of stats which allowed players a greater range of options for gameplay and that the new “talent tree” reduced the range of players’ action possibilities. “It discourages new builds. And that's like, I think that's an important part of the game for me.”

Game affordances were therefore mechanics highlighted by players as being important in shaping gameplay, and are often a key component in the construction of a player’s preferred gameplay experience. While two key types of affordances have been highlighted in this study—customization and action possibilities—the list is hardly exhaustive and given the wide variety of different features that games provide, more subcomponents of game features that help construct gameplay preferences may still be defined.

Visual aesthetics. Given the emphasis placed on developing games that look better and better; and having gaming systems that support more complex and realistic visual effects, it should come as no surprise that the visual experience of a game was highlighted as a key component of player preference. However, while having graphics that were up to date with technological advancements did emerge as something players enjoyed, participants demonstrated preference for graphics that simply fit their desired aesthetic, regardless of the visual quality. Preference for various games were based more on the aesthetic appeal of the visual experience than the underlying graphical fidelity of the game. Graphical fidelity refers to the combination of graphical detail, framerate, and resolution that determine the visual quality of a game. Aesthetic appeal is the subjective stylistic preference for certain art-styles and graphics implementation.

BX: In Destiny right, the world, although designed very nicely, but the colours they use is very, I would call it the Candy Colour, like Aqua, Pink. For some reason, those colours make the whole game feel very flat. Then it's just don't have a depth, like the feel of depth to it, and after I played that game for a while I feel like- I feel nauseous.

Players like BX preferred realistic art-styles over what he calls "the cartoony kind". When comparing the visual experiences of games he preferred to those he didn't, BX raised examples in which the two games gameplays were close to identical. His preferred game, The Division, placed players in contemporary New York and sported graphics that were designed to look as realistic as possible. "Borderlands is a good comparison 'cos somewhat similar, but the design of it is too cartoony, I don't like. Like comparing PUBG with Fortnite, I wouldn't play Fortnite at all." The games that BX highlighted all had fairly similar levels of graphic fidelity, more importantly

similar gameplay mechanics, but his preference for them differed according to the style of their design.

Alternatively for players like SP and PP, a preferred gameplay experience would be one in which the games' design was less realistic and more stylized. SP's preferred game, *Stardew Valley*, makes use of pixelized graphics that are intentionally set at a low resolution. "I like the graphics, it's very pixelly and it's very calm," she explained. PP likewise preferred the simple and unique artstyle of *Don't Starve*.

PP: I think it's not about whether it's lousier graphics, it's what kind of graphics. I like this because it looks like a bit cartoonish and it's a bit like a grotesque kind of style whereas there are like certain games like let's say your MMORPGs that are very often even like *Runescape*. It's trying to look kind of realistic, you got your body proportions and stuff, or like in *Dragon Nest* its very anime looking like characters sort of and it's a different kind of aesthetic.

Figure 4: The Division (Left), Stardew Valley (Middle), Don't Starve (Right)

Instead of identifying the level of graphical fidelity a game had as being an essential part of constructing their preferred gameplay experiences, participants therefore commonly emphasized preferences for the aesthetic appeal of a game's visual design.

Tactile control. As raised in the proposed VEP conceptual model of gameplay experiences, gameplay is not only a virtual experience, but one that encompasses physical action as well. The physical experience of manipulating the input interfaces

and gaming equipment was an important part of a preferred gameplay experience. The greatest divisions of preference were with regard to the use of mouse, keyboard, and game controller. In this study, game controller refers to the dedicated input devices that are designed for gaming. Players often highlighted one of these input devices over the others despite the common usage of mouse and keyboard in tandem. Regardless of the specific device chosen, players identified the tactile experience of the input devices as being an important part of their preferred gameplay experiences.

Players like BX and AB, who primarily prefer playing first-person shooter (FPS) games, place great emphasis on the mouse control aspect of the game. In FPS games, the mouse controls two main affordance mechanics of gameplay, where the player can look and what they see in the virtual space of the game, and how the player shoots. Moving the mouse shifts the game camera's perspective and lets a player look around, and clicking on the mouse's two main buttons usually fires whatever weapon the player is in possession of. As such, the physical experience of mouse control is vital to creating a preferred gameplay experience. AB explains, "The thing is, the keyboard doesn't exactly matter," instead what he identified as being most important for any FPS player was having "a large enough mouse pad and a mouse that is sensitive enough to capture a small little movements" in order for him to be in full control over his gameplay. Discrepancies in the physical control of the mouse greatly disrupt gameplay and result in very unsatisfactory gameplay experiences – "it really sucks if lose just because of mouse problems."

For players like KR, the keyboard and both the physical and virtual control that it provides takes precedence over other input devices. KR's game of preference was Audition, a music rhythm game wherein players followed directions on the screen and

pressed keys on the keyboard in sequence in time with the rhythm in order to score points.

KR: I'm very used to a mechanical keyboard for this aspect. You have to use a flat membrane style [of keyboard]. I'm used to having a slightly higher arc. As well as having to press softer. 'Cos for some keyboards you need to press really hard for the key to register, need to press all the way. But as for my own keyboard, I chose it because the actuation of the key is actually much lighter, so I don't have to put a lot of force. 'Cos after rounds and rounds of games, if you have to put so much force, it's actually quite taxing on your wrists and your arm in general.

In music rhythm games like Audition, the physical exertion required to carry out the necessary in game actions plays an important part in their gameplay experiences. As such players develop specific preferences for the physical interfaces used.

Some players prefer the way certain physical devices feel, despite them not having any objective benefit in terms of influence over gameplay. These preferences are often simply because of a player's experience with the device. BR for example prefers playing Assassins' Creed with a controller rather than a keyboard and mouse. "It gives you the right feel for the game and also like, playing with a keyboard right, it doesn't have as much freedom sense, 'cos like with a controller you can move around, while- you are much more mobile." BR's preference for a controller stems from the way it makes him physically feel during gameplay. FR recounted an attempt to use a different input device, "I've tried using a controller recently, and I've tried playing controller on PS4 on Rainbow Six. Wah, it was horrible." She highlighted that having to relearn how to manipulate a new device detracted from the games experience and

made it a frustrating and disappointing experience. The tactile experience of gameplay therefore is also subject to a range of different player preferences and serves as an important component in the construction of preferred gameplay experiences.

Social Interaction. Another important component of a preferred gameplay experience is the experience or impression of social interaction. Players can prefer or avoid games based on whether they offer experiences of different types of social interactions. Participants highlighted *interacting with friends* and *playing with other humans* as important factors of gameplay preference. Interacting with friends was an important deciding factor in determining what game AK and SK preferred. AK stated that in general, she preferred to play with friends because spending time with her friends in-game was one of the main reasons why she played games. “Actually, playing alone is very boring because conversation is what makes gaming fun!” she exclaimed. Likewise SK explained that his preference for the game CupHead stemmed from the multiplayer rule-set mechanic that it allowed him to play cooperatively with his brother.

Other players simply enjoy the social and in-game dynamism that having other human actors brings to gameplay. FT stated that he prefers gameplay experiences that involve other players, even with a very limited set of cues. “For me text is enough. Voice is not really important- because I don’t really talk to people when I play games, I just listen to how they feel.” He highlighted that what made Word of Warcraft or KillingFloor2 two of his favourite games was the social environment created by having human players in a game.

FT: Bots or AIs, they still play like somebody is there, but they don’t really respond back to you, whereas if you play with players, you can hear their

excitement through a boss kill or like frustration through Raid Wipes and stuff like this. And sometimes people get angry at you because you do something wrong or you get angry at people doing something wrong, it's really the emotions that people bring out, then you can relate to other people.

Human players create an emotionally charged and dynamic environment that allow players like FT to encounter the gameplay experiences they most prefer.

For other players, the social dynamism was less important than the gameplay dynamism that human allies and opponents brought to their experiences. EQ enjoys playing against both human and AI (artificial intelligence) opponents. However, he emphasized that what made playing against the AI enjoyable was its ability to somewhat resemble human gameplay. He said, "The reason why StarCraft 2 is nice is because even against an AI, the AI does make smart intelligent choices, rather than just 'oh, he built this so I should build this.'" The caveat was that when it came down to preference, AI was insufficient to provide him the gameplay experiences he most enjoyed.

EQ: My gameplay session must have some degree of variables. It can't be like I just repeat the same thing again and again and again. So, if the AI becomes predictable, then that sense of predictability is what makes me really dislike the game.

As such, the social experience component of a preferred gameplay experience has two main facets: the creation of a social environment for interaction and expression, and the facilitation of gameplay dynamism through human gameplay interactions.

Evaluating Preferable Gameplay Experience Components

The aforementioned five components of a gameplay describe what makes players like a gameplay experience. These components of gameplay are subjected to individual player perceptions that shape each player's concept of a preferred gameplay experience. It is important once again to distinguish gameplay experience preference and game preference. Participants expressed preference for their experiences of these components and identified and contrasted these component engagements across different games without necessarily preferring the contrasted game. What the players' interactions with the five components influenced was their perception the gameplay experience and numerous other factors could be involved in determining eventual game choice (i.e., affordability of game, access to game, marketing, etc.).

In this study, these perceptions commonly took the form of three different evaluations based on participants' feelings regarding the overarching gameplay experience and/or their experiences with these five main components. Participants made these evaluations both consciously during their gameplay segments, and identified some of their subconscious evaluations during the interview and review of gameplay segments. Components were evaluated based on their ability to provide players with a feeling of *enjoyment*, *progression*, and *challenge satisfaction*. How players evaluated the components then determined three different outcomes concerning the player's overall attitude concerning the component: inhibiting preference, promoting preference, and 'preferred but not necessary'.

Entertainment. The stories, features, aesthetic appeal, tactile experiences, and social experiences of games each had the potential to be entertaining. The evaluation

usually took the form of participants saying that a particular component or subcomponent was something that they liked, or enjoyed, or found fun. The entertainment evaluation was essentially the basic positive evaluation applied to components that players highlighted. Its converse was usually just an expression of dislike for the highlighted component. Of the three evaluations that emerged over the course of this study, entertainment seemed to be the most common, but often was not highlighted as an evaluation that led to preference on its own. Components that were only entertaining were important, but rarely seemed to actually immediately inspire preference unless accompanied by the other two evaluations.

For example, MT enjoyed the implicit stories that accompanied the non-narrative driven gameplay of Dota2. As stated earlier, she enjoyed reading up on the lore and backstories surround the many playable characters of the game. She also expressed that she liked the moments where these aspects of lore were experienced during gameplay, rather than outside it.

MT: I really like when characters talk to each other and like when you listen it's like a mini story. It's super rare but like, it'd be nice to a lot more of it la, but doesn't necessarily have to be I guess?

I: Not necessary because it is rare or not necessary because it's just not that enjoyable.

MT: 'Cos it's rare. Because it's not very easy to pull off I think. Especially in Dota when you have like 100 over characters right and then you manage to weave everyone's story together right, probably not an easy process

Despite how entertaining she found the story gameplay component, MT ultimately evaluated the component as something that she called “preferred but not necessary”. Not having it would not result in her no longer preferring the game, and having it would only marginally affect the already positive evaluation she had for the game. Variations of the phrase “preferred but not necessary” reoccurred sporadically over the course of the study and was always an addendum to an evaluation of a component being entertaining or enjoyable. Components that were evaluated as being both entertaining and providing a sense of progression or challenge satisfaction however, were often highlighted as important or even necessary for their preference of certain gameplay experiences.

Progression. The evaluations of components as facilitating a sense of advancement and progression thus played an important role in determining preference. The progression evaluations that occurred in this study can be split into two categories: player skill progression and game progression. Participants evaluated the five gameplay components based on the components’ potential to allow players to feel as though the games or the players themselves were undergoing positive changes and improvements. Player skill progression emerged in this study primarily as an evaluation of game features. Experiences of game progression however, was found to be an evaluation applied to all five preferable components.

A component was evaluated as facilitating player skill progression when it allowed the player to, through practice or experience, increase their agency within the world of the game – overcoming difficult obstacles through their developing playing skills with greater ease or efficiency than before.

EQ: Usually the games I play, when I say high skill cap, it's that the player needs to do or juggle more things in order to, so called achieve better results. I think that's the reason why I like it and also it's like the fact that you're so introduced to more and more tasks to perform usually also serves as an interesting benchmark as a player. Like you're improving as well and it also feels nice to be able to do more stuff because you've gotten better at the game.

EQ for example, enjoys the wide range of game affordances in Starcraft2. He highlighted that the ability and difficulty of controlling huge armies of a variety of units was what made Starcraft2 his preferred game over the years. He sees progression as an intrinsic part of his preferred gameplay style and evaluates his experience based on being able to hone his skills and master complex actions. For EQ, his personal progression was determined by "how I handle the game without, in a way, paying attention to difficulties" – being able to overcome difficult situations without having to rely on preparation and instead being able to seemingly easily replace preparation with raw mechanical expertise. "I don't know how to put it into words, but I like that when I'm good at a game, it's like I can progress through the game without needing to prepare for things in advance," he explained.

Participants were found to have evaluated all the different gameplay preference components as having the potential to facilitate feelings of game progression. For example, players like SP and KT highlighted that one of the main reasons they preferred playing StardewValley was the advancement of the story. SP in particular preferred the story aspect of StardewValley over other games because, as she stated "the story is what helps you progress the fastest". "So for example like, I would grow more things that people like, so that, and in that sense, by growing things that people

like, I give it to them and it kinda progresses the story, but also my gameplay, because I get more stuff” she explained. Similarly, BD evaluates game visual aesthetics, specifically those regarding player characters, primarily based on the possibility of reflecting his progress in the game. He prefers games that visually show his characters’ progress through the game and enjoys having new equipment, cosmetic features, and other elements that would help improve the visual presentation of his character. “I’ve gotten better at adapting to the mechanics and I’ve gotten better at coming up with creative ways to use the mechanics,” he said, “but that isn’t very tangible for me”. He emphasized that “for me I feel that progress is more of the visual aspect.”

Game features could also be evaluated based on their ability to grant players a sense of game progression. “I love being able to collect weapons,” BR stated about why he preferred the gameplay experience of Assassins’ Creed.

BR: Yea, that’s like optional stuff like you don’t have to complete the set of weapons of course, you could have just like one weapon that can like kill everyone but like I’m more of a completionist, I want to collect all the weapons and armour. And each item I add to my collection is another step forward for me.

Despite having already completed the main quest and story of the game, BR highlighted that one of the features that keeps him playing the game was the continued experience of progression through the collection of achievements and weapons. Gameplay components’ ability to provide player skill progression and game progression were therefore important evaluations that played a big part in determining a player’s concept of a preferred gameplay experience.

Challenge satisfaction. In this study, the game feature and social experience components were found to be capable of providing different challenges. Two common types challenge were identified: *active* and *passive* challenges. While they are two opposing styles of challenge, having or lacking a good balance of contrasting challenges was found to be an important evaluation that participants' made in determining a gameplay experiences' preferability. Overcoming each of these two challenges created different types of satisfactions for participants. Their evaluations of a game's ability to provide these challenges played a big role in defining their concept of a preferred gameplay experience.

A gameplay experience or its components offered active challenges if it required players to display or possess a high degree of 'mechanical competency'—manipulation and understanding of the game's mechanics—during gameplay. Active challenges require the player to be more cognitively and virtually engaged in gameplay. What distinguishes an evaluation of a gameplay experiences ability to provide an active challenge from the evaluation of it being able to provide player skill progression (detailed in the previous segment) is that the former refers to the challenges that the experience provides, while the latter refers to the solutions that the experience affords. Passive challenges are provided when gameplay experiences allow the player to get by with low degrees of mechanical competency, or to experience gameplay without needing to be fully engaged. A good example of an evaluation of both active and passive challenges was LC's explanation of what he found to be "stupid and clever entertainment".

I: So why did you used to like Uther Party?

LC: It's fun. Like there's a lot of mini games, like it's- it's very stupid but it's like stupid entertainment. You can like, not think about the game and just follow and then have fun.

I: Okay. What would clever entertainment be then, if that's stupid entertainment.

LC: Hmm, I guess Dota. Like 'cos you have to think about what's happening, most of the time.

LC's preference for Dota2 over all other games stemmed from his evaluation of Dota2's ability to have a good mix of both stupid (passive-challenge) and clever (active-challenge) entertainment. Dota2 has two main features in its gameplay: farming and team-fighting. Farming involves the repetitive action of killing computer controlled units called creeps, while preventing opposing players from doing the same – an action that generally has low cognitive load and requiring minimal mechanical competency. Team-fighting, on the other hand, requires players to be fully cognitively engaged and utilize their full mechanical capacity in a clash between the two teams of five players involved in a single round of Dota2. Both features have a high degree of influence on the success and progress of gameplay, but require the player to utilize different levels of activity and for different durations. Farming occurs over long stretches of time, and the kill of each individual creep is of low significance and value in and of itself. Team-fighting begins and ends quickly, sometimes in the span of seconds, and the success and failure of each team-fight is of vastly greater significance and value. "So when there's both, like in Dota where you get stupid and clever together, it's the best," LC explained, "Intense and chill, high stakes and low stakes." When participants' perceived a good balance of both active engagement and passive

engagement required during gameplay, they tended to prefer the experience over others which had one and not the other, or a disproportionate amount of either.

Participants who did not have a specific game that they found to provide a balance of active and passive challenges instead had combinations of games that they alternated between in order to maximize their engagement with the preferred gameplay experience. KT highlighted the different games she played based off their level of challenges.

KT: Stardew Valley at this point, I think at the save we were playing, I don't have a lot of big goals, so it's just the routine of going through a day on the farm and visiting the town people, talking to Harvey, it's just something relaxing to do, and eventually you get into a really relaxed state.

The passive involvement of Stardew Valley was why she enjoyed the gameplay experience. It offered minimal challenges but allowed her to engage in a comfortable and relaxing routine. "But if I were wanting something more active, then I guess there would be more highs and lows in those games." KT highlighted Skyrim as a game that allowed the experience of a lot more active challenges. Skyrim provided what she identified as "more random violent events" that required active responses. "So you have to react differently to that and then the enjoyment I get from that is knowing that I was able to meet the challenge and also the enjoyment walking around in Skyrim," she explained. Evaluations of gameplay experiences and component's ability to facilitate passive and active challenges that players could find satisfaction in overcoming therefore played an important role in constructing players' concepts of their preferred gameplay experiences.

Factors Influencing Player Perception of their Preferred Gameplay Experience

Aside from the five key game components and a player's evaluations of these components to facilitate enjoyable experiences that are progressive and challenging, this study also found that various personal and environmental factors which influenced participants' overall perception of how preferable a gameplay experience would be. Two main themes emerged in this direction of the study: Player mood and player efficacy.

Player Mood.

BX: I would say depend on mood la. If I feel like having less competitive gameplay, I'll actually go and play Division. Because against NPCs, if let's say one player versus one NPC right, when the player kills the NPC, it's considered one win. In that sense, Division actually gives me a much better win-loss ratio. Compared to Rainbow Six Siege.

FR: Depends on my mood also. Like if I'm feeling social, then I will go and- If I'm feeling social I will ask them ah- eh anybody want to play this or that. But if I'm not then okay lor, I will just play my own game ah.

Two types of moods emerged over the course of the study: competitive/non-competitive and social/solitary. As exemplified in the two quotes above, these two mood types influenced what players perceived as a preferred gameplay experience as long as the mood was in effect. Players that varied between moods perceived different games and gameplay experiences as preferable depending on their current mood. Competitive and non-competitive moods made very different types of gameplay preferable for a player. These two moods very often directly influenced player

engagement with what they considered active and passive gameplay experiences, with a competitive mood fuelling players' preference for active gameplay, while a non-competitive mood influences a preference for passive gameplay.

BX for example, had two different games he switched between depending on the mood he was in. The Division, as highlighted in his quote above, allowed him to play against hordes of computer generated enemies that allowed him to enjoy passive and repetitive gameplay that he perceived to be most preferable when he was in a non-competitive mood. He enjoyed the passive challenge of repeatedly dispatching enemies and focused on the personal satisfaction of aiming accurately. "When I'm clearing the mobs I will feel very satisfied because I like that I'm quite accurate with my aiming and most of my shots actually landed on the head which is like the critical point", he explained. When he was in a more competitive mood, his preferred game was Rainbow Six Siege, which put him in a team of five players, pit against an opposing team of human players. Kills were much harder to come by, given the small pool of enemies, and each enemy was a much greater active challenge to dispatch. While each individual kill in Rainbow Six Siege gave him far more satisfaction than in The Division, his competitive mood influenced his desire to play against greater challenges, even if the net satisfaction gained was the same in both gameplay experiences.

Meanwhile, social/individual moods changed how preferably players perceived having social experiences would be in a gameplay experience. For FR, "feeling social" influences her preference for playing with friends or playing alone. "Sometimes I play League of Legends 'cos I want to play a team game," she said, "but when I feel like I don't wanna play with other people, I prefer Destiny cause by myself it's a lot of fun".

Interestingly, because mood influences perceptions regardless of a game's features and mechanics, a gameplay experience preferred by one player in a sociable may be the same gameplay preferred by one in a solitary mood. AK for example stated that "PUBG I only play with friends, I never play alone. I will play League of Legends." League of Legends in this scenario was perceived to be preferable for two contrasting moods in two players. This highlights the importance of not pigeon-holing games and gameplay experiences into only being able to satisfy a specific set of gameplay preferences.

Player Efficacy. Efficacy refers to individual players' physical and mental ability to carry out the necessary actions in order to achieve gameplay experiences that would bring them what they considered to be enjoyment, progression, or challenge satisfaction. When players' ability to carry out actions that are required for gameplay becomes hampered by situational contexts—be it through the game's design, the player's unfamiliarity, or any such circumstance—the player's preference for the experience is often greatly decreased. Player efficacy is often shaped by prior experiences. Extensive experience with specific interface controls for example, allow players to achieve a high degree of competency in its manipulation, but also influences the player's efficacy under the conditions of different interfaces. In this study, all participants expressed a preference for playing using specific interfaces, and voiced that having to use any other form of controls would drastically limit their ability to play the games they preferred. SL for example, adamantly rejected the thought of her playing CounterStrike: Global Offensive on a controller. "No," she said, "that's impossible; I always play with keyboard and mouse, don't think can change to controller. Would be too hard to aim you know." Even in tactile situations that only slightly differed from what participants were used to, the decrease in efficacy was

enough to disrupt gameplay. KF's perception of Bioshock gameplay, although one that he still preferred over many other games, was influenced by his reduced efficacy as a result of one minor control discrepancy.

KF: One of my issues with Bioshock was that the shift key was not sprint.

There has been something of a standard that has been set through a lot of games. When someone tries to change it [...]you kind of instinctively go back to what you're used to, and if it does something different, you kind of feel like it's a bit awkward. So it kind of spoils the game

Other players specified their efficacy at certain types of gameplay features as being an important influence of how they perceived a preferred gameplay experience to be.

Players like BX, FT, EQ, and AB all highlighted that their mouse control abilities allowed them to aim well, and that their experience with different shooting games resulted in their preference for FPS games which allowed them to best utilize their abilities. BX explained that his prior gameplay experiences allowed him to hone the necessary skills to do well in FPS games, "How you move and run and stop and then shoot, that whole movement- that whole fluidity of the movement, definitely I brought it over from some other games like Call Of Duty, Battlefield."

This study therefore identified that participants often perceived gameplay experiences to be preferable if they were able to adequately or competently engage in gameplay. As such, player efficacy is an important factor influencing player perception of what a preferred gameplay experience entails, and alters their perception of the optimal game for achieving these experiences.

Patterned Engagement with Mechanics during Preferred Gameplay Experiences

So far this study has highlighted overarching influences and components that shape players' subjective concepts for what a preferred gameplay experience entails. This segment now focuses on some of the specific actions and mechanics that participants utilized during their preferred gameplay experiences that was only made apparent through the use of input-device tracking. As stated in the methods section of this paper, mouse tracking and keyboard mapping data were logged during the gameplay segments of participant's interview sessions. This study has so far highlighted that the input devices of players are integral to gameplay experiences, and as such, the tracking of how these devices were used provided valuable insight into player's interactions with fundamental mechanics that facilitated the majority of their gameplay. The tracked data allowed for two important forms of analyses: reflective participant analyses and comparative analyses alongside gameplay footage.

Reflexive participant analyses involved going through the tracked data with players and having them identify patterns that occurred in the tracked data. This helped highlight patterns that players were already aware of during their own gameplay, and was the data was often easily tagged to the specific mechanics that the player engaged with.

Figure 5: Mouse tracking data overlaid with game screenshot

In the above figure 5, the mouse tracking data from the game Don't Starve (shown in figure 3) has been overlaid with a screenshot of PP's gameplay footage. The white lines denote the movement of the mouse cursor on screen, and the dots denote clicks. When shown the mouse tracking data, PP highlighted that the three game mechanics that she most commonly used were identified in the tracking data: the construction menu on the left, the player inventory at the bottom, and the player's interaction with the environment – in the centre of the screen. These were the three sites with the highest density of mouse activity. "Oh yeah! It's generally in the middle because I always prefer to keep my character in the middle of the screen. Having it off-centre and then spinning around makes me dizzy sometimes," She explained. Of these three elements, only the construction mechanic had been previously highlighted as being something she preferred in the game.

This emphasized that the most used mechanics may not necessarily be the preferred mechanics. It also demonstrated that even when not highlighted by players as

playing an active or apparent role in their preferred gameplay experiences, a game's mechanics play a necessary and integral role in the facilitation of players' preferred gameplay experiences.

The input-device tracking data was also analysed alongside gameplay footage. The comparison between the two, alongside discussion with participants, helped highlight gameplay preferences that were highly individualized and subconsciously engaged in. By tracking players' personal patterned methods of control of their gameplay experiences, this study highlighted that player preference for specific game affordances often emerged alongside personalized methods for interacting with and utilizing these affordances.

Various cases within this study evidenced this individual and subconscious development of interaction preferences. Key examples however, emerged when two participants' individual preferences were compared. The following set of figures shows data recorded from two participants, LC and SK; both participants played Dota2. Both serendipitously chose to play similar styles of characters in their matches, and both their matches lasted an hour. Both players strongly preferred Dota2 over other games, and spent a significant amount of time developing their preferences for specific Dota2 gameplay experiences. SK had spent 1238 hours playing Dota2 and LC had amassed more than 3000 hours in the game. A comparison of their gameplay and input-tracking data highlighted some interesting differences in preferences with regards to mechanics and general preferred behaviour.

Figure 6: LC mouse tracking data

Figure 7: SK mouse tracking data

One key difference apparent immediately upon comparison is the coverage of cursor movement on screen. In the case of LC, his mouse movement showed an “X”

shaped pattern crossing the entirety of his screen, leaving almost no white space on the screen. For SK, a lot of white space at the top and right side of the screen was apparent. In Dota2 players use the mouse to interact with characters and terrain on the screen, from a third person perspective. The mouse is traditionally used to scroll the camera back and forth over the map. This is evidenced in LC's mouse data, which

Figure 8: Dota2 gameplay screenshot

showed a pattern of lines against the corners of the screen, which his mouse commonly contacted as he edged the game's camera in various directions. In SK's mouse data, the corners were bare, and with apart from the middle of the screen, only the lower left and right corners of the screen tracked any mouse movement. The lower left of the game's user interface sports the game's 'minimap', a mechanic which gives players an overview of the full game's map. It also acts as a virtual control interface, allowing players to look and travel around the game map by clicking on the minimap. This highlighted a key difference in navigation preference for the two players. LC preferred using the corner scroll to look and move around the map, and never utilized the

minimap for movement. SK never used corner scrolling and did use the mnimap for navigation. The minimap alone howerever, does not provide enough mobility to

Figure 9: Keyboard tracking data – LC (Top), SK (Bottom)

engage in meaningful gameplay. A comparison of their keyboard tracking data was thus used.

From their keyboard tracking data, it became apparent as to why the two had such differing mouse tracking data. SK's keyboard tracking showed more than three times the number of keys pressed as LC's, with emphasis on the keys "W", "S", "A", "D" – the format of directional keys used in FPS games. From the comparison of the two players' input-device data, it was demonstrated that SK preferred using the four keys to navigate his Dota2 games, while LC's preferred gameplay experience of Dota2 involved the use of his mouse to navigate. The veracity of input-data tracking in highlighting patterns in players' preferred gameplay is thus evident.

CHAPTER NINE DISCUSSION

This study attempts to bridge the gap that currently exists in games research between the psychological constructs such as immersion (Ermi & Mäyrä, 2005) or flow (Sweetser & Wyeth, 2005) that explain aspects of gameplay experiences and the base motivations and personality traits that govern general play behaviour ((Bartle, 1996; Jeng & Teng, 2008; Peever, Johnson, & Gardner, 2012). The dynamic and subjective processes that underpin players' decision making processes and preferences was investigated in this study, taking into consideration the integral facilitative nature of game mechanics on any gameplay experience. What players conceptualized as their subjectively preferred gameplay experiences was found to be constituted of key gameplay components and their comparative evaluations of these components. The five key components that emerged in this study were the game's story, affordances, aesthetic appeal, tactile control, and social interaction. The components driving preference highlighted through this study align with existing motivational factors contributing to the compelling nature of video games. The findings of this study corroborate existing literature concerning video game narratives (Ryan, Rigby, & Przybylski, 2006; Przybylski, Rigby, & Ryan, 2010), game elements (Deterding, Dixon, Khaled, & Nacke, 2011), visuals (Klimmt, Hefner, & Vorderer, 2009), effectance (Klimmt, Hartmann, & Frey, 2007), and social motivations (Sherry, Lukas, Greenberg, & Lachlan, 2006) respectively. In this study, each of these components were facilitated by different types of game mechanics, often with multiple mechanics in tandem to facilitate specific experience components. The integral nature of game mechanics in creating experiences that players seek out and prefer has similarly been

highlighted in Deterding, Dixon, Khaled, and Nacke's 2011 definitive work on gamification, in which the application of game mechanics in non-game contexts drives motivation to engagement a desired behaviour. This study identified game mechanics in game contexts as the necessary interactive element that drives player preference for gameplay components.

These components were evaluated according to their ability to provide feelings of enjoyment, progression, and challenge satisfaction. These player concepts of gameplay preference however, were also subject to situationally variegated factors that influenced players' overall perception of how preferable a gameplay experience would be at any specific point of time. Two such factors emerged in this study: player mood and player efficacy, both of which played a part in determining the playing conditions under which gameplay preferences may be mutable. Apart from the components, evaluations, and influencing factors that governed gameplay preferences, this study also highlighted that players potentially have preferred patterns of engagement with mechanics. Utilizing the proposed input-device data tracking in conjunction with gameplay and interview data, this study demonstrated that players both consciously and subconsciously develop preferences even in how they interacted with mechanics that did not directly correspond to elements in the games that they preferred.

The findings of this study are in line with what numerous theories predict regarding media adoption and user behaviour. The technology acceptance model (Davis, Bagozzi, & Warsaw, 1989) for example, in particular Hsu and Lu's extension and adaptation of the model for online video games (2004), highlighted social factors, perceived usefulness, and ease of use as factors predicting players' intentions to play an online game. In this study the adoption of specific games often hinged on the social

factors of the players' social/individual moods. Video games are artefacts of entertainment technology and as such, are evaluated based on their entertainment value rather than their usefulness (Sánchez et al., 2012). In this study, a player's perception of entertainment value was determined by the three gameplay experience evaluations – determining if the player found the game to be entertaining. As highlighted earlier, in order to adopt a preference for a specific game, players required that their experience with it provided not only entertainment value, but also a sense of progression and challenge satisfaction. Ease of use was similarly a factor identified in this study in the form of player efficacy and the gameplay experience component of tactile control. Players were found to adopt specific gameplay experience preferences based on how easily and comfortably they could interact with the game.

The diversity of factors, evaluations, and influencing factors that interact in order to construct each player's concept of a preferred gameplay experience can be explained from a uses and gratifications approach (Ruggiero, 2000; Sherry et al., 2006). Players seek out and construct their preferred gameplay experiences in different ways because they have individualized uses for games. Even within the same game, each player has their respective preferences which form as a result of these uses which govern the gratifications they seek from engaging with the media. It is therefore no surprise that in this study, players who played the same game still often focused on

different parts of the facilitated gameplay and highlighted different components and evaluations as the basis for their preference.

Overall, this study provides empirical support for the VEP conceptual model

Figure 10: Conceptual Model of Gameplay Preference

proposed in chapter five and demonstrated the veracity of a mechanic oriented approach to gameplay experience research. The game mechanic types that facilitate gameplay coincided with the gameplay experience components that emerged from the study. Interaction with affordance mechanics, as predicted in the VEP model, played a large part in determining player preferences. Of the three original mechanic types (rule-sets, value systems, and affordances) rule-sets and affordances were found to be most relevant to the construction of players' preferred gameplay experiences. This emphasis on structuring rules of play and affordances provided within the virtual

environment is in line with our current understanding of the determinants of what makes games enjoyable for players (Klimmt, Hartmann, & Frey, 2007) and the need for control and structure to motivate gameplay behaviour (Burger & Cooper, 1979; Ryan, Rigby, & Przybylski, 2006; Juul, 2010).

While value system mechanics play an integral role in creating functional gameplay experiences by tracking, implementing, and providing feedback on numerical values produced during or embedded in gameplay, they were not found to play a significant role in determining preference. Instead, the player experience component of value convergence emerged as the key determinant of how value impacted preference formation. Players developed preferences not based on the games' value systems, but instead on what the players' determined to be valuable through their embodied engagement with the game. This seems to represent the importance of identification and embodiment in facilitating the escapist function of video games and determining how enjoyable and preferable a gameplay experience is (Klimmt, Hefner, & Vorderer, 2009). During gameplay, players are given the opportunity to identify with gameplay characters, altering self-perception and facilitating the adoption of the values of the character which grants players the freedom to explore multiple identities outside their established self-concept (Klimmt, Hefner, & Vorderer, 2009).

Meanwhile, of the various rule-set mechanics involved in creating preferred gameplay experiences, the specific mechanics that governed a game's structure were highlighted as the most important in determining preference. Game structure most commonly relies on mechanics governing the internal structure of the game world – including story structure, the structure of the virtual world, and the population (human

and AI) allowed to inhabit the virtual world. As such, game structure related mechanics, and not all rule-set mechanics, were found in this study to be important in gameplay experience preference.

Game stories are facilitated by the game's structural mechanics that determine if the play and story progression would be in an open world or linear format, and the game's affordance mechanics determined how much player choice could impact the story. Game affordances, as mentioned in the previous chapter, were essentially various affordance mechanics that player's highlighted as the most unique or driving aspect of the game. Tactile control, while primarily pertaining to the physical aspect of game control, was based on the affordance mechanics that the input devices were allowed interaction with. The first person perspective in FPS games for example, had affordance mechanics that allowed players to control the game's camera in 3D space. Players then engaged and interacted with these affordance mechanics through the mouse, and as a result developed preference for the specific style of control. Social interaction likewise were governed by the game structure mechanics that allowed multiplayer interaction. What differed was the introduction of the importance of visual aesthetics, which was an important gameplay component that was not directly facilitated by game mechanics. Instead, it plays a role in players' preferences for the presentation of specific game mechanics. While a player may enjoy interaction with a game's mechanics, their preference for the game overall is influenced by its aesthetic presentation. Game mechanics therefore facilitate and allow engagement with the components that players identify as key to their preferred gameplay experiences.

The player virtually engages with these components and their evaluation of the experience helps determine their preferred gameplay experience. In this study, the

three evaluations that emerged aligned with the three dimensions of player experience – agency, presence, and convergence. A key deviation from the VEP conceptual model in this study was that entertainment value, and indeed all other player evaluations, were not found to be contingent on the convergence of player identity, and instead relied primarily on convergence of player value and game structure. While player identity convergence undoubtedly played an important role in players experiences in the game, evidenced by their use of personal pronouns (i.e., “I managed to jump over that monster”), it was not found to play an important role in their constructed concept of what a preferred gameplay experience entailed. In addition, agency and presence often emerged as two facets of a player’s preferred experience of virtual engagement with the game world, rather than as two separate components of experience. Preferred experiences therefore perhaps are based more on the whole virtual engagement experience of what a player can do (agency) and can virtually perceive (presence) than on the sum of its parts.

In this study, players’ evaluated their experience of the components as being able to provide entertainment value based on general perceptions of how well they converged with their values, and the feeling control they were afforded. Progression emerged as an evaluation more often based on value convergence and agency, with players preferring games with components that provided them with a sense of progressing their game characters’ values and their amount and variation of agency in the game. Challenge satisfaction was most commonly the evaluation of a gameplay component when it allowed players to experience agency – specifically feeling like their level of agency was sufficient in overcoming challenges.

These evaluations in turn are influenced by situational contexts. In this study, two factors emerged that influenced players' perceptions and evaluations of what a preferred gameplay experience would entail – player mood and player efficacy. Existing studies tend to highlight these two factors as effects of video gameplay (Russel & Newton, 2008; Przybylski, Rigby, & Ryan 2010), and seldom acknowledge the potential for being precursory deciding factors in player choice and preference in the games they play. This study's identification of them as subjective factors influencing preference highlights the importance of further investigating the possibly iterative processes of player mood and efficacy influence in videogame play. The two player moods—social and individual—highlight shades of player experience present in the proposed model. While not direct dimensions of gameplay player's moods, feeling social or solitary influenced player's evaluations of gameplay components. It seems that this influence occurs through the pathway of value convergence. Social or solitary moods influence what players find valuable in gameplay, which influences players' evaluations of components ability to provide preferred experiences. The second factor, player efficacy seems to influence players' evaluations through experiences of agency. Player efficacy tautologically relates to perceived agency in game – players are more likely to feel like they have control over their gameplay experiences, if they have greater control over their gameplay.

The findings of this study therefore supports the notion that players have a preference schema that serves as a cognitive structure for preferential gameplay experiences based on scripts formed through prior gameplay experiences. Over the course of multiple gameplay experiences, players seem to identify preferred elements from prior experiences and integrate these elements into a gameplay preference schema. Simultaneously, players potentially identify and track factors from negative or

non-preferable experiences that serve as the basis of evaluating future experiences. Players therefore construct preferred gameplay experiences by sustaining experiences that maximize the preferred factors while minimizing the negative factors, relying on their established preference schema to evaluate ongoing or new experiences.

This study highlights that the identification of preference or non-preference is based on existing media preferences (i.e., JJ's film enjoyment) including other games, their motivations for gameplay (i.e., AK's social motivations), trial and error (i.e., games LC and BR used to play), and their successes with specific types of gameplay (i.e., BX and AB's FPS preference). Prior experiences across games from multiple genres was also be an important factor in how players identify what they prefer. Participants also often compared their experiences with those of others in their identification of preference.

SP: What usually people do is that they divorce their partners and they marry another one so that it continues the story, and I could do that, except I feel awful 'cos Penny has abandonment issues.

PP: That's another thing I do not like, when you play games like this people very often go online to see the walkthrough or like get tips about how to play the game better and I kind of like don't think that's a very fun way to play

This demonstrates that players often have a sense of what other players do in the game and may develop preferences in relation to this sense of normativity or the average. This sense is either backed by experience gained talking to others, information found online in forums, or occasionally merely a perception based on the false-consensus effect (Dawes, 1990) in which players perceive their opinions and evaluations to be the average or the norm.

This study also highlighted that gameplay preferences possibly exist in two forms or stages – a *developed general* preference and a *selected specific* preference. A player's *developed general* preference highlights gameplay experiences that are preferred over all other types of gameplay experiences – essentially narrowing the list of games a player identifies as being able to provide preferable gameplay experiences. A *selected specific* preference is the gameplay experienced identified as being the most preferred of the list at a specific point in time (taking into consideration the factors that influence preference perceptions). Developed general preference is based on experience with the game's components, competency with the game's mechanics and its specific physical interfaces (player efficacy), and prior experiences of the individual. Selected specific preference is based on the time available for play, as well as the player's affective state and social environment (player mood).

CHAPTER TEN CONCLUSION & LIMITATIONS

The results of this study offer empirical support for the proposed conceptualisations of gameplay experiences and the mechanics that facilitate them. These new conceptualizations as well as the input-data tracking methods utilized in this study can help expand our approaches to games research and shed light on the processes involved in the complex and subjective experiences that arise during gameplay.

While this study has been useful in identifying and examining the processes underlying players' gameplay preferences, it is not without its limitations. Participants in the study played a range of different games rather than one standardized game, limiting the depth of data being collected for each game. In addition, the vast majority of the data was collected in participants' homes rather than in a controlled

environment. While this did result in a more realistic gameplay experience for the players, it also meant that certain elements could not be controlled. A key example of this is the use of data collecting software. Because of compatibility issues, the data tracking software did not work on some participants' computers and their mouse or keyboard data could not be collected, or was incomplete. In addition, while having the participants home playing experience was more realistic, this realism was also inhibited by the need for the think aloud method, which participants often highlighted was a distraction and was cognitively exhausting. The study was also cross-sectional, which was a format not fully adequate in capturing the entire preference development process. Furthermore, the input data tracking method would stand to gain much more traction and value from a more quantitative approach to the analysis of the data. The mouse tracking data in particular brought up a wealth of data that this study was not equipped to utilize. Iographica, the program used, does real time tracking of cursor movements. However, each game utilized very different readings of cursor movement, and some genres presented tracking that was not analysable without a baseline (which this study was not equipped to provide with its smaller sample size with few participants playing the same game). Skyrim for example did not lend itself well to mouse tracking.

Figure 11: Skyrim Mouse Tracking Data

As can be seen above, no evident pattern of mouse movement is discernible because of how much gameplay relied on simple “looking around”. No real clusters associated with the user interface can be discerned or are apparent since there are no mechanics involving consistent repeated interaction with the in-game interface. Without comparison between ranges of participants playing the same game, a baseline could not be established that would allow discernment of patterns and deviations. Key focuses and preference patterns were lost amidst basic mechanical manipulation of character view.

As such, both mouse and keyboard tracking resulted in numerous patterns of behaviour and preference that did not fall under the scope of this study, but should yield fascinating results in further studies. One example of this was the dominant preference for right handed FPS players of the “A” key – used to strafe player characters to the left. In contrast, left handed players seemed to prioritize the “D” key for rightward strafing. Further quantitative examination and corroboration of this phenomena could turn up some interesting results concerning existing physiological preferences and in game behavioural patterns.

Future studies can expand on this by conducting longitudinal studies focusing on specific players and the development of their personal gameplay preferences. Follow-up studies could also focus on a smaller pool of games, or having the process done under lab conditions. In addition, it would be useful to also include an examination of eye-tracking during gameplay in order to fully capture as many factors involved in gameplay experiences as possible. Mouse and keyboard tracking allows an identification of what a player does in game. Matching eye-tracking with gameplay footage will allow an identification of what player’s focus on in game.

With new games, game media, and game related technologies being introduced every year, it is becoming increasingly important for research to adequately explicate the basic processes that underpin all types of gameplay. New forms of gameplay such as virtual reality and augmented reality are swiftly rising in popularity, and it is therefore important that a strong base of research is conducted regarding the experiences of gameplay. In providing a deeper understanding of gameplay behaviour and processes, games research stands to benefit developers, publishers, and gamers alike. An understanding of what players want, and what players seek to do in games allows developers to create games that facilitate experiences that capture the attention and imaginations of players. Publishers become equipped with the tools to pair developed games with the players that are most likely to want to play them. And players stand to gain the most of all – not just in being able to play games that they prefer, but to find ways to expand their horizons and experience old and new games, in new ways.

Appendix A.

*Participant List***Participant List**

No	ID Tag	Age	Gender	Gaming Experience	Preferred Genres	Total hours played of 3 most played games			Game(s) Played	
1.	AB	22	M	5-10 Years	FPS, MMO, MOBA	292	1173	328	Player Unknown Battle Grounds (PUBG)	
2.	AK	21	F	>10 Years	FPS, RPG, MMO	620	100	50	OverWatch	League of Legends
3.	BX	24	M	>10 Years	FPS, RPG, RTS	700	200	400	The Division	Rainbow Six: Siege
4.	BR	21	M	>10 Years	Action, Adventure	500	300	1000	Assassin's Creed Revelations	Minecraft
5.	BD	24	M	>10 Years	MOBA, RPG	600	1100	10	Fez	
6.	CR	23	F	>10 Years	FPS, MOBA	60	220	360	OverWatch	Destiny 2
7.	DG	26	M	>10 Years	RPG	978	1000	1000	Horizon: Zero Dawn	
8.	EQ	23	M	>10 Years	JRPG, RTS, FPS	500	264	190	StarCraft II	
9.	FT	29	M	>10 Years	RPG, FPS, Adventure	4000	900	120	Killing Floor 2	The Binding of Isaac
10.	FR	22	F	5-10 Years	FPS, MOBA	45	51	491	Destiny 2	
11.	JJ	21	M	>10 Years	MOBA, RPG	2500	500	100	Beholder	
12.	KT	30	F	>10 Years	Simulation	500	471	323	Stardew Valley	
13.	KR	22	M	>10 Years	Music Rhythm Games	10,000	3300	4000	Audition : SEA	
14.	KF	24	M	>10 Years	FPS, Turn Based Strategy	500	200	132	Bioshock	OverWatch
15.	LC	21	M	>10 Years	RPG, MOBA	3000	200	1000	Dota 2	
16.	MT	22	F	>10 Years	FPS, MOBA	1248	209	100	Stardew Valley	
17.	NE	24	M	>10 Years	RPG	700	500	1800	Skyrim	
18.	PP	25	F	>10 Years	Horror, RPG, MMORPG	120	360	700	Don't Starve : Together	
19.	SK	21	M	>10 Years	RPG, FPSRPG	1238	600	500	Dota 2	CupHead
20.	SP	22	F	5-10 Years	Music Rhythm Games	101	30	400	Left For Dead 2 (L4D2)	
21.	ST	23	F	>10 Years	Action, FPS, MOBA	310	20	1637	Counter Strike : Global Offensive (CS:GO)	
22.	TD	22	M	5-10 Years	FPS, Driving Simulation	650	1210	320	Team Fortress 2 (TF2)	

Appendix B.

Interview Guide

Interview guide

INTRODUCTION

Hello, my name is Ryan. I will be the interviewer for this session and my job is to ask you some questions during and after gameplay to ensure that we cover the subjects of interest in this study. The purpose of this interview is to find out more about how players develop a preference for specific games or types of games. There are no right or wrong answers to any of the questions. The purpose of the study is to find out what your personal opinions are, and all your opinions are equally important.

Confidential/anonymous research

Before we start the session, I want to seek your consent for audio and video recording our interview and gameplay session. Your confidentiality will be assured in this study, and during the reporting of the results of the study, you will not be identified and your responses will not be tied to you. Your participation is entirely voluntary and you can choose to opt out at any time if you want, or refuse to answer any questions.

If you want to have your comments expunged from the material, we will respect that wish. If you have questions about your rights as a study participant, or are dissatisfied with any aspect of this study, you may anonymously contact Nanyang Technological University's Institutional Review Board at (+65) 6592-2495 or email the board at irb@ntu.edu.sg.

Study Overview and Vocabulary Explication

The study you are participating in is interested in the formation of preference in gameplay and how players' ideal experiences are facilitated by the games they play. We will be focusing on the importance and impact of game mechanics in gameplay experience. So what exactly is a game mechanic? Well, game mechanics are one of the core game design elements present in every video game. Players experience the other game design elements such as narrative, graphics, or music through the mechanics that determine when those other design elements appear in a game. For example, a player only experiences a game's story by engaging with the mechanics that grant control of, or interaction with, story characters and mechanics that govern progress with the story world. A game's graphics resources likewise manifest themselves through the mechanics that facilitate visual exploration within the game world. Game mechanics fall into three different categories, rule-sets, value systems, and affordance nodes. Rule-set mechanics control overarching rules and objectives for gameplay. Value system mechanics govern, calculate, implement, and provide feedback on the numerous virtual values in the game. Affordance node mechanics govern what a player can or cannot do in a

videogame's virtual world. These different game mechanics come together to help create the experiences you have when you play games.

Gameplay Segment

Today you will be playing a game of your choice that you've identified to be your favorite or preferred video game. As this study seeks to investigate how you develop preferences for certain video game experiences, remember to keep a look out for things in the game that you particularly like and enjoy not just in this game, but in all games you play. The microphone here will be left running so feel free to talk out loud about whether any particular element or mechanic in the game stands out to you as being something you prefer. Think of it as though you are casting your own gameplay and telling the audience what you are thinking. Feel free to ask me if you have any questions and you may pause at any time if you need a break.

You may begin now.

During Gameplay Observation

Some elements to highlight:

- 1) Adjusting and calibrating overall gameplay. (i.e. changing difficulty settings)
 - a. Do you prefer when games allow you to do this?
- 2) Making core gameplay decisions. (i.e. choosing a path / quest / attribute / item)
 - a. Why did you choose to do that? Would you make the same decision in other instances?
- 3) In game name choice
 - a. Do you always use the same IGN? Why?
 - b. Does your IGN mean anything / What is it meant to represent?
- 4) Noticeable gameplay habits (i.e. always keeping health topped up, always avoiding / engaging in combat)
 - a. Is your play style the same across all games you play? Why?
- 5) Achievements / Value Convergence (i.e. winning a round / completing a quest)
 - a. How do you feel about your achievement? Would you do the same thing again if you could?
 - b. Do your in game achievements matter to you in real life?
 - c. Do your in game achievements affect how you feel after the game ends?
 - d. Do you always seek out the same types of objectives? Why?
 - e. Do you prefer games that allow you to control how your game progresses, or do you like having more structured gameplay guided by story or questlinked mechanics?
- 6) Interacting with another in-game agent (i.e. NPC / Opponent / chat options)
 - a. Do you usually choose games that allow you to do that? What would make it better?
- 7) Failure. (i.e. defeat / death / running out of time)
 - a. How do you feel when that happens?
 - b. Does it get frustrating and make you want to quit or does it motivate you? Perhaps something else?

- 8) Exploration (i.e. trying multiple approaches / cycling through different options / wandering outside objectives / unorthodox playing)
 - a. Do you like that you can do that? Why?
 - b. Would you play a game that does not allow that?
 - 9) Immersion (i.e. forgetting to think aloud because of intense focus / exhibiting enjoyment or awe)
 - a. Are you easily distracted when you play other games as compared to this game?
 - b. Do you like this particular game because it draws all your attention to the game experience?
 - c. What aspect of the game draws you in that way?
 - 10) Presence (i.e. feelings of physical, social, self presence [Lee,2004] while in a gameplay experience)
 - a. Do you ever feel like you are physically in the world of the game?
 - b. Do you ever feel like the interactions you have with players and other agents in the game are real social encounters?
 - c. Have there been instances where you feel like you can “touch” the objects in the game worlds you play in?
 - 11) Embodiment (i.e., experiencing real and virtual worlds simultaneously)
 - a. Are you aware of your keyboard and mouse when you play?
 - b. When you are aware of your game interfaces, does it make your experience better or worse? Why?
 - 12) Agency
 - a. Do you change your mouse settings, keybindings, or other control settings?
 - b. Do you like playing games where your choices change the flow of the game?
 - c. What makes you feel most in control of your gameplay experiences?
 - d. Do you always try to master the games you play?
- Have you ever changed difficulty settings in the middle of games? At the beginning?

Other possible lines of prompting

1. Why did you do this (in a particular game instance)
2. In the past 10 minutes, do you feel like you have been consciously making choices on how to play the game?
 - a. Would you have done the same thing? Why or why not?
3. You just did that (refer to game action). Why did you do this?
4. You just did that (refer to game action) and this just happened (refer to another game action). How did it make you feel
5. Do you like what are doing now? (in a particular game instance)
6. (Refer to a particular game instance) How does that make you feel now?
7. (In negative game instances) How does this (refer to gameplay scenario) change your evaluation of the game?

In-depth Interview

(notes: Link In-depth interview questions to concrete moments from the gameplay segment)

Game Experience Dimensions

Describe a game play experience that is most memorable to you.

- i. Agency - *active and consequential interaction with elements in a game*

1. What parts of the game you chose made you feel like you were in control?

2. How important is it for you to feel like you determine everything that happens in the game?
3. Do you always choose games that allow you to customize gameplay?
4. Is it important that you can customize your characters and styles of play?
5. What makes you feel in control of the game the most?
6. Do you play this game because you are good at it?
7. Do you enjoy games with a steep learning curve?
 - a. Why? / Why not?
8. Embodied Agency
 - a. How do you arrange your play area (room/location where the participant plays games) to best suit your playing experience?
 - b. If you were to use a controller/keyboard and mouse, rather than the interface you usually use, what would change about the games you play, or the way you play games?

ii. Presence - *the perception of physicality in virtual space*

1. When you play your favorite game, when do you feel like you are part of the world of the game? Provide an example.
 - a. What specific game mechanics make you feel that way? (or what functions in the game have you used to make yourself feel that way?)
 - b. Is it important for you to feel that way? Why?
2. Is the game you chose your favorite because it allows you to feel like you are a part of a different world? Something apart from reality?
 - a. Why? / Why not?
 - b. If yes, why and how does the game allow you to feel that way?
3. Do you prefer your games to have extensive lore—with lots of backstory, tooltips, additional information extending the world of the game beyond what you can play/have access to in the game?
 - a. Why? / Why not?
 - b. Is it important that the extensive lore is facilitated or explained through mechanics?
4. If the game you played had lousier graphics, would it still be your favorite?
 - a. Why? / Why not?
5. Are you more able to 'get into' a game if the graphics are better?
6. Are graphics or are the mechanics more important to help make a game more immersive?
 - a. Why? / Why not?
7. If the game you played had a less interesting story or one that just didn't flow as well, would it still be your favorite?
 - a. Why? / Why not?
8. Embodied Presence
 - a. Can you describe what it feels like to be engrossed in a game?
 - i. Physically, Emotionally, Mentally
 - b. When you very engrossed in a game, do you lose track of time and your surroundings?
 - i. Can you describe the experience?

- ii. If not, can you explain why?
- iii. Identification: Value Convergence - ***The convergence of player and virtual notions of value and objectives***
 - 1. Do you like games that chart your achievement?
 - a. Do you prefer games that have very clear records of your actions and achievements
 - 2. Do you prefer games that give you very definite and structured objectives to achieve? Or do you prefer objectives to be more open ended and self-defined?
 - a. What are the benefits and drawbacks of either of the two.
 - 3. If the game did not show you the achievements you have gained, would it still be your favorite?
 - a. Why?
 - 4. Do you like that you can compare your ability/skill/score/timing with that of your friends/opponents/leaderboards?
 - a. If you could not do so, would this still be your favorite game?
 - 5. Do you feel like in-game achievements help structure gameplay, or do you think they interrupt the flow of things?
 - 6. Embodied value convergence
 - a. How do you discover/tell how good you are as a gamer?
 - i. Does it matter whether other people know?
 - b. What is your greatest in-game achievement?
 - i. How does it make you feel?
 - c. Do you share the achievements and successes you have in game with people outside of the game?
- iv. Identification: Player-Avatar – ***The merger of player and avatar self-concept***
 - 1. Can you recall an instance where you felt like your avatar/character was an extension, representative for you in the world of the game?
 - a. What determines how much an in game character “becomes” you/ vice versa?
 - b. Recall a moment when you saw your avatar/character in game, did you feel like you were looking at yourself in the game?
 - 2. When customization is available, how do you normally customize your avatar?
 - a. Do you design your avatars to be like who you are, or what you want to be in the context of the game?
 - 3. What do you feel is the benefit of being able to see your player-character?
 - 4. Do you feel for the characters you play?
 - a. Do the things that happen to your character affect you?
 - 5. Do you control your avatar/characters based off how the characters would behave (according to their respective backstories); or do you do so based off what you want, regardless of character identities?
 - 6. Embodied Identification
 - a. Do you flinch when your character gets damaged/hurt/affected?
 - b. Do you feel different when your character undergoes changes?

Game Mechanic Types

v. Rules, Values, Affordance systems

- a. Names some game mechanics that you think as important for your game play.
Why are they important to you?
- b. Did you ever choose a game to play based off the mechanics they have? Which game is it? What is the mechanics you want?
- c. Did you ever choose to stop playing a game because of the mechanics they have / lack? Which game is it? What are the mechanics that made you decide to do so?
- d. When you play your favorite game, do you think about the development and design processes behind the creation of the game? Why the director, developer, artist chose to do something a particular way?
- e. When you play your favorite game, do you ignore weird, obviously unintended occurrences in order to enjoy the game more? Bugs, strange dialogue, mechanics that don't make sense?
- f. **Rules** - control overarching rules and objectives for gameplay
 - i. What rulesets do you enjoy playing by?
 1. Win Condition preferences
 2. Player numbers and Team arrangements
 3. Realistic game world environment vs fantasy/scifi world environment rules
 - ii. Do you prefer there to be more rules that structure your gameplay, or less rules, allowing you to make things up as you go?
 - iii. How do you feel about games that break/bend its own rules to make things interesting (like with surprise moments where you are suddenly invincible etc.). Do you prefer games that are consistent in their rulesets
- g. **Value Systems** - calculate, implement, govern, and provide feedback on the numerous virtual values in the game.
 - i. Do you prefer games that use very clear forms of currency to determine your progress in the game? (Coins, gold, points, kills, ratings etc.)
 1. Why? / Why Not?
 - ii. Or do you prefer games that allow you to decide what is valuable in the game? (Greater degree of flexibility in game progression, i.e., building games, simulators, etc)
 1. Why / Why Not?
 - iii. How important is readily available feedback on your in game statistics and accumulations? (Points, kills, levels, damage, etc.)
 - iv. When games give you feedback or display your statistics, how does it make you feel? How does it affect the way you play?
 - v. Do you prefer numerical or visual representations for the games' feedback on your statistics and value?
 1. Why / Why Not?
- h. **Affordance Nodes** - govern what a player can or cannot do in a videogame's virtual world
 - i. How do you feel about games that allow you to interact with the world in a way similar to reality? Would you prefer something more like science fiction or fantasy that lets you interact with the virtual world in a new way?

1. Why / Why not?
 - ii. Do you prefer games that allow you to interact with many different parts of the game world depending on your choice, or games that simplify the experience so you can focus just on what's important to progression?
 1. Why / Why not?
 - iii. Is it more important for a game to let you discover the ways you can interact with the game world, or do you prefer games that provide tutorials and teach you 'how to play the game'?
 1. Why / Why not?

CONCLUSION

Interviewer: This concludes our interview. Do you have anything to say before we wrap up?
(Wait) Thanks again for your participation.

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