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Value in Play: Game Items in Digital Environments

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For my beloved family

&

In memory of my dear mum, Ping

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Abstract

Game items have become valuable objects that can be traded by both players and game companies. However, valuable game items are typically misunderstood by the public as something unreal or unserious that should not be treated as something valuable. In this thesis, I examine how game items play a significant role as valuable objects in the culturally situated contexts of gameplay and beyond.

In current mainstream discourses, the reasons why game items are so valuable to players can be understood from two main perspectives derived from two traditional approaches: the labour theory of value and the subjective theory of value. On the one hand, followers of the labour theory of value argue that the value of game items is manifest when players make efforts to obtain them. On the other hand, advocates of the subjective theory of value suggest that this value is given by players' subjective personal preferences.

Although these two perspectives provide useful insights for understanding the value of game items, neither on its own is enough to provide sophisticated explanations for how the value of game items is created and used in different contexts of gameplay that involve much more complexity. This thesis argues that the value of game items is a result of the interplays between different factors involved with both the production and consumption processes in digital gaming.

Drawing on theoretical concepts from different disciplines including media studies,

economics, game design, performance studies, and sociology, this thesis argues that the value of game items should also be understood in three alternative contexts: game design; players' in-game social performance; and player groups. The role of game items as valuable objects therefore does not only originate from players' efforts and personal preferences, but is also created and affected by game mechanics and the strategies of game companies, the way players perform their online identities, and the influence of player groups in digital environments. This thesis suggests that a multi-perspective and an interdisciplinary approach are appropriate and necessary to provide a more comprehensive picture of how game items have become significantly valuable.

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Finally, I would like to acknowledge that some portions of this thesis have appeared in my own previous publications as follows: 'The value of being powerful or beautiful in games: How game design affects the value of virtual items', in the 6th edition of *The Computer Games Journal*, forthcoming 2014, and 'The impact of game design in generating the value of virtual items', as a book chapter in the eBook: *Transmedia Practice: A Collective Approach*, 2014. These publications are based on work undertaken during my candidature for the PhD degree. I would also like to thank Mel Campbell for her editorial assistance.

Ping-I (Adam) Ho March 2014

Introduction

The phenomenon of virtual economies, in which players buy and sell game items for real money, has not only become one of the most important business models in gaming industry, but also has brought about controversies in both academic and popular discourses. One of the most frequent debates is about the value of game items. In both popular and academic discourses, people question how game items, as intangibles, come to become valuable objects to gamers.

In the introduction of this thesis, I first survey current developments and controversies around game items in the context of virtual economies. After that, I propose the core research questions related to the value of game items that will be discussed throughout this thesis. Next, I discuss some fundamental challenges and meta-knowledge when conducting a game study such as this one, such as the multiple roles of a game researcher, the different perspectives required to understand the essence of digital environments, and the interdisciplinary features of game studies. The following section introduces the specific approaches and methodologies applied throughout this thesis. Finally, I present the structure of this thesis to show how exactly I will discuss the main research questions regarding the value of game items in the following chapters.

Background

On 8 August, 2013, at 11:11pm Sydney time, I made a decision, quite a hard and big

one: I was going to sell all the precious game items that I spent almost one year obtaining in *Diablo 3*, a massively multiplayer online role-playing game (MMORPG), for real money.¹ The money I obtained would be used to buy a decent garage toy for my one-year-old son Anderson as a birthday gift.

It was quite difficult to choose what to buy for Anderson's very first birthday present. I wanted to buy something nice and special for him. However, as a PhD student studying abroad with his whole family, saving money is always a high priority. Moreover, people always talk about how quickly kids lose interest in their old toys and then ask for new ones.

These considerations put me in a difficult position. A nice toy for my son could be quite expensive; but I wished to minimise impact on our budget. After much deliberation, I decided to sell all the valuable game items I had in *Diablo 3* for real money to buy a nice garage toy as a gift for Anderson's coming birthday.

Twenty-four hours after I made the decision, I sold them all for around USD\$50. Since I needed quick cash, I had to sell them in a rush at cheap prices. The money was therefore less than I expected, given how rare, powerful and attractive these game items are. But the money was just enough for me to buy the nice garage toy set (about 50 AUD) with a car track and two cars that can play music. Anderson seemed to really like it when he received it on his first birthday.

When I saw the smile on Anderson's face when he was playing with the toy, I had

¹ In order to do this, I had to have a PayPal account first. After that, I was able to sell game items in the game for USD in my PayPal account. Then, I could convert my PayPal account balance into AUD and send the money to my regular bank account.

quite complicated feelings. Some people around me said this was really a clever decision. Their opinions seemed to imply that this new toy I gave Anderson came totally *free*, since I obtained the money for it by selling something (valuable game items in *Diablo 3*) childish, unserious, or even that never really existed. On the other hand, some of my friends who are also hardcore players said this could be the stupidest decision I had ever made. My player friends kept emphasising how useful those game items are for purposes such as strengthening in-game characters' abilities, beautifying the appearances of the characters, or other fascinating animation effects (for example, summoning a demon fighting for a player) that I have already known as a player myself. Furthermore, since those game items I owned were quite unique and rare within the game (for example, a 'Legendary Bow' called 'Windforce' with extremely high figure of damage and dexterity), my player friends kept chastising me that I should have sold them for higher prices (at least USD\$100, according to them) because buyers would have paid more for them. In other words, those precious game items I sold should be worth a lot more than the money I got.²

The experience I had from buying Anderson's gift demonstrates how complicated and controversial the issues around game items are. First, virtual economies – the phenomena of selling and buying game items with real money – create a channel that facilitates the economic exchange between a game and the ordinary economic system. An economic system in a game and that in the physical world therefore interact with each other and could both be affected (Castronova, 2005).

² In my previous research, I studied how players form a reasonable market price of a certain game item by surveying. The research result shows that players' price perceptions of game items are formed and affected by different types of information resources, player experience, the market scale of game items, etc. Please see more details in my master thesis (Ho, 2007).

Second, the economic influences derived from the interactions between a game and the physical world not only have an effect on the players who engage in virtual economies, but also on the non-players around them. A player like me could sell a game item in order to buy *a physical gift with real money* for someone special who is not playing games at all. Meanwhile, a buyer who may not be a player (such as a player's mother or father) could buy *a game item as a gift with real money* for someone special who happens to be a gameplayer. These situations demonstrate how the economic influences from the trading of game items between the physical world and a gaming environment could affect both players and non-players. In other words, a person does not need to be a player to be affected by the actions of buying or selling valuable game items.

Third, there is a big gap between a player and a non-player in terms of their perceptions about the value of game items. For players, the game items are genuine and valuable (Castronova, 2005) because of the work it takes to accumulate them, and the consensus of the gaming community. A player can use game items for different purposes that enrich gaming experiences in a digital environment. But for non-players, game items may seem initially to be something childish, unserious, as well as "illusory, imaginary, unreal or even nonexistent" (Lehdonvirta, 2009a, p. 12).³

As complicated and controversial as the issues around game items are, nonetheless, virtual economies – trading game items with real money – have already become one of the most significant gaming economic activities, with stable growth in the past decade. Although it can be tricky to accurately calculate and anticipate the scale and

³ It is important to note that Lehdonvirta (2009a) uses such descriptions to show how game items are seen in popular discourses. They are not his own opinions.

scope of the market of virtual economies, efforts have been made by experts and scholars to demonstrate such a steady growing development.

The amounts of money traded in games have grown dramatically this century. In an early study, Castronova (2001, p. 31) estimated the yearly volume of game items traded in *Everquest* was around USD\$5 million. Around 2004, based on the information on eBay and another famous Korean game item trading website, Itembay, Castronova suggested that the market of virtual economies had already surpassed USD\$100 million (Biever, 2004). In 2005, IGE's president, Steve Salyer, estimated this market has exceeded \$880 million globally (Ludlow & Wallace, 2007, p. 64). This figure rose to an estimated USD\$2 billion in 2007 (Lehtiniemi & Lehdonvirta, 2007). In 2009, the market of virtual economies came to approximately USD\$3 billion (Lehdonvirta & Ernkvist, 2011; Mitham, 2009). This figure is expected to keep growing to \$300 billion in the near future (The Futurist, 2011).

Not only has the scale of the market of virtual economies been growing, but also some cases have attracted widespread news coverage. Some players are willing to spend a huge amount of money on game items. In 2007, a simulated version of Amsterdam in *Second Life* sold for USD\$50,000 (Wagner, 2007). In 2010, a player in *Entropia Universe* spent USD\$335,000 on a single game item called 'Club NEVERDIE' (Plafke, 2010). On the other hand, players in Asia have also invested a lot of real money in items in games. In 2011, a Chinese player spent CNY¥50,000 (about AUD\$9,000) for a '+9 Axe' in *R2 online* (5173, 2011). In 2012, at least two players in *GodDragon Online* paid half a million Taiwan dollars, which is approximately about AUD\$17,000, on a package with different types of game items (such as a powerful helmet, armour, and so on) (Apple Daily, 2012).

When players sell and buy game items, it does not just create one market in virtual economies, but rather *two main markets* – a secondary market and a primary market (Lehdonvirta & Ernkvist, 2011). The secondary market refers to game item sales either by players themselves or other third-party dealers (Ho, 2007; Lehdonvirta & Ernkvist, 2011). Player-to-player private trading in the secondary market appeared earlier than any other types of trading (Ho, 2007, p. 31). In a player-to-player transaction, players look for real-money buyers or sellers for items in a game, then complete the transaction in person (for instance, by meeting in an internet cafe) (Ho, 2007, pp. 31-34).

On the other hand, the third party dealers such as eBay, Itembay (a Korean game item trading website), 8591 (a Taiwanese game item trading website), 5173 (a famous Chinese game item trading website), and so on, provide a secure platform for both buyers and sellers to trade game items more safely, while charging players in different ways (such as transaction fees).

In fact, even the game companies themselves have constructed their own platforms for facilitating game item trading between players. For example, in 2005, Sony Online Entertainment launched a marketplace called Station Exchange, which allow players to legitimately trade game items for real money, and charged players for listing and selling game items (Ho, 2007; Lehdonvirta & Ernkvist, 2011; Robischon, 2007). In 2012, Blizzard Entertainment released a multiplayer game, *Diablo 3*, in which players are able to buy and sell game items through its auction house system with real money, while the game company earns benefits by charging transaction fees for each

transaction in this system (Blizzard Entertainment, n.d.-a).⁴

The emergence of a profitable secondary market made game companies realise that “they could themselves sell virtual goods to their users” (Lehdonvirta & Virtanen, 2010, p. 11). This has led to the emergence of the primary market. Around 2003, game companies developed systems variously called the item mode, free-to-play model, or microtransaction system (Ho, 2007; Lehdonvirta & Ernkvist, 2011; Lin & Sun, 2011; Wi, 2009). All these terms refer to game item sales “directly from game publishers to players” (Lehdonvirta & Ernkvist, 2011, p. 12). These models that primary market applies are quite similar to the ‘freemium’ business model in the software industry – “giving away for free a certain level or type of consumption while making money on premium consumption” (Niculescu & Wu, 2011, p. 2). For instance, in a game such as *FarmVille*, it is free for players to access the game in the first place. However, when players want to buy unique game items (for instance, a diving suit or mystic armour), they have to pay “farm cash” for them, which players buy with real money (Zynga, 2009).

Trading game items with real money has become increasingly legitimate. Both the secondary market supported by game companies (such as in the cases of Sony Online Entertainment or Blizzard Entertainment) and the primary market created by game publishers have converted virtual economies from underground illegal activities into legal business models. In other words, the position game companies take “legitimizes the idea of trading virtual goods for real money” (Lehdonvirta & Ernkvist, 2011, p.

⁴ For various reasons, both Sony Online Entertainment’s Station Exchange and Blizzard Entertainment’s real money trading platforms are not available as at March 2014. This demonstrates a significant conflict between gameplay, game design, and virtual economies. Please see some discussions in my previous paper (Ho, 2009).

10). As a result, the emergence of both these markets has officially recognised that game items are something with significant monetary or commercial value.

Nonetheless, even if both the secondary and primary markets have become significant official business models in the gaming industry, the controversies around game items never really stop. In popular discourses, people typically “question the rationality of spending money on virtual goods” (Lehdonvirta, 2009a, p. 12). People use many strong terms such as ‘insanity’ to describe players’ real money trading (RMT) behaviours in virtual economies (Takahashi, 2010).

The controversies around game items have also drawn attention from academia over the past decade. There are a variety of issues around game items that can be studied from very different perspectives, including gold farming (Goggin, 2011; Heeks, 2008, 2010), economic design, impact, and structure (Castronova, 2001, 2002, 2005; Guo, Chow, Gong, & Sun, 2009; Lehdonvirta, 2005b; Lehdonvirta & Castronova, 2014, Wang, Mayer-Schönberger & Yang, 2013; Wang & Mayer-Schönberger, 2010; Yamaguchi, 2004), consumption and consumer behaviours (Guo & Barnes, 2007, 2009; Ho, 2007; Lehdonvirta, 2009a, 2010; Martin, 2008; Shin, 2008), legal definition and property rights (Castronova, 2004; Chambers, 2011; Erlank, 2012; Fairfield, 2005; Grimes, 2006; Horowitz, 2006; Kwong, 2011; Lastowka & Hunter, 2003; MacInnes, 2006; Passman, 2008; Sheldon, 2006; Taylor, 2002b), game design and balance (Hamari & Lehdonvirta, 2010; Ho, 2009; Lehdonvirta, 2005a; Oh & Ryu, 2007), and thievery and regulation (Arias, 2007; Lehdonvirta & Virtanen, 2010; Shen, 2010; Strikwerda, 2012; Switzer & Switzer, 2014; Yoon, 2008).

More specifically, different disciplines have their own specific focuses on the issues

around game items. For example, game design is interested in the powers that players obtain from buying game items with real money, and whether this seriously leads to unfairness in games. Through the market of game item trading, players now are easily able to obtain advantages by buying powerful game items with real money, and therefore make their avatars in game relatively stronger (Ho, 2009; Lehdonvirta, 2005a; Taylor, 2002b). This situation negatively affects the core principle of game balance – players should only become powerful through their gaming skills and the investment of time in that game (Rollings & Adams, 2003, pp. 240-270). Therefore, it has become a challenge for game designers to reconcile game balance and the revenue from selling game items with real money (Ho, 2009).

In terms of business and economics, this new economy created by buying and selling game items (for example, RMT or gold farming) also draws modern economists' attentions on its significant economic influences in either micro or macro level. Castronova (2007, p. 14) has noted that a player is able to earn between one and four US dollars hourly just by farming gold in games and selling it on eBay. In another study, Castronova also reports that the players in *Everquest* "produce a GNP per capita somewhere between that of Russia and Bulgaria" (Castronova, 2001, p. 1). In this context, if we assume *Everquest* in around 2001 was a nation in the physical world, it would be "the 77th richest country in the world, roughly equal to Russia" (Castronova, 2001, p. 33). The currency of *Everquest* as a country could be "traded on exchange markets at USD 0.0107, higher than the Yen and the Lira" (Castronova, 2001, p. 1). Although the comparison between *Everquest* and countries in the physical world is highly questionable, these data do demonstrate the significant economic value of game item trading.

Additionally, modern economists are also making efforts to provide a proper explanation for RMT that are commonly “considered irrational” (Lehdonvirta, 2009a, p. 12) in popular discourses. This therefore addresses a fundamental question of this thesis: how is the value of game items formed? One answer to this can be observed in Castronova’s (2005) work, in which he implies that the value of game items is formed by “the invisible hand – the collective cost-benefit calculations of everyone” (Castronova, 2005, p. 310) – in a digital environment. Chapter 1 will introduce more detailed discussion.

The law discipline, meanwhile, focuses on the legal controversies around game items. For instance, a study by Lastowka and Hunter (2003) asks whether game items can be understood as ‘legal property’.⁵ Another related urgent issue has also been pointed out in Strikwerda’s (2012) study, in which she discusses whether game items could “count as ‘objects’ that can be ‘stolen’” (Strikwerda, 2012, p. 89). She concludes that stealing game items can be seen as theft, therefore, “from a moral point of view, it is legitimate to bring an act under the scope of a penal norm” (Strikwerda, 2012, p. 90). In a related controversy, since players are able to earn real money from RMT, the issues around taxation by governments therefore arise. In his study, Seto (2009) argues that “a world built around a redeemable or convertible currency is not just a game; amounts earned in such a world should be treated as real in every sense for tax purposes” (p. 1051).

In fact, with the development of virtual economies all around the world, the issues around game items are becoming even more complicated, and involving many other

⁵ These issues include controversial questions such as whether players or game companies own the items in games, and how their positions can be justified.

academic areas beyond those clearly identified disciplines mentioned above. For example, the ontological structure of game items could involve both sociology and philosophy (Brey, 2003). The issues around gold farming (an exploitative activity involving repeatedly gaining and selling game items for real money) in “virtual sweatshops” (Dibbell, 2003) or even in prisons (Goggin, 2011, p. 366), not only involve globalisation and labour in economics, but should also be examined in terms of social justice in law and moral philosophy. The consumption of game items not only involves economic sense, but also has sociological and cultural implications (Lehdonvirta, 2009a, 2009b; Malaby, 2006). The issues around the ownership of game items is not only related to law, but also linked to game design and gameplay (Bartle, 2004b). Game item trading not only affects the real-world economy in terms of economics, but also damages players’ in-game experiences from the perspective of game design (Castronova, 2006a). These current developments make research into game items a complex interdisciplinary field that needs new knowledge, communication, and cooperation from different disciplines.

Research questions

Almost all the issues discussed above touch on one core feature of game items: their valuable status to players, whether individually or as a group. Game items can be valuable because they give players in-game advantages. Some are so valuable, in fact, that players are willing to pay for them with real money. Game items can be so valuable that one player might want to steal them from other players. Game items are so valuable that both players and game companies assert their rightful ownership of them. These observations seem to invite a more fundamental question: where

does the value of game items come from?

This therefore becomes the core research question in this thesis – or, to pose it in a more sophisticated manner: *what are the roles of game items in digital environments that make them valuable?* It is evident that this core question could involve many different dimensions. Therefore, it is reasonable to subdivide it into three relevant research questions, which will be discussed throughout this thesis:

Research Question 1: What are the roles of game items in digital environments?

Research Question 2: How do game items become valuable?

Research Question 3: Why are game items valuable to players?

In terms of Research Question 1, game items play very different roles in different contexts. To game designers, a game item could be code within computer programs; an graphic animation made by artists; or a potential threat that might undermine the balance of a game. To players, game items could be useful tools that help them achieve success in games; a way for players to represent and show off their online identities; or a marker of social status for the players who own them.

In this thesis, I argue that the understanding of the roles of game items in different contexts in digital environments is the key for us to understand why game items have become so valuable to players. Therefore, in the following chapters, I will examine how these different roles of game items in different contexts also have a profound influence on the valuable status of game items.

Research Questions 2 and 3 have distinctive focuses: Research Question 2 focuses more on the production of game items, while Research Question 3 centres on processes of consumption. These two focuses, however, are still related to the roles of game items in different contexts. For example, we might see how game items play an important role as part of game production. This therefore involves game design, fundamental game mechanics, a game platform's capacity and limitations, and so on. Game items and their value, inevitably, are affected by such game production.

From the perspective of consumption, game items take on many roles in players' gameplay. This involves how players perform online identities, how players socially interact, how players form certain agreements within player groups, and so on. How game items and their value operate is therefore influenced by players' particular styles of play.

The value of game items can not be found in only one dimension, whether it is production or consumption. We should examine all these three research questions in order to have a relatively more complete picture of how the value of game items is formed in digital environments.

How to study game items

As mentioned above, this thesis mainly focuses on how the roles of game items in different contexts in digital environments affect their value. This main research question, however, can be analysed from very different perspectives in many

disciplines. Therefore, it is crucial to provide some meta-information about the author and the perspective of this thesis in order to situate this research in a proper position within academic traditions.

First and probably the most important of all is to acknowledge the subjective role of a researcher himself or herself. I have been an experienced gameplayer, a participant in virtual economies, and a researcher in game studies for more than a decade. These dual roles create subjectivity as well as a range of abilities that inevitably affect this research project.

As a player, I have played many different genres of single-player games (for example, role-playing games, first-person shooter games and action games) across platforms including Nintendo Famicom, Sony PlayStation, Microsoft Xbox and PC. I particularly have enjoyed the role-playing game (RPG) genre in which a main character can be equipped with various game items to kill monsters and solve quests, progressing through levels (or 'levelling up'). Therefore, as the internet started to grow, I have participated in both Western and Eastern MMORPG environments, such as *Diablo 2*, *MapleStory*, *Dungeon & Fighter*, *World of Warcraft*, *Second Life*, *Entropia Universe*, and many more.

These experiences as a player who is familiar with MMORPGs also helped me become a participating buyer, seller, or sometimes a reseller in different virtual economy systems such as *Diablo 2*, *Warriors of the Three Kingdoms*, *La Tale online*, *Diablo 3* and *Entropia Universe*. I have traded many game items through various ways including play-to-player private trading, third-party website trading (mainly through the well-known Taiwanese game item trading website 8591), and other in-game

trading systems (for instance, in *Diablo 3* and *Entropia Universe*). Since I am familiar with different types of game items that are important and valuable to players in various gaming environments, I therefore understand what kinds of game items are popular and therefore potentially profitable in a virtual economy.

The experiences as both a player and a participant in virtual economies evidently affect my academic interests as well. First, when I was doing my master's degree in the discipline of telecommunication, these experiences from my personal interests made me tend to choose an academic career path in game studies, and particularly in virtual economies studies. The new field of game studies has therefore become my main research focus (Ho, 2005a, 2005b, 2007, 2009). Second, these experiences also embedded me with familiarity when I conducted my studies in game and virtual economies studies. I was able to use the knowledge obtained from my previous playing and trading experiences as both a player and a dealer into my game studies.

However, as helpful as they could be, my experiences as both a player and a participant in virtual economies also create certain frames (or lenses) when I am conducting my studies as a researcher. That is, my roles as both a player and an experienced participant in virtual economies risk a subjective interpretation or analysis of the content in digital environments (such as game items, player behaviour, or player community). This is what Babbie (2009) describes: "all our experiences are inescapably subjective [...] we can see only through our own eyes, and anything peculiar to our eyes will shape what we see [...] we'll never be able to distinguish completely between an objective reality and our subjective experience" (pp. 42-43). Therefore, in a research project, it is crucial to acknowledge such subjectivity in the role of a researcher (Arnould, 1998; Maclaran, Hogg, Catterall, & Kozinets, 2004).

Such a subjective role will undeniably influence different research processes including analysis and interpretation.

Despite these potential positive or negative influences, my multiple roles as an experienced gamer, a participant in virtual economies, and a researcher are, in fact, not only helpful but also quite necessary to conduct a game study. These positions allow me to analyse virtual economies from the eyes of both outsiders and insiders.⁶ This corresponds to what Klabbers (2009, p. 43) suggests:

[...] for the study of games and simulations, we need to be aware of, and accept a dual position. We should study games both from the position of the insiders, who play the game, and of the outsiders, who observe the game being played, and comment on it. As a consequence, we will have to acknowledge two linked but separate knowledge domains. (Klabbers, 2009, p. 43)

In other words, the subjectivity originating from my role as a player or a participant in virtual economies is in a sense crucial to my research. This also responds to what Aarseth (2003) argues: “as game scholars, we obviously have an obligation to understand gameplay, and this is best and sometimes only achieved through play” (p. 7). That is, through and sometimes only through his or her own gameplay experiences, a game researcher is able to have a deeper understanding about the game he or she is going to analyse. Additionally, this perspective is also responding to the position of hermeneutics or interpretivism that the subjective perspective and knowledge of a researcher is inevitable and necessary to conduct a research project.

⁶ I use the term ‘insider’ to refer my roles as both a player and a participant in virtual economies, even though in this research I did not use any methodologies that involve human participants such as surveys, observations, interviews, and so on.

This position will be discussed in more details in the following section.

From my perspective, the most important thing about such subjectivity is to carefully acknowledge and be aware of it throughout the whole research process. Even if this research project does not apply methodologies that directly involve human participants such as participant observation or interviews, my subjective role is quite similar to what Peshkin (1985a) describes: “researchers [...] do not enter their sites empty headed. They begin their studies with notions of what is out there that might be found, and, as well, with subjective dispositions that will bear on what they see and what they make of what they see” (pp. 214-215).

This acknowledgement of subjectivity also gives researchers some degree of freedom to conduct a research project from their own perspectives based on their previous experience and knowledge. As Peshkin (1985b) points out: “I feel at liberty to spin a particular story [in the research process] – the gift of my subjectivity – but not out of thin air; my story must be borne out by facts that are potentially available to any other researcher” (p. 278).

Furthermore, as mentioned above, the knowledge domains of an insider (such as a player) and an outsider (such as a researcher) could be separate (Klabbers, 2009, p. 43). However, my roles of being both an insider and an outsider are not clearly distinguished during the whole research process in this research. In other words, my multiple roles as an experienced gamer, a participant in virtual economies and a researcher constantly overlap, shift, and blur.⁷ This can also be observed in McKee

⁷ This situation is also related to the perspectives of ‘emic’ and ‘etic’ in social science and anthropology. Emic perspective suggests that knowledge is “determined by local custom, meaning and

and Porter's (2009, p. 24) study, in which one interviewee (who is both a player and a game researcher) has pointed out:

In these environments [gaming environments], you know "we're gamers first and researchers second." I think that's a really important distinction in the way we think about our participation in these environments, but there is a lot of blurriness around what we would do as a player and what we do as a researcher. (McKee & Porter, 2009, p. 24)

This situation described above is also true for me throughout this research. Firstly, my simultaneous insider and outsider roles constantly and quickly shift at all times. Many research ideas appear (as an outsider) when I am playing or participating a virtual economy in a digital environment (as an insider). I therefore have to put a note beside my PC at all times to write down any inspiring thoughts (as an outsider) that come out of my direct gameplay or participation experience (as an insider). Even during the thesis writing process (as an outsider), I have to go into certain digital environments (as an insider) from time to time to make sure that I am accurately and correctly describing the content (such as its game design and mechanics) in a digital environment.

Secondly, in certain cases it could be extremely difficult to define which role I was playing at any one moment. For instance, when I was analysing game mechanics and their influences in Chapter 2, I had to not only understand how exactly they worked within a game environment and their influences (as an insider), but also what such

belief" (Ager & Loughry, 2004), while etic perspective focuses more on how certain cultural practices link to external factors (Morris, Leung, Ames, & Lickel, 1999). The blurry position of a game researcher, in some cases, can be situated between these two perspectives.

influences imply in relation to broader academic theoretical frameworks (as an outsider). Under such circumstances, I was actually playing a role somewhere in between an insider and an outsider, or perhaps playing both of them at once.

Similar blurry situations mentioned above can also be observed in McKee and Porter's (2009) study of games researchers who study MMOGs and virtual worlds. As one interviewee suggests: "some of our most important research epiphanies come from moments when we're not even aware that we're researchers [but players] at that moment" (McKee & Porter, 2009, p. 24). Another interviewee also describes when she is in *Second Life* as a player: "I may not officially be collecting results, but I'm still looking at everything with a researcher's eye" (McKee & Porter, 2009, p. 25).

To summarise, my multiple roles in this research that together create a link between the knowledge domains of an insider and a outsider, are well described by McKee and Porter's (2009, p. 26) study:

Sometimes they [game researchers] are clearly in the player or resident role [...] Other times they are clearly researchers [...] But oftentimes [game] researchers occupy the ambiguous spaces between roles, or they fluctuate rapidly back and forth between multiple roles. (McKee & Porter, 2009, p. 26)

Evidently, the role of game researcher is not the only issue when conducting a game item study. Since game items are part of games, studying game items is inevitably related to the attitude a researcher takes to the more fundamental question: what exactly are games to be studied?

The practice of games studies has recently been changing. In the early development of game studies, the spaces where the games occur (for example, a chess board) were seen as “forbidden spots, isolated, hedged round, hallowed, within which special rules obtain” (Huizinga, 1949, p. 10). This concept is typically known as “magic circle” (Huizinga, 1949, p. 10) and it addresses the distinction between gameplay and ordinary life (Huizinga, 1949). In this context, games are leisure activities that happen, and only happen, within the magic circle away from ordinary life affairs.

Around the late 1990s and early 2000s, there were serious debates between narratologists and ludologists⁸ about what exactly should be understood as games. On the one hand, narratologists argue that games should be understood as a form of media for storytelling from narrative tradition (Aarseth, 2004). On the other hand, ludologists suggest that games have different structures from traditional media, and should be studied on the basis of their unique features such as game mechanics, rules and gameplay (Aarseth, 2004; Chesher & Costello, 2004).

There are shortcomings in studying games based entirely on narratology or ludology. From the narratologists’ perspective, we should study games as a medium for storytelling; however, there are undeniable, essential differences between traditional media and games. It could be problematic if we merely study games as a form of media without carefully paying attention to those differences. As Chesher and Costello (2004) suggest: “the questions appropriate to other media often don’t translate directly into the study of computer games” (p. 5).

⁸ The term ‘ludology’ is proposed by Gonzalo Frasca (Frasca, 1999).

On the other hand, ludologists argue that we should concentrate on the features originated from game design, such as game mechanics, rules, and gameplay. However, this could lose the opportunity for game studies to enrich itself with deep knowledge from other disciplines such as humanities, media studies and sociology. As Chesher and Costello (2004) argue: “there is some risk that a discipline [ludology] confined to studying games could become excessively narrow” (p. 6).

More recently, with the rise of internet development and multiplayer gaming, the focus around the essence of games has been changed. Many researchers in game studies have now argued that a game is not only a form of new media, or merely a playful space created by game design. From their perspectives, gaming now is much closer to people’s everyday lives, or even becoming part of them. For example, McGonigal (2006) suggests that gameplay can “encourage players to construct, consciously, a more intimate relationship between gameplay and everyday life” (p. 44). In another study, Castronova (2007) even argues that: “digital games are not just an extension of TV, not just another media innovation; they are radically transforming daily life” (p. 31).

In this thesis, I tend to agree that the current gaming development has an influence on, or even become part of some players’ everyday lives. This is especially evident in a multiplayer environment where “thousands of users interact with one another in the guise of video game characters, on a persistent basis: many hours a day, every day, all year round” (Castronova, 2005, p. 1). These players in multiplayer games “could be said to ‘live’ out there in cyberspace” (Castronova, 2005, p. 2). However, perhaps more importantly, the closeness of gaming to our everyday lives also implies that it could involve complicated human behaviours, such as psychological

perceptions, political affairs, economic activities and social-cultural influences.

In this context, it is important to be aware of the fact that players' everyday lives in gaming are formed both by the developers' artificial design and the player's organic interaction. Everyday life in games is enabled and restricted by game design, while also facilitated by players' human behaviours. In order to study games, we need to examine how game design works to encourage or limit how players act in digital environments. Additionally, we also have to analyse how players respond to game design in digital environments as real human beings. Such in-game everyday life, in a sense, demonstrates the tension between how human beings adopt and interpret technologies for their own benefit, and how they are still constrained by such technologies.

Therefore, I also see that it is not appropriate or sufficient to study games solely from either tradition of media studies or game design, or any other single approach. Since game studies is now becoming a complicated discipline involving human behaviours and interactions, I suggest that it is necessary to incorporate other related disciplines, such as humanities, economics, performance studies and sociology, to obtain a more comprehensive understanding of gaming culture.

In other words, we need to acknowledge the fact that game studies is now becoming an essentially interdisciplinary discipline that needs knowledge from different fields to enrich its depth. Therefore, instead of arguing which approach is the most appropriate one to analyse games, it is more important to put equal weight on several relevant approaches to benefit our understanding about gaming.

Since game items are part of games, the perspective a researcher takes about what games are inevitably also affects the way he or she studies game items. Since I tend to believe that gaming has become part of players' everyday lives which are created and affected by both game design and human behaviours, game items within such environments are also inevitably affected by them. In my opinion, game items, along with their value, are created and affected in environments in which both technologies (for example, game design) and human behaviours (for example, the ways players use and interpret game items) play important roles. In the following chapters, this thesis will develop this argument in more detail.

Although gaming culture involves knowledge from many other disciplines such as the humanities or sociology, this thesis focuses on issues around game items mainly within the discipline of game studies. Game studies is not a field that draws from only one perspective (such as ludology or narratology). More importantly, game studies should be a field in which "a number of independent, different disciplines can be employed for a number of different reasons" (Aarseth, 2003, p. 1).

In addition, although the position this thesis takes suggests that it is necessary to apply theories and frameworks from traditional disciplines to study games, a researcher in game studies should appreciate the uniqueness of gaming culture separately from other disciplines. For example, when applying knowledge from other traditional disciplines, a game researcher should be able to carefully identify the essential differences between the research objects in digital gaming environments and those in other physical environments.

Moreover, as game studies is a new academic discipline, it inevitably needs

knowledge and theories from other academic fields to enrich its own knowledge. This current development of game studies, from my perspective, is in a situation quite similar to that of media studies decades ago.

Media and communication studies in its early development, according to Schramm, Riesman, and Bauer (1959), was a field at a *crossroads* “where many pass but few tarry. Scholars come into it from their own disciplines, bringing valuable tools and insights, and later go back, [...] to the more central concerns of their discipline” (p. 8). The crossroads that media and communication studies was situated at can “lead out in different directions: from the social sciences to the humanities, from engineering to law, and so forth [...] communication research has many forms, the opportunities are boundless” (Kivikuru, 1998, p. 7).

After decades, media and communication studies has already become an independent and important discipline. It is hard to say whether eventually game studies will become a complete independent discipline following exactly the trajectory of media and communication studies. However, over the past decade and a half, there has been a trend that game studies is becoming an autonomous discipline. According to Aarseth (2002):

We could finally imagine and conceptualize a new academic field [game studies] focused on the aesthetics, cultures and technologies of computer games. Not just as part of media studies, or digital culture studies, or a freaky corner of computer science, or as educational technology, but as an autonomous discipline of teaching and research. (Aarseth, 2002)

Additionally, the current development of game studies does share a similarity with the media and communication studies – both two fields are studies at a crossroads. Game studies also involves knowledge from various disciplines such as humanities, social sciences, computer science and education (Aarseth, 2003, p. 1; Williams, 2005, p. 1). Just as Schramm et al. (1959, p. 8) describe the situation in early media studies, scholars from various disciplines are also bringing their valuable tools and insights to game studies, focusing on issues related to their disciplines in the context of gaming. For example, as mentioned above, economists tend to research virtual economies by looking at the economic impact from game item trading, while law scholars discuss the legal issues around the ownership and taxation derived from game item trading.

The background knowledge and information I have so far shown exert an ongoing influence on the research process of this project. In other words, this interdisciplinary thesis that focuses on valuable game items also reflects the researcher's subjectivity, relevant knowledge, and the development of game studies. In the following section, I will demonstrate important practical approaches and methodologies in this thesis.

Methodologies

Unlike media and communication studies, which has already become a relatively mature discipline, game studies is still a developing discipline with emerging methodologies and theories of its own. According to Aarseth (2003), game studies was a field in which “no methodology” (Aarseth, 2003, p. 1) existed and there were “no really outstanding computer game theories” (Aarseth, 2003, p. 6). This difficulty

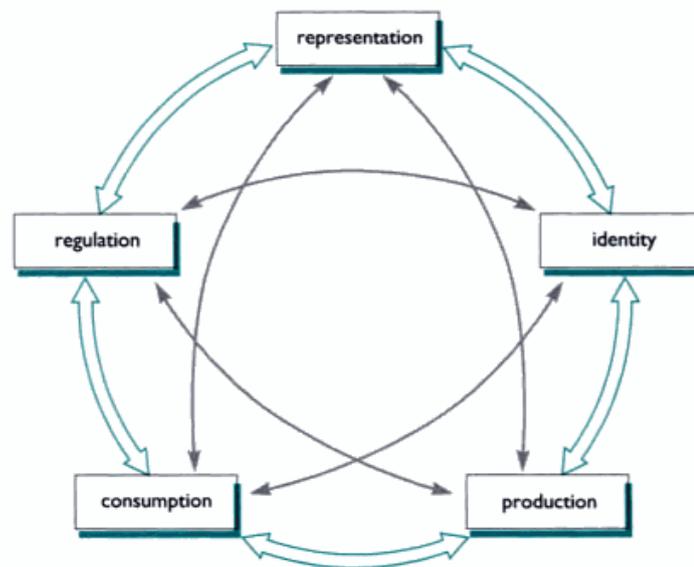
meant that game researchers in this field had to apply other related methodologies and theories to analyse issues around gaming environments.

Fortunately, efforts have been made on developing new methodological approaches for game studies over the past decade (Aarseth, 2003; Bell, Castronova, & Wagner, 2010; Consalvo & Dutton, 2006; Bigl & Stoppe, 2013; Boellstorff, Nardi, Pearce, & Taylor, 2012; Järvinen, 2008; M. Lehdonvirta, V. Lehdonvirta, & Baba, 2011; Leong, Joseph, & Boulay, 2010). Although many of these new approaches might still apply concepts and methods from older traditions, they also address the uniqueness of gaming culture.

This thesis applies an interdisciplinary methodology. I apply the frameworks and methodologies from traditional disciplines and from new approaches developed specifically for game studies. In the following, I will demonstrate what these frameworks and methodologies are, and how they are applied to this thesis.

Two main frameworks served as a lens throughout my thesis: du Gay, Hall, Janes, Mackay, and Negus's (1997) "circuit of culture", and Hunicke, LeBlanc, and Zubek's (2004) MDA (mechanics, dynamics, and aesthetics) approach. These two approaches have quite different focuses – one centres on how cultural artefacts should be studied, while the other attempts to bridge the gap between game design, gaming environments, and gaming experiences (du Gay et al., 1997; Hunicke et al., 2004). However, used together, these two approaches provide a useful perspective for us to understand game items as both the artefacts of gaming culture and practices in game design.

On the one hand, du Gay et al.'s (1997) "circuit of culture" is one of the most influential frameworks in the discipline of cultural studies (see Figure 1). There are five key elements or "cultural processes" (du Gay et al., 1997, p. 3) in this framework: representation, identity, production, consumption and regulation. According to du Gay et al. (1997, p. 3), these five processes are crucial to analyse a cultural artefact.



The circuit of culture

Figure 1: Circuit of culture (du Gay et al., 1997, p. 3)

Instead of being five separate elements, these five cultural processes are in fact closely connected, overlapped, and affected by each other to form a circuit for a complete analysis of a cultural artefact. As du Gay et al. (1997) describe: "we have separated these parts of the circuit into distinct sections but in the real world they continually overlap and intertwine in complex and contingent ways" (p. 4). Therefore, "any analysis of a cultural text or artefact" should pass through the five cultural processes in the circuit of culture (du Gay et al., 1997, p. 3).

Game items can be seen as a type of cultural artefact within a circuit of culture. The five cultural processes of game items are therefore examined throughout this research. In terms of production and regulation, I analyse how game items are produced and regulated by game companies mainly through game design (for example, game rules and mechanics) and technological platforms.⁹ I argue that understanding how game items are produced and regulated not only helps us to clarify the misunderstanding about the controversial ontology of game items, but also recognises how the value of game items can be created and affected by game design and technologies.

The consumption of game items has a great weight in this thesis too. I suggest that although game items are produced by designers and programmers, they are consumed by players for their own purposes in different contexts of gameplay such as performing and social play.¹⁰ In such contexts, game items are valuable because of their roles for players' own benefits, whether or not these benefits are related to the purpose of gaming predesigned by game companies.

In terms of identity, this thesis not only looks at the way how game items can be consumed by players to link to specific social identities (such as race, gender and class), but also, more importantly, how players can use game items as valuable objects to construct their preferred online identities in digital environments in front of other players.¹¹

The aspect of representation can be observed throughout this thesis in the materials

⁹ Please see the analyses in Chapter 1 and 2.

¹⁰ Please see the analyses in Chapter 3 and 4.

¹¹ Please see the analyses in Chapter 3.

that will be discussed and analysed. There is a wide range of representations at play, including those created by game companies, news stories, comments by players, interview records in previous studies, and so on. All these materials are “signs and symbols to represent or re-present whatever exists in the world in terms of a meaningful concept, image or idea” (du Gay et al., 1997, p. 13). Such representations of game items demonstrate how valuable game items are presented, understood and given meanings in the context of gaming culture.

The five cultural processes in a circuit of culture “continually overlap and intertwine in complex and contingent ways” (du Gay et al., 1997, p. 4). We not only need to analyse how each of these five cultural processes affect the value of game items, but also the interplay between them. In this thesis, I also examine how different aspects of gaming (such as game design and how players construct online identities) link to each other, and together have a profound influence on the value of game items.

In this sense, the value of game items is created and affected by the continuing negotiations between production and regulation (how game items are created and restricted by game design in gaming platforms), consumption (how players use game items in different contexts), identity (how players construct their online identities), and representation (the meanings of game items displayed in popular and scholarly discourses).

On the other hand, I also use Hunicke et al.’s (2004) MDA approach as a lens to examine the role of game items in the creation of game design, and their significant influences on players’ gameplay and gaming environments. In this framework, there are three key elements in game research: mechanics, dynamics, and aesthetics

(Hunicke et al., 2004). These three elements focus on three different aspects of a game:

Mechanics describes the particular components of the game, at the level of data representation and algorithms. Dynamics describes the run-time behavior of the mechanics acting on player inputs and each others' outputs over time.

Aesthetics describes the desirable emotional responses evoked in the player, when she interacts with the game system. (Hunicke et al., 2004, p. 2)

These three seemingly independent elements are in fact related. For example, aesthetic experiences such as sensation, expression, or fellowship are created by game dynamics, while the game dynamics are supported by game mechanics (Hunicke et al., 2004, p. 3).

From my perspective, these three elements in Hunicke et al.'s (2004) MDA approach not only build up a framework to understand how gaming environments work, but also provide some insights for us to examine how the value of game items is formed in such environments. For example, some game mechanics (such as avatar customisation) are able to create certain game dynamics (for example, encouraging players to customise their avatars with beautiful game items) that could potentially affect players' in-game experiences derived from certain value of game items (including players' hedonistic feelings aroused by game items' emotional value).

As mentioned above, this thesis is situated in the tradition of game studies. However, game studies can focus on a variety of very different research dimensions. According to the International Game Developers Association (IGDA) Curriculum Framework,

there are at least nine distinctive categories of a cross-disciplinary approach in terms of studying games: Critical Game Studies, Games and Society, Game Design, Game Programming, Visual Design, Audio Design, Interactive Storytelling, Game Production, and Business of Gaming (IGDA, 2008).

If we narrow this scope and scale to only the “games in virtual environments” (Aarseth, 2003, p. 2) – which excludes digitised board games, card games, and so on – these different fields proposed by IGDA could be reduced to three main research dimensions: “gameplay”, “game-structure” and “game-world” (Aarseth, 2003, p. 2). Gameplay focuses on players’ actions, social relations, and communications; game-structure centres on the rules of games; and game-world is concerned with fictional content, topology and level design (Aarseth, 2003, p. 2).

In this thesis, the main research object – game items – is related particularly to the first two dimensions: gameplay and game-structure (Aarseth, 2003, p. 2). For instance, the following chapters explore how players perform their online identities and socially interact with one another with game items, involving gameplay. The manipulation of game design, rules and game mechanics that create and affect the value of game items is more related to game-structure.

Since game items are artificial objects created by game design on specific platforms, I tend to believe that game items and their value are to some degree still affected by the game-structure. As Aarseth (2003) suggests: “all games are dominated by their rules” (p. 3).

These rules, from my perspective, however, are not necessarily decided by game

designers alone, but are more the result of a negotiation between the production practices of game companies and players' consumption. In this sense, game items are more like cultural artefacts. It is possible that game rules could be overwritten or even created by players themselves, as will be discussed in a section in Chapter 4 on players' collective agreements. Therefore, in this thesis, I look for my answers regarding the value of game items by considering the forces derived from the processes of production (by game companies) and consumption (by players), and the relationships between them.

Aside from the approaches mentioned above that provide a proper perspective for this thesis, in practice I apply three main practical methodological approaches: *hermeneutics*, *first-hand information analysis*, and *secondary data analysis*. These methodological approaches are typically used in humanities and social sciences but are experiencing a renaissance in game studies. Below, I will therefore demonstrate how they are applied to this thesis.

The first methodological approach is hermeneutics. The term 'hermeneutics' is related to Hermes, "the messenger god of the Greeks" (Mueller-Vollmer, 1985, p. 1). As Mueller-Vollmer (1985) describes: "in order to deliver the messages of the gods [...] he [Hermes] had to understand and interpret for himself what the gods wanted to convey before he could proceed to translate, articulate, and explicate their intention to mortals" (p. 1). The term 'hermeneutics', which addresses the interpretation of gods' intentions, was also used as a "Christian theological term that referred to the interpretation of spiritual truth in the Bible" (Rubin & Babbie, 2008, p. 430). More recently, hermeneutics was further applied by social researchers in a way that "refers to interpreting social life by mentally taking on the circumstances, views,

and feelings of the participants” (Rubin & Babbie, 2008, p. 432).

One of the most important principles in hermeneutics is the so-called “hermeneutical circle” (Steinar, 1996, p. 47). This concept allows researchers to reach “a sensible meaning, a valid unitary meaning, free of inner contradictions” (Steinar, 1996, p. 47). According to Steinar (1996, p. 47), the hermeneutical circle refers to:

The understanding of a text takes place through a process in which the meaning of the separate parts is determined by the global meaning of the text, as it is anticipated. The closer determination of the meaning of the separate parts may eventually change the originally anticipated meaning of the totality, which again influences the meaning of the separate parts, and so on. (Steinar, 1996, p. 47)

The concepts of hermeneutics and the hermeneutical circle have more recently been applied to the field of game studies, which focuses on interpreting game features, systems, and other relevant materials (such as game documentation). According to Aarseth (2003), hermeneutics in game studies uniquely “requires analysis practiced as performance, with direct feedback from the system. This is a dynamic, real-time hermeneutics that lacks a corresponding structure in film or literature” (p. 5).

The hermeneutical circle in the context of game studies, therefore, includes the process of understanding the meaning derived from playing and non-playing analyses (Aarseth, 2003). Through first-hand playing experience (that is, the gameplay experience of the researcher) and other non-playing resources (such as a previous knowledge of the game system, game reviews, game reports, and so on), a game study “has the best potential for success” (Aarseth, 2003, p. 6).

Hermeneutics functions as the main methodological framework throughout this thesis. My understanding about valuable game items is built upon my previous playing experiences of game texts (as a gameplayer and a dealer in virtual economies, as outlined above) and other non-playing resources (such as the secondary data analysis of materials in previous studies, news, reports, and so on). The meaning derived from separate parts (for example, playing experiences of one specific game, or an analysis from an interview record of a previous study) affects the whole meaning and the understanding of game items as valuable objects. This whole meaning and understanding once again create an interpretive framework for my analysis of all the separate parts, whether they are from playing experiences or non-playing resources. This kind of methodological approach is similar to what Aarseth (2003, p. 5) calls “the hermeneutic feed-back loops of play and non-play,” or Steinar’s (1996) description of the hermeneutical circle (p. 47).

Another practical methodological approach applied to this thesis is first-hand information analysis (sometimes called primary sources analysis). In social sciences, first-hand information analysis typically refers to the information analysis directly obtained from research objects or subjects. In an empirical research, this method might include the data analysis derived from observations, interviews, focus groups, surveys, and so on.

In game studies, first-hand information analysis involves the direct playing or experiencing of games. As Aarseth (2003, p. 3) suggests, there are three main ways to acquire first-hand information in game studies, including: studying game design rules and mechanics; observations from others’ gameplaying; and the researchers’

direct gameplaying experience. According to Aarseth (2003): “while all [these three] methods are valid, the third way [researchers’ direct gameplaying experience] is clearly the best, especially if combined or reinforced by the other two” (p. 3).

In this thesis, I have mainly applied the first and the third methods in Aarseth’s (2003, p. 3) framework: studying game design rules and mechanics, and the researchers’ direct gameplaying experience. Additionally, I have combined these two methods in order to ensure the analysis is accurate and complete. For example, to analyse how various game design and mechanics affect the value of game items, not only do I have to study game design and relevant literatures, but also directly play a variety of games in order to understand what kind of game design mechanics are applied to each, how they work in different contexts, and what influences they could exert on game items.

Furthermore, my direct gameplaying experience not only allows me to obtain useful knowledge about games. Perhaps more importantly, such experience also becomes a starting point to create hermeneutic feed-back loops (Aarseth, 2003, p. 5) or the hermeneutical circle (Steinar, 1996, p. 47). This is because direct gameplaying experience provides me with useful knowledge for analysing other non-playing materials (including interview records from previous studies). The result of such analysis would once again justify, enrich, or change my previous knowledge acquired from the direct gameplaying experience. This responds to what Aarseth (2003) suggests: “once we have mastered the game ourselves, or other games in the same genre, non-involved observation and player interviews can be quite effective, and even provide insights that our own play could not produce” (p. 3).

The final practical approach in this thesis is secondary data analysis. In social science, secondary data analysis typically refers to repurposing materials from previous studies conducted by other researchers. These materials in empirical research might include survey data, interview records, transcripts, and more.

In the context of game studies, secondary data analysis is mainly conducted from “non-playing analysis” (Aarseth, 2003, p. 6). These materials could come from other players’ reports and discussions, interview records (with players or game developers), game documentation, reviews, and so on (Aarseth, 2003, p. 6).

In this thesis, I mainly use secondary data from reports, discussions and interview records from previous studies, along with other empirical research results (such as survey results). Here, it is important to acknowledge that these secondary data in their original studies or contexts could have a different focus than they do in this study. This is, however, quite common in secondary data analysis since it is “a form of research in which the data collected and processed by one researcher are reanalyzed – often for a different purpose – by another” (Babbie, 2009, p. 288). For instance, this thesis analyses how players use game items as a means to construct and represent their online identities in digital environments by using the interview records in Taylor’s (2002a) study, whose original focus is more on how players use avatars to embody themselves in games.

The materials gathered from secondary data are not just passive texts to be analysed, but also play an active role throughout the whole thesis. As mentioned earlier, results from secondary data analysis can not only reconfirm knowledge about valuable game items acquired via first-hand information analysis, but they can also

offer a potential opportunity to adjust or change the original knowledge. In such hermeneutic feed-back loops (Aarseth, 2003, p. 5) or hermeneutical circles (Steinar, 1996, p. 47), secondary data analysis plays a role as important as first-hand information analysis.

Therefore, these three practical methodological approaches – hermeneutics, first-hand information analysis and secondary data analysis – provide a useful framework in conducting this research project. Through – and only through – repeatedly examining the knowledge acquired from first-hand information analysis and secondary data analysis, meaningful arguments about valuable game items can be solidly built. Additionally, through these three methods, this research achieves a balance between playing experiences and non-playing studying. This balance makes the best use of the abilities derived from my multiple roles (as described above) of a player, a participant and a game researcher. This is a balance, as Aarseth (2003) concludes in his article: “between free play, analytical play, and non-play” (p. 7).

The structure of this thesis

In this final introductory section, I present the structure of this thesis in order to provide readers with a clear picture of this research project. This thesis contains six parts, including the Introduction, four distinct chapters and a Conclusion.

This Introduction covers my background assumptions and common controversies around valuable game items. I have introduced current practices around game items, including their development in the gaming industry, the controversial issues raised by

game item trading, and the involvement of different academic disciplines in the issues around game items.

As I have argued, such complicated situations regarding game items demonstrate the most important and fundamental feature of game items – they are valuable objects. I therefore propose the core research question in this thesis – *what are the roles of game items in digital environments that make them valuable?* This core research question will be answered from three different perspectives throughout this thesis, including the role of game items in different contexts, the production of game items, and the consumption of game items.

I then examined the role of meta-information when conducting a research project on valuable game items, including the subjectivity of a game researcher, the different theoretical perspectives commonly used in studying game items, and the interdisciplinary nature of game item studies. This section was followed by an introduction to the practical frameworks and methodological approaches that I will go on to apply when studying valuable game items. These frameworks and approaches not only provide a proper perspective to analyse valuable game items, but also work together to ensure that the research results are meaningful and solid.

In the following four distinct chapters, this thesis addresses different dimensions of the core research question about the value of game items. Each chapter analyses valuable game items from a distinctive perspective.

Chapter 1 is mainly grounded in the fundamental issues about the value of game items, including the controversies about the very existence of game items, the

historical trajectories of valuable game items, and how game items have become valuable in terms of economics.

In this chapter, I endeavour to define what game items are and understand the ontology of valuable game items. As I will argue, the current misunderstanding about what game items really are is also one of the reasons we misunderstand their value.

Such value, as this chapter will demonstrate, can be diverse and varied in different contexts in digital environments. Additionally, two main economic approaches can provide proper perspectives to understand how objects become valuable – the labour theory of value and the subjective theory of value. Chapter 1 will also show how these two approaches have profound influences on games studies.

At the end of Chapter 1, I argue that it is insufficient to understand how game items become valuable in very different contexts of gameplay if we only apply the knowledge from these two economic approaches. That is to say, valuable game items not only should be understood as tradable goods in the context of economy, but also as in-game items themselves produced by game designers and consumed by gameplayers.

Therefore, I propose three other approaches that focus on the specific roles of valuable game items in different contexts, in order for us to more comprehensively understand where the value of game items comes from. These three approaches lead to three subsequent chapters of this thesis. Chapter 2 describes how game design affects game items; Chapter 3 explores the role of game items in digital performing environments; and Chapter 4 reveals the influence of player groups on

game items.

In Chapter 2, this thesis focuses on how the value of game items is created and affected by game mechanics and driven by game design. I propose and examine several game mechanics and their relationships with game items. The mechanics of storage and exchange systems not only allow players to store or exchange game items, but also further facilitate important processes around valuable game items such as players' ownerships, in-game economy systems, and real money trading outside the context of gameplay. The mechanics of functionality and aesthetics make game items useful and attractive, and therefore also directly bestow on game items certain functional and emotional value for players. The mechanics of artificial scarcity and randomness control the supply of game items and the chances players can obtain them. These two mechanics provide a motivation for players to spend hours and hours pursuing valuable game items in digital environments. The design of sociality creates a social environment for players to interact. In such environments, valuable game items are not only meaningful to just one player, but are also "interconnected" (Fairfield, 2005, p. 1053) and can therefore be experienced by other players. This thesis argues that these significant game mechanics together not only define game rules for players to follow, but also create certain dynamics that directly or indirectly affect valuable game items and their roles in digital environments.

Chapter 3 focuses on how valuable game items function as useful "expressive equipment" (Goffman, 1956, p. 13) to facilitate players' in-game performance through avatars. By examining several significant elements including online performance, avatars, player identity and valuable game items, this thesis argues

that players are empowered to socially represent and construct their preferred online identities.

Players choose and construct the images of their avatars provided by the system. Through such processes, players are able to project (Gee, 2004, p. 55) or introject (Filiciak, 2003) their preferred identities onto or into avatars, which therefore become the surrogates of players. Such surrogates in digital environments are decorated with valuable game items as props, costumes and expressive equipment. These valuable game items therefore become the markers of players' personal preferences or social statuses, whether in or out of games.

With hundreds of players socially performing through avatars in a digital environment, the environment itself has become a "world as spectacles, as a set of performances" (Abercrombie & Longhurst, 1998, p. 82). In such environments, game items are valuable because their value can be shown by the owner and gazed at by other players. Such value is therefore like conspicuous products that are used as signs of certain social class or status.

In the final substantive chapter, Chapter 4, this thesis primarily looks into how valuable game items are affected by player groups in socialised digital environments. In such environments, the original designated purposes of valuable game items by system can be reinterpreted, denied, and even recreated by players as a group. In particular, I examine different dimensions of player group dynamics. A section on players' collective agreements addresses how players have the power to collectively deny the official valuable game items and nominate new valuable game items for their own benefits. Additionally, in some cases, players voluntarily share information

about valuable game items including their function, appearances, prices, and so on. This thesis argues that such processes of sharing information in “social worlds” (Shibutani, 1955, p. 565) make the value of game items transparent to all participants. The network effects derived from such information sharing processes could expand the social world, which once again enhances the value of game items.

Moreover, in competitive environments where players are encouraged to compete with each other, valuable game items become “capital” (Bourdieu, 1986, p. 241) to players. In such environments, game items are valuable because they are a necessary means to strengthen players’ competencies and as a reward for which players compete. Furthermore, in certain environments that encourage social interactions, valuable game items function as gifts to be sent between players. Such gifts are used by players for their own benefits such as communicating and maintaining relationships with others. Such gifts are not truly free, but are given for compulsory and obligatory reciprocity (Mauss, 2002 [1954]). Such gifts are also used for online potlatch in social gaming to display the higher status of the senders (Consalvo, 2011).

Through examining these phenomena, this chapter argues that the value of game items can be affected, justified, and driven by players as a group. The power of players, in such contexts, can outmatch game design in attributing value to game items.

Finally, I conclude this thesis by reviewing and providing an overview of the discussions on the value of game items throughout the previous chapters. I also demonstrate the interplay between the influential elements discussed in different chapters, showing how they work together to affect the role of game items as

valuable objects. For example, the game design mechanics of aesthetics and sociality enable players to socially perform their online identities using valuable game items as expressive equipment. The mechanics of functionality, artificial scarcity, and sociality all create the competitive atmosphere in which valuable game items are an important form of capital. Systems of exchange facilitate how players in the social worlds of certain games can easily share market information about valuable game items.

In the Conclusion, the value of this thesis itself is demonstrated. This thesis highlights that the value of game items comes from the specific roles game items play in different contexts. By bridging knowledge from different disciplines, this thesis argues that game items' value is presented in a unique way in the context of gaming culture. This *value in play*¹² is realised by game design, player behaviour and desire, and different types of gameplay. Valuable game items in play will continue playing an important role and take on increased economic significance in the future.

¹² The concept of *play* is differentiated from *game* by Frasca (2003) by applying Caillois's (1961, p.13) concepts of "paidia" and "ludus". According to Frasca (2003), the difference between play and game is that "the latter incorporates rules that define a winner and a loser, whereas the former does not" (p. 230). I, however, use the concept of play to refer to players' different types of play in digital environments including gameplay, performing play, and social play. These different types of play are created by the negotiation between designers' game rules and players' interpretation of games.

Chapter 1: What valuable game items are

As we have already seen, virtual economies, characterised by selling and buying valuable game items with real money, have become one of the more important business models in game industries over the past decade. Many people, however, are still confused about how game items have become goods or products with significant commercial or monetary value.

There is a reason for this confusion. It is closely related to the controversial existence of game items – they seem to be childish and non-existent, and yet, they are traded by players with real money, just like other goods or products in the physical world.

Therefore, the main purpose of this chapter is to examine and define the essence of game items to avoid misunderstandings about them and their value. This thesis suggests that we can only understand valuable game items when we clarify how game items are created and how they are used in different contexts. There are therefore two parts in this chapter. The first part focuses on *what game items are*, while the second part centres on *why game items are valuable*.

First, I discuss popular controversial terms such as ‘virtual’ and ‘worlds’ in the context of describing game items. Then I identify the important features of game items that distinguish them from other goods or products. What follows is an examination from the perspective of platform studies to look at how technical and cultural factors

affect valuable game items. In the following review of the historical development of game items, I demonstrate how valuable game items have changed with time and technologies.

In the second part of this chapter, the focus is on the *value* of game items. I first discuss the concept of value, which can be diverse with multiple meanings. Therefore, different types of value around game items are identified and demonstrated.

Afterwards, I discuss the economic theoretical background around the formation of value in objects. Two significant economic approaches are discussed: the labour theory of value and the subjective theory of value. These two approaches have profound influences on the studies around valuable game items. At the end of this chapter, I argue that a purely economic approach will not be enough for us to understand the uniqueness of valuable game items. I suggest that we should draw on other theoretical perspectives to provide a comprehensive understanding of game items and their value.

1.1 Why game items instead of virtual items?

As we have discussed earlier, instead of using the more common term ‘virtual items’, I choose the term ‘game items’ throughout this thesis. The reason for doing this will exactly demonstrate why the ontological existence of game items is so controversial that it misguides our understanding of them and their value in the current discourses.

In the current discourses on virtual economies, there are many terms that refer to the items in games. Currently, there are “virtual items” (Castronova, 2005; Passman, 2008), “virtual assets” (Guo & Barnes, 2007; Manninen & Kujanpää, 2007), “virtual goods” (Lehdonvirta, 2009a; Sheldon, 2006), “virtual property” (Bartle, 2004b; Fairfield, 2005), and so on. It is noteworthy that many of those terms share the same adjective: virtual. Among these terms, ‘virtual items’ seems to be the most commonly used.

The idea of virtual items is closely related to the concept of virtual worlds. According to Kock (2008), “virtual worlds can be defined as technology-created virtual environments that incorporate representations of real world elements such as human beings, landscapes and other objects” (p. 1). Since virtual items are objects that exist and inhabit in a virtual world (Bartle, 2004b; Castronova, 2005; Guo & Barnes, 2007), it is not so hard to understand why the items in games are typically called virtual items.

In fact, the term ‘virtual items’ provides quite a straightforward and easy way for people to understand and describe the issues around items in digital environments such as computer games. However, as straightforward and easy as it is, a term such as ‘virtual items’ also creates misunderstandings about the ontological existence of these items. This is mainly due to the fact that the use of such term makes the items in games seem to be something “typically seen as illusory, imaginary, unreal or even nonexistent” (Lehdonvirta, 2009a, p. 12).

From the perspective of this thesis, game items are not “illusory, imaginary, unreal or even nonexistent” (Lehdonvirta, 2009a, p. 12); rather, they are digitally simulated

objects created by computer equipment, codes, programs and graphics. Through these production processes, game items can be accessed and consumed by players via their digital devices through their avatars in digital environments. In what follows, I will examine how the term 'virtual items' is problematic in many ways, and therefore propose a more appropriate term, 'game items', that is instead used throughout this thesis. The term 'game items' fits better with the perspective of this thesis and can avoid misunderstandings when we discuss their value.

First of all, there is a problem with using the term 'virtual' as something unreal. There are in fact two opposite positions for understanding the concept of 'virtual'.¹³ On the one hand, according to Castronova (2005, p. 287), scholars such as Theodore Nelson and Howard Rheingold tend to suggest that "'virtual' is explicitly contrasted with 'real'" (Castronova, 2005, p. 287). This perspective therefore sees "the computer-generated world as a fake, an illusion" (Castronova, 2005, p. 287).

On the other hand, scholars such as Brey (2003) suggest that: "being virtual is [...] not the same as being unreal" (p. 277). We can elaborate this kind of perspective from Lévy's (1998) framework, in which he suggests that: "strictly speaking, the virtual should not be compared with the real but the actual" (pp. 23-24). According to Lévy (1998), the concept of virtual is "that which has potential rather than actual existence. The virtual tends toward actualization, without undergoing any form of effective or formal concretization" (p. 23). In other words, to Lévy, the concept of

¹³ In terms of video gaming, Jesper Juul's idea of 'Half-Real' (2005, p. 1) could be another position. According to Juul (2005, p. 1): "video games are two different things at the same time" – both real and fictional. Video games are real because "they consist of real rules with which players actually interact, and in that winning or losing a game is a real event" (Juul, 2005, p. 1). Video game are fictional because players have to imagine "a fictional world" (Juul, 2005, p. 1) when they are playing games. Therefore, to Juul (2005, p. 1), "a video game is a set of [real] rules as well as a fictional world."

virtual is more like an ongoing process toward actualisation rather than a static status that remains opposite to the real. Therefore, as a metaphor, to Lévy:

[...] a seed is a kind of virtual tree, a tree that is not in existence yet but will be, and while seed and tree are different, both are real, and both are related in a special way [...] the virtual is [...] a different kind of real, or reality in a different state. (Castronova, 2005, p. 287)

As a result, if we understand the concept of virtual from Lévy's (1998) point of view, both the virtual and the physical worlds are real. Although it could still be questionable that a virtual world tends towards the actualisation of the physical one,¹⁴ this perspective that suggests the virtual as the part of the real does provide some important insights and implications.

Indeed, virtual worlds are still part of the real world. A virtual world is created through hardware such as computers and other technological equipment operated by engineers and designers in the physical world. This equipment not only enables what can be performed in a virtual world, but also limits these possibilities at the same time. A virtual world can only be accessed by players who have digital devices such as laptops, mobile devices and console machines. A virtual world exists if – and only if – the physical equipment (such as a player's devices or the server of a game provider) is still working or functioning.

The physical bodies of virtual world users still remain in the physical world when they

¹⁴ In many cases, a virtual world is more like a simulated version of the physical world. According to Brey (2003, p. 277), simulated objects in a virtual world “have resemblance to real-world entities by their perceptual and interactive features.”

participate in a virtual world. They can perform (and can *only* perform) an action in that virtual world through physical devices such as a keyboard, a joystick or a touch screen. Their senses are affected by events on the screen (such as an intensive fight or virtual sex) as well as everything around their physical environments (such as a fire alarm or an earthquake).

Therefore, instead of existing independently outside the physical world, a virtual world is still part of it, affected by it, and heavily dependent on it. Inevitably, everything within a virtual world – such as a game item – should also be seen as part of the physical world. This perspective responds to Lehdonvirta's (2009a) observation that: "virtual goods are 'real' in the ontological sense that they exist in the same reality as other goods" (p. 75).

Unfortunately, as problematic as it can be, the current mainstream discourses still seem to stick with the first perspective that sees something virtual as unreal. This problematic perspective can further facilitate another questionable belief: the binary or dichotomy between virtual worlds and the real world. In this dichotomy, since "'virtual' is explicitly contrasted with 'real'" (Castronova, 2005, p. 287), virtual worlds are therefore "painted as separate worlds, located outside 'the real world', in many ways mirroring it like a synthetic double, but carrying on independently like a distant continent" (Lehdonvirta, 2009a, p. 105). In this context, we have one real, physical world, or "Earth" (Castronova, 2005, p. 2), and many other parallel virtual worlds where people play, socially interact with others, or even "exodus to" (Castronova, 2007, p. 19).

Not only does the perspective of seeing the virtual as opposite of the real facilitate

this questionable dichotomy between virtual and the real world, but it is also reflected in the tradition of game studies itself (Lehdonvirta, 2010). In game studies, one of the most famous concepts is the “magic circle” (Huizinga, 1949, p. 10) coined by Johan Huizinga.¹⁵ According to Huizinga (1949, pp. 10-13), the spaces within a magic circle created by gameplay are:

Temporary worlds within the ordinary world, dedicated to the performance of an act apart [...] It [a gameplay] promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means. (Huizinga, 1949, pp. 10-13)

This ‘magic circle’ concept that addresses the distinction between the gaming spaces and the physical world is further developed and described in more details in later research by Salen and Zimmerman (2004). The important position of the magic circle in game studies has therefore been built up. According to Salen and Zimmerman (2004, pp. 95-96):

In a very basic sense, the magic circle of a game is where the game takes place. To play a game means entering into a magic circle, or perhaps creating one as a game begins [...] Within the magic circle, special meanings accrue and cluster around objects and behaviors. In effect, a new reality is created, defined by the rules of the game and inhabited by its players. (Salen & Zimmerman, 2004, pp. 95-96)

¹⁵ According to Calleja (2012), Huizinga’s concept of magic circle is no longer useful in our current era that it does not “live up to contemporary scrutiny” (Calleja, 2012, p. 89).

More recently, the concept of the magic circle in game studies has been modified to address porosity between the gaming environments and the wider world. For instance, Pearce (2009) argues that: “the magic circle may be more porous than previously believed” (p. 177). She suggests that gaming environments “must be looked at [...] within the larger context of the real world” (Pearce, 2009, p. 177). In this sense, gaming environments are more like “membranes, all encircled by the real world” (Pearce, 2009, p. 177). This idea is similar to what Castronova (2005, p. 147) has pointed out: that the gaming environment should be understood as a membrane – “the almost-magic circle”. In this context, a gaming environment “cannot be sealed completely; people are crossing it all the time in both directions [for example, from games to the physical world, and vice versa], carrying their behavioral assumptions and attitudes with them” (Castronova, 2005, p. 147).

Whether we are using the original concept coined by Huizinga (1955), the one further developed by Salen and Zimmerman (2004) or the later modified versions by Castronova (2005) and Pearce (2009), these perspectives are still based on the fundamental concept of the magic circle – drawing a boundary between gaming environments and the wider world, whether it can be crossed or not. In this framing, gameplay seems to create a new place, a new reality, or even a new world distinguished from the physical world, with its own specific rules. Players of games, therefore, are seemingly teleporting themselves into a temporary virtual world separated from the wider world when they are playing.

Additionally, this questionable dichotomy between virtual and real world can be traced back to “the cyberspace separatism of early Internet thought” (Lehdonvirta, 2010). The term ‘cyberspace’ is one of the most significant concepts in the tradition

of internet discourses, and was introduced by William Gibson in his novel *Neuromancer* (Gibson, 1984). In the idea of cyberspace, a digital space maintained by computers is painted as a new world or a new universe. As Benedikt (2000, p. 29) describes it, cyberspace is:

A new universe, a parallel universe created and sustained by the world's computers and communication lines [...] Accessed through any computer linked into the system; a place, one place, limitless [...] The tablet become a page become a screen become a world, a virtual world. (Benedikt, 2000, p. 29)

The key features of cyberspace – being a new, parallel, and alternative world – can be observed in later discourses about the Internet. For instance, in Barlow's (1996) work, he argues that:

Ours [cyberspace] is a *world* [my emphasis] that is both everywhere and nowhere, but it is not where bodies live. We are creating a *world* [my emphasis] that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a *world* [my emphasis] where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. (Barlow, 1996)

The argument made by Barlow (1996) not only suggests cyberspace is a new world created by technologies, but also emphasises its independence from the constraints of the physical world. In this framing, cyberspace is a parallel world that exists independently outside the physical world.

The idea derived from Gibson's cyberspace has a further influence on later technological developments such as virtual reality (VR). As Chesher (1993, p. 6) notices, the concept of Gibson's cyberspace has become an inspiration for proponents of virtual reality technologies. As a result, it is not a surprise that from the perspectives of virtual reality proponents, the simulated environment created by VR technology can be understood as a *virtual world* distinct from the physical one. For instance, Jaron Lanier, who coined the term virtual reality, argues that "virtual reality combines the idea of virtual worlds with networking, placing multiple participants in a virtual space using head-mounted displays" (Lanier, 2001, p. 69). As Satava (1993) also describes: "virtual reality is a fully three-dimensional computer-generated 'world' in which a person can move about and interact as if he actually were in this imaginary place" (p. 203).

Although virtual reality has become old-fashioned, and has "lost much of its status as an exciting technology over the past decade [...] it is now re-emerging with considerable force" (Castronova, 2005, pp. 5-6). This new version of virtual reality is called "the game version of VR" in Castronova's (2005, p. 285) study. According to Castronova (2005, p. 285), the game version of VR has many differences from the earlier one; for instance, the game version of VR focuses more on communities and softwares. This game version of VR, however, still inherits the tradition of cyberspace separatism (and the tradition of gaming culture) that sees digitised environments as worlds. Therefore, in Castronova's (2005, p. 4) study, it is not surprising that he refers to the virtual places created by the game version of VR as "synthetic worlds" (Castronova, 2005, p. 4).

Consequently, at this point in time, all the influential concepts discussed above –

such as magic circle, cyberspace, and virtual reality – have formed a circular loop; and all strengthen and contribute to the current mainstream idea that digital environments are *virtual worlds*. Although virtual worlds do not physically exist like the physical world, somehow they exist as worlds parallel to the physical one. No matter how heavily these virtual worlds depend on equipment or technologies in the physical world, they somehow manage to function separately and independently from the physical world.

In fact, the term ‘virtual worlds’ could be quite useful in some cases. This term does provide an easy and primary understanding for people to understand such environments (for instance, it is virtual, so it is digitally simulated and cannot be physically touched; it is a world, so it is a place full of simulated objects and real human beings in the form of avatars). However, as discussed so far, this term can also be problematic in that it can mislead our understanding about the essence of digitally simulated environments. This misleading understanding can lead to questionable assumptions when conducting a research project about the issues around digital environments.

Taylor (2006) has pointed out that the separation between virtual worlds and the physical world “not only misunderstands our relationship with technology, but our relationship with culture” (p. 153). This misunderstanding, or the “virtual world–real world dichotomy” (Lehdonvirta, 2010), can further lead to a situation in which, as Lehdonvirta (2010) argues: “social scientists, legal scholars and information systems researchers now taking interest in the area adopt an evocative but inaccurate conceptualisation of MMOs [as one type of digital environments] that leads them to build their research on false assumptions” (Lehdonvirta, 2010).

In terms of a study of game items, one serious consequence of this misleading dichotomy between virtual worlds and the physical world is that, as we have seen, it encourages people to think of game items, as part of virtual worlds, also as something “illusory, imaginary, unreal or even nonexistent” (Lehdonvirta, 2009a, p. 12). This false assumption can further lead to another fallacy that something imaginary, unreal, and nonexistent cannot and should not, in any ways, have commercial or monetary value at all. As a result, instead of focusing on how game items are created and used in certain contexts in generating their value, people are misled into focusing on how the value of game items could possibly be generated in an imaginary and unreal world that physically does not exist.

Due to the reasons outlined above, I have chosen to abandon the term ‘virtual worlds’ in this research. This decision to abandon the controversial term also results in abandoning a series of terms built on similar logic and assumption, such as ‘virtual items’, ‘virtual assets’, ‘virtual goods’ and ‘virtual property’. Instead, I use another more straightforward term, ‘game items’, throughout this thesis. Additionally, I use ‘digital environments’ to refer to the environments that game items inhabit.

In the following section, I will therefore define and explain what exactly the term ‘game items’ means in this thesis, and examine both the advantages and shortcomings of using such a term. Moreover, I will make efforts to examine and identify the important features of game items that have a significant influence on how they become valuable to players in digital environments.

1.2 What game items are

The resources [game items] vary widely – they may be high-powered weapons, invincible armor, choice real estate, rare collectibles, or basic commodities like lumber, leather, metal ore, and, of course, money. Nor is it entirely clear what makes these things as desirable as they are, since the games [MMOs] themselves never really come to an end, never produce an ultimate winner or loser, never, indeed, quite define what the point of playing is.

(Dibbell, 2006, p. 11)

Broadly speaking, game items can be any objects that help players progress or engage in activities in digital gaming environments. They are digitised items created through codes and programs by programmers and designers. They are presented in graphics or other forms (such as animations) and are used by players for varying purposes within such environments. Compared to ‘virtual items’, ‘game items’ is a more specific term, and can also avoid some controversies and misunderstandings derived from the concept of ‘virtual worlds’.

There are, however, still some shortcomings in the term ‘game items’. First, the term ‘game’ has multiple meanings and encompasses sports games, board games, or even gambling games. In these types of games, the term ‘game items’ might be associated with things like basketballs, chess pieces, or chips in a casino. However, such confusion can largely be avoided here, since the game items discussed in this thesis are mainly those that inhabit digital environments.

Nonetheless, the fact that even physical games (sports, board, and gambling games) also have digital versions in gaming environments might complicate this term.

However, as I will argue later on, the game items mainly discussed in this thesis are those that players' avatars are able to directly use, dress or equip themselves with, such as weapons or clothes. Therefore, the game items in digitised sports or gambling games – such as digital basketballs, chess pieces, or gambling chips – will not be the main focus of this thesis.

Second, one might argue that it could be problematic to refer to items in environments that are not strictly 'games' (such as *Second Life* or *Habbo*) also as 'game' items. However, even such non-gaming environments typically also incorporate gameplay elements. For example, in a non-gaming open-ended environment such as *Second Life* or *Habbo*, players are still allowed to create their own games or playful activities within them (Lehdonvirta, 2009a, p. 120; Martin, 2008, pp. 16-17). Additionally, compared to other types of gaming environments, *Second Life* and *Habbo* focus more on the social interactions between players (Boellstorff, 2008; Lehdonvirta, Wilska, & Johnson, 2009). Therefore, such environments actually encourage social game-playing, including activities such as: "meeting and getting to know other gamers [...] to chit-chat and gossip with other players [...] to form sustained, meaningful relationships with others [...] working and collaborating with others" (Yee, 2005a) within a certain group of players called "socializers" (Bartle, 2004a, p. 130). Furthermore, both *Second Life* and *Habbo* have their own economic systems that encourage player-to-player transactions (Lehdonvirta, 2009a; Martin, 2008). These environments therefore create "a different 'game'" (Bartle, 2004b, p. 15) for those players who enjoy "buying and selling stuff" (Bartle, 2004b, p. 15) as "part of playing" (Bartle, 2004b, p. 15). Consequently, since

in these environments players can still play different types of games, it should be reasonable to also call the items within them 'game items'.¹⁶

In a digital environment, game items might include many different types of objects such as swords, potions, pets, coins, properties, furniture and so on.¹⁷ In many cases, players can trade these items. According to Bartle (2004b), there are six types of game items that are traded in the markets of virtual economies: "objects (weapons, armour, jewellery,...), characters, currency (gold pieces, platinum pieces, pyreals,...), real estate (houses, shops, building plots,...), accounts, and other (permissions, memberships, maps,...)" (p. 2).

The main focus in this study will be on 'objects' according to Bartle's (2004b) definition. More specifically, the game items mainly discussed in this thesis are objects with which players can directly be equipped, use, or decorate through avatars in a digital gaming environment, such as weapons, armour, clothes and accessories.

There are two main reasons for choosing objects as the main game items discussed in this thesis. Firstly, each of the game items shown above (for example, objects, characters, currency, and so on) in Bartle's (2004b) study has very distinctive features that could lead to very different research directions for discussions and analyses.

Hence, in order to make the discussions, arguments and analyses more focused and

¹⁶ The further explanation I provide here is not driven by schemes and classifications. Instead, this is an attempt to broaden our understanding about gaming and therefore acknowledges that there are many forms of gameplay to players in different contexts in digital environments, which could be quite different from our traditional idea of gameplay. This therefore is also helpful to the understanding of game items.

¹⁷ Typically, the term 'game items' or 'virtual items' does not include immovable large objects in gaming environments as background, such as trees or mountains.

specific in this thesis, it is therefore necessary to narrow down the scale and scope of this research to one type of game items – objects.

Second, in a virtual economy, trading in game objects seems to be a common and popular activity. This can be observed in Lehdonvirta's (2009a) research, in which he suggests that of trading game objects, characters and currency, trading game objects is usually "the ultimate object of [virtual] consumption" (p. 4). Therefore, the economic importance of 'objects' also makes it the main focus in this thesis.

In terms of the environments that game items inhabit, this thesis will mainly focus discussions and analyses on game items in multi-player digital environments.¹⁸ This is because in the discourses regarding virtual economies, game items with significant commercial value typically refer to those objects that exist and inhabit a virtual world (Bartle, 2004b; Castronova, 2005; Guo & Barnes, 2007). A virtual world – or a multiplayer digital environment – is essentially seen as a "shared or multi-user" (Bartle, 2004a, p. 1) environment "through and with which multiple individuals may interact simultaneously" (Bartle, 2004b, p. 1).

In terms of the essence of game items, we have already seen that game items are produced through both hardware (computers) and software (computer programs) as a result of the efforts of programmers, game designers, graphic artists and others. Through the collaborations in a game design team, game items that are fundamentally codes of numeric values 0 and 1 can be represented as 3D graphics, animations, or other forms on a digital screen (or other forms of displays) for players

¹⁸ However, game items in other types of environment (such as single player games) will also be occasionally touched upon.

to perceive and access through their game controllers and in-game avatars. Therefore, although “the physical manifestation” (Lehdonvirta, 2009b, p. 100) of a game item is “typically a row in a database” (Lehdonvirta, 2009b, p. 100), players also typically perceive a game item as an object “of a ‘thing-like’ nature” (Lehdonvirta, 2009b, p. 100).

This process of converting codes and bits into visually perceivable thing-like objects on a screen provides a way for us to understand the essence of game items. The way game items are transformed by programming and technological equipment into digital objects is typically identified as a process of ‘reproductions’ or ‘simulations’. These two seemingly similar terms, however, could have very different implications in terms of game items.

According to Brey (2003, p. 277), there are two different “virtual entities” (such as game items) in digital environments: “ontological reproductions of real-world entities” (Brey, 2003, p. 277) and “simulations of real-world entities” (Brey, 2003, p. 282).

Ontological reproductions of real-world entities are digital objects, such as electronic money and documents, that “can serve most of the same functions [as the ones in the physical world can]” (Brey, 2003, p. 277). That is, such entities have “a real-world significance” (Brey, 2003, p. 277). For example, the money a person deposits in a bank, displayed on the bank’s website in the form of figures, can serve almost the same functions as the physical cash can (for example, buying things or making investments).

If we understand game items according to a broader definition (which might include game currency), then in some cases, game items could be ontological reproductions

of real-world entities. The case of *Entropia Universe* provides a good example. As I will describe later on in more detail, *Entropia Universe* players are allowed to use ATMs in the physical world to withdraw money (converted from game currency into real-world currency: ten *Entropia Universe* dollars to one US dollar) from their *Entropia Universe* game accounts (Bray & Konsynski, 2007, p. 19). In this sense, the game money in *Entropia Universe* functions in a way similar to the digital numbers displayed in a person's online bank account – both of them can be converted into physical cash to purchase things.

On the other hand, the “simulations of real-world entities” (Brey, 2003, p. 282) refers to the digital objects such as simulated rocks and trees that are “mere simulations or representations of real-world entities” (Brey, 2003, p. 277). According to Brey (2003, p. 277), these objects “only have resemblance to real-world entities by their perceptual and interactive features”. For example, driving a sports car in games could be similar to driving a car in the physical world since it is a simulation. However, just because it is a simulation, hitting or killing someone while driving a sports car in a game will not lead to real-world consequences.

In digital environments, many game items can be considered simulations of real-world entities. For example, the beds in *The Sims FreePlay* are used by avatars to recover energies, simulating the function of beds in the physical world; the stylish clothes that can dress up avatars in *Second Life* simulate the ways that clothes in the physical world can be used to decorate our physical bodies. However, neither the beds in *The Sims FreePlay* nor the stylish clothes in *Second Life* can have actual influences on players in the physical world (recovering players' energies or making players attractive).

If game items are either “ontological reproductions of real-world entities” (Brey, 2003, p. 277) or “simulations of real-world entities” (Brey, 2003, p. 282), every game item should always have a corresponding counterpart that functions the same or similarly in the physical world. This argument, however, is not entirely true. First, a game item could function quite differently from its counterpart in the physical world (Lehdonvirta, 2009b, p. 99). One example is the camping or lucky chairs in *Second Life*. Instead of functioning as objects for players to sit and take a rest, camping or lucky chairs are used by players to work and earn Linden Dollars in *Second Life* (Casino, 2007).

Additionally, the corresponding counterparts for some game items can hardly be found in the physical world. As Strikwerda (2012) describes: “one might also encounter virtual entities that do not have a real, non-virtual counterpart, such as a virtual dragon or a virtual gnome” (p. 90). This is true especially in those digital environments with fictional or Tolkienesque background settings. In current popular games, there are many game items in this category with no corresponding physical counterparts, including the laser guns in *Entropia Universe*, magic swords in *World of Warcraft*, or the invisibility cloak in *Everquest II*. These types of game items therefore will be identified as ‘fictitious entities’, since they are “inspired” (Lehdonvirta, 2009b, p. 99) by the objects in fictitious stories such as JRR Tolkien’s *The Lord of the Rings*.

Most game items discussed in this thesis are ‘simulations of real-world entities’ and ‘fictitious entities’. These two types of game items share some common features. These not only provide a common ground for game items in different types of digital environments (such as clothes in *Second Life* and swords in *World of Warcraft*), but

also have a profound influence on their valuable status, as we will see in the following chapters. These features, in fact, are quite similar to the features of information goods.

The first feature of game items is that like other information goods: they are “costly to produce but cheap to reproduce” (Shapiro & Varian, 1999, p. 21). In order to produce game items, game companies have to produce a digital gaming environment first. Such an environment “will probably cost you a minimum of \$5 million to develop, \$5 million to launch, and \$5 million for marketing, for a total of \$15 million” (Mulligan & Patrovsky, 2003, p. 31).¹⁹ However, once the environment is created, the cost for reproducing additional millions of game items will be nearly nothing (Castronova, 2005, p. 12; Ho, 2007, p. 10). As Castronova (2002) argues: “since the goods [game items] are digital, they can be costlessly created [...]” (pp. 37-38).

This feature is important in terms of the production of game items and their value. Although game items are codes in a programming process that could technically be reproduced unlimited times, it does not mean that game companies can simply earn unlimited money by creating billions of copies and then selling them. The value of game items could be dramatically decreased by unlimitedly reproducing them, as when “supply slopes up, demand slopes down” (Castronova, 2006a, p. 3). In addition, such value could be increased and retained if there are only limited copies. For example, in a digital environment such as *Second Life*, game item developers (that is, individual developers) would only release “single units or limited edition runs of a

¹⁹ To produce a gaming environment not only needs money, but also a large amount of time. According to Mulligan and Patrovsky (2003), a gaming environment “really will take at least 2-3 years to complete” (p. 48). In a way, the value of game items within a gaming environment can be seen as a result of the time and effort game designers put into producing a game in terms of the “labour theory of value” (Marx, 2007 [1867]; Smith, 2007 [1776]) that I will discuss later on.

particular Item [...] to ensure that their goods retain their status and value” (Martin, 2008, p. 9). That is, the value of a game item can be “attributed to its scarcity” (Hamari & Lehdonvirta, 2010, p. 24).

The second feature of game items is that like other information goods, they are *experience goods* – “consumers must experience it to value it” (Shapiro & Varian, 1999, p. 5). In this context, players will not be able to see and understand how valuable a game item is until they have used it in a digital environment.

The perspective of seeing game items as experience goods is important throughout the discussions in this thesis. As I have suggested, in order to understand why game items have become valuable to players, we have to look into the roles of game items in different contexts in digital environments. Since game items are experience goods, the roles of game items in different contexts should be examined by looking at how they are experienced by players. Players’ experiences of game items, as will be discussed more in Chapter 3 and 4, not only justify and validate the value of game items, but can also directly influence value, including denying it, reinterpreting it, or recreating it.

The third feature of game items is that like other information goods, they have network externalities or network effects – “the value of a product to one user depends on how many other users there are” (Shapiro & Varian, 1999, p. 13). This feature is especially evident in a multiplayer digital environment. This is because multiplayer digital environments with thousands of game players “are purposefully designed to encourage interactions among players” (Ducheneaut & Moore, 2004, p. 360). In such environments, the more player participations and interactions there are,

the more meaningful and valuable game items within them will become (Ho, 2007, pp. 12-13).

In such contexts, the game items are also “interconnected” (Fairfield, 2005, p. 1053), because they can be experienced and interacted by others within the same network (Fairfield, 2005). According to Fairfield (2005), “interconnectivity increases the value of the [virtual] property [such as game items] due to network effects [...] the fact that other people’s experience of my resource may be such that it becomes desirable, and hence marketable, to them” (p. 1055).

This point of view of seeing game items as interconnected objects with network effects is also crucial in this study. As we have seen, game items are not just experience goods for players *themselves* to experience; perhaps more importantly, they are also goods that *others* can experience by looking at the player who owns them (for example, players may look with envy at a knight avatar with swords and shining armour). In such conditions, game items could be more meaningful and valuable to both the owner and other players.

There are, however, two more features of game items – “rivalrousness” (Fairfield, 2005, p. 1053) and “persistence” (Fairfield, 2005, p. 1053) – that may not quite fit in the features of traditional information goods. These two features therefore play an important role in distinguishing game items from other information goods.

Unlike non-rivalrous information goods, such as MP3 files, which can be accessed by more than one person at the same time (Lehdonvirta, 2009b, pp. 99-100), valuable

game items are typically rivalrous.²⁰ According to Fairfield (2005), rivalrousness means that: “if one person owns and controls them [game items], others do not. [...] One person’s use excludes another’s” (Fairfield, 2005, pp. 1149-1168).

This perspective that game items are rivalrous objects is important for our understanding of them. The rivalrousness of valuable game items can be seen in many digital environments such as *Entropia Universe*, *World of Warcraft* and *Diablo 3*, where when a player owns and controls a game item, other players do not have access to it (except through trading or exchange). This rivalrousness profoundly influences the valuable status of game items, due to the fact that rivalrousness creates a sense of ownership for players, and therefore makes game items the players’ valuable personal assets.

The last key feature of game items is persistence. Game items are persistent because “unlike the software on your computer, they do not go away when you turn your computer off” (Fairfield, 2005, p. 1049). This is due to the fact that most game items (as codes and data) are stored on the servers of game companies in the cloud, instead of players’ personal computers. Such cloud storage of game items makes sure that they are as safe and secure as possible. Therefore, as Fairfield (2005) points out, “unless the owner of the account [such as the player of a game account] deletes the information [such as a game item], it will continue to be stored on the service provider’s server” (p. 1055). This kind of safety is important for game items to become valuable personal possessions because players get a sense of security.

²⁰ In *Second Life*, the rivalrousness of player-created game items is optional to players. A player can choose to share an object with others. A player can also allow others to modify or copy the original creation. In this sense, players in *Second Life* seem to have more control over the ownership of their valuable game items.

Although I have so far demonstrated that different types of game items have something in common, these common features do not appear out of nowhere. The features of game items are embedded within the development of technologies and historical trajectory of gaming cultures. In the next section, efforts will be made to examine the 'platforms' where valuable game items are able to exist and be accessed. Furthermore, we will review how the roles of game items and their valuable status have changed in various environments during different periods of time.

1.3 Game items in different types of platforms and environments

In this section, I focus on the role of game platforms and on the historical trajectory of game items. By examining the changing roles of game items and their valuable status in different environments and in different time periods, I once again address the essential quality of game items: they are highly dependent on physical materials such as hardware platforms. Additionally, I demonstrate how game items have developed from mere tools in play to valuable goods, assets, or products with commercial and monetary value that can be traded by players and game companies.

Before we formally begin the discussions in this section, it is important to have two things in mind. First, it is worth noticing that game items can take very different forms in various types of platforms and environments. Game items might exist in game consoles (for instance, Xbox consoles) or personal computers (PCs) for players to manipulate through game controllers, mice, or keyboards; they might also exist in

a smartphone for players to operate with their fingertips. Game items might exist as functional tools in hardcore gaming environments, or as mere decorations in open-ended social gaming environments. Game items might be presented in text in a multi-user dungeon, in basic 2D graphics in *Habitat*, or 3D animations in *World of Warcraft*, and so on.

Second, it is also important to note that while game items have only obtained commercial or monetary value as goods or products since the 1990s, they actually have existed in gaming cultures for quite a long time. Even in the pre-computer era, the ancestors of game items can be observed in different types of play. Although game items were valuable even in the early development of gaming, their value has received serious attention when players started to trade them with real money.

1.3.1 Game items in platforms

In this section, I briefly examine the production aspect of game items regarding their platforms. This not only helps us to get a better idea of the fundamentals of valuable game items, but also clarifies the current ontological misunderstandings around them, which was discussed earlier (that is, that game items are something virtual or unreal). This can be done by drawing on some attentions from the angle of “platform studies” (Bogost & Montfort, 2009; Bogost & Montfort, 2007; Montfort & Bogost, 2009).

Although this thesis does not use platform studies as its main research approach, and does not focus on a particular platform, the perspective of platform studies does

help remind us to pay attention to how valuable game items are produced. This includes how game items are developed by technological equipment (hardware and software) and influenced by other cultural elements, and therefore can or cannot function in certain ways on a specific platform. In a way, the perspective of platform studies here reinforces the interdisciplinary game study of this thesis, which addresses both production and consumption aspects of game items. Platform studies therefore strengthens this thesis instead of taking it over. As Bogost and Montfort (2009) suggest: “platform studies is not an attempt to take over [...] game studies [...] with which it is highly compatible and consistent” (p. 5).

Platform studies is a new approach mainly developed by Ian Bogost and Nick Montfort (Bogost & Montfort, 2009; Montfort & Bogost, 2009). It is inspired by McLuhan’s (1994 [1964], p. 7) best-known aphorism: “the medium is the message”, addressing the idea that the form of media is more important than media content in affecting people’s experience (Bogost & Montfort, 2009, p. 2; M. McLuhan & E. McLuhan, 1988; McLuhan, 1994 [1964]). According to Montfort and Bogost (2009), the approach of platform studies is to: “investigate the relationships between platforms – the hardware and software design of standardized computing systems – and influential creative works that have been produced on those platforms” (p. 2).

However, it is important to note that platform studies should not be defined as a form of technological determinism that advocates how technological developments will tremendously affect human society. According to Bogost and Montfort (2009, pp. 1-2), platform studies is actually “opposed to ‘hard’ [technological] determinism” (Bogost & Montfort, 2009, p. 1). This is because platform studies looks at how “people make negotiations with technologies as they develop cultural ideas and

artifacts, and people themselves create technologies in response to myriad social, cultural, material, and historical issues” (Bogost & Montfort, 2009, p. 2). In this sense, platform studies not only looks at the influences of platforms, but also how those influences are formed by the subtle interplay between technologies, designers, and other relevant cultural factors. Therefore, as Bogost and Montfort (2009) argue: “platform studies in [*sic*] an opportunity to connect computation (at a fundamental level) with culture and creativity” (p. 4).

Adopting this perspective in terms of game items, we should first look into the platforms where they exist. These include hardware platforms such as arcade machines, game consoles, personal computers (PCs) or mobile devices; or software platforms such as Facebook, Flash or Java. Not only should we examine the performance and limitation of these platforms, but also how they are affected by other elements, that is, “how social, economic, cultural, and other factors led platform designers to put together systems in particular ways” (Bogost & Montfort, 2009, p. 5).

Most game items discussed throughout this thesis are situated in hardware devices such as PCs and mobile devices (such as iPad and iPhone). In terms of software platforms, most of the game items in this thesis can be found in Microsoft Windows, Apple’s iOS, and Facebook. Additionally, we will see some game items that are situated in early hardware or software platforms such as Commodore 64 (*Habitat*) or Multi-User Dungeons (MUDs) in the following sections that describe the historical trajectory of game items.

From the point of view of platform studies, how these above platforms can or cannot

function will inevitably affect the ways players perceive and manipulate game items within them, whether directly or indirectly. These ways might include the appearances of game items presented in graphics on a screen, or the way players use game items in their gaming experiences. Since in the next sections we will see how the appearances of game items are presented and restricted by early technologies at certain periods of time, the focus here will be more on how game items are manipulated by players in different platforms.

As mentioned above, PCs and mobile devices are two major hardware gaming platforms where game items in this thesis are situated. Even if game items exist in both these platforms, their design and use could be quite different, according to the differences between two platforms. On the one hand, a PC, whether a portable laptop or a desktop computer, typically functions through input hardware devices such as keyboards or mice. These devices not only provide the main way for users to input commands into a computer, but also are designed as the main way for players to play PC games. For example, according to Piekarski and Thomas (2002, p. 36), in the desktop-based first-person shooter game *Quake* (released by id Software in 1996), players use keyboards or mice to interact with the game in ways such as running in the gaming environment, “shooting at monsters, collecting objects, and completing objectives” (Piekarski & Thomas, 2002, p. 36). In this game, “by pressing an arrow key or the mouse, the user moves in the specified direction” (Piekarski & Thomas, 2002, pp. 37-38).

The way players use keyboards or mice to control avatars in games, inevitably also affects how players use and manipulate game items. One example is the method of attacking enemies with game items such as swords, staffs, or guns in different types

of games that run on PCs. For example, in a MMORPG such as *World of Warcraft*, a player can attack an enemy by positioning the mouse to point to the enemy presented on the monitor and then pressing a button on the mouse (for instance, the left button as targeting while the right button enables auto-attack). Additionally, players can assign magic spells to specific keys on the keyboard. When in combat, players can simply press the key in order to cast a certain spell with game items to attack their enemies (Daxxarri, 2013). As a result, the use of game items by players in PC games depends largely on the mouse-and-keyboard interface of the PC platform itself.

On the other hand, mobile devices such as Apple's iPhones or iPad series are typically controlled by users' inputs on the touchscreens. The touchscreens allow users to directly input commands with different types of gestures or fingertip actions on the screen such as flicking, dragging, tapping and pinching (Monsen, n.d.). Unsurprisingly, game designers have also adopted these fingertip gestures as the main way for players to play games run on touchscreen mobile devices. One example is the mobile game *Fruit Ninja* (by Half Brick Studios). In *Fruit Ninja*, according to Thompson, Nordin, and Cairns (2012), "fruit flies across the screen and the player has to swipe their finger over it to cut it in half, as if with a sword" (p. 282).

Allowing players to play touchscreen mobile games using finger gestures also affects the ways players use and manipulate game items in them. An example is the game *Blood & Glory 2: Legend*. In this game, players are able to upgrade their characters by buying different types of game items such as swords, axes, hammers and shields. In combat in this game, players have to swipe their fingers on the enemies on the screen in order to use weapons to attack them, while tapping on the shield icon on

the screen with another fingertip to defend against enemies' attacks with their shield. In some cases, players can further activate a 'super combo attack' with certain combinations of finger gestures (for example, to swipe fingers from left to right, then from right to left, and then from left to right again). In this context, the way game items such as a weapon or a shield are used and manipulated by players in a game like *Blood & Glory 2: Legend* is largely determined and restricted by the main feature of touchscreen mobile devices – using finger gestures or fingertip actions to input commands.

As discussed so far, we can see how the technical differences between platforms (such as PC keyboards and mice and mobile devices' touchscreens) not only affect the ways players play games, but more importantly, also affect how game items are used, manipulated, or even experienced by players in their gameplay. As mentioned earlier, game items are experience goods; the value of such goods depends on the quality of consumers' experiences. Since the ways players experience game items depend on the features of platforms, the features of platforms can also affect the value of game items.²¹ Therefore, game items along with their value can be materially affected by technologies.

Furthermore, as mentioned above, the platforms themselves should not be the only focus of platform studies (Bogost & Montfort, 2009; Montfort & Bogost, 2009). That is, both the evolution of the platforms themselves and how game designers use them to create games do not occur in a cultural vacuum. Therefore, aside from the

²¹ Undoubtedly, different devices (such as iPad 3 and iPad 1) with different performance will also affect how game items are experienced and therefore valued. Additionally, in online games, the speed of the internet will also affect how game items are experienced (for example, a lag or delay). The value of game items between different platforms therefore could be different. However, to discuss this in detail will require more empirical evidence and will be beyond the scope of this thesis.

differences between platforms that affect how game items are experienced, we should also look at the cultural elements that can fundamentally affect how game items are created in a certain ways in platforms.

As discussed previously, although “the physical manifestation” (Lehdonvirta, 2009b, p. 100) of a game item is “typically a row in a database” (Lehdonvirta, 2009b, p. 100), players often perceive a game item as an object “of a ‘thing-like’ nature” (Lehdonvirta, 2009b, p. 100). Digital data is turned into a thing-like object through the processes of reproduction or simulation. These processes, from the perspective of platform studies, are not only restricted by the capacity of a certain platform, but also affected by cultural factors.

From the perspective of game design, there are mainly two types of games: realistic and abstract games (Rollings & Adams, 2003, p. 39). In a realistic game such as *Microsoft Flight Simulator*, according to Rollings and Adams (2003): “the principles of real-world logic and common sense apply” (p. 39). In an abstract game such as *Pac-Man*: “you cannot count on real-world common sense” (Rollings & Adams, 2003, p. 39).

However, in reality, this dichotomy of realistic and abstract games could be problematic, since no game is ever entirely realistic or abstract. In *Second Life*, an avatar may look like a human being but can fly, while in *World of Warcraft*, an undead avatar who is riding a skeletal horse is still affected by the in-game gravity. Therefore, as Rollings and Adams (2003) argue: “realism is not a dichotomy, but a continuum. All games, no matter how realistic, represent an abstraction and simplification of the real world” (p. 81). Conversely, no matter how abstract a game is,

it still reflects specific real-world culture, such as novels or fantasy literature.

Therefore, whether a game is realistic or abstract, it still reflects and is inspired by cultural elements outside the game.

Almost any cultural material can be a source for game design. According to Rollings and Adams (2003), this material includes “common settings found in the movies and television [...] art and architecture, history and anthropology, literature and religion, clothing fashions, and product design [...]” (pp. 72-74). This cultural material could involve specific subcultures, social traditions, people’s common sense about the physical world, real-world logic, and so on.

Since games reflect or are inspired by cultural material in the physical world, game content created by designers should not unreasonably conflict with cultural material such as people’s common sense or real-world basic logic. In-game icons are a good example, according to Rollings and Adams (2003, pp. 182-183):

There are some pan-cultural images that have been developed over a period of time that are now considered de facto standards [...] All these symbols should be instantly recognizable to you. Even if they're not, you could easily make a guess at their probable meaning [...] For example, if the hammer and wrench icon was displayed on the opening menu of a game, you could assume that it allowed you to access the game configuration screen. On the other hand, if it was displayed on the control panel of an in-game vehicle in a racing game, you could assume that it served as a pit-stop button or some other mechanical function. (Rollings & Adams, 2003, pp. 182-183)

Such game conventions work not only because game designers use existing cultural material as inspiration to create game contexts, but also because players are already familiar with such cultural material. The process of game design, therefore, should avoid potential confusion and respond to players' expectations in terms of cultural elements such as common sense or real-world basic logic. This design process of considering players' expectations can also be observed in Taylor's (2003) study, in which a game designer (an art director) explains: "in some sense I have a great deal of influence [on game design] [...] [an influence can be] my concept of what the user wants to do, my interpretations of what I'm told the user wants [...]" (p. 28).²²

Seeing game production as a form of cultural reflection inevitably affects how game items are designed and how they function in games. For example, in a game such as *World of Warcraft*, when a player has a sword in hand, without having too many instructions he or she should be aware of that *this sword is a weapon*. This sword is supposed to be used to cut, kill, or attack something in the game, just as a sword functions in other cultural contexts such as the movie trilogy *The Lord of the Rings*. Moreover, when two players exchange a sword in the game, once the original owner gives the sword to another player, the sword should disappear in the seller's inventory and appear in the buyer's (instead of appearing as two swords in both players' inventories).²³ In other words, the in-game trading process of game items should be similar to a trading process in the physical world.

²² This therefore involves another important issue about how game designers' subjective values affect their process of creating a gaming environment. As Taylor (2003, p. 28) points out, "users [players] find themselves engaging with a world that has been created with *a particular vision* [my emphasis] of community, identity, and social life." However, the discussions in detail will be beyond the scope of this thesis.

²³ This situation is technically possible in terms of game design and programming. In fact, similar situations have happened from time to time as a result of a bug or so-called 'dupe' (abbreviation for duplicate). Dupes are seen as a way of cheating and can be seen in some early games such as *Diablo I & II* (Diablowiki, 2011).

Consequently, players are able to apply the conceptual models derived from other conventions such as social and cultural traditions, common sense about the physical world, and real-world logic to perceive, use, and manipulate valuable game items as “objects of a ‘thing-like’ nature” (Lehdonvirta, 2009b, p. 100).

It is, however, important to note that even if game designers want to faithfully create cultural reflections in games in response to players’ conceptual models, it can be a real challenge to do so sometimes. This is mainly due to the technological restrictions and limitations derived from the capacity of a certain platform. Therefore, for a game designer, as Rollings and Adams (2003, p.21) suggest:

You must also have a basic knowledge of the technical capabilities of your target platform [...] Every [in-game] feature that you specify must be possible on the machine that you're designing for [...] Knowing the limitations imposed by the selected platform will result in an achievable design’ (Rollings & Adams, 2003, p.21).

A practical example can be seen in Morningstar and Farmer’s (2008) study, in which they describe the challenges they faced when designing and maintaining the early multiplayer digital environment *Habitat* run on Commodore 64 in the 1980s. In *Habitat*, game designers had to deal with the technical limitations of the platform, including the scarcity of bandwidth, the interaction between objects supported by the system and computations, the representations of objects in the game, and so on (Morningstar & Farmer, 2008). Morningstar and Farmer particularly use the example of ‘trees’ to illustrate the technical challenge in *Habitat*:

At the high end, you might have a powerful processor that generates the image of the tree by growing a fractal model and rendering it three dimensions at high resolution, the finest details ray-traced in real time, complete with branches waving in the breeze and the sound of wind in the leaves coming through your headphones in high-fidelity digital stereo. And these two users [players] might be looking at the same tree in same the place in the same world and talking to each other as they do so [...] these scenarios are implausible at the moment [...] because the computational hardware does not yet exist (Morningstar & Farmer, 2008, p. 7).

To summarise, so far I have discussed and demonstrated that the ways that a game can or cannot be performed are a result of an interplay between game designers, cultural influences, and the platform's technological capacity. Every element plays an important role in this interplay: hardware and software equipment; designers' cultural sources of inspiration; players' conceptual models, and so on. This interplay therefore also has a significant influence on how valuable game items within a game can or cannot be experienced or manipulated by players in a certain way.

In the following section, I will turn to look at the historical trajectory of game items and examine specifically how game items are presented and what roles they play in different digital environments in certain spaces and periods of time.

1.3.2 Game items in non-digital environments

The term 'game items' – or other synonymous terms – typically refers to the objects associated with digital gaming environments driven by computer sciences and technologies. These objects are codes created by computer programs and presented in different forms on a screen. These objects seem to be closely related to modern digital technologies. However, the emergence of early forms of game items was not related to anything digital.

When we trace the gaming history back to the 1970s, we can see the early forms of game items that appeared in tabletop role-playing games (TRPGs). The development of tabletop role-playing games was influenced by miniature war-games during the early nineteenth century (Fine, 1983, pp. 8-11; Williams, Hendricks, & Winkler, 2006, p. 3). However, compared to traditional war-games that manipulate entire armies, tabletop role-playing games allow players to play the role of individual characters (Mackay, 2001, p. 14). In a tabletop role-playing game, two or more players create fictional characters and engage in storytelling in a simulated world by following rulebooks (Chung, 2013, p. 56; Fine, 1983, p. 10; Williams et al., 2006, p. 3).

One of the most famous tabletop role-playing games is *Dungeons & Dragons (D&D)*, released in 1974 by Tactical Studies Rules, which is commonly considered to be the first contemporary fantasy RPG (Williams et al., 2006, p. 3). In *Dungeons & Dragons*, players play the game by following three rulebooks: the player's handbook, the dungeon master's guide, and the monsters manual. The player's handbook lists different types of game items such as weapons, armour, and equipment. When a player obtains certain game items during a game, these items will be written on the player's character sheet to demonstrate that the player is "equipped" (Ho, 2007, pp. 19-21).

Therefore, in an early tabletop game such as *D&D*, players and dungeon masters write in the details of the unfolding game items in text and numbers. For example, in the player's handbook of the first edition of *D&D*, we can see a weapon called the bardiche has a length of about five feet, and can cause about 2-12 damage to enemies (Panzerleader, 2012). This kind of description defines what each game item is, and how it can be used during gameplay. In addition, when a game item is *written* on a player's character sheet, it becomes the player's possession.

Second, we can also observe early forms of game items in live action role-playing games (LARPs). A LARP is "a dramatic and narrative game form that takes place in a physical environment" (Falk & Davenport, 2004, p. 128). LARPs were inspired by the early TRPGs and appeared internationally in many places such as North America, Europe, and Australia during the 1980s (Tychsen, Hitchens, Brolund, & Kavakli, 2006, p. 256). However, when compared to a TRPG, a LARP focuses more on the physical actions of players that take place in physical game space (Tychsen et al., 2006, p. 255). Therefore, in a LARP, players have to "physically embody their characters [with their own physical bodies]" (Tychsen et al., 2006, p. 255).

Since LARP players role-play the characters with their own physical bodies, they physically use or are equipped with different types of game items during a game. In a Tolkienesque LARP such as *Dagorhir* in around 1980, players used weapons made from foam and fibreglass rods (Dagorhir, n.d.). Players in a LARP could also use other types of game items such as costumes (for example, a tunic), accessories (for example, rings), or other kit (Falk & Davenport, 2004, p. 131). In a LARP with a more realistic setting, players might use game items such as BB guns in their gameplay

(Tychsen et al., 2006, p. 257-258).

No matter which type of LARP, game items are made of materials (for example, foam) from the physical world, since players need to actually acquire and use them. The close and direct interactions between players and game items in a LARP therefore “grant the players the opportunity to experience game content” (Falk & Davenport, 2004, p. 136). Additionally, the game items inLARPs that help players perform gameplay make the whole gaming process more convincing. Therefore, as Falk and Davenport (2004) suggest, the physical manifestation of game items inLARPs “contribute to supporting the performance of belief, helping the player express and display themselves, enabling them to share their performance in a meaningful way with other players” (p. 136).

Through examining the roles of game items in non-digital environments such as TRPGs andLARPs, we can see how they appear in early traditions of role-playing gameplay. Game items in both TRPGs andLARPs involve some degree of physical actions (such as writing them down on a player’s character sheet in a TRPG, or equipping a player with armour and a sword made of foam in a LARP). Such compromises that appear in these games are because of the limitations of technologies in that specific time period. However, perhaps more importantly, these kinds of physical actions demonstrated the concept and the implications of the action of ‘equipping game items’ in games, even in such early traditions of gaming culture. Equipping a game character with game items changes the appearances and attributes of that character to fit the setting of a gaming environment with make-believe scenarios. In addition, in these early gaming environments, game items have been established as tools to help players in their gaming experience. When

players equip themselves with game items, their characters either become stronger in a game (e.g. in a TRPG), or are granted an opportunity to experience special game content (e.g. in a LARP).

The features of these ancestors of digital game items in non-digital environments have had a profound influence on game items in digital environments. Although players are not able to physically access game items in digital environments, the logic of game items remains in the digital environments that followed.

1.3.3 Game items in digital environments

In this section, I review the historical trajectory of game items in different digital environments from the 1980s to the present. The focus will be on how game items are presented, and what their valuable roles are in these digital environments in different times and spaces.

We have already seen that, from the perspective of platform studies, the presentation and functions of game items are inevitably affected by interplays between game designers, the platform's technological capacity, and cultural influences at the specific period of time. Although it is beyond the scope and scale of this thesis to examine and analyse every specific platform created in different time periods where valuable game items exist, it is important to be aware of such perspectives and keep them in mind throughout this section.

By the 1980s, digital game items began to emerge in networked games known as

Multi-User Dungeons (MUDs). The first MUD was developed by Roy Trubshaw and Richard Bartle in around 1978 (Bartle, 2004b, pp. 4-5). MUDs are text-based role-playing games that are typically seen as the ancestors of MMORPGs (Castronova, 2005, p. 10). In a MUD, everything including the narratives, environment, gameplay, objects and more is presented in pure text on a screen. Additionally, MUDs allow multiple simultaneous players to interact with the digital environment and each other by typing messages and commands in text (Curtis & Nichols, 1993, p. 1; Ho, 2007, p. 22).

There are many significant features of game items in MUDs. Firstly, since the environments in MUDs are constructed in text, the game items within a MUD are inevitably also presented in text on a digital screen. For example, in the MUD *King of Kings*, when a player reviews the equipment of his or her game character, the game items will be presented in statements such as: “your character is equipped with the spear of life destroy and the cloak of Europe torero” (Ho, 2007, p. 22). Additionally, MUDs allow the creation and customisation of game items. For example, in *King of Kings* and *TinyMUD*, players may create their own weapons and objects (Erlank, 2012, p. 26; Ho, 2007, p.23). In *King of Kings*, players are even allowed to customise the name of game items by themselves (for example, the creator of a sword has the right to name that sword) (Ho, 2007, p. 23). Finally, since MUDs enable and encourage multi-user interactions within games, players can also exchange and trade game items in MUDs. In the MUD *Void*, players are allowed to sell and buy game items such as weapons and equipment through consignment services by the in-game non-player characters (NPCs) (Ho, 2007, p. 23).

Presenting game items in MUDs in the form of a description in text has a significant

influence on players. First, giving players permission to create a game item enables their creativity and customisation, even in such early gaming environments. These kinds of creativity and customisation are still important elements in the current gaming industry. Second, since game items in MUDs have no graphic appearances, their owners heavily depend on imagination to experience these game items (Erlank, 2012, p. 28). A player in a MUD who owns a sword cannot literally see the sword but can only imagine its shape, colours, and so on. Since the experience of such text-based game items depends on personal imagination, it also relies on personal subjectivity. The fact that players “will therefore visualise these worlds slightly differently” (Erlank, 2012, p. 28), also means different players might have different experiences with the same game item.

As mentioned above, game items are experience goods – “consumers must experience it to value it” (Shapiro & Varian, 1999, p. 5). If we apply this concept to the context of MUDs, the value of the same game item could also differ from player to player. So, for example, “a sword with shining light” in a MUD could have two very different images in two players’ minds. Such differences not only lead to different experiences between two players, but can also affect the ways they value this sword.²⁴

Game items changed into 2D graphics around 1986 in a multi-player console game, *Habitat*, created by Lucasfilm Games. *Habitat* is arguably the first large commercial multi-user virtual environment (Morningstar & Farmer, 2008, p. 1). This game had many significant features. The whole gaming world, including game characters, game

²⁴ This therefore is also related to the concept of “emotional value” (Sheth et al., 1991, p. 160) of game items derived from the appearance of game items (Ho, 2007, p. 78), and the subjective theory of value which I will discuss later on in this chapter.

items and background environment, is presented in crude 2D graphics (Erlank, 2012, p. 32; Lastowka & Hunter, 2003, p. 25). Players in *Habitat* are able to customise the shape of their characters by literally swapping characters' heads (Morningstar & Farmer, 2008, pp. 3-4). Additionally, in *Habitat* players are able to interact with in-game objects (for example, by picking up in-game objects or dropping them on the ground) and each other (for instance, communicating by popping speech bubbles, or gunplay) (Erlank, 2012, p. 32; Lastowka & Hunter, 2003, p. 25; Morningstar & Farmer, 2008, pp. 13-17). Other than that, *Habitat* contains an in-game economy system including ATMs (Automatic Token Machines), vending machines, bank accounts and personal storage space (Erlank, 2012, p. 32; Morningstar & Farmer, 2008, p. 4).

The specific environmental features in *Habitat* significantly affect how game items function within it. First, the entire 2D graphic environment in *Habitat* shapes the game items within it (such as their appearance, colour and animation). Although the graphics are crude and basic, players in *Habitat* can still tell an object (such as a gun or a magic wand) from its shape. These items' shapes can be identified by their physical counterparts (such as guns) – making them “simulations of real-world entities” (Brey, 2003, p. 282) – or by their likeness to fictitious objects in novels or fantasy literatures (such as magic wands) – making them “fictitious entities”.

Second, *Habitat* encourages players' ownership of game items in the gaming environment. Through different game mechanics, players are able to use and store *Habitat* game items that belong to them. For example, players can use bags or boxes to carry game items with them, and use chests and safes to store game items in safe places (Morningstar & Farmer, 2008, p. 4). All these mechanics create a sense of

ownership for players, making them feel they actually own these game items.²⁵

Thirdly, the self-contained and fully-fledged economic system in *Habitat* encourages players to apply their previous economic knowledge from their ordinary lives to game item manipulations. The in-game objects in *Habitat* that are related to economic activities – such as money, ATMs, banks and vending machines – function similarly to their counterparts in the physical world. For example, in this game, “ATMs [...] enable access to an Avatar’s bank account” (Morningstar & Farmer, 2008, p. 4). The cultural influences on both game designers and players – as discussed above – therefore enable players to manipulate game items within *Habitat*’s economic system.

The economic system and ownership mechanics in *Habitat*, along with its 2D graphic environment, see embedded game items with the potential to be valuable goods or assets to players. This is because in players’ perceptions, game items in *Habitat* are not only playful tools just for fun, but also objects similar to their physical counterparts. These game items cannot only be used for players’ gameplay, but also can be traded, exchanged, and safely stored in *Habitat*. As a result, just as Lehdonvirta (2009b, p. 100) has argued, it is the “‘thing-like’ nature” of game items that makes players “begin to apply mental models associated with commodity consumption” (Lehdonvirta, 2009b, p. 100) to digital environments.

Finally, the social interactions between players encouraged in *Habitat* can have an impact on the role of game items. For example, in *Habitat*, players are able to fight

²⁵ See more discussions about the relationship between game design and ownership in Chapter 2: systems of storage.

each other through gunplay (Morningstar & Farmer, 2008, pp. 12-13). During a duel, if an avatar is killed, the game items he or she carried at the time “dropped on the ground at the scene of the crime” (Morningstar & Farmer, 2008, p. 13). Other players’ avatars could then steal any game items left on the ground (Morningstar & Farmer, 2008, p. 13). Other than that, players in *Habitat* are able to directly steal someone else’s game items “simply by snatching the object out [of] its owner’s hands and running off with it” (Morningstar & Farmer, 2008, p. 13).

The gunplay and thievery encouraged in *Habitat* affect the meaning of valuable game items to players. First, as players are able to obtain game items after they win a gunfight, for the winner, these items become some kind of reward for that duel. The role of game items therefore changes: from mere gaming tools that assist players in gameplay to prizes for a player versus player (PVP) competition. Additionally, actions in *Habitat* enable the shift in ownership of game items from one player to another. Game items therefore have become personal possessions that can be owned or stolen by players.

Game items continued playing an indispensable role during the 1990s when massively multiplayer online role-playing games (MMORPGs) emerged. Massively multiplayer online role-playing games are still included in the category of role-playing games, but they can be accessed and played by large number of players simultaneously. In these types of games, players role-play “an avatar, and then spend their time running about in the game world, chatting with others, undertaking various tasks, purchasing, producing, and consuming goods” (Castronova, 2002, p. 2). In MMORPGs, game items are as important as in their ancestors TRPGs, LARPs, or MUDs – by equipping the in-game avatars with game items, their appearances are

changed and their abilities are increased.

By the 1990s, there were some important milestones in the development of MMORPGs where game items play a significant role. In 1991, *Neverwinter Nights* was released by Stormfront Studios, which is arguably the first graphical MMORPG (Achterbosch, Pierce, & Simmons, 2008, p. 8; Bartle, 2004a, p. 19). The 2D graphics in *Neverwinter Nights* are very basic compared to the 3D MMORPGs we have today. In *Neverwinter Nights*, players “commanded their characters with a simple set of instructions” (Achterbosch et al., 2008, p. 8). Game items such as weapons and armour (including long swords and plate mail) are presented in 2D graphics, and can be acquired by players’ characters to strengthen their abilities to fight against monsters and each other.

Game items evolved from 2D flat objects in *Neverwinter Nights* into pseudo-3D (or 2.5D) objects in *Diablo* in 1996, which was released by Blizzard Entertainment (Blizzard Entertainment, n.d.-b). This is due to the fact that the whole game space in *Diablo* is a pseudo-3D (or 2.5D) environment that “offered a view of the virtual world that had a very close, but not exact, resemblance to how humans perceive the world around them” (Petrovits & Canossa, 2013).

The most important feature of game items in *Diablo* (and its sequel) is their randomness. In *Diablo*, the game items players obtain have random attributes (such as strength or dexterity) that can randomly strengthen their in-game characters’ abilities.²⁶ As Achterbosch et al.(2008) describe: “*Diablo* and its sequel introduced

²⁶ See more discussions about how game design uses randomness to affect valuable game items in Chapter 2: artificial randomness.

randomly generated [...] items that extended the life of the game by allowing people to replay the game with different characters and to experience altered [...] items” (p. 8). Additionally, in *Diablo*, valuable game items can already be stored and carried around in the inventory of players’ in-game characters (Ho, 2007, p. 24).

Game items become 3D objects in *Meridian 59*, published by 3DO in 1996, which is known as the first large-scale 3D first-person multiplayer game (Achterbosch et al., 2008, pp. 8-9; Castronova, 2003, p. 2). The game’s environmental features affect the ways in which game items are used and presented in *Meridian 59*.

First, *Meridian 59* has the capacity to allow a large number of players to play at the same time and interact with each other through complex commands (Achterbosch et al., 2008, p. 9; Castronova, 2003, p. 2). This important feature influences the game’s activities around game items. For example, through complex commands and social interactions with thousands of other players, *Meridian 59* players are able to trade game items with one another using game money.

Additionally, since *Meridian 59* presents everything in 3D graphics on the screen (Achterbosch et al., 2008, p. 9), during a transaction a player (as the buyer) can actually see the seller (as an in-game character) presented in 3D graphics on the screen. After the transaction is finished, the game item (for instance, a sword) he or she just bought appears in the in-game character’s inventory or visibly equips the character (for instance, it is held in the character’s hand). This makes the whole game item trading more transparent and more intuitive. Trading game items in *Meridian 59* is similar to the way we buy things in ordinary life – I buy a thing from another person, and then this thing becomes my belonging in my bag or my hand. Therefore,

compared to early digital environments such as MUDs (in which everything is presented in text), the transactional process of game items in *Meridian 59* is relatively more perceivable to players.

The customisation and ownership of valuable game items are particularly addressed by the next milestone MMORPG: *Ultima Online*, released by Origin Systems in 1997 (Corneliusson & Rettberg, 2008, p. 4). The most important feature of *Ultima Online* is that game items can be created and customised by players within the gaming environment. For example, players can “build their own (virtual) [original emphasis] homes or castles” (Erlank, 2012, p. 37), and craft “their own weapons, armour, and other objects” (Achterbosch et al., 2008, p. 10).

Another significant feature is the ownership of game items in *Ultima Online* (Lastowka & Hunter, 2003, p. 27). In this game, players can own their houses, castles, or even wild or domesticated animals (Erlank, 2012, p. 37). In addition to creating and owning game items, players in *Ultima Online* have the right to sell them to others. This therefore further creates trading markets of game items between players in *Ultima Online*.²⁷ According to Castronova (2003, p. 14), players in *Ultima Online* are able to sell shirts they make, and therefore create a shirt market affected by the in-game supply and demand.

In the next important MMORPG, *Everquest* (released in 1999 by Sony Online Entertainment), valuable game items have become one of the most important elements in its core game design. In the Western world, this game is typically “known

²⁷ See more discussions about how game design can create trading markets of game items in Chapter 2: systems of exchange.

as the second big game in the MMORPG genre after UO [*Ultima Online*]” (Achterbosch et al., 2008, p. 11). *Everquest* can be viewed as important because many of its features have been picked up by the MMORPGs that followed it. Therefore, *Everquest* is also known as “a blueprint for future MMORPGS” (Achterbosch et al., 2008, p. 11).

There are at least two important features in *Everquest* that potentially signify the role of valuable game items. First, in *Everquest*, players are able to communicate with one another, and are allowed to broadcast in the chat channel so that other players can hear the conversations “in a textual format on the screen” (Erlank, 2012, p. 35). Second, *Everquest* creates an in-game economy that encourages players to “earn money by killing computer-generated enemies” (Erlank, 2012, p. 35), whether by doing this alone or together (Achterbosch et al., 2008, pp. 11-12; Erlank, 2012, p. 36).

Combining these two above features, *Everquest* creates a specific economic system of valuable game items. In *Everquest*, players are encouraged to kill monsters in games to obtain valuable game items. After that, players are able to sell these valuable game items for game money by broadcasting through the auction chat channel to other players. During the trading process, the buyer is able to communicate with the seller (for instance, to bargain). This economic system in *Everquest* is described in Castronova’s (2001, p. 26) study, in which he illustrates how players use online auction chat channels to broadcast their buying and selling offers for game items and communicate with each other about their prices.

Here, it is also worth noting that, during the 1990s and early 2000s, game items were already offered on auction websites such as eBay for real money trading (RMT),

including those valuable game items in *Ultima Online* or *Everquest* (MacInnes, 2006, p. 45). This could be attributed to the fact that the game design in *Ultima Online* and *Everquest* allows players to exchange valuable game items with each other.²⁸

Game item trading became a formal design embedded in the game system in *World of Warcraft*. *World of Warcraft*, released by Blizzard Entertainment in 2004 (Corneliusson & Rettberg, 2008, p. 4), is a 3D MMORPG, and is one of the most successful MMORPGs. Even after a decade, *World of Warcraft* still has around eight million subscribers (Statista, 2013). *World of Warcraft* has many significant features that can explain its success. For example, as Achterbosch et al. (2008) describe, “with a lower system requirement for the graphical engine, an intuitive interface, along with an easy learning curve, WoW [short for *World of Warcraft*] was accessible to almost anyone, and opened the genre to a much wider audience” (p. 16).

In terms of game items, the most influential feature in *World of Warcraft* is the design of its *auction house system*. The auction house system in *World of Warcraft* works similarly to an auction website such as eBay. An auction house is typically hosted in some of the capital cities in *World of Warcraft* for players to buy or sell game items with game money (Ducheneaut, Yee, Nickell, & Moore, 2006, p. 408). Through the auction house, sellers are able to set a starting price, a buyout price, and a time period for the game items they want to sell. On the other hand, buyers can bid for a game item with other competitors, or can simply just buy it for its buyout price (Ho, 2007, pp. 41-42).

²⁸ In Chapter 2: systems of exchange I will discuss in more detail, how game design can open up a market for game item trading, whether it is an in-game trading market or a real money trading market outside the game.

Aside from the MMORPG genre, other types of digital environments also pay attention to game items and their significant value. *Second Life*, released by Linden Labs in 2003 (Gottschalk, 2010, p. 502; Martin, 2008, p. 2), is one good example of legalising the real money trading of valuable game items. A decade after its release date, *Second Life* has 36 million accounts created, more than one million visits monthly, and USD\$3.2 billion in total transactions made by its players (Linden Lab, 2013).

One of the most influential features in *Second Life* is that it is an open-ended digital environment based on “user created content” (Ondrejka, 2004, p. 87). In *Second Life*, players are allowed and strongly encouraged to use the “built-in tools” (Ondrejka, 2004, p. 87) to create and develop game items. With in-game tools provided by the system, players can “create not only the commodities [game items] themselves, but ways of customizing, animating, and making functional their goods [game items], especially those that are intended to be interactive or animated in nature” (Martin, 2008, p. 4).

Second Life not only allows its players to create game items, but perhaps more importantly, it also allows players to earn profits from the valuable game items they create. In *Second Life*, players “can earn ‘real’ money in the virtual world and retain intellectual property rights over anything they create” (Boellstorff, 2008, p. 12). This therefore makes the process of creating valuable game items in *Second Life* a new business opportunity for some players. Players can simply sell the game items they create (such as clothes, accessories, shoes, and so on) on the official website: *Second Life* Marketplace (Linden Lab, n.d.). Sellers are able to post their own creations on this website for other buyers to buy.

In the *Second Life* marketplace, both sellers and buyers use the in-game money – Linden dollars (LD or L\$) – as the currency in transactions. However, Linden dollars can be easily converted into US dollars through Second Life’s official website.

Currently, the exchange rate of LD is approximately 270 LD to one USD (LindeX, n.d.). Since Linden dollars can be conveniently turned into US dollars, a valuable game item in *Second Life* Marketplace with a Linden dollar price tag can be perceived as something with monetary value measured by US dollars.

This kind of marketplace website for game item trading can also be observed in the 3D MMORPG *EverQuest II*. Around 2005, the company that developed *EverQuest II*, Sony Online Entertainment, built a similar marketplace called Station Exchange, allowing *EverQuest II* players to legitimately trade game items for real money and charge players for listing and selling game items (Ho, 2007; Lehdonvirta & Ernkvist, 2011; Robischon, 2007).

This kind of legal and official channel of real money trading on game items not only happens in *Second Life* and *EverQuest II*, but also in a digital environment called *Entropia Universe* (formerly known as *Project Entropia*) released in 2003 by MindArk (Schmidt, 2007, p. 154). In *Entropia Universe*, there are five active planets (Entropia Universe wiki, n.d.). One of the oldest planets, Calypso, has more than one million registered accounts and over USD\$400 million in real money transactions per year made by its players (MindArk, 2011).

Similarly to *Second Life*, *Entropia Universe* allows its players to turn their in-game money: Project Entropia Dollars (PED) into USD. However, unlike the Linden dollar in

Second Life that can fluctuate or float (Boellstorff, 2008, p. 212), the value of PED in *Entropia Universe* “is fixed, currently exchanging at 10 PED to the US dollar” (Bray & Konsynski, 2007, p. 18).²⁹ Aside from that, another important feature of *Entropia Universe* is that it “has negotiated agreements with real-world banks to allow participants to use real-world ATM’s to withdraw money from their virtual accounts (converted into real-world currency)” (Bray & Konsynski, 2007, p. 19). All these features in *Entropia Universe* that encourage a smooth exchange between PED and USD allow players to perceive the valuable game items within it as something with monetary value. Therefore, in a sense, in *Entropia Universe* (and *Second Life* as well), it can be said that players actually trade game items with real money (USD) in the form of game money (PED or LD).

As we have seen, in the 1990s players used third party websites such as eBay to trade valuable game items (such as those in *Ultima Online* or *Everquest*) with real money. However during the 2000s, the phenomenon of RMT became an official activity supported by game developers in some games (such as *Entropia Universe* and *Second Life*). In a sense, real money trading on valuable game items seems to change from an underground activity to a legal one, encouraged and facilitated by game developers. This reveals that the value of game items is also recognised and acknowledged by game developers and companies.

Real money trading of game items has become even more advanced as the gaming industry has developed. In a more recent Tolkienesque fantasy MMORPG *Diablo 3*, released by Blizzard Entertainment in 2012 (Blizzard Entertainment, 2012), players can directly use its in-game system to easily trade game items for real money, instead

²⁹ The exchange rate is still PED\$10 = USD\$1 in January 2014 (MindArk, n.d.).

of using out-of-game services such as the official trading websites in *Second Life* or *EverQuest II*.

One of the most important features of *Diablo 3* regarding game items is its built-in auction house system that allows players to trade game items with real money, while Blizzard Entertainment earns benefits by charging transaction fees for each transaction.³⁰ Such an in-game RMT system embedded in game design implies that game items with monetary value have become one of the important considerations when developers design a game.

In summary, this section has analysed the roles of valuable game items in different digitally networked gaming environments at different times. There are some important implications from this analysis. First, the appearance of valuable game items has changed from only text on the screen (as in MUDs), to objects presented in 2D crude graphics (as in *Habitat* or *Neverwinter Nights*), and then to sophisticated representations displayed in 3D graphics (as in *World of Warcraft* or *Second Life*).

Second, valuable game items can be seen to display many important features in early gaming environments. These features involve customisations, ownership, players' trading behaviours, players' conceptual models of physical counterpart, randomness, and so on. These features, as discussed in this section, not only regulate how players use game items in games, but also influence the value of game items.

³⁰ Although this system provides benefits for players to conveniently trade game items with real money, according to Blizzard Entertainment, it is also in conflict with the core gameplay: killing monsters to get loot. Therefore, Blizzard Entertainment decided to shut down this system in 2014 (Hight, 2013).

Third, when valuable game items became tradable with real money, their in-game value became a monetary value that can be perceived and measured in real-world currencies such as US dollars.³¹ Both players and game companies, therefore, started to treat game items no longer as mere game tools, but as something with monetary and commercial value that could bring significant profits.

1.4 The value of game items

Players, third party websites and game companies have all recognised the value of game items. Whether the channels used to trade them were operated by game companies (such as those in *Second Life* and *Entropia Universe*) or by third-party websites (such as 8591), these business models are built on the acknowledgement of the value of game items. However, how exactly this value is generated still seems unclear.

In this section I will focus on how game items come to have value, mainly from the perspective of economics. I first identify different types of value applied throughout the discussions in this thesis. Then I focus on examining two main economic approaches for understanding how objects become valuable: the labour theory of value and the subjective theory of value. These two approaches, as I will argue, have a profound influence on the studies related to valuable game items. At the end of this section, I demonstrate the insufficiency of only applying these two economic

³¹ It is important to note that I do not imply game items in early digital environments have no monetary value at all. Rather, their value could not be converted into cash because players did not have a proper useful channel (e.g. eBay) to easily exchange valuable game items with real money.

approaches to the understanding about the value of game items. I therefore propose three other approaches – game design, players’ in-game performance, and the influence of player groups – that will be the respective focuses of the following three chapters.

1.4.1 Different types of value

In this section, I will focus on the diverse meanings of value and also identify different types of value. This is important and useful since different types of value will be discussed in the discussions regarding valuable game items throughout this thesis.

The general meaning of ‘value’ means that: “something is held to deserve; the importance, worth, or usefulness of something” (Oxford Dictionaries, n.d.). In a more specific definition by Zeithaml (1988), value can have four meanings: “value is low price”, “value is whatever I want in a product”, “value is the quality I get for the price I pay”, and “value is what I get for what I give” (p. 13).

Although the concept of value has diverse meanings, it is typically related to the commercial features of goods or products in the process of consumption. However, it is worth noting that even in the field examining the process of consumption, the concept of value has diverse meanings (Woodruff, 1997, p. 141).

Traditionally, in the context of consumer behaviour and consumption, there are two main types of value: utilitarian value and hedonic value (Babin, Darden, & Griffin,

1994, pp. 645-646), which lead in very different directions. On the one hand, utilitarian value resides in the practical use of a product. In this context, consumers tend to evaluate a product's practical attributes in order to obtain the maximum benefits (Hirschman & Holbrook, 1982, p. 94). Therefore, for such products their "utilitarian performance serve as primary determinants of their value to the consumer" (Hirschman & Holbrook, 1982, p. 94).

On the other hand, hedonic value focuses more on what emotional feelings a product can evoke in consumers. Therefore it is related to "the multisensory, fantasy and emotive aspects of one's experience with products" (Hirschman & Holbrook, 1982, p. 92). Therefore, products with hedonic value "are based upon satisfying emotional wants, rather than fulfilling utilitarian functions" (Hirschman & Holbrook, 1982, p. 94). The feature of hedonic value also implies such value is relatively subjective, personal, and playful (Babin et al., 1994; Hirschman & Holbrook, 1982).

In the context of digital gaming environments, digital games are often associated with "fun" (Castronova, 2007, p. 91). If we understand the concept of fun as something "all about our brains feeling good" (Koster, 2013, p. 40), we might conclude that digital games are something with hedonic value because a fun game can arouse players' *good feelings*. This might further allow us to conclude that everything within the gaming environments, including game items, has hedonic value.

This perspective, however, might oversimplify how the concept of value works in a gaming environment. In some cases, both utilitarian and hedonic values can play a role in the process of gaming. In Yang, Wu, and Wang's (2009) study, they divide

players' experience of value in gameplay into two dimensions: "utilitarian value is defined as the best choices which do by 'logical evaluation' reference to games' efficiency and content" (p. 1820); while "hedonic value is defined that to find fun, fantasy, arousal, sensory stimulation, and enjoyment is the interest for the people" (Yang et al., 2009, p. 1820).³²

In terms of game items, if we understand the value of game items from Yang et al.'s (2009, p. 1820) framework, we might see some game items have utilitarian value, while others have hedonic value. For example, a powerful weapon in *World of Warcraft* that can improve players' efficiency in killing monsters might have a utilitarian value; while a flat-screen TV that can play YouTube videos in *Second Life* could have hedonic value.

This kind of binary that separates valuable game items into two categories – some have utilitarian value, while others have hedonic value – could still be too generalised. This is mainly because, in many cases, an object could have both utilitarian and hedonic values. This perspective can be seen in Babin et al.'s (1994) study, in which they suggest that a product in a consumption activity can evoke "both hedonic and utilitarian value" (Babin et al., 1994, p. 647). In other words, both a product's "usefulness and an appreciation of activities comprising it can indicate value" (Babin et al., 1994, p. 645). Therefore, it is worth noting that, in some cases, a game item can have both utilitarian and hedonic values (Ho, 2007, p. 80) since it can be both practically useful within the game, and aesthetically attractive at the same time. For example, a powerful sword can increase the efficiency of killing monsters, while also

³² However, in this study, they found that: "the online game players seem pay [sic] more emphasis on hedonic value [...] than utilitarian value [...]" (Yang et al., 2009, p. 1823).

making the killing process more fun and exciting.

In the framework by Sheth, Newman, and Gross (1991) the concept of value is even more elaborate and diverse. According to Sheth et al. (1991, pp. 160-162), there are five consumption values that will affect people's motivation for making choices: functional value, emotional value, social value, epistemic value and conditional value. Among them, functional value, emotional value and social value are most strongly related to valuable game items.

The first type of value is functional value. This follows the tradition of utilitarianism, which focuses on people's rational assessment of products' utility. To put it another way, functional value centres on the practical function and benefit of a specific object. According to Sheth et al., the functional value is:

The perceived utility acquired from an alternative's capacity for functional, utilitarian, or physical performance. An alternative acquires functional value through the possession of salient functional, utilitarian, or physical attributes. Functional value is measured on a profile of choice attributes (Sheth et al., 1991, p. 160).

Although it is arguable whether the performance of game items is physical or not, they do have functional value to players. For example, in many games, game weapons and equipment can reinforce the basic attributes of avatars, and even help them obtain new skills. These weapons and equipment therefore have functional

value to players, since they help players' avatars become stronger in games.³³ Game items with functional value not only help a player to become strong in games; more importantly, in certain contexts, they also help a player become 'stronger' than other players. This makes the game items with functional value become even more important in the context of competitive gameplay.

The second value is emotional value, which is more relevant to the tradition of hedonism. Emotional value addresses the feelings or emotions that a specific object can bring to people. According to Sheth et al., emotional value is:

The perceived utility acquired from an alternative's capacity to arouse feelings or affective states. An alternative acquires emotional value when associated with specific feelings or when precipitating or perpetuating those feelings. Emotional value is measured on a profile of feelings associated with the alternative (Sheth et al., 1991, p. 160).

Game items have emotional value too. Some game items can significantly change the appearance of an avatar, or even create some kind of animation around it and therefore make it become more attractive. The attractive appearance of an avatar therefore could arouse feelings in the player who controls the avatar (Ho, 2007, p. 78).

Another type of value is social value, which is about the connection of a specific object with social status. The value of an object therefore is more similar to a

³³ In Chapter 2: functionality, functional value will be applied to the discussions around how functionality within game design creates and affects the value of game items.

symbolic value that indicates the specific social status of the owner. As Sheth et al. argue:

The perceived utility acquired from an alternative's association with one or more specific social groups. An alternative acquires social value through association with positively or negatively stereotyped demographic, socioeconomic, and cultural-ethnic groups. Social value is measured on a profile of choice imagery (Sheth et al., 1991, p. 161).

Game items have social value too for two reasons – group membership and social distinction. First, game items with social value may create a connection with certain social groups in or out of games. In a game, a player might join a guild in which all members love to dress themselves as vampires (Taylor, 2002a, p. 46). In this case, those game items can help a player's avatar look like a vampire, and therefore, they have social value. This connection with certain social groups could also extend out of a game. For example, a cat lover in ordinary life could tend to dress her avatar with a cat's head in a game (Taylor, 2002a, p. 46). A cat's head therefore has social value since it can create a social connection with other players who might also happen to be cat lovers in the physical world.

Second, such social value of game items could potentially create certain social distinctions. For example, those who own the rarest and most powerful game items also own a higher social status than those who do not (Ho, 2007, pp. 78-79), since these top players form their own distinctive social groups. As Lehdonvirta (2009a, p. 188) also notices, "collecting, on the other hand, involves the pursuit of particularly rare, expensive or otherwise notable items that serve to create social distinctions

between 'haves' and 'have-nots'" (Lehdonvirta, 2009a, p. 188).

In addition, there are two more types of value regarding a person's representation, identity, and expression (Richins, 1994). The first type of value is regarding the "representations of interpersonal ties" (Richins, 1994, p. 507). In this context, an object is valuable because of "the importance of goods in forming and symbolizing social relationships" (Richins, 1994, p. 507). Objects with such value "are likely to be valued as symbolic representations or reminders of interpersonal ties" (Richins, 1994, p. 507). The second type of value is related to a person's "identity and self-expression" (Richins, 1994, p. 507). In this sense, objects are valuable "for their role in expressing or reinforcing the sense of self" (Richins, 1994, p. 507). Through such objects, a person "expresses personal values or religious beliefs" (Richins, 1994, p. 507).

These two types of value can be seen in game items too. In terms of the value of representations of interpersonal ties, in social gaming (such as Facebook social games), some game items function mainly as gifts for players to send to each other. These game items as gifts therefore become symbols of social relationships that represent interpersonal interactions between players. Second, the value of identity and self-expression can be observed in game items in a digital environment such as *Second Life*, where players are encouraged to socially perform themselves. In such environments, game items are valuable because they are used by players to construct their preferred online identities through different ways.

Finally, as I have already raised, it is important to note that while different products may have distinct types of value (for example, a car might have functional value while a movie might have emotional value), more importantly, one product can have more

than one value (for example, a luxurious car might have both functional value and social value because of its practical function and higher social status it can bring to the owner). Game items, too, can have diverse and hybrid values. That is, while different types of game items might highlight their own specific value, the different types of values are not exclusive but can coexist within one game item. For instance, a game item such as a powerful sword can have functional value in that it increases players' in-game efficiency, while also have social value in that it brings the player higher in-game social status compared to other players.

In this section, we have seen different types of values, derived mainly from modern theories of consumption focusing on the value of products. These values can be applied to gaming environments to understand the roles of game items as valuable objects in different contexts. However, it is also important to examine how the value of an object is created from the perspective of economics more fundamentally.

1.4.2 How something is valuable in economics

In this section, I will discuss how value is generated in physical objects, from the broader perspectives of classical economics and modern economics. These perspectives, as I will argue later on, have a profound influence on the studies in virtual economy regarding the value of game items. Therefore, these perspectives will provide useful knowledge for the discussions regarding valuable game items.

In economics, there are two very different perspectives on how the value of objects is generated. According to Lehdonvirta (2009a, p. 24), value in classical economics is

objective and intrinsic (independent of observers), while in modern economics it is more subjective and extrinsic (dependent on observers). On the one hand, early theorists such as Adam Smith and Karl Marx suggest that the value of commodities is mainly related to two determining factors: time costs and the quantities of labour (Marx, 2007 [1867]; Smith, 2007 [1776]). This perspective is typically identified as the labour theory of value. In this context, “the value of each commodity is determined by the quantity of labour expended on and materialised in it, by the working-time necessary [...] for its production” (Marx, 2007 [1867], p. 208). For example, for hunters in early times:

[...] it usually costs twice the labour to kill a beaver which it does to kill a deer, one beaver should naturally exchange for or be worth two deer. It is natural that what is usually the produce of two days or two hours labour, should be worth double of what is usually the produce of one day’s or one hour’s labour (Smith, 2007 [1776], 70-71).

On the other hand, modern economists such as Carl Menger and Friedrich Hayek tend to suggest that the value is not inherent in the object, but more subjective and dependent on individuals’ personal preferences (Menger, 2007 [1976]). Such modern economists argue against the classical economists that the traditional labour theory of value is “the product of a search after some illusory substance of value” (Hayek, 1948, p. 136).

The perspective that modern economists advocates is typically known as the subjective theory of value. This perspective is well described in Castronova’s (2002) research: “in economics, the value of objects does not depend on their

characteristics or their components, but rather on their contribution to the well-being of the people who use them. Value is subjective, wholly created in the minds of people” (p. 15). From this perspective, “a good is worth whatever someone is willing to pay for it” (Lehdonvirta, 2009a, p. 24). Therefore, in the framework of subjective theory of value, the value should be:

[...] something fundamentally different from the things themselves; it is a judgment made by economizing individuals about the importance their command of the things has for the maintenance of their lives and well-being [...] The measure of value is entirely subjective in nature, and for this reason a good can have great value to one economizing individual, little value to another, and no value at all to a third [...]. (Menger, 2007 [1976], pp. 121-146)

These two different approaches in economics – the labour theory of value and the subjective theory of value – not only become two important theoretical traditions in the discipline of economics, but also have profound influences on game studies regarding the issue of valuable game items.

1.4.3 Why game items are valuable

In this section, I will first discuss common misunderstandings about the value of game items. This misunderstanding can come from the problematic concept of ‘virtual’, or from people’s common impressions about gaming cultures. Then, the discussion will focus on how the two economic approaches – the labour theory of value and the subjective theory of value – are picked up by game studies to address

issues regarding valuable game items. At the end of this section, I demonstrate the insufficiency of these two economic approaches, and propose three other approaches for us to better understand how the value of game items is created in different contexts in digital gaming environments.

As seen earlier in the Introduction, spending real money on game items is often seen as irrational in popular discourse. This situation leads to the most frequently asked question around the issue of game items: why are game items valuable? In order to answer this question, perhaps it is reasonable to examine another related question first: why should game items *not* be valuable?

Popular discourse offers two main justifications for the argument that game items should not be valuable at all. The first is related to the controversial existence of game items, which I touched on earlier in this chapter. Some suggest that game items, as a part of virtual worlds, are also something ‘virtual’, which means they do not physically exist. In this logic, if game items do not physically exist, they should not have value either. This perspective can be observed in Lehdonvirta’s (2009a) study, in which one reader of an online newspaper commented on game item trading: “it is completely insane to pay for something that in reality does not exist” (p. 11).³⁴

Second, game items are typically treated in the context of ‘just-a-game’ thinking. According to this logic, computer games provide unserious, childish and leisurely play for children or teenagers. Everything in a gaming environment is typically seen as something that is unserious, playful, and childish and entertaining. In Chesher and

³⁴ According to Lehdonvirta (2009a), this comment is taken from the online version of the Finnish newspaper *Helsingin Sanomat* on March 23, 2008, and translated into English.

Costello's (2004) article, this common assumption is well described: "computer games are trivial, irrational and predominantly played by boys and young men. [...] Games are ideologically loaded, and contribute nothing to public life" (p. 5).

The perspective that computer games are just something playful and entertaining has a significant influence on wider perceptions of game items. This perspective is especially evident in the context of online theft of valuable game items. For example, a reader commented on the news of a theft event in *EVE online*: "hopefully the people he [the thief] stole [valuable game items] from remember it's just a game" (hellwig, 2009). In this context, the suggestion that *EVE online* is "just a game" also implies that everything in this game should be just for fun, and should not be treated seriously as valuable objects.

However, these two perspectives advocating that we should not treat game items as valuable objects have their own flaws. First, in terms of the controversial existence of game items, they are not something virtual that physically does not exist, but something digitised or computerised as part of the physical world. This perspective has already been discussed earlier in this chapter. Game items are "'real' in the ontological sense that they exist in the same reality as other goods" (Lehdonvirta, 2009a, p. 75).

Therefore, game items should not be treated as something valueless because they exist as something digitised or computerised. Many similar objects exist in digital forms can have great value. A website's uniform resource locator (URL) and domain names are digitised or computerised, but can also be extremely valuable. For example, the URL name Fb.com (Facebook) was worth around USD\$8.5 million in

2010 (Warner, 2013). As Fairfield (2005) argues, virtual property such as a URL or a domain name “undoubtedly has value. It is a piece of internet real estate” (p. 1055).

Second, in terms of the ‘just-a-game’ perspective, many playful and entertaining things are also tremendously valuable too. Car races, sports, gambling and other similar pursuits are games, but everything within them has great commercial value. Additionally, many digital objects are playful, entertaining, and valuable at the same time. These objects, especially experience goods in the form of digital media such as MP3, movies, TV series and animations, are commercially valuable.³⁵

Furthermore, since a large number of multiplayer online gameplayers are adults, the activities in a digital environment might not be as unserious, playful, or childish as we thought. As Castronova (2005, p. 48) describes:

[...] synthetic worlds [such as MMORPGs] involve the stories of credibly human characters, avatars whose every behavior is motivated by the decision of an actual human mind. Everything that happens in a synthetic world is the consequence of the interaction of human minds, and our minds have things like Love, Property, Justice, Profit, War, and Exploration hard-wired into them.

(Castronova, 2005, p. 48)

In this logic, a game is not ‘just-a-game’, but an environment that can potentially be embedded with many serious human activities. Game items, as part of such

³⁵ Moreover, even video games themselves (for instance, game DVDs for game consoles) have great commercial value. If the game has value because a person pays for a game DVD, an object in a game under a freemium business model (that is, the game itself is free, but will charge money for extra functions) should also be considered valuable because a player pays for it.

environments, could also involve serious human affairs such as economic activities involving property right or personal profit.

Therefore, game items – the digitised objects that are used in the context of real human activities in digital environments – should not be treated as valueless objects. This perspective responds to what Castronova (2002) argues: “the mere fact that the goods and spaces are digital, and are part of something that has been given the label ‘game,’ is irrelevant [in terms of value]” (p. 15). However, the further question is: how should we treat them as valuable objects, and on what basis?³⁶

As discussed in the previous section, two economic approaches help us to understand how objects can be valuable: the labour theory of value and the subjective theory of value. These approaches demonstrate how the value of objects can be created. (Castronova, 2005; Marx, 2007 [1867]; Menger, 2007 [1976]; Smith, 2007 [1776]).

Since a virtual economy – trading game items with real money – is an economic activity, it is not surprising that these two approaches have profoundly influenced the following studies around the value of game items. As Castronova (2002) suggests: “willingness to pay [as the core concept in subjective theory of value], to sacrifice time and effort [as the core concept in the labour theory of value], is the ultimate arbiter of significance when it comes to assessments of economic value [of game

³⁶ Although in this chapter I mainly discuss two economic approaches and their influences on the value of game items, in the following chapters, I will further look into several theoretical concepts from other socio-cultural disciplines such as “expressive equipment” (Goffman, 1956, p. 13), “institutional reality” (Searle, 1995, p. 38), “social world” (Shibutani, 1955, p. 565), “field” (Bourdieu, 1991), “capital” (Bourdieu, 1986, p. 241), “gift” (Mauss, 2002 [1954]) to provide a more comprehensive picture of how game items have become significantly valuable.

items]” (p. 15).

More specifically, the followers of the labour theory of value tend to suggest that the value of game items is generated by players’ efforts and time cost. In this context, a game item is mainly valuable because it can represent the hard work of a player who might spend hundreds of hours developing or obtaining the item.

This perspective is prevalent in many game studies. For example, Martin (2008) suggests that the game items in *Second Life* are “still the product of labour, for it takes time and effort to develop and code even the simplest of virtual goods” (p. 8). In this context, game items could become “a sign to other players of how much [...] time, or effort has been invested in the avatar” (Martin, 2008, p. 12). Castronova (2004) suggests that “hours of play/work are capitalized into virtual wealth with substantial real dollar values [...] the theory of time costs holds that a good’s value [for instance, a game item’s value] can be derived from the amount of time people ‘spend’ to obtain it” (pp. 197-206). According to Yoon (2008): “the fact that gaming requires considerable investments in terms [*sic*] of time is one of the chief reasons that explain the phenomenon whereby in-game MMORPG items acquire real-world economic values” (p. 16). Bartle (2004b, pp. 5-6) also notices in his research that some believe valuable game items are sold because they are created from players’ personal endeavours, as well as time and efforts put into obtaining them.³⁷

Aside from the studies mentioned above, there are two theoretical concepts related to the labour theory of value, which provide frameworks to examine the relationship between labour in games and the value of game items – “playbour” (Kücklich, 2005)

³⁷ In this article, however, Bartle (2004b) tends to argue against these arguments as fitfalls.

and “creationist capitalism” (Boellstorff, 2008, p. 205).

The concept of playbour suggests that a gaming activity such as modding – computer game modification by players – is not appropriate to be understood only as a form of play, but is a hybrid form between work and play (Kücklich, 2005).³⁸ The misunderstanding of treating modding culture only as a form of valueless play is due to the common perception we have previously discussed, that “everything to do with digital games is a form of play, and therefore a voluntary, non-profit-oriented activity” (Kücklich, 2005). This perspective can be traced back to the early notions around gameplaying. For example, to Huizinga, (1949), play is “a free activity standing quite consciously outside ‘ordinary’ life as being ‘not serious’ [...] It is an activity connected with no material interest, and no profit can be gained by it” (p. 13). Caillois (1961) has also defined play as something essentially “unproductive: creating neither goods, nor wealth [...]” (p. 10).

These early notions about gaming mislead us about the essence of modding in games. According to Kücklich (2005), we need to acknowledge that the work of modders (players who engage in modding) is “indeed a form of precarious labour, and that a politically organised position vis-à-vis the games industry is indispensable for the survival of modding as a creative digital counter-culture” (Kücklich, 2005). The modders are in fact “creators of value” (Kücklich, 2005) for the gaming industry by generating unexpected content and functionality.

³⁸ The complicated relationship between work and play has been further discussed in Silverman and Simon’s (2009) study, in which they examined the player-innovated dragon kill point system in MMOGs and provide a new perspective for us to better understand the essence of power gamers/gaming in terms of the new form of work/play in games.

The concept of playbour not only describes the essence of modding and modders culture, but is also useful for us to understand how labour is central to the value of game items. A key example of this is the phenomenon of gold farming – “the production of virtual goods and services for players of online games” (Heeks, 2008, p. 1).

Gold farming is “an exploitative and oppressive activity” (Heeks, 2008, p. 54) that typically happens at a “virtual sweatshop” (Dibbell, 2003). In a virtual sweatshop, there are typically many gold farmers or “playbourers” (Heeks, 2008, p. 15) (players who engage in gold farming), whose in-game works are “repetitive and very badly paid with long working hours” (Heeks, 2008, p. 54). According to Gilmore (2009), “[gold farming] work shifts are typically 12 hours long in smaller studios” (p. 6).

The main work gold farmers do is to obtain valuable game items or currency in games (for instance, by repetitively killing monsters) and sell them for real money through RMT. This kind of work requires a large amount of time and effort, converting gameplay into a form of laborious work. As a gold farmer describes the experience: “you try going back and forth clicking the same thing for 12 hours a day, six or seven days a week, then you will see if it’s a game or not” (Heeks, 2008, p. 55).

The phenomenon of gold farming where “work is play and play is work” (Dibbell, 2006, p. 294) provides an emblematic example of the concept of playbour (Kücklich, 2005). This connection therefore further provides us a framework to see how the value of game items can be understood in terms of the labour theory of value.

According to Heeks (2008), the activity of gold farming can be seen as:

[...] a utility – disutility hybrid because, for producers [gold farmers], it is a supposed-utility/leisure time activity [which costs time and efforts] that is compensated by real wages. Purchasers [game item buyers], meanwhile, are willing to pay money to forego a supposed utility/leisure time activity.³⁹ (Heeks, 2008, p. 55)

Therefore, this kind of time and effort exchange between a buyer and a seller is channelled by RMT of a game item. A gold farmer's effort and time in obtaining a game item is compensated by money when it is sold to a buyer. The game item buyer in fact pays for the time and effort he or she was supposed to outlay.

This therefore affirms the core concept in the labour theory of value that the value of objects is “determined by the quantity of labour expended on and materialised in it, by the working-time necessary [...] for its production” (Marx, 2007 [1867], p. 208). In this context, the value of game items reflects a gold farmer's time and efforts – the quantity of labour he or she put in. This labour, however, should be understood through the concept of playbour because it is a hybrid form “between work and play” (Kücklich, 2005).

Another important concept related to the labour theory of value is “creationist capitalism”, which was coined by Boellstorff (2008). Compared to the phenomenon of gold farming typically discussed in the context of MMORPGs, creationist capitalism focuses more on how labour and production function in an open-ended digital

³⁹ This is due to the fact that some gameplay experience in MMOs could be quite boring (for instance, killing the same monster repetitively). Such gameplay is sometimes identified as “the grind” (Taylor, 2006, p. 76). For certain players, gameplay sometimes “feels like work, and may even be painful, repetitive, or boring” (Taylor, 2006, p. 10).

environment: *Second Life*.

According to Boellstorff (2008), creationist capitalism is “a mode of capitalism in which labor is understood in terms of creativity, so that production is understood as creation” (p. 206). As Boellstorff (2008, p. 208) suggests, the concept of creationist capitalism should be understood from Yanagisako’s (2002, p. 6) perspective as “a nondichotomous processual model of culture and capitalism [that] treats capitalist action as culturally produced and, therefore, always infused with cultural meaning and value” (Yanagisako, 2002, p. 6). In creationist capitalism, “through conflating labor and creation, production itself becomes a form of spectacle” (Boellstorff, 2008, p. 209). This kind of production in digital environments is therefore created by the “means of turning labor into value” (Boellstorff, 2008, p. 209).

The concept of creationist capitalism (Boellstorff, 2008, p. 208) can be traced back to John Locke’s (2003 [1690]) early notion about property and ownership. In Locke’s framework, there is a close connection between labour and property:

Whatsoever then he [a person] removes out of the state that nature hath provided, and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property. It being by him removed from the common state nature hath placed it in, it hath by this labour something annexed to it, that excludes the common right of other men. For this labour being the unquestionable property of the labourer, no man but he can have a right to what that is once joined to [...] (Locke, 2003 [1690], p. 111-112)

This notion of justifying one’s ownership by one’s labour is typically identified as

Lockean theories of property. Lockean theories of property are sometimes applied in discussions of players' ownership of valuable game items (Lastowka & Hunter, 2003, p. 46). As Lastowka and Hunter (2003) suggest: "players [...] might have a property claim in their virtual-world assets based on the Lockean labor-desert theory. Clearly, the assets [e.g. game items] [...] emerge from the time and effort of the players" (p. 46).

Lockean theories of property that centre on how one's labour justifies one's ownership, can in fact be seen as "a precursor of the labor theories of value" (Vaughn, 1978, p. 311). It is because Locke's (2003 [1690]) notion of property "showed some relationship between labor and economic value" (Vaughn, 1978, p. 311), that is, "the person who expended labor to render the 'thing in nature' into valuable form deserves to reap its value" (Lastowka & Hunter, 2003, p.46). This notion therefore, according to Vaughn (1978), becomes "the 'metaphysical justification' for the nineteenth century labor theory of value" (p. 311).

Therefore, it is not surprising that the concept of creationist capitalism inspired by Lockean theories of property is related to the labour theory of value. Even if the form of labour and production in digital environments is not the same as that Locke (2003 [1690]) first proposed, creationist capitalism still follows a similar logic. Therefore, in this sense, the valuable game items in *Second Life* (as a form of creative productions) still reflect the labour of players in the form of creativity. These game items, according to Martin (2008), are "still the product of labour" (p. 8).

Moreover, advocates of the subjective theory of value argue that the value of game items is determined by players' personal preferences. In this sense, a game item is

valuable because players believe or desire it according to their personal preferences, no matter what those personal preferences might be.

This perspective can be seen in many of Edward Castronova's studies. For example, Castronova (2005, p. 310) tends to suggest that the value of a game item is determined and given by players' individual preferences expressed in a market. In another study, Castronova (2006a) suggests that "economics sees value wherever humans decide that some construct of theirs has utility but is scarce. Synthetic world goods [game items] have utility and are scarce; thus they have value that can be measured in terms of real dollars" (p. 4). In a third study, Castronova (2002, p. 15) suggests that the value of game items in an economic sense is not affected by their attributes (such as their digital existence), but is determined by people's subjective judgements in their minds. A similar perspective can also be observed in Bartle's (2004b) study, in which he also argues: "value comes from the effects of many subtle interactions of human desire. If no-one wants something, it's worthless; if everyone wants it, it's priceless. Virtual objects are no different from real objects in this regard" (p. 8).⁴⁰

The two economic approaches prevalent in current academic discourses – the traditional labour theory of value and the subjective theory of value – in some ways provide very useful insights for understanding how the value of game items is generated, whether by focusing on players' efforts or personal preferences. However, these two approaches, on their own, also limit our perspectives on how game items

⁴⁰ In this article, however, Bartle (2004b, p. 8) tends to suggest that the value of game items could also be affected by software. This perspective is therefore similar to what I argue in Chapter 2 of this thesis.

have become valuable to players in different contexts of gameplay.⁴¹ In the following, I will therefore demonstrate some shortcomings of looking at the value of game items based only on these two main approaches in economics.

First, although game items are valuable objects that can be traded as assets or products, they are still different from other goods in the economic system, because valuable game items exist in games that involve different contexts of gameplay. As discussed earlier in this section, we should not deny the value of game items simply because they are digital and playful, since there are many other digital and playful valuable objects out there (such as information goods). However, we also should not justify the value of game items simply because they seem to be similar to these goods traded in a market. In other words, we should also recognise the uniqueness of game items and the differences between them and other goods (such as information or other physical commercial goods).

Commercial goods (such as information or other physical commercial goods) are created with the intention of being traded. The purpose of producing stylish clothes, a movie, or a car is to put it into the market in order to be consumed by consumers and make profits. Consumption is the most important aspect of such goods, from beginning to end.

However, game items are primarily created to enrich playing experience and assist players in their gameplay, rather than for the purpose of consumption. The

⁴¹ Even though many studies have applied these two approaches, they also applied other perspectives to enrich and strengthen the analysis of valuable game items in broader academic contexts. For example, Martin (2008) suggests that players purchase game items based on “their exchange- and symbolic-values” (p. 1). Castronova (2005) also notices that “emotional effects” (p. 310) such as enjoyment, pride, and dignity play an important role to legitimate the value of game items.

emergence of RMT was driven by players' unexpected private trading, instead of being a part of game design and anticipated by game companies (MacInnes, 2006, p. 45). In other words, in terms of game design, digital games were originally "not built for virtual property [game items] sales" (Bartle, 2004b, p. 13).⁴²

However, even if game items have become tradable products only recently, this does not mean that they were not valuable before. Game items are valuable not because they can be traded, but because of their roles to assist players and enrich their gaming experience in specific contexts of gameplay. Such value is therefore created in the context of gaming, different from other commercial goods.

The consumption of game items (for instance, trading game items by players or game companies) is therefore the result of – instead of the reason for – making game items valuable to players. In other words, the consumption of game items only creates price tags for players to see, instead of their fundamental value. This perspective responds to Castronova's (2007) contention that "trade [of game items] just reveals what the value is. The important thing is that the value exists" (p. 12). Even if game items such as "wands and gold pieces that are not traded, but remain forever within the 'fantasy' world, also have economic value" (Castronova, 2006a, p. 4).

Therefore, we should study the value of game items by looking at their unique roles in play, including how and why game items are created; how and for what purposes they are used; where they are used; and in what specific contexts of gaming. These

⁴² However, as discussed earlier, recently many game developers have decided to sell valuable game items themselves. In this sense, now valuable game items could be created for both gaming and business purposes. Even so, from my perspective, the gaming purpose is still the main reason to make game items valuable and profitable.

issues therefore not only involve consumption of game items in an economic sense, but also the production process in terms of game design and consumption in social and cultural senses.

Second, both economic approaches – the labour theory of value and the subjective theory of value – seem to overemphasise that the value of game items as something created, controlled, and affected by players. More specifically, from the perspectives of these two approaches, the value of game items is either generated by players' efforts and time spent producing them (the labour theory of value), or decided by their personal preferences for consuming them (the subjective theory of value). Either way, the value of game items seems to be under the control of players.

No doubt, players do have power in games. However, in certain cases they can also be quite powerless. For example, in 2012 hundreds of players of the famous Taiwanese multiplayer online game *King of Kings 3* appealed to that country's Consumer Protection Committee. These players argued that one of the previous 'updates' (or patches, which refers to the regular adjustments of the game content) of this game had seriously affected the properties of certain game items they own, making these items less valuable than they had been (Rong, 2012). Some of these players had spent a lot of time or hundreds of thousands of New Taiwan dollars on these game items, which the game company refused to refund (Duan, 2012).

In this case, the value of the affected game items was not only related to how much effort players put into acquiring them (the labour theory of value) and how much players desired to have them (subjective theory of value). Perhaps more importantly, the value of these game items was also affected by the production aspect driven by

game design and game companies. Therefore, we might want to reconsider how other factors such as game mechanics outside players' control can also potentially affect the value of game items.

Third, of these two economic approaches, the subjective theory of value seems to be most dominant in the current discipline of economics, since it "has been one of the core elements of economic theory for more than a century" (Castronova, 2005, p. 310). However, even though the dominant subjective theory of value has been widely accepted in modern society, it has its shortcomings.

The flaws of the subjective theory of value have been pointed out by Slater (1997, p. 44) in terms of the utility of goods. The utility of goods refers to the benefits and advantages defined and decided by an individual, and therefore it is "entirely a matter of private individual judgement" (Slater, 1997, p. 44). To some degree, deciding utility according to individuals' personal judgements also reflects the concept of value in the subjective theory of value in that it depends on the "contribution to the well-being of the people who use them [which therefore is different from person to person]" (Castronova, 2002, p. 15). Therefore, from the perspective of subjective theory of value, goods "do not have utility in themselves, but only in the eyes of a beholder" (Slater, 1997, p. 44).

Slater (1997), however, argues that it is problematic to think of utility as a subjective personal matter. As he describes, we:

[...] know that a good "has utility" if someone is willing to buy it; we know this because we have already assumed, by definition, that if someone wants to buy a

good it can only be because the good “has utility” for them. (Slater, 1997, p. 44)

This kind of argument, which uses personal preferences to justify the act of buying, from Slater’s (1997, p. 44) perspective, is:

[...] a tautology which says nothing about particular needs but simply infers their presence [...] from the act of buying. To say that someone bought something because it represented a utility to them adds nothing to our knowledge of why they bought it, what their motives or needs were. (Slater, 1997, p. 44)

This tautology pointed out by Slater (1997, p. 44) has inevitably become an issue when we apply such point of view to study the value of game items. Following this logic, we can see why players buy a game item simply because this game item has *utility* according to their personal judgements. However, if we totally depend on the subjective theory of value, we might stop here without asking how and why this game item has such utility to different buyers in their contexts of gaming.

Therefore, as Lehdonvirta (2009a) has pointed out, “economics is not sufficient to answer the question” (p. 27) of why people buy valuable game items. This is because “economics is not concerned with where consumer preferences [for buying game items] come from, only how they are acted upon [...] It moreover says nothing about where these [personal] tastes come from, nor how they are shaped” (Lehdonvirta, 2009a, p. 27).⁴³

⁴³ However, in a sense, theories of consumption introduced in this section that address different types of value aroused by products (including hedonic value, functional value, social value, and so on), provide some explanations for personal subjective preferences on products.

As a result of these three shortcomings that I have demonstrated above, in this thesis, I apply an interdisciplinary approach in order to more comprehensively understand the question of how game items have become valuable. From the perspective of this thesis, the value of game items should be understood by examining and analysing the specific roles of game items in different contexts of gameplay in assisting and enriching players' gaming experience. This gameplay is created and restricted by game design; while it is facilitated and interpreted by players' social interactions at the same time.

In this context, the old-fashioned concept of the magic circle (Huizinga, 1949, p. 10) – which addresses the distinction between gameplay and ordinary life – can be useful. Instead of arguing for a separation between gameplay environments and the physical world, the renovated magic circle I propose here acknowledges that these two environments occupy the same reality. Additionally, gameplay across digital and physical environments can be affected by factors from both gaming culture and ordinary life.

However, more importantly, this hybrid form of gameplay, situated in the middle of gameplay and ordinary life in a magic circle, is still different from normal activities that take place only in the physical world. Therefore, this kind of renovated magic circle does not distinguish gaming environments from the physical world, but rather demonstrates how a conceptual cultural meaning is variously created and changed within the gaming culture in a unique way. In other words, we should not overlook the uniqueness of gaming culture that involves both its complicated production and

consumption processes.⁴⁴

The value of game items is a good example of the specificity of gaming culture. The value of game items can be created and affected by both gaming and other social-cultural practices. More importantly, the value that game items have is still created and affected in a different way to the value of objects in the physical world.

Game items in different contexts can function and be used very differently. Game items might be created by game designers for specific in-game purposes, but could be used and reinterpreted by players for their own social or cultural practices. Some game items might facilitate in-game player competitions while others might encourage social interactions or self-representations. These multifaceted roles of game items situated in different contexts are what I would like to focus on and address throughout this thesis. This is because, from my perspective, these roles created and affected by both gaming and non-gaming cultures are the fundamental factors that make game items valuable.

Accordingly, we should once again reconsider the argument by Castronova (2002, p. 15):

The mere fact that the goods and spaces are digital, and are part of something that has been given the label “game,” is irrelevant. Willingness to pay, to sacrifice time and effort, is the ultimate arbiter of significance when it comes to

⁴⁴ A similar perspective can also be observed in Burke’s (2002) study, in which he argues that “the players of MMPGs enter the games carrying many cultural and social predicates, but the games also highlight and transform what the players bring to the table in some striking ways, some of which are technologically mediated, and some of which are a result of the evolving internal culture of each game” (Burke, 2002, p. 22).

assessments of economic value. (Castronova, 2002, p. 15)

The fact that game items are *digital* objects produced and consumed in *games* is crucial to their economic value. That is, it is the significant roles of game items as experienced in games that make them valuable. However, in order to understand this relationship between game items and their value, we have to comprehend that digital game items are ontologically real with significant value derived from different gaming contexts. That is, this value of game items in digital environments is generated and affected in different types of play.

The interdisciplinary approach in this research project is not an attempt to deny the influence of economic aspects, but rather to provide extensive explanations and enhance their applicability. In a sense, this thesis functions as a bridge between economics and other relevant disciplines in terms of the value of game items.

First, different types of value in the theories of consumption (as discussed earlier) will be applied to the discussions related to different gameplay contexts. Each of these different types of value provides a specific conceptual meaning that responds to the unique context of a certain gaming experience. By taking an interdisciplinary approach, we can see how the concept of value in terms of consumption can be situated in the context of gaming.

Second, in terms of the labour theory of value, the interdisciplinary approach in this thesis will examine how and why players are motivated to put in large amounts of time and effort to obtain valuable game items. The two core factors in the labour theory of value – time costs and the quantities of labour – are therefore manipulated

and affected by the gaming environments created by game design and players' gaming experience.

Finally, another economic approach – the subjective theory of value, as discussed above – can be seen as a tautology (Slater, 1997) in that it does not provide enough explanation of where players' personal preferences for buying game items come from, or how they are formed (Lehdonvirta, 2009a). Through the interdisciplinary approach applied in this thesis, I therefore demonstrate how players' personal preferences regarding valuable game items can be supported in different contexts of gameplay.

Consequently, in the following chapters, I will discuss three different approaches related to valuable game items: game design and mechanics; players' performance and self-representations; and the power of player groups. Through these three approaches, knowledge from other disciplines and traditions (including game design, performance studies, media studies, sociology and economics) is applied to the discussions around game items. These three approaches provide us with alternative ways to discuss the value of game items. Together, these three dimensions demonstrate how gaming cultures and the phenomenon of the virtual economy are closely linked, and how they create and affect game items as valuable objects. Through these three approaches, we are likely to come to a more comprehensive understanding and enrich the knowledge about valuable game items in digital environments.

1.5 Summary

In this chapter, I have defined what game items are, and examined why they are valuable objects mainly from the perspective of economics. In the first part of this chapter, I have discussed some controversial issues around valuable game items and examined their essential features. Some of these controversial issues lead to some common misunderstandings about the essence of game items, which also lead to a misunderstanding of how game items have become valuable to players. The purpose of this section was to clarify and correct such misunderstandings and provide fundamental knowledge for us to comprehend what exactly valuable game items are.

Game items are not virtual or unreal. Game items are codes produced through both hardware and software as a result of collaborations by programmers, game designers and graphic artists. Game items can be text, 2D, or 3D graphics and animations presented on a screen, accessed by client digital devices and used by players through in-game avatars in different contexts of gameplay. Game items are either reproductions or simulations of entities in the physical world, or objects inspired by fictitious stories or fantasy literatures.

Game items are similar to information goods: they are cheap to reproduce; they are valued when players experience them; they are interconnected and therefore have network effects. Game items are also different from information goods: they are rivalrous, allowing only one owner; they are persistent in that they will not disappear and are safely stored on a game server.

Game items are the result of interplays between game designers, cultural influences and a certain platform's technological capacity. Game items are objects in physical form in the pre-digital age; they are digital sophisticated graphics in the digital age. Game items are assistant tools that enrich players' gameplaying experiences; they are tradable possessions to players and marketable products to game companies⁴⁵.

In the second part of this chapter, I focused on how game items come to have economic value. From the perspective of consumption, the concept of value is diverse. There are different types of value depending on the context of consumption. These different types of value can also be observed in the context of gameplay in digital environments. In terms of economics, the value of game items can be understood by two traditional theoretical backgrounds – the labour theory of value and the subjective theory of value. The labour theory of value argues that the value of objects comes from the effort of producing them, while the subjective theory of value suggests that the value of objects is subjectively determined by personal preferences. Applying these economic frameworks to the understanding of the value of game items, we can see this value is either created by players' efforts or decided by players' personal tastes or preferences.

As useful insights as these two economic approaches can provide, on their own they are still not enough for us to understand the complexity of the value of game items in different gameplay contexts. The value of game items is not just generated by players – either by their efforts or personal preferences – but also by other factors

⁴⁵ These discussions in this chapter once again respond to Gay et al.'s (1997) framework: "circuit of culture" that I mentioned earlier in the introduction. Game items in this context should be understood as a type of cultural artefact that involves different "cultural processes" (du Gay et al., 1997, p. 3) including representation, identity, production, consumption and regulation which will be discussed in more details in the following chapters.

that involve both the complicated production and consumption aspects of a digital environment.

The techno-cultural practices surrounding the use of game items might provide us a different perspective to answer these questions. In the following chapters, I will therefore discuss the issues around the value of game items from three other approaches: game design and mechanics, players' online performances and self-representations, and the power of player groups. Through these three approaches, we can apply different types of consumption value to the context of gaming. Additionally, we can also provide extensive explanations to augment the original two economic approaches: the labour theory of value and the subjective theory of value. By doing this, we are able to obtain a more comprehensive picture and deeper understanding of the core research question of this thesis – *what are the roles of game items in digital environments that make them valuable?*

Chapter 2: How game design affects the value of game items

Part of the issue with virtual-world economies is that they touch on so many aspects of design.

(Bartle, 2004a, p. 569)

[Game items] only have value because of the software that provides their context. If the software were to change the meaning of a virtual object, that object's value would also change.

(Bartle, 2004b, p. 8)

This chapter examines the production aspect of valuable game items from the perspective of game design. Compared to platform studies, which also looks at the production of gaming at a “fundamental level” (Bogost & Montfort, 2009, p. 4) such as hardware and software platforms, this chapter focuses more on the “second-bottom level” of gaming production – how games are produced by game design.

However, instead of discussing how a game item (such as a sword) is created by game graphic designers to mimic its physical counterpart (a physical sword), this chapter focuses more on how game design creates game mechanics that can further facilitate certain dynamics and aesthetic in-game experiences for players (Hunicke et al., 2004).

Through the creation and manipulation of these game mechanics, the roles of valuable game items are also defined in games.⁴⁶

Game mechanics, according to Hunicke et al. (2004), are: “the various actions, behaviors and control mechanisms afforded to the player within a game context” (p. 2). To Järvinen, (2008), game mechanics are a “means to guide the player into particular behaviour by constraining the space of possible plans to attain goals” (p. 254). Therefore: “a game mechanic makes a particular set of rules available to the player in the form of prescribed causal relations between game elements and their consequence to particular game state(s)” (Järvinen, 2008, p. 254). In another article by Sicart (2008), game mechanics are defined as: “methods invoked by agents [players], designed for interaction with the game state [...] mechanics can be used to create specific emotional experiences in players” (Sicart, 2008). Although these definitions have their own focuses, it is evident that game mechanics create a connection between players’ gaming experience and game rules. With game mechanics, players are able to follow the game rules and play games properly.

However, the influence of game mechanics derived from game design can be greater than that. As Taylor (2004) points out: “we cannot overlook the role software and design plays in shaping online life” (p. 266). As I will demonstrate in the following sections, game mechanics derived from game design not only create the in-game rules for players to follow, but also shape the ways game items can be valuable to players in different contexts of gameplay.

⁴⁶ Although the focus here is to analyse game items from game designers’ perspective, it is possible for some players to change game mechanics around game items through computer hacking or cheating programs. However, the discussions in detail will be beyond the scope of this thesis.

From my perspective, game design can be a critical factor that affects the value of game items. First of all, game design has to make a game “fun” (Hunicke et al., 2004, p.2) to attract players to play. Without any players, the game items within a game will be valueless because game items have network effects – “the value of a product to one user depends on how many other users there are” (Shapiro & Varian, 1999, p. 13).

Additionally, through the manipulation of specific game mechanics, game design can directly influence game items and their value. As in the case touched on earlier in the previous chapter, in 2012 hundreds of players of the Taiwanese multiplayer online game *King of Kings 3* appealed to the Consumer Protection Committee because the game companies arbitrarily reduced the functionality of certain game items they owned through ‘updates’, and therefore made them less valuable than they had been. In this case, the so-called update (or patch) is a regular adjustment of the game content, which is a common process in most massively multiplayer online games (MMOGs).

An update often involves a change in the probability of obtaining a certain game item, introducing new game items, strengthening or reducing the original abilities of a game item, and so on. The purpose of an update is typically to create a better game balance, or to add some new content into a game to motivate players to keep playing. However, this kind of game adjustment can also have consequences on the value of particular game items. In some cases, regular updates can seriously reduce the value of certain game items.

As the above case of *King of Kings 3* shows, updating a game is one way in which

game designers and companies could potentially have a significant influence on the value of game items through an adjustment of game design. In this context, players are quite powerless, and have to fight for their rights to the valuable game items they own. In this sense, as we have already seen, the value of game items is not only created and controlled by players (either by their efforts or personal preferences), but could also be seriously affected and manipulated by game design.

In this chapter, I argue that we need to reconsider the importance of game design, and how it can have a significant influence on generating and affecting the value of game items. Therefore, in the following sections inspired by my previous research project (Ho, 2007) and Hamari and Lehdonvirta's (2010) study, I will identify a series of important game mechanics including: systems of storage and exchange; functionality and aesthetics; artificial scarcity and randomness; and sociality. Through many case studies in these game mechanics, their relationship with the value of game items will be examined.

2.1 Systems of storage and exchange

If the players in a persistent world can collect and trade things of value, then the world has an economy.

(Rollings & Adams, 2003, p. 530)

Systems of storage and exchange are two main mechanics that allow players to manage their items obtained in games. These two mechanics are also vital to facilitating and developing the economy, whether inside or outside a game. In this

section, I will examine these two mechanics and demonstrate their influences on the value of game items.

2.1.1 Systems of Storage

Ownership is key: You have to give players a sense of ownership in the game.

(Rollings & Adams, 2003, p. 532)

'The systems of storage' is one of the most important common mechanics in most MMORPGs. In this type of game, there is usually a storage space for players to store game items such as weapons and equipments. Players are able to use an inventory and a stash for storing items obtained in a game. An inventory is usually represented as a personal bag carried around by a game character. This kind of personal bag is used by players for collecting 'loot' – valuable game items – in games. In *Diablo 3*, a player owns an inventory of 60 slots for storing different kinds of game items such as potions, weapons, and equipment. On the other hand, a stash can be seen as an extra space for players to store game items. In many MMORPGs, a stash is designed as a safe deposit box in a bank. For instance, in *World of Warcraft*, every player initially owns a stash of 28 slots in a bank where players can access their stored game items.

The systems of storage, including the inventory and stash systems, have a significant influence, and their implications go beyond the original purpose of storing items in a game. First, the design of an inventory creates a sense of ownership for players. In

most MMORPGs, a game item collected in a player's inventory can only be used or equipped by the player who obtained it. This therefore also defines how players can have ownership of a game item in a game – a game item stored in a player's inventory belongs to that player and that player only.

This kind of ownership created by the inventory design responds to one important feature of game items – “rivalrousness” (Fairfield, 2005, p.1053). As previously discussed, the rivalrousness of game items means that “if one person owns and controls them [game items], others do not. [...] One person's use excludes another's” (Fairfield, 2005, pp. 1149-1168). The rivalrousness of game items can be commonly observed in many MMORPGs. For instance, in *World of Warcraft*, when a player picks up a game item on the ground, this item will automatically come into the player's personal inventory. From that very moment, the game item is not accessible to anyone else except the player who picked it up. Only the player has the right to use it, be equipped with it, or trade it as he or she wishes. The player therefore becomes the owner of the game item.

Second, the stash design creates a sense of security for players. The design of a stash is similar to an inventory in that only the player who owns a stash can access everything stored in it. Additionally, a player can strengthen the level of security by setting up a series of passwords for access to a stash. For instance, in the Korean multiplayer game *Mabinogi*, a player can set up a personal password for access to the game items stored in a bank within the game. If a player inputs the incorrect password three times, the player will lose access to the game items, and the stash in the bank will be temporarily locked down (Nexon, n.d.). In this sense, a bank in a game is pretty much like a bank in the physical world that provides protections that

allow customers to store their valuable assets in a safe deposit box.

Furthermore, since game items are digital data stored in the game company's servers, they will not disappear even when players turn off their computers. This fact further strengthens the sense of security for storing game items in a stash. This process therefore responds to another important feature of game items mentioned earlier: "persistence" (Fairfield, 2005, p. 1053). The persistence of game items means that, "unlike the software on your computer, they do not go away when you turn your computer off" (Fairfield, 2005, p. 1049). In most MMORPGs, even if a player logs out and turns off his or her computer, the game items the player owns will still be safely stored in a stash (on a game server) waiting to be accessed by their owner again.

In summary, although systems of storage were originally designed for players to conveniently store game items obtained in a game, its operation is critical in securing the value of game items as possessions. Such systems make players feel that they can actually own valuable game items they have obtained and that there is a way to keep these items safe in a game. By introducing a system of storage, game designers are able to create a sense of ownership⁴⁷ and a sense of security for players. These two senses are basic to the value generation of game items. A game item is valuable as a personal possession because it can be owned and safely stored by its owner. As Vili Lehdonvirta comments "[game] items that disappear when the computer is turned off are not worth much" (Lehdonvirta, 2009b, p. 99).

Although systems of storage guarantee a safe place for players to own and store their

⁴⁷ Although the sense of ownership of game items can be created in games through game mechanics, the legal ownership of game items will be another serious issue that I mentioned in Introduction. However, the discussions about this legal right in detail will be beyond the scope of this thesis.

valuable game items as personal possessions, it still cannot satisfy a further need for players to trade for each other's valuable game items. In the following, I will introduce another important game mechanic: systems of exchange, which open up whole trading market for game item exchange.

2.1.2 Systems of Exchange

The more persistent a virtual world, the greater its need for a means to facilitate the efficient transfer of goods between players.

(Bartle, 2004a, p. 265)

'System of exchanges' refers to mechanics by which players are able to exchange valuable game items in games. This design is common in most role-playing games (RPGs). In this type of game, players obtain various game items during their gameplay. Some of them are useful to players in gameplay, while others are not. Systems of exchange therefore allow players to trade useless game items with non-player characters (NPCs) for useful game money.

In MMORPGs, the systems of exchange are quite similar to that in RPGs – for players to sell useless game items for game money. However, in MMORPGs, this game design also allows players to trade game items or game money with each other. There are three main ways for players to exchange their game items in MMORPGs: player-to-player trading systems, marketplaces, and the auction house systems. Player-to-player trading systems allow the personal exchange of game items between

two players. In *Diablo 3*, two players are able to use the trading panel to swap or trade game items. When both players agree and are satisfied with the trading content, they can click the 'accept' button on the panel, and the exchange will be completed (Blizzard Entertainment, n.d.-c). 'Marketplaces' refers to a certain area in games where sellers gather to sell their game items. For instance, in *MapleStory*, there is a certain area called 'free market' where player 'vendors' are allowed to set up stores to sell their valuable game items (Maple Story Wiki, n.d.). Every game item displayed in stores has a price tag, allowing buyers to know exactly how much they need to pay for it. Buyers can simply click on a certain game item to buy it. Finally, the auction house systems are another important way for players to conveniently exchange their game items. An auction house in a game works in a way that resembles an auction website such as eBay (See section 1.3.3 in Chapter 1).⁴⁸ One of the best-known examples of this design is the auction house in *World of Warcraft*, where players trade hundreds of thousands of different types of game items including weapons, armour, recipes, and so on.

Systems of exchange – including the player-to-player trading systems, the marketplaces, and the auction house systems – have a further influence beyond its originally designed purpose. First, systems of exchange create the conditions for the performance of a free market for game item transactions, making the value of game items perceptible to all players in a game. When a player wants to buy or sell a certain game item, he or she can compare different prices of the item in the market. In a market full of price information, players are able to form a reasonable market price perception for a certain game item through comparisons (Ho, 2007, p. 73-74).

⁴⁸ This also responds to the early discussions in 1.3.1 in chapter 1 that game design is affected by cultural materials that could be familiar to both game designers and players.

The perceived market prices of game items also reflect a subjective value mediated through game mechanics. The value of game items can therefore be transparently perceived, measured, and determined through the market that is opened up by the system of exchange.

Second, systems of exchange also open up the possibility for the value of game items to be perceptible out of a game. In real money trading (RMT) or so-called secondary markets, players trade game items with real currency in the physical world. They might use different platforms such as third-party websites to buy or sell game items with real money. Once a deal is made through these websites, two players (a buyer and a seller) can log into the game to use the player-to-player trading systems to finish the transaction. Additionally, in some cases, systems of exchange allow players to directly trade game items with real money. For example, we have already seen that in *Diablo 3*, players can use its auction house system in the game to sell and buy game items with US dollars directly. In this context, the monetary value of game items can also be perceived, measured, and determined through the *real money* market that is opened by this design.

To sum up, without a system of exchange, game items are isolated in each player's inventory and stash. With the introduction of systems of exchange, trading markets for both game and real currency emerge. The value of a certain game item is therefore perceived, measured, and determined by all participants in the open trading markets, whether that is in or out of a game.

In this section, I have examined two fundamental game mechanics: systems of storage and systems of exchange, and explored their relationships with the value of

game items. I have argued that these two important game mechanics are not just about setting basic rules for players to follow in a game (for instance, how to store game items or how to exchange them). Perhaps more importantly, they not only facilitate an internal economy in a game, but also play a critical role in creating an environment that benefits the development of virtual economies outside the context of gameplay.

2.2 Functionality and Aesthetics

They [players] can wear some impressive-looking armor that makes them appear like they're mighty knights; they can wear some top-of-the-range plate mail that makes them be a mighty knight.

(Bartle, 2004a, p. 183)

Functionality and aesthetics are two main game design attributes of the valuable items in games. Valuable game items are typically either extremely powerful or attractive. These two attributes have created a desire for players to pursue them in games. In this section, I will therefore investigate these two attributes and how they affect and add value to the items in games.

2.2.1 Functionality

Powerful characters are more valuable than less powerful ones, sharp swords are more valuable than blunt ones, and fast steeds more desirable than slow ones.

(Lehdonvirta 2009b, p. 105)

You may be able to rise levels faster if you have a kick-ass sword, but the only source of such swords is guarded by a monster that can slay you ten times over before you can blink. However, taking a quick trip to eBay gets you the sword for a few hundred bucks. You can now rise in levels faster than people who don't have a few bucks to spare.

(Bartle, 2004b, p. 14)

Functionality refers to the utility of game items within a gaming environment that players can use to strengthen the ability or performance of their avatars during gameplay. In game design, functionality plays a crucial role in various types of games. In a role-playing game, the functionality of a certain game item can benefit game characters in many aspects such as their 'attributes' (strength, agility, wisdom, stamina, and so on) or 'skills' (magic spells, attack power, healing ability, and so on). For example, in *Diablo 3*, a legendary weapon such as 'The Paddle' can add extra damage, increase dexterity and strengthen one of three random skills of a character (Blizzard Entertainment, n.d.-d). In a car racing game, the functionality of a certain game item can benefit the performance of a car. For instance, in *Real Racing 3*, a player can upgrade various automobile parts to enhance the performance of their cars in different aspects (speed, acceleration, and so on) (Electronic Arts, 2013).

The functionality of a game item is usually presented in figures (for example, +50 strength or +5% speeds). These figures are converted into players' gaming experience when an avatar in a game is equipped with a functional game item. A functional game item can make the players who own it more powerful (for instance, by

strengthening the abilities of their avatars) when they face difficult challenges in their gameplay. Therefore, to players, a functional game item is like a shortcut to success in games.⁴⁹ This can be observed in my previous study (Ho, 2007, p. 89), in which I have suggested that the game items with useful functions make the whole gameplay process much smoother and easier. As Yoon (2008, p. 12) also notes, without powerful game items players might not be able to approach hard-to-reach dungeons and fight against ferocious monsters in games.

The functionality of game items not only affects players' gaming experience, but also influences their time playing the game to achieve certain goals in games. Lehdonvirta (2009b, p. 105) finds that functional game items can help players achieve in-game goals faster. A functional game item can enhance the player's efficiency and save them a large amount of time, through such practices as more efficient monster killing, quicker levelling up, faster quest solving, and so on.

It is also important to note that the functionality of a game item is not only useful when players fight against non-player characters (NPCs) such as monsters in games, but also useful when they fight against each other. In a player versus player (PVP) combat environment, players heavily depend on the functions of game items to win in a battle. In other words, a functional game item can make a player's avatar more competitive than others, and therefore gives him or her a better chance to win in combat. This perspective echoes what Yoon (2008) observes about *World of Warcraft*: “[functional game] items owned by a character affect [...] the outcome of a PVP

⁴⁹ In this sense, functionality is related to the concept of “theorycraft” (Paul, 2011) in *World of Warcraft*: “a strategy designed around the mathematical analysis of WoW [...] a discursive construct predicated on advising players how to optimally ‘play’ WoW.” However, theorycrafting focuses not only on how valuable game items can benefit players' gameplay, but also on other in-game considerations such as avatars' talents or spellcasting abilities (Paul, 2011).

combat [...]” (p. 12).

These advantages mentioned above (for example, stronger abilities, more efficiency, more competitive advantages, and so on) of a functional game item are important to players, and therefore desirable to them. This responds to what Yee (2006a) notices in his research – players have a desire to “gain power, progress rapidly, [...] challenge and compete with others” (p. 773). The desirable advantages of functional game items also explain why they are valuable to players. More specifically, these functional game items have a certain value that can help players satisfy their desires for being powerful, competitive, and successful in games.

This value of game items is related to “functional value” (Sheth et al., 1991, p. 160). As previously outlined, functional value follows the tradition of utilitarian value that focuses on the utility of a product – “some function of the product’s tangible attributes” (Hirschman & Holbrook, 1982, p. 94). As Sheth et al (1991) note, the functional value of an object is “the perceived utility acquired from an alternative’s capacity for functional, utilitarian, or physical performance” (p. 160).

Applying this concept to a gaming environment, a game item with functional value enhances the capacities of a player who controls the avatar in a game. In order to obtain such advantages from functional game items and to be successful, in some cases players are even willing to purchase them with real money. In Lehdonvirta’s (2009b) research, he notes that: “performance advantages and new functionalities no doubt have a strong influence on users’ [real money] purchase decisions” (p. 106).

However, it is game designers who have control over the functionality of game items

and makes them valuable to players. Since the ongoing functions of a game item are simply data, they can be created and adjusted by game designers and companies. If a game item has a functional value, to some degree, game designers create this value when they design and determine the attributes of this item (such as +50 strength or +5% speeds) in the first place. Additionally, later adjustments by game designers could also affect this value. Game designers can rapidly reduce a game weapon's attributes (for instance, from +50 strength to +5 strength) and therefore decrease its functional value.

In summary, the functionality of game items gives players advantages and helps them to make significant progress and efficiently achieve goals throughout their gameplay. These advantages also make functional game items valuable and create a motivation for players to pursue or even purchase them. In addition, the functionality of game items is still under the control of game design. Game designers are able to determine and affect the functions of a certain game item and therefore create and adjust the functional value of it.

However, it would be arbitrary to suggest that being powerful is the only purpose for players to pursue these items in games. For some players, dressing their avatars with attractive and beautiful game items can be another important motivation for them to play in games. Therefore, in the following section, I will introduce another crucial design element for game items: aesthetics.

2.2.2 Aesthetics

It costs a virtual world practically nothing to allow characters to have different color clothes, hair, weapons, and so on, but it allows people to individualize themselves and make personal statements.

(Bartle 2004a, p. p. 182)

Aesthetics in games refers to the aesthetic design that makes a game item attractive to players. This kind of game design includes not only the appearance of game items but also the effects (such as animations and sounds) of using certain items (Lehdonvirta, 2009b). In a broader definition, aesthetics can involve “the desirable emotional responses evoked in the player, when she [a player] interacts with the game system” (Hunicke et al., 2004, p. 2).

Aesthetics is important in those gaming environments that allow players to customise their avatars or properties with game items. Many aesthetic items work as ornaments and decorations in those environments. For example, in *Second Life*, a player can buy different styles of clothes and accessories in the ‘*Second Life Marketplace*’ – such as glasses, belts, or jewellery – to customise their avatars. In *The Sims Social*, a player is able to buy many items such as sofas, paintings, or bushes to customise his or her house in the game. In this game, some of these items have visual effects and sounds and such as animations on the TV screen or music from a radio (Electronic Arts, n.d.).

This kind of customisation (decorating avatars with aesthetic game items) has become an important motivation for players to play in games. This can be observed in Yee’s (2006a, p. 773) empirical investigation that “customization – having an

interest in customizing the appearance of their character,” can motivate players to play online games. In the process of customisation, aesthetic game items play a crucial part. Aesthetic game items such as clothes and accessories provide a variety of choices for players to customise and decorate their avatars according to their preferences and personal styles. This responds to what Martin (2008) observes in her study that aesthetic game items have become “a means of customizing the virtual body” (p. 15). She also suggests that these items in games can “fulfill needs and desires for [...] a pleasing appearance within the virtual world” (Martin, 2008, p. 15).

Those aesthetic game items with pleasing appearances not only support the customisation for players, but also potentially arouse players’ pleasant feelings during gameplay. By equipping or dressing avatars with these aesthetic game items, such as shining armour, beautiful clothes or glittering jewels, players can evoke certain emotions. As I have argued in my previous study (Ho, 2007, p. 78), players experience feelings such as excitement and happiness when their avatars are equipped with attractive or beautiful game items. This also can be observed in Lehdonvirta’s (2009b) empirical research, in which some participants report that aesthetic game items can provide pleasure and a sense of ‘coolness’ for them. As one player responds: “IRL [in real life] I don’t like to wear shorts and a hoodie at the same time, but in *Habbo* [an online game] it somehow pleases my eye” (Lehdonvirta, 2009b, p. 106). Another player also comments on the ‘enchantment effect’ (a way to make game weapons glow in different colours) in *World of Warcraft*: “it’s not useful, but it’s cool” (Lehdonvirta, 2009b, p. 106).

These kinds of feelings make aesthetic game items become desirable and therefore valuable to players. In other words, an aesthetic game item is valuable because it can

arouse affective feelings in players. This therefore responds to the concept of “emotional value” (Sheth et al., 1991, p. 161). As we have seen, emotional value is relevant to “hedonic value” – “based upon satisfying emotional wants” (Hirschman & Holbrook, 1982, p. 94). According to Sheth et al (1991). An object with emotional value means that it has the ability to “arouse [people’s] feelings or affective states” (p. 161). Applying this concept to a gaming environment, players can obtain pleasure from dressing, equipping, customising, or decorating their avatars with aesthetic game items with emotional value. In order to obtain such feelings in games, in some cases, players are willing to pay for these aesthetic game items with real money. As Lehdonvirta (2009b) suggests, game items with aesthetic attributes can drive players’ real money purchase decisions.

It is important to note that aesthetic attributes of game items with emotional value are influenced by game design. The appearance, colour, animations, and sounds of a game item that can arouse players’ affective feelings have been decided by game designers (or individual designers in an open-ended environment such as *Second Life*) when it is created or designed in the first place. Therefore, a game designer can generate emotional value derived from those aesthetic attributes of a game item. Furthermore, the aesthetic attributes of a certain game item can be adjusted through game updates or patches. In an update or patch, art or graphic designers can change a certain game item’s aesthetic attributes such as its appearance. In this sense, game design has the potential to affect an aesthetic game item and make it emotionally more or less valuable to players.

To sum up, aesthetic attributes make game items attractive to players, and provide ways for players to customise their avatars in games. Such customisations motivated

by aesthetics not only encourage players to engage in games, but also potentially arouse players' affective feelings during gameplay. An aesthetic game item that can bring affective feelings to players also makes itself emotionally valuable. The aesthetics of game items are affected by game design. When game designers create or adjust the aesthetic attributes of an aesthetic game item in a gaming environment, they also generate and affect the emotional value of game items.

In this section, I have examined the significance of game functionality and aesthetics, as well as their relationships with the value of game items. These two features, as I have suggested, potentially affect the value of game items in a digital environment. They give game items functional and emotional value for players to pursue. However, they do not explain how exactly players pursue those items in games. The following section will focus on another important factor that affects the ways players pursue valuable game items – chance. I will therefore discuss two elements regarding chance in games: artificial scarcity and randomness.

2.3 Artificial scarcity and randomness

Artificial scarcity and randomness are another two important game features that control the chances for players to obtain valuable items in games. A valuable game item is usually either rare or difficult for players to obtain. In the following sections, I will focus on these two features and examine their influence on the value of game items.

2.3.1 Artificial Scarcity

Many synthetic worlds, particularly those that follow the MMORPG model, have imposed scarcity, such that acquiring, making, or developing things of value demands significant amounts of time and also such that most objects of value cannot easily be duplicated.

(Malaby, 2006, p. 150)

Artificial scarcity refers to the game design devices that make valuable items rare for players to obtain in games. Typically, just like gold or diamonds in the physical world, the rarer a game item is, the more valuable it will be – and vice versa.⁵⁰ That is, the value of a game item can “be attributed to its scarcity” (Hamari & Lehdonvirta, 2010, p. 24). This kind of scarcity can be strictly manipulated by game design determining the chance for obtaining certain valuable game items (for instance, a 0.5% chance of obtaining a powerful weapon by killing a specific monster). Artificial scarcity can be commonly observed in many MMOs. For example, in a Taiwanese basketball MMO, *Passionate Basketball Online*, there is only *one* special equipment set in each game server that can dramatically strengthen an avatar’s defending and shooting abilities (Passionate Basketball Online, 2013).

In-game scarcity is *artificial* instead of *natural*, because it is strategically controlled and manipulated by game designers. There is no limit for game designers to create as many valuable game items as they want. Valuable game items are just codes and

⁵⁰ This is therefore similar to what Ham (2010) has noticed in a collectible card games – “the more obvious/ powerful the usefulness of a card, the more common the game’s designers made it. The more oddball/ specialized the card, the more rare it was made” (Ham, 2010).

data that can be programmed into a game system, and copied as many times as necessary. Castronova (2002) argues: “since the goods [game items] are digital, they can be costlessly created [...]” (pp. 37-38). As Lehdonvirta et al. (2009) also argue, ‘since the cost of reproducing digital objects is close to zero, there is little technical reason why every participant in a virtual economy could not be given a copy of each and every commodity’ (p. 1063). In other words, as we saw in Chapter 1, game items have a feature similar to other information goods – they are “cheap to reproduce” (Shapiro & Varian, 1999, p. 21).

However, valuable game items have to be scarce for a balance in a game. This is because if valuable game items are abundant for players to obtain, a game will become imbalanced and therefore no longer be fun. This situation is described by Raph Koster: “infinite accumulation of wealth, an overall rise in the ‘standard of living’ and capabilities of the average player, and thus produce imbalance in the game design and poor game longevity” (Rollings & Adams, 2003, p. 531). Therefore, artificial scarcity is important to make sure that the most valuable game items are not easily available to every player.

Additionally, artificial scarcity facilitates competition in a multiplayer environment. Competition between players is an important reason for players to continue playing in such an environment. As Yee (2006a) indicates, the component of “competition – the desire to challenge and compete with others” (p. 773), has become an important motivation for players to play online games. This kind of competition can be facilitated by artificial scarcity through which players have to compete with one another for those rare game items. For example, in a previous version of *World of Warcraft*, players had to fight with one another in the battleground to earn “honour

points' (Wowwiki, n.d.-a) or 'arena points' (Wowwiki, n.d.-b), and use these points in exchange for certain rare game items.

Artificial scarcity of game items not only maintains a balance and benefits the competitive atmosphere in a gaming environment, but also manifests in the limited number of valuable game items in the trading market. Through artificial scarcity, game designers are able to precisely control and manipulate the amount of a certain valuable item available in a game server – the supply of this item in the market – just as in the example shown above in the game *Passionate Basketball Online*. That is, the main reason why a valuable game item is so rare in a trading market is because game designers only make a few copies of it available in a game server.

The way artificial scarcity affects the market of game items also has a further influence on the value of those rare game items. This can be understood from Bartle's (2004a) perspective on game items: "goods [game items] get their value from the free market; therefore their value varies in keeping with supply and demand" (p. 302). From this perspective, in this free market of game item trading, the rarer a game item is (that is, when supply is low and demand is high), the more valuable it will be.

This 'free market' of valuable game items Bartle (2004a) describes, however, might not to be so 'free' in terms of artificial scarcity. Through artificial scarcity, game designers can easily control and manipulate the *supply* of a certain game item in the market, that is, how many copies of a certain valuable game item are available in a server. By doing so, game designers are likely to affect the value of certain game items – by making them rarer (and therefore more expensive) or more abundant

(and therefore cheaper).

To sum up, artificial scarcity controls the rarity of valuable game items. This game design not only maintains the game balance, but also facilitates competition between players in games. More importantly, artificial scarcity has a significant influence on the quantity of valuable game items in the trading market. The value of game items can therefore be affected by artificial scarcity.

Although artificial scarcity is an important element that affects the market of game items, it does not explain exactly how players obtain these rare game items during their gameplay. In the following section, I will examine another crucial factor – randomness – and its relation to the value of game items.

2.3.2 Artificial Randomness

The key point is that the feeling of randomness is more important than randomness itself.

(Salen & Zimmerman, 2004, p. 176)

Artificial randomness refers to unpredictability created by game design. In a game with artificial randomness, players are uncertain about which game items they will obtain and what the chances are of obtaining them during gameplay. Artificial randomness is widely used in many MMORPGs. For example, in *World of Warcraft*, when a player kills a monster, the monster will randomly drop loot such as different types of weapons, armour, or materials. In another Korean online game, *Dungeon*

and Fighter, when a player finishes a dungeon, he or she can choose two of eight covered cards (as unknown rewards) to decide what kind of random rewards he or she can obtain (Strategywiki, 2010).

This kind of randomness is artificial, because technically there is no such thing as ‘randomness’ in games. The randomness in games of obtaining game items is actually a range of probabilities or possibilities. As Costikyan (1994) explains: “‘random elements’ in a game are never wholly random. They are random within a range of possibilities” (Costikyan, 1994).

The possibilities in games can in fact be represented as percentages with figures. For example, in *World of Warcraft*, if a player kills a black dragonkin ‘Nefarian’ in the game, he or she could randomly obtain some of various valuable game items including ‘Breastplate of Ten Storms’, ‘Dragonstalker’s Helm’, or ‘Ashkandi, Greatsword of the Brotherhood’. Since in-game randomness consists of artificial possibilities, there is a fixed percentage likelihood that a player will obtain each of these valuable game items. A player has about a 24% possibility of obtaining Breastplate of Ten Storms, 12% for Dragonstalker’s Helm, and 10% for Ashkandi, Greatsword of the Brotherhood (Wowhead, n.d.). Typically, the more valuable a game item is, the smaller the possibility that players can obtain it – the percentage allocated to a certain game item also reflects its value.⁵¹

Artificial randomness is also used on the dice rolling system in some games. In *World*

⁵¹ This is due to artificial scarcity, as discussed in the previous section. In this sense, the mechanic of artificial randomness assists game designers to create the artificial scarcity of a certain valuable game item. In other words, in order to make a valuable game item rare, game designers can reduce the percentage that determines how likely players are to obtain it (for instance, reducing it to 0.001%).

of *Warcraft*, when a monster is killed and drops loot, all the participating players have to roll the dice to decide who can obtain that loot. A pair of dice will generate a random number from one to 100, and the player with the highest number is rewarded with that loot (Wowwiki, n.d.-c). To players, this dice system seems to be totally random, but it is still artificially driven by game design and computation. As Salen and Zimmerman (2004) suggests: “computers can never compute purely random numbers, because the numbers they provide are always the result of algorithms” (p. 184).

Nevertheless, this kind of artificial randomness of game items creates an uncertainty that has become an important motivation for players to keep pursuing valuable items in games. This technique corresponds to the concept of “probability fallacies” (Salen & Zimmerman, 2004, p. 186) – that players usually misjudge and misinterpret the randomness in games. Salen and Zimmerman (2004, p. 186) use the concepts from Epstein’s (1995) book *The theory of gambling and statistical logic* to suggest that players usually hope for a better result in a random condition in games. In a random condition, players tend to “overvalue ‘long-shot’ bets” (Salen & Zimmerman, 2004, p. 186) and “think that after a run of failures, a success is likely” (Salen & Zimmerman, 2004, p. 186). Additionally, players also believe in luck, and overemphasise the good outcomes that could happen again just like “lightning striking twice” (Salen & Zimmerman, 2004, p. 186).

These fallacies have an influence on how players pursue valuable items in games. For instance, if a player fails to obtain a valuable game item once, the player tends to believe he or she will obtain that valuable game item next time. This situation suggests that players can easily ignore the truth that the chance is independent

every time. In other words, players tend to hold hope that if they work hard enough, these valuable items could be theirs one day. This attitude has become a driving force for players to keep putting more time and effort into hunting valuable items in games.

This attitude towards the pursuit of valuable game items also affects how the value of game items is generated in terms of the labour theory of value (Marx, 2007 [1867]; Smith, 2007 [1776]). In this sense, players' motivation for putting in a large amount of labour to pursue valuable game items is actually driven by artificial randomness. With the probability fallacies created by artificial randomness, game designers can therefore motivate players to keep investing time and effort into hunting valuable game items.

To sum up, artificial randomness creates uncertainty for players on the rewards of valuable game items. This randomness is actually a series of probabilities that is manipulated by game programs and algorithms. The probability of obtaining valuable game items is usually misunderstood and misinterpreted by players so that they tend to believe luck will be on their side one day. This has a significant influence on the value of game items as it motivates players to put more time and effort into pursuing such game items.

In this section, I have focused on two significant mechanics governing how players obtain valuable items in games: artificial scarcity and randomness. They are two important game design practices for deciding how players can obtain valuable items in games, and have an influence on the value of game items. In the final section, I will discuss another important game mechanic that has a profound influence on the

value of game items – sociality.

2.4 Sociality

Sociality refers to those mechanics that facilitate the social interactive multiuser environments in games. In these environments, game designers encourage and facilitate social interactions between thousands of players in various ways.⁵² In-game social interactions between players should be understood from the concept of ‘the first level of social interaction’ in Salen and Zimmerman’s (2004, p. 462) framework. According to Salen and Zimmerman (2004): “the first level of social interaction occurs *within* [original emphasis] the magic circle, as a product of the formal system of a game’ (p. 462).⁵³ In other words, such social interactions are available because they are “internally derived, as they emerge from the game’s rules” (Salen & Zimmerman, 2004, p. 462). The design of sociality is one of a game’s rules – to enable, encourage, and facilitate players to socially interact with each other in games⁵⁴.

The perspective that social interactions are facilitated by game design has been supported by empirical studies. For example, a study by Ducheneaut and Moore

⁵² The mechanic of sociality in MMOs is supported by hardware equipment. For example, game servers that store large amounts of game content (including player accounts or data of game items) are necessary to create an environment with sociality. Additionally, players’ internet access is also indispensable for different players to play a game together synchronically.

⁵³ The second level of social interaction, according to Salen and Zimmerman (2004, p. 462), “is derived externally – social roles brought into the game from outside the magic circle.”

⁵⁴ Although the main focus here is to demonstrate the influences of game design and mechanics on players’ social interactions, in the later chapters, I will discuss the issue from a socio-cultural perspective to enrich my analysis and examination around how the value of game items can also be created and affected by the power derived from players’ social interactions in different contexts. I will apply several theoretical concepts such as “expressive equipment” (Goffman, 1956, p. 13), “institutional reality” (Searle, 1995, p. 38), “social world” (Shibutani, 1955, p. 565), “field” (Bourdieu, 1991), “capital” (Bourdieu, 1986, p. 241), “gift” (Mauss, 2002 [1954]), and so on in order to understand the multifaceted value of game items.

(2004) demonstrates how the structure of the game affects the social interactions between players, and suggests how game design can better support, encourage, and facilitate the social interactions in a game. In this sense, players' in-game social interactions are not only fully controlled by themselves, but also affected by the game design of sociality.

Players are allowed to interact socially in certain ways when an environment is built upon by mechanics of sociality. For example, players can instantly communicate with one another in *Second Life* or *Diablo 3* because the game supports an in-game chat system for them to use. Additionally, in many MMORPGs such as *World of Warcraft*, players are able to group up with each other for a dungeon raid because of the group or party system (Wowwiki, n.d.-d). Furthermore, in a game such as *World of Warcraft* or *Second Life*, players can interact socially in rich ways that include facial expressions, dancing actions, gestures, hugging, gifting, and other interpersonal actions. All these in-game avatar actions are supported by the in-game interactive system.

Another example of in-game social interaction facilitated by sociality is the guild system. Guilds, widely seen in most MMORPGs such as *EverQuest* or *World of Warcraft*, are formal organisations facilitated by mechanics of sociality. In MMORPGs, there are two main types of guilds: "social guilds" (Jakobsson & Taylor, 2003, p. 85) and "raiding guilds" (Jakobsson & Taylor, 2003, p. 85). Although their focuses can be different – the social guilds are more about having fun together, while the raiding guilds focus on gameplay more seriously (Jakobsson & Taylor, 2003, p. 85) – both types of guilds address the social interactions between their members.

It is important to note that the social interactions within a guild are still created and

facilitated by mechanics of sociality. In a game such as *EverQuest*, “guilds provide characters membership into a private chat channel, a tag under their name stating their guild, and generally participation in bulletin boards or email lists” (Jakobsson & Taylor, 2003, p. 85). These in-game functions in a guild are possible because they are embedded into the game system by game developers.

Additionally, features for sociality open the possibility for players to use gaming environments in their own ways for social interactions. For example, in a game such as *World of Warcraft*, there are capital cities that function as social and economic centres for players to engage in plenty of activities such as sending and receiving mail, depositing and withdrawing money in banks, learning skills from trainers, trading game items in an auction house, and so on (Wowwiki, n.d.-e). These cities are designed as if they were big cities in the physical world, such as Sydney or New York. Unsurprisingly, these capital cities “tend to be densely populated and frequently visited” (Ducheneaut et al., p. 408). Since more players are gathered in these capital cities, more social interactions can be expected. For example, as Ducheneaut et al. (2006, p. 413) have observed:

[...] densely populated [capital] cities in WoW [*World of Warcraft*] (e.g. Ironforge) serve as a meeting point where players can showcase their latest accomplishments. In fact it is not uncommon to see level 60 avatars, wearing powerful sets of armor and weapons, simply left standing by their players in front of the auction house for everyone to admire! (Ducheneaut et al., 2006, p. 413)

This kind of phenomenon that turns an in-game spot into a stage for showing off

seems not to have been envisioned by game designers. However, the main reason why so many players congregate in these in-game spots and engage in different types of social interactions is still closely related to mechanics of sociality. That is, a large number of players do not just *tend* to come to these capital cities, but because they *have to* come if they want to use important in-game functions provided by the system, such as depositing and withdrawing money in banks. Therefore, no matter what kinds of social interactions between players take place in games, they are still affected by mechanics of sociality, whether directly or indirectly.

Sociality not only influences players' social interactions, but also valuable game items. As I will discuss in more detail in the following chapters, the value of game items is actually created, facilitated, and justified through players' social interactions opened up by mechanics of sociality. For instance, a beautiful piece of evening wear is valuable because it can be worn by avatars and shown off *in front of other players* to represent one's online preferred identities; while a powerful sword is valuable since it can be used to dominate *other players* in games. In this sense, a game item is valuable because it can be experienced by other players through social interactions within the same network – driven by mechanics of sociality.

This perspective responds to the important feature of valuable game items discussed earlier: that they are “interconnected” (Fairfield, 2005, p. 1053) with network effects – “the value of a product to one user depends on how many other users there are” (Shapiro & Varian, 1999, p. 13). Therefore, other players can increase the value of a certain game item in a game within the same network. As Fairfield (2005) argues: “interconnectivity increases the value of the property [such as game items] due to network effects – not least of which is the fact that other people's experience of my

resource [such as the functions of game items] may be such that it becomes desirable, and hence marketable, to them” (p. 1055).

To summarise, in this section I have discussed how the design of sociality opens up a window for players to be able to interact socially with one another within digital environments. The influence of sociality goes beyond facilitating social interactions between players, and can affect the value of game items. Through mechanics of sociality, players are therefore able to engage in social activities in which valuable game items play a crucial role. In this sense, the most important influence of sociality on valuable game items, is that it makes game items become “interconnected” (Fairfield, 2005, p. 1053) with “network effects” (Shapiro & Varian, 1999, p. 13).

2.5 Summary

In this chapter, I have identified several important game mechanics and examined their relationships with the value of game items. From my perspective, these game mechanics derived from game design are closely related to how game items have become valuable in different contexts of gameplay.

In the section on systems of storage and exchange, I examined these two features that facilitate secure ownership, and create the trading market of game items.

Without a secure ownership and trading market it is unlikely that a game could have an economy in the first place. In the section on functionality and aesthetics, the focus was on how these two game features create demand and provide motivations for players to pursue valuable game items. These forms of demand and motivation

allow players to become stronger and more attractive in games to justify the functional and emotional value of certain game items. In the section on artificial scarcity and randomness, I analysed how these mechanics control the quantities and probabilities that distribute valuable items for players to pursue in games. These mechanics also affect the supply of a game item trading market, and create uncertainty for players to continue putting more effort in pursuit of valuable game items. Finally, I explored game mechanics of sociality that facilitate interaction with others in a multiplayer environment. With sociality, valuable game items are embedded with “interconnectivity” (Fairfield, 2005, p. 1053) and “network effects” (Shapiro & Varian, 1999, p. 13), that their value is experienced and affected by all participating players.

These examinations of different game mechanics demonstrate how game design can have a significant influence on the value of game items. In other words, these game mechanics not only define the rules and regulations in a game for players to follow, but perhaps more importantly, they also shape a specific environment that affects the value of game items for strategic ends.

The value of game items therefore should not be seen as something only created and controlled by players, as the followers of the labour theory of value or the subjective theory of value might suggest. However, the value of game items can also be created and affected by a series of game mechanics manipulated by game developers. That is, the value of game items in a gaming environment can be influenced by the game mechanics driven by the power of game design. Therefore, as demonstrated in this chapter, this thesis suggests that perspectives from economics and game design should be taken equally into consideration in the context of discussing the value of

game items.

However, one question still remains unsolved: what is the profound influence of players' social interactions opened up by mechanics of sociality on the value of game items? In the following chapters, I will therefore examine the aspects of players' performing behaviour and players' power as a group, and how they can also have a significant influence on the value of game items.

Chapter 3: The role of game items in digital performing environments

In this chapter, I will discuss the role of game items as valuable objects from a framework that sees in-game digital environments as performing spaces for players' social performance. As I will argue later on, valuable game items play important roles as props, costumes and "expressive equipment" (Goffman, 1956, p. 13) for players to reflect, construct, and experiment with their preferred online identities in games in such environments. The value of game items therefore often lies in their roles of helping players associate "with one or more specific social groups" (Sheth et al., 1991, p. 161), "in expressing or reinforcing the sense of self" (Richins, 1994, p. 507) and in "conspicuous consumption" (Veblen, 2009 [1899], p. 49). In order to illustrate my arguments, there will be two parts in this chapter. The first part examines what digital performing environments are and the key elements within them. In the second part, I focus on the role of valuable game items in a digital performing environments, and examine their value and influences.

Over the past decades, the development of video games and graphic technologies have meant games have become a new platform for performance. On the one hand, the simulated digital spaces in games provide whole new environments as stages for performers for theatrical plays. Many in-game items are introduced to such stages to enrich a performance. For instance, in 2008, the SL Shakespeare Company performed *Hamlet* in the 'Globe Theatre' in the digital environment of *Second Life* (SL Shakespeare Company, 2008). In this show, the characters were played by avatars

dressed in many sophisticated traditional costumes, accessories, and props created in *Second Life*. Another case is an Australian band SpaceJunky, which used *Second Life* as a platform to promote their music and perform a live show (Holloway, 2008). In their live show, they used many digital music instruments (such as digital drums and guitar) and dressed their avatars with digital costumes and accessories in the performance.

On the other hand, in an online gaming environment all players can be performers too. First, with today's sophisticated video recording software and tools, players are able to create "game-based performances" (Lowood, 2006, p. 326) through avatars. One of these game-based performances is machinima: "animated filmmaking within a real-time virtual 3D environment" (Marino, 2004, p. 1). Machinima can be created in any 3D gaming or non-gaming environment such as *World of Warcraft*. In *World of Warcraft*, the player Tristan Pope created a machinima called *Not Just Another Love Story* (Pope, 2012), which describes a love story between two lovers from different races, reflecting racial conflict in *World of Warcraft*. In this machinima, the creator also uses many in-game items in *World of Warcraft*, such as underwear, a fishing pole, formal dresses and so on, to create certain scenarios in the story.

Second, the multi-user environments in online games have also formed places that encourage players to engage in a "social performance" (Fernández-Vara, 2009, p. 2) according to the frame theorised by Erving Goffman. In such environments, players are able to express themselves and present their preferred identities through the images of the avatars they create in games. This kind of performance can be observed in digital environments such as *The Dreamscape*. In this environment, players use different styles of clothes and head decorations to dress their avatars,

which then engage in social activities (Taylor, 2002a).

Among these different types of digital performances, this chapter will focus mainly on how players socially perform their online identities through avatars and valuable game items in digital environments, drawing from Erving Goffman's (1956) framework. Such in-game social performances, as I will elaborate in the following sections, can be similar to those in the physical world while also different from them at the same time, due to the use of valuable game items.

3.1 Performance, avatars, and identities in digital environments

In this section, I will examine important elements in the framework of social performance: performance, avatars and player identities. Through these elements, players are able to perform in a unique way within digital environments.

3.1.1 Performance in digital environments

There is a strong relationship between digital gaming environments and performance. Such a relationship, however, is nothing new. In game design, designers are able to apply certain techniques to create "dramatic tension" (LeBlanc, 2006, p. 443) in games. LeBlanc (2006) discusses certain game design techniques such as cybernetic feedback, hidden energy, nonrenewable resources and so on, to produce uncertainty and inevitability that leads to a dramatic gameplay process. He suggests: "it should be safe to say that drama is a desirable quality of games. Players often seek out

games that are dramatic, and sometimes a game's drama becomes the primary motivation for playing. Drama is part of a game's play content" (LeBlanc, 2006, p. 439).

In terms of the traditional concept of performance, the term 'perform' can have multiple meanings in different contexts. According to Schechner (2013, p. 28): "in the arts, 'to perform' is to put on a show, a play, a dance, a concert,' while "in everyday life, 'to perform' is to show off [...] to underline an action for those who are watching" (Schechner, 2013, p. 28). These two meanings of performing also signify how players perform in a digital environment. On the one hand, players are able to perform a formal theatrical show or a play through the actions of avatars, props and costumes, and different scenarios constructed in digital environments. By using proper tools and programs, players are able to record the whole performance in a form of machinima (Marino, 2004) and engage in narrative and storytelling.

On the other hand, playing in such digital environments has already become everyday life for some players (Castronova, 2005, 2007). These players who can be said to live their life in digital environments are able to "show off" (Schechner, 2013, p. 28) using the in-game avatars they have created. By customising, manipulating, and decorating avatars in digital environments, players can "make personal statements" (Bartle, 2004a, p. 182).

This kind of everyday life performance corresponds to the framework by Erving Goffman (Goffman, 1956). To Goffman (1956): "a 'performance' may be defined as all the activity of a given participant on a given occasion which serves to influence in any way any of the other participants" (p. 8). This definition, according to

Abercrombie and Longhurst (1998), is: “to treat everyday interaction as performances [...] performance is entirely pervasive in everyday life, and practically constitutive of it, and, indeed, makes it difficult to separate performance from non-performance” (p. 74). From this perspective, since gaming has already become some players’ everyday life (Castronova, 2005, 2007), every interaction within gaming digital environments have become part of the “social performance” (Fernández-Vara, 2009, p. 2).

Even if we can see a close relation between performance in its traditional meanings and digital gaming environments as discussed above, we cannot overlook that there are also differences between them. First, compared to a performance in the physical world, players in a digital environment can perform – and can only perform – in such environments through their avatars instead of their own physical bodies.⁵⁵ Players create, decorate and manipulate avatars in games in order to engage in different kinds of performances (such as theatrical or social performance). Therefore, the performances in digital environments are created by the complicated player-avatar relationship that involves player identifications and online representations in anonymous (or pseudonymous) environments.

Second, by the same logic, everything in a digital performance is created by computer programs and graphic technologies, and then presented in the form of graphics (either 2D or 3D) or animations, compared to performances in the physical world where every setting (such as stages, costumes and props) is constructed by physical objects. Therefore, the appearance of the background environment, props,

⁵⁵ However, since in-game avatars are controlled by players’ physical actions through game controllers (keyboards, mice, joysticks), the whole player-avatar performance across both physical and digital environments therefore “can be seen as a form of puppetry” (Westcott, 2009, p. 1).

costumes and so on are prepared by programmers and graphic designers.⁵⁶

Although these features are pre-created and finite, they are enough to provide a variety of choices for players to customise and personalise their avatars for in-game performance.

Third, compared to a normal theatrical performance in which there typically is a clear distinction between performers (people who play on a stage) and audiences (people who watch a play in their seats), the distinction blurs in digital environments. In digital environments, players are able to play both the roles of performers and audiences. Players can even play both roles at the same time – they can perform and watch their and others' performances synchronously.

These three significant features of performance in digital environments demonstrate the way players perform in games. More importantly, as I will examine in more detail, these three features also signify the crucial role of valuable game items to players in digital performing environments.

3.1.2 Avatars

In all these worlds [digital environments], users project themselves into the environment via an avatar: a 3D body which they control and whose appearance is often customizable.

(Ducheneaut, Wen, Yee, & Wadley, 2009, p. 1151)

⁵⁶ In some cases such as *Second Life*, objects in digital environments can be created by individual designers (such as professional players), but are still restricted by the game system or platform.

In a digital performing environment, ‘avatars’ – the in-game characters created and controlled by players – can be one of the most important elements of in-game performance. The term ‘avatar’ originally comes from Hindu mythology and “means the incarnation a God takes when descending to earth” (Linderoth, 2005). This meaning implies that something mysterious and imaginary comes to realisation in the physical world.

However, if we apply the term ‘avatar’ in the context of gaming and digital environments, its meaning is actually quite different and opposite. According to Boellstorff (2008), the original meaning of avatar is “incarnation – a movement from virtual to actual – with respect to online worlds [such as digital gaming environments] it connotes the opposite movement from actual to virtual” (p. 128). That is, in this sense, players (as something actual) create in-game avatars (as something virtual⁵⁷) so that they represent themselves in the form of avatars in digital environments.

In gaming culture, the term ‘avatars’ typically refers to the in-game characters created and controlled by players (Linderoth, 2005; Waggoner, 2009). According to Klevjer (2006): “the notion of the ‘avatar’ was introduced in the *Ultima* role-playing game series with *Ultima IV: Quest of the Avatar* (Origin 1985) [a single player game]. In role-playing games, the ‘avatar’ is the player’s customisable on-screen character or persona in the game” (p. 12). In 1986, the term ‘avatar’ was first used in a multiplayer game: *Habitat*, referring to the animated figures representing players, which are humanoid in appearance (Boellstorff, 2008, p. 128; Little, 1999; Morningstar & Farmer, 2008, p. 3).

⁵⁷ As discussed earlier in Chapter 1, the term ‘virtual’ could be problematic in some ways. A more appropriate term would be ‘digital’.

Avatars are one of the most important connections between players and a gaming environment. Through avatars, players can perceive and play in a digital gaming environment. For example, in *World of Warcraft*, players need to create, build and develop their avatars, control them to experience the in-game environment, and engage in different activities in the game (such as levelling up, dungeon raids, and so on.)

The term 'avatars' is also used to refer to the characters in open-ended multiuser environments such as *Second Life* or *IMVU* (Boellstorff, 2008; Gottschalk, 2010; Meadows, 2007). In these kinds of digital environments, instead of controlling avatars to engage in hardcore gaming activities (such as killing monsters), players are able to decorate their avatars with stylish clothes and accessories and engage in different types of social activities (which can include chatting, dancing, dating and more).

Whether in a gaming or open-ended digital environment, a player typically controls and manipulates one avatar at a time (though he or she might be able to create many avatars). This kind of controlling and manipulation of one avatar can benefit players' immersive experience. Games that allow a player to control one main avatar and perceive through it, as Bates (2004) suggests: "there's a greater sense of being 'in the world,' because the player sees and hears along with his character" (p. 39).⁵⁸

The sense of being "in the world" (Bates, 2004, p. 39) also benefits players' sense of

⁵⁸ Bates (2004) mainly describes the point of view in first-person games in which "games put the camera in the character's head" (p. 39). But even in third-person games, players still perceive the gaming environment through the avatars they control.

“presence” (Taylor, 2002a, p. 42) through avatars, particularly in a digital multi-user environment. Since players can perceive, experience and interact with the gaming environment and each other through avatars, the in-game interaction “creates and confirms to the user that they are, in fact, there” (Taylor, 2002a, p. 42).

If a player can ‘be there’ in a digital environment through the avatar (“I am there”), the player, in a sense, also embodies himself or herself in the avatar (“the avatar over there on the screen is me”). In other words, the relationship between players and avatars can potentially facilitate a further identification of players with their avatars, which will be discussed in the following section.

3.1.3 Player identity

Rather than being limited to one representation of the offline self, online selfhood can be multiple, variable, idealized, and changeable.

(Martin, 2008, p. 12)

Where there is id, there will be ego. You are the trunk of the identity tree, and your avatars are the leaves.

(Meadows, 2007, p. 96)

As discussed so far, avatars enable players to perceive a digital environment, and present themselves in it. This relationship between players and avatars, as I will discuss in this section, can facilitate a deep level of identification of players with their

avatars.

In game studies, the relationship between players and avatars has been one of the most controversial and complicated sites. Studies that have centred on and examined this complicated relationship have adopted many different approaches (Aas, Meyerbrocker, & Emmelkamp, 2010; Koles & Nagy, 2012; Messinger, Ge, Stroulia, Lyons, Smirnov, & Bone, 2008; Sung, Moon, Kang, & Lin, 2011; Waggoner, 2009). However, there are broadly two perspectives from which to understand this player-avatar relationship. Some suggest that avatars only function as tools for players to manipulate in games (Newman, 2002; Salen & Zimmerman, 2004), while others argue that the immersive experience through avatars in digital environments could lead to a deep level of identification for players (Filiciak, 2003; Gee, 2004; Taylor, 2002a; Waggoner, 2009).

In some cases, avatars could be just like tools in games. This is especially true in some single-player games such as *Super Mario Bros*. In these games, players control and manipulate an avatar to interact with the gaming environment and experience a narrative of a game. The avatar (such as Mario) controlled by players as “a game token” (Costikyan, 1994) is typically pre-designed by the game system, without giving many choices for players to change its appearance. Moreover, there is often an ending in these types of single-player games. Once a player finishes all the quests and goals in a game, this game is, to some degree, over. Once a game is over, the avatar’s temporary in-game missions for players to experience in the game are also finished.⁵⁹

⁵⁹ Some players will keep playing a game even if it is completed. These types of play might include “repeated play and expert play” (Aarseth, 2003, p. 6).

Therefore, in the context of such single player gameplay, the temporary relationship between players and pre-designed avatars is like a controller and a controlee. The relationship between them is instrumental and functional – players control and manipulate avatars in order to temporarily experience a game. This perspective corresponds with Salen and Zimmerman’s (2004) suggestion that an avatar is only “a tool, a puppet, an object for the player to manipulate according to the rules of the game [...] the player is fully aware of the character [avatar] as an artificial construct” (p. 453). As Newman (2002) also suggests: “the ‘character’ [avatar] is better considered as a suite of characteristics or equipment utilised and embodied by the controlling player [...] They [avatars] are equipment to be utilised in the gameworld by the player. They are vehicles.” (Newman, 2002). However, even in single player games, there can be a substantial investment of identity in the avatar for the player in a temporary gameplay.

The relationship between players and avatars can be even more intense in a multiuser digital environment, where avatars are not just tools controlled by players for the purpose of the temporary gameplay experience. First, in many of these environments players are able to customise their avatars through the various choices provided by the system. For example, in *Second Life*, a player can create and change an avatar’s body parts (including skin, eyes and hair), clothes, and other accessories. This kind of process enables players to create and develop their avatars according to personal preferences.⁶⁰

Second, since multiuser gaming environments “have no definitive ending” (Malone,

⁶⁰ This feature is available in many single-player games too.

2009, p. 360), players can maintain long-term relationships with their avatars. Such long-term relationships also enable players to “form relationships with each other through avatars” (Yee, 2006b, p. 187). Therefore, avatars “form one of the central points at which users intersect with a technological object and embody themselves” (Taylor, 2002a, p. 41). In this context, players can therefore customise the images of their avatars in games to express themselves in front of others. As Taylor (2002a) notes in her research, an “avatar acts as a mode of personal expression which is constantly being worked over” (p. 51).

This perspective – that players can express themselves by customising their avatars’ images to develop in-game relationships – implies that avatars in MMOs can become a player’s surrogate, instead of a mere tool in single-player games. Everything around an avatar (including its creation, decoration and interaction) allows players to embody themselves in a digital environment. In this sense, the avatar created in a digital environment has become a part of the player who controls it. Therefore, as Taylor (2002a) argues: “the digital body [an avatar] is used to root the [a player’s] self in the space [a digital environment] [...] They also shape and help make real how users internally experience their selves” (pp. 42-51).

In Taylor’s (2002a) study, a participant called ‘Meg’ said that the process of creating an avatar is “in large part focused on getting to the ‘that’s me’ stage” (Taylor, 2002a, p. 52). Since Meg is a cat lover, she decided to choose a cat’s head for her avatar in games (Taylor, 2002a, p. 52). In this context, the avatar choices in games can represent a player’s identity in his or her ordinary life.

This idea that players can embody themselves and represent their identities through

avatars in digital environments implies the possibility of alternative egos or even second selves for players. This is mainly because of “the phenomenon of alternate avatars, known primarily as “alts” (Boellstorff, 2008, p. 132). In a gaming environment that allows ‘alts’, it is possible for players to create and experiment with multiple avatars that represent different aspects of their identities. This responds to what Turkle (2005, p. 12) describes: “one can create multiple avatars in online communities and play with relationships, quite literally using one’s ‘second (or third, or fourth, or fifth) self.’” As Wilson (2003, p. 2) also suggests, the existence of avatars not only means that a surrogate self can be constructed and mobilised, but in fact “a plurality of shifting selves” can be constructed. Therefore, as Vicdan and Ulusoy (2008) argue, “the presence of the body in virtual worlds [...] enables people to playfully engage in constructing and reconstructing several bodily selves” (p. 17).

This fact that a player can create many avatars and construct multiple identities demonstrates a complicated relationship between player identity and the avatars with many possibilities in a digital environment. On the one hand, an avatar could be seen as a kind of representation of a player in the physical world. In the case of Meg discussed above (Taylor, 2002a, p. 52), she chose a cat’s head for her avatar, because it represents her identity (as a cat lover) in her ordinary life.

On the other hand, the image of avatars in an anonymous digital environment could be quite opposite to the image of a player in the physical world. This can be seen in Boellstorff’s (2008) study, in which there is a participant called ‘Pavia’. Pavia is a male player who plays a female avatar in *Second Life*. Pavia said that:

[...] in *Second Life* I created something new in myself that I never realized was

there before. At first it was just role playing, but then I grew to love Pavia. I kept infusing myself into her, but then something unexpected started to happen: Pavia started coming out in the real world. I became her, she became me. (Boellstorff, 2008, p. 138)

Therefore, compared to the concept of identities in ordinary life, the digital environment allows multiple and more flexible ways for players to represent themselves. Players can either represent their online identities responding to their identities in the physical world (for instance, cat lovers can wear a cat's head in games), or explore other dimensions of their identities hidden in the physical world (for instance, male players can play female characters). As Taylor (2002a) argues: "while some people make conscious choices to have their avatar reflect their offline self and corporeality in some way (or present a version they feel is more authentic), others experiment with embodying themselves in unfamiliar ways" (p. 55).

In other cases, players can represent and manipulate their online identities in a more subtle way – it can be similar to but slightly different from their offline identities. As a player explains in Williams, Kennedy, and Moore's (2011, p. 188) study:

[...] I am able to play characters similar to myself—but different in some ways. Take one Kerran character – he is similar to me in some ways, but even more outgoing and VERY flirty in a sincere way, just like I would be if I was flirty in RL [real life]—but in RL I am NOT flirty. By "trying out" some of these characteristics, I sometimes find aspects of the character I like and I might try to weave them into my daily behaviour. Other things, of course, I throw out that don't work or aren't practical. (Williams, Kennedy, & Moore, 2011, p. 188)

Whether the features of an avatar in a digital environment are similar, opposite to, or slightly different from a player's offline identity, all these demonstrate an inseparable two-way relationship between players and avatars. Players are able to project themselves onto the avatars in a digital environment. This corresponds to Gee's (2004, p. 55) concept of the projective identity. According to Gee (2004), a projective identity means that: "to project one's values and desires onto the virtual character [...] I want this person [an avatar] and history to reflect my values [...] the projective identity is both mine and hers [an avatar's]" (pp. 55-56).

This kind of projection can also be inward, where the images of avatars could have a significant influence on a player's offline identity. This perspective is related to Filiciak's (2003, p. 91) concept of the "introjection":

[...] the subject [a player] is projected inward into an "other" [an avatar] [...] subject and object, and what is real and imagined, are not clearly separated, the player loses his identity, projecting himself inward, becoming the "other", and identifies with the character in the game. (Filiciak, 2003, p. 91)

Through the process of projection or introjection, an avatar has become part of a player, a surrogate in a digital environment. Players and avatars "do not stand at the opposite sides of the mirror anymore – they become one" (Filiciak, 2003, p. 91). This perspective can also be observed in Taylor's (2002a) empirical study, in which one participant said: "the more time I spend inworld... the harder it is for me to differentiate between my inworld self and my offline self [...] The two seem to be merging with each other [...]" (p. 57).

In fact, in digital environments, player identity not only can be projected or introjected, but also can switch in a flexible way. The identity of a player in gaming is more like a dynamic conversion between the player in the physical world and the avatars in a game. Players are able to easily switch their consciousness responding to various conditions, whether in or out of a game. As Castronova (2003, p. 28) argues, in digital environments “the body becomes a vessel of choice, and the thinking part of humanity – the self – will find it convenient to slip into and out of avatars” (Castronova, 2003, p. 28).

More specifically, in a digital environment, player identity can slip into avatars in one context, and slip out of avatars in another. These contexts are different “frames” in a gameplay, if we examine player identity from Fine’s framework (1983). By applying the concept of “frame” from Erving Goffman’s framework (Goffman, 1974),⁶¹ Fine (1983, p.186) argues that there are at least three different frames regarding the relationship between player identity and game characters:

First, gaming, like all activity, is grounded in the “primary framework,” the commonsense understandings that people have of the real world [...] It is a framework that does not depend on other frameworks but on the ultimate reality [the physical world] of events. Second, players must deal with the game context; they are players whose actions are governed by a complicated set of rules and constraints. They manipulate their characters, having knowledge of the

⁶¹ In Goffman’s (1974) framework, he defines the concept of frame as “definitions of a situation are built up in accordance with principals of organization which govern events [...] and our subjective involvement in them” (Goffman, 1974: 10). According to Goffman (1974, p. 21), a frame allows people to “locate, perceive, identify, and label a seemingly infinite number of concrete occurrences defined in its terms.”

structure of the game, and having approximately the same knowledge that other players have. Finally, this gaming world is keyed in that the players not only manipulate characters; they are characters (Fine, 1983, p.186).

This kind of switch between different frames, in fact, allows players to play roles with different identities in each frame. If we apply this framework in the analysis of digital gaming, when players immerse themselves in the third framework and have become the in-game avatars, their identities can be projected onto or into avatars.⁶² Since players are allowed to create multiple avatars in games, their identities can also shift between different avatars within the third frame in Fine's (1983) framework.

Additionally, because the third frame in digital environments is relatively anonymous (or pseudonymous), players might be able to represent their identities with less pressure. In such environments, players can express who they *really are* in the form of avatars in a place where no one really knows who they *really are*. Similar perspectives can be seen in Pearce's (2009) study, in which she suggests that: "people enter into a play frame [such as a digital environment] [...] that allow them to take liberties with their roles and identities that they might not take in ordinary life" (p. 59).

Therefore, avatars, the online version of us, without the constraints from our daily lives, could be more like us than we are in the physical world, as the case of Pavia shows. As Filiciak (2003) argues, "our virtual 'self' is closer to our images of ourselves than the one we present, which is governed by requirements and expectations of

⁶² Although this projection mainly happens within the third frame in Fine's (1983) framework, from my perspective, it is still related to other two frames. Player identity in digital environments is more like the result of a negotiation between these three frames.

'real' life" (p. 92-93). As Boellstorff (2008) also suggests, the online selves "could become closer to what they [players] understood to be their true selfhood, unencumbered by social constraints or the particularities of physical embodiment" (p. 121). This is also evident in Taylor's (2002a) research, in which one participant said: "I identify this brown cat [an avatar in a game] as me more than I identify my picture with me [...] When I look at the brown cat I know I am looking at me [...]" (p. 54).

In this sense, avatars create a new opportunity for players to more freely⁶³ or comfortably express or experiment with their identities in digital environments. In this context, as Filiciak (2003) describes: "avatars are not an escape from our 'self', they are, rather, a longed-for chance of expressing ourselves beyond physical limitations, they are a post-modern dream being materialized" (p. 100). This also responds to what Turkle (1995) argues in the early study regarding digital environments: "virtual spaces may provide the safety for us to expose what we are missing so that we can begin to accept ourselves as we are" (p. 263).

Since players and avatars can be connected and inseparable in the context of digital environments, this relationship provides an opportunity and potential for players to perform their online identities through avatars. Players can create, control and decorate their avatars to represent part of themselves in games. In the following section, I will examine different ways players can perform in digital environments through avatars.

⁶³ However, players have different kinds of constraints in games: the game rules and regulations created by game designers or developers. How players are 'allowed' to express themselves is still restricted in this sense.

3.2 How players perform through avatars and game items

In this section, I will elaborate upon the relationship between players and avatars discussed earlier, and argue that through the interplays between player identity, avatars and game items, players now are able to perform their online identities through avatars within digital environments as a form of social performance.

In a digital environment, the actions of avatars respond to the actions of players with keyboards or other types of controllers. In this context, an avatar is: “a puppet [...] for the player to manipulate [...]” (Salen & Zimmerman, 2004, p. 453). Therefore, we should understand a player “as akin to the puppet artist, or puppeteer” (Westecott, 2009, p. 3), who controls and manipulates their puppets. The way players manipulate their in-game avatars, therefore, “can be seen as a form of puppetry” (Westecott, 2009, p. 1).

However, as discussed earlier, the complex relationship between players and avatars involves projections (Gee, 2004, p. 55) and introjections (Filiciak, 2003, p. 91) of players’ identities. This complicated relationship means that the puppetry perspective mentioned above is not enough to explain how players perform in digital environments through avatars. In this context, avatars are more like players’ surrogates, carrying players’ identities in digital environments. As Rehak (2003) argues: “we create avatars to leave our bodies behind, yet take the body with us in the form of codes” (p. 123).

It is, however, important to note that since avatars are made by codes, this also means that they are still both enabled and restricted by computer programs. This, therefore, further affects how avatars can or cannot perform in digital environments constrained by game design.⁶⁴ For example, in the case of Meg discussed above (Taylor, 2002a, p. 52), if there are no cat's heads available in game system for players to decorate their avatars in the game, it will be impossible for a cat lover like Meg to do so. As Taylor (2002a) suggests: "we must attend to the ways avatar systems also often limit and constrain interesting and progressive possibilities" (p. 58).

Even though players can only choose avatars from the limited options provided by the gaming system, it is usually enough for them to construct their online identities through avatars. This corresponds to what Murray (1997) suggests: "even when avatars are crudely drawn or offer a very limited choice of personalization, they can still provide alternate identities that can be energetically employed" (p. 113). As Wilson (2003) also points out: "what is apparent is that while it is undeniable that programmatic limits are a part of digital technology, there is nevertheless substantial scope in which to exercise choice [such as personal choices around avatars] and create meaning" (p. 3).

In the following sections, I will demonstrate in what ways players can socially perform their online identities through the limited choices provided by the gaming system around avatars within digital environments.

⁶⁴ From the perspective of platform studies, the ways avatars can or cannot perform can also be restricted by the capacity of a certain platform (for instance, game consoles).

3.2.1 Different ways of performing through avatars

Through avatars, users embody themselves and make real their engagement with a virtual world.

(Taylor, 2002a, p. 40)

In this section, I mainly apply the framework of Erving Goffman (1956) to demonstrate how players are able to construct and perform their online identities through avatars in the digital environments. In Goffman's (1956) framework from *The Presentation of Self in Everyday Life*, he applies concepts from traditional theatrical performance to personal and social interactions in everyday life. For Goffman (1956), performance "is entirely pervasive in everyday life" (Abercrombie and Longhurst, 1998, p. 74).

This framework is identified as the dramaturgical approach (Goffman, 1956; Pearce, 2009) or social performance (Fernández-Vara, 2009). According to this framework, controlling and manipulating the messages and images presented to others in everyday life enables people to resemble performers who present specific roles in front of audiences. Through this process, people are also able to construct their identities. These identities respond to the expectations of others in a specific context. In this context, we are able to produce and re-produce our identities in everyday life (Linderoth, 2005).

The concept of 'identity' is therefore flexible and changeable in Goffman's (1956) framework. According to Goffman (1956), the identity or self is more like a mask that

can be controlled or manipulated depending on the individual's roles in different contexts. The way we construct our identities is therefore based on the performances in different contexts in everyday life. He uses the words of Park (1950, pp. 249-250) to demonstrate his perspective:

It is probably no mere historical accident that the word person, in its first meaning, is a mask. It is rather a recognition of the fact that everyone is always and everywhere, more or less consciously, playing a role [...] It is in these roles that we know each other; it is in these roles that we know ourselves [...] In a sense, and in so far as this mask represents the conception we have formed of ourselves – the role we are striving to live up to – this mask is our truer self, the self we would like to be. In the end, our conception of our role becomes second nature and an integral part of our personality. We come into the world as individuals, achieve character, and become persons. (Park, 1950, pp. 249-250)

Identity is also flexible and changeable in digital environments. According to the study by Sung et al. (2011), player identity in digital environments is “malleable – that self-concept should not be viewed as a unitary construct or as a generalized view of the self. That is, dependent upon the online social contexts and situations, individuals tend to express different selves” (p. 15). As discussed earlier, through avatars we are able to play very different roles in digital environments. In a sense, avatars are our ‘masks’ in games. Through the interactions with avatars, we merge with them (Filiciak, 2003). In some cases, different avatars as our masks in a digital environment could be “‘truer’ reflections” (Taylor, 2002a, p. 54) of ourselves.

Since gaming has become part of our everyday life (Castronova, 2005, 2007), the way

players play games and socially interact with each other through avatars has become a form of “social performance” (Fernández-Vara, 2009, p. 2) in everyday life. Only in gaming, we do not construct our identities by controlling and manipulating our images in the physical world (Goffman, 1956), but by creating, customising, and controlling avatars in digital environments. The images of avatars therefore represent our online identities in a new way – as a result of players’ personal choices provided by game design.

It is important to note that, from Goffman’s (1956) perspective, the images we construct and present in everyday life can leave “clues” (Goffman, 1956, p. 1) for others to perceive who we are. These clues play an important role in social interactions. As Goffman describes (1956, p. 1):

If unacquainted with the individual, observers can glean clues from his conduct and appearance which allow them to apply their previous experience with individuals roughly similar to the one before them or, more important, to apply untested stereotypes to him. (Goffman, 1956, p. 1)

There are various types of clues in an everyday life performance such as clothes or accessories. These clues are defined as “expressive equipment” in Goffman’s (1956, p. 13) framework. According to Goffman (1956, p. 13), this expressive equipment is employed by an individual in his or her everyday performance intentionally or unwittingly.

Goffman (1956, p. 14) refers to one important kind of expressive equipment as “personal front”. According to Goffman (1956), personal front refers to: “the items

that we most intimately identify with the performer himself and that we naturally expect will follow the performer wherever he goes” (p. 14). The personal front includes a person’s “clothing; sex, age, and racial characteristics; size and looks; posture; speech patterns; facial expressions; bodily gestures” (Goffman, 1956, pp. 14-15). Some of these are relatively fixed (such as sex and racial characteristics), while others are more mobile and flexible (such as posture and facial expressions) (Goffman, 1956, p. 15).

This concept of personal front can be further divided into “appearance” (Goffman, 1956, p. 15) and “manner” (Goffman, 1956, p. 15). The appearance (for instance, clothing) of a performer provides us with information about his or her social status and temporary ritual state (such as a formal dress for a formal party) (Goffman, 1956, p. 15). Meanwhile, the manner (such as facial expressions) of a performer can “warn us of the interaction role the performer will expect to play in the on-coming situation” (Goffman, 1956, p. 15). For example, as Goffman (1956) describes: “if an individual is angry his manner will tell us upon whom he is likely to be in a position to vent his anger” (p. 15).

Personal front is presented in a unique way in digital environments, whether through appearance or manner. Since avatars have become players’ surrogates, players are able to socially perform in digital environments through the appearance and manner of their avatars – by creating, decorating, and controlling them.

Therefore, in digital environments, personal front should be understood from three dimensions around avatars: avatar creation, avatar decoration, and avatar action. In this table below, I outline how Goffman’s concept of personal front (Goffman, 1956,

p. 14) can be applied in avatar-related activities in digital gaming environments.

Avatar creation and avatar decoration correspond to the concept of “appearance” (Goffman, 1956, p. 15), while avatar action responds to the concept of “manner” (Goffman, 1956, p. 15). Through these means, players are able to construct their online identities and socially perform in digital environments.

Personal Front	Appearance	Avatar Creation	Items such as: name, face, height, weight, race, class, hair, and other basic shapes. (during the avatar creating process)
		Avatar Decoration	Items such as: weapons, equipment, armour, clothes, accessories (in the ongoing gameplay process)
	Manner	Avatar Action	Movements, attacks, gestures, posture, and so on. (in the ongoing gameplay process)

Table 1: Applying Erving Goffman’s concept of personal front (1956, p. 14) in digital environments⁶⁵

During avatar creation, players are able to decide the basic attributes of an avatar.

The process of avatar creation is typically the first thing that a player has to do in

⁶⁵ Among these three aspects, avatar decoration is more related to valuable game items while other two aspects are more related to in-game avatars.

order to enter into a digital environment. Depending on different environments, players can choose an avatar's face, race, height, weight, class, and so on. For example in *World of Warcraft*, before players enter the game, they have to customise the basic features of their avatars, such as name, race, sex, class, skin colour, face, hair style and hair colour.

It is worth noting that some of the relatively fixed personal front attributes such as sex and racial characteristics in Goffman's (1956) early framework are not quite fixed in digital environments. In digital environments, during the process of creating an avatar, a player can typically choose an avatar's gender and racial characteristics.⁶⁶ In some cases, players can even change the features of an avatar's appearance or features any time they want. For example, in early games including *Habitat* and *The Dreamscape*, players are able to change the appearance of their avatars' heads to customise the shape of their avatars (Morningstar & Farmer, 2008; Taylor, 2002a). More recently, in a digital environment such as *Second life*, players can change or edit the appearance of almost every part of their avatars' bodies at any time (Linden, n.d.).

The process of creating avatars decides not only the basic appearances of avatars, but often also their abilities and limitations in the gameplay that follows. For example, in *World of Warcraft*, when a player creates an avatar, he or she also needs to decide the class and race of that avatar. If a player chooses to become a priest, his or her avatar has the ability to heal teammates but can only wear cloth armour and specific weapons (Wowwiki, n.d.-f). In other words, avatar creation not only shapes the appearance of avatars, but also influences the player's experiences in the following

⁶⁶ This however, still depends on the options provided by the gaming system.

gameplay.

Avatar decoration, which involves mobilising items of value, often takes place after players create their avatars. Players are able to decorate their avatars with various game items such as weapons, equipment, armour, clothes and accessories. The way players are able to decorate their avatars varies depending on the digital environments. In a game such as *Entropia Universe*, a player can choose futuristic game items (including space suits or a laser gun), while in *Diablo 3*, players are provided with medieval equipment (for instance, spears and bow).

The items for the avatar decoration do not simply decorate the original appearance of an avatar, but can also substantially change it. In *Second Life*, players can purchase a package that might include a necklace, a tank top, a jacket, a belt, jeans or sneakers. These items cover most of an avatar's body and therefore dramatically change its appearance.

The process of decorating avatars not only changes avatars' appearance, but also their abilities in the following gameplay. In other words, in certain games an attractive game item not only makes an avatar stylish, but can also make it powerful. For instance, in *Diablo 3*, the legendary bow 'Windforce' not only creates a fancy animation of wind blowing around the avatar, but also increases the damage a player can inflict, and knocks enemies back (Blizzard Entertainment, n.d.-e).

Finally, in performing avatar actions, players are able to control and manipulate the actions of avatars such as moving, attacking, facial expressions, dancing and hugging. Through these actions, players can interact with digital environments and each other

through avatars.

It is important to note that the way players can control and manipulate their avatars is still restricted and limited by the game system or platform in any particular digital environment. Some avatar actions can be performed in one environment, but not in another. For instance, in *Second Life*, players can fly their avatars almost everywhere in the environment, while this is not possible in a game like *Farmville*.⁶⁷

Avatar actions can be affected by choices made in avatar creation and decoration as discussed above. For example, in *World of Warcraft*, avatars of different genders and races can perform different dance styles (for instance, female Draenei can perform belly dancing, while male Undead can perform the 'rockstar' dancing style) (Wowwiki, n.d.-g). In some cases, specific game items can empower avatars with the ability to perform certain actions. In *Diablo 3*, a legendary pair of pants, 'Pox Faulds', allows the avatar equipped with them to 'fart' from time to time (Blizzard Entertainment, n.d.-f).

Through avatar creation, avatar decoration and avatar action, players are able to construct, manipulate, and perform their preferred online identities through avatars. Since avatars are our surrogates, avatar creation, decoration and action have become our "personal front" (Goffman, 1956, p. 14) in such environments. Through managing the in-game personal front, we control and manipulate our 'masks' – the identities in the form of avatars in games – in a more flexible, less stressful, and yet technically restricted way.

⁶⁷ In *Farmville*, an avatar is only allowed to walk around on the ground (Zynga, 2009).

However, in this process of social performance in digital environments, we still leave “clues” (Goffman, 1956, p. 1) for others to glean. During a social performance in a game, an avatar’s appearance, decorations and actions all say something about the controller – the player – whether the clue is left “intentionally or unwittingly” (Goffman, 1956, p. 13). In other words, as Taylor (2002a) suggests, “ultimately, digital bodies tell the world something about yourself. They are a public signal of who you are” (p. 51). This can also be seen in Boellstorff’s (2008) research, in which one participant in *Second Life* comments: ‘I’ve come to observe that the outward appearance really does communicate a lot about who you are, because it’s made up of conscious choices about how you want to present yourself [in *Second Life*]’ (p. 130).

Our online identities, therefore, are able to be constructed and reconstructed through avatars’ social performance and social interactions with each other. Moreover, we are theoretically able to start a fresh new identity any time we wish, from one avatar to another, from one digital environment to another.

Through the discussions above, we can see how players are able to perform through avatars. However, another important question remains unanswered: what is the role of valuable game items in the context of the player-avatar social performance in digital environments?

3.2.2 Game items as valuable props, costumes, and expressive equipment

“People treat you according to your avatar. It’s a shame, but it’s true,” [...] “I sort of judge people based on their avatar appearance; I don’t tend to like the tall skinny blondes.”

– *Second Life* residents’ comments (Boellstorff, 2008, p. 130)

As mentioned above, the aim of this chapter is to understand the role of valuable game items from a framework that sees gaming as a form of social performance. We have already seen how players perform and construct their preferred online identities through avatars in games. In this section, I will focus on the role of game items and their value in the player-avatar social performance in digital environments.

First of all, in this context, I suggest that game items are props and costumes to players. Evidence for this argument can be observed even in non-digital environments. In the live action role-playing games (LARPs) described in Chapter 1, game items are props and costumes used by players in physical spaces. Depending on the theme, players are typically asked to physically decorate themselves with different types of theatre-style props and costumes such as swords made from foam rods, tunics, rings, and more. Players use these game items to “improve the immersive qualities of the game environment” (Tychsen et al., 2006, p. 261).

In digital environments, as I have argued so far, game items not only help players become immersed in the environment, but also construct their online identities in social performance. This can be done through the avatar decoration discussed in the previous section. Since avatars are surrogates of players (Wilson, 2003, p. 2), decorating avatars is not like decorating “a puppet” (Salen & Zimmerman, 2004, p. 453), but more like players decorating themselves. Choosing a valuable game item

for one's avatar for in-game social interactions is therefore similar to "choosing a costume for a masquerade ball" (Pearce, 2009, p.60).

Since game items are props and costumes to players, their value should lie in their roles as props and costumes. In other words, the value of game items depends on how they are used for social performance in digital environments. Outside digital environments, game items can be relatively useless and valueless.⁶⁸

This perspective corresponds to Schechner's (2004) argument about the objects in the performance activities. According to Schechner (2004, p. 11), objects (such as props and costumes) in a performance:

[...] have a market value much less than the value assigned to the objects within the context of the [performance] activity [...] Often theatrical props and costumes are designed to look more costly than they actually are. But during the performance these objects are of extreme importance, often the focus of the whole [performance] activity [...] The "other-worldiness" of play, sports, games, theater, and ritual is enhanced by the extreme disparity between the value of the objects outside the activity when compared to their value as foci of the activity. (Schechner, 2004, p. 11)

This viewpoint can also be observed in Fernández-Vara's (2009) study. She applies the concepts of "use value (they are useful [...]) [original emphasis]" (Fernández-Vara, 2009, p.2) and "exchange value (they are worth money [...]) [original emphasis]"

⁶⁸ This does not mean valuable game items should not be traded, or measured outside a digital environment. Rather, this refers to that game items must be used in a digital environment and respond to the gaming context in order to be meaningful.

(Fernández-Vara, 2009, p.2) drawn from Marx. She suggests that the props or costumes in a performance (such as a sword made of wood) have relatively low use and exchange value in everyday life but high use value in a performance (Fernández-Vara, 2009, p. 2).

In this context, the value of game items in a social performance is similar to that of traditional props or costumes. Game items are valuable to players because of the ways they can be used by players – for avatar decoration – as an important way to construct players' avatars in digital performing environments. Therefore, the value of game items, as Fernández-Vara (2009) argues: “is related to the effect it has in the game [...] there are many items that have a high use value” (p. 2).

However, it is important to note that the use value of game items in a digital environment can be different from the term's conventional meaning in Marxism. Since game items are created by programs and codes and used by avatars, from the traditional perspective, these game items “lack any use-value in terms of physical needs” (Martin, 2008, p. 2). The use value of game items as props and costumes is therefore not about fulfilling players' physical needs (such as keeping their bodies warm), but more about facilitating the in-game experience in terms of social performance (such as constructing online identities) through avatars.

Additionally, since game items provide a variety of choices for players to decorate their avatars for social performance, players are able to “make personal statements” (Bartle, 2004a, p. 182) by customising their avatars. First, the way valuable game items can be used to “make personal statements” (Bartle, 2004a, p. 182) is in fact a way for them to construct their preferred online identities. This function is related to

the value of objects for “identity and self-expression” (Richins, 1994, p. 507) as discussed in Chapter 1. Game items are valuable “for their role in expressing or reinforcing the sense of self” (Richins, 1994, p. 507).

Second, the images of avatars decorated with valuable game items are the result of players’ choices arising from personal preferences. The value of game items is therefore related to the perspective of subjective value theory – the value of objects is subjective, depending on a person’s personal preferences and judgements (Castronova, 2002, 2005; Menger, 2007 [1976]).

No matter for what reason a player chooses a certain game item (such as a cat lover choosing a cat’s head to show her preference) (Taylor, 2002a, p. 52), any game item can be valuable as long as it is chosen by a player. In other words, “a good is worth whatever someone is willing to pay for it” (Lehdonvirta, 2009a, p. 24). Therefore, the context of players’ social performance through avatars provides an extensive explanation for the perspective of subjective value theory.

Moreover, valuable game items in digital performing environments create a connection between them, the specific social roles of avatars, and the players who own them. Just as, in ordinary life, a person is defined by what he or she consumes (Morrison & Johnson, 2011; Ruvio & Belk, 2013), so too in digital environments, a player is defined by what his or her avatars consume (Martin, 2008).

As discussed above, game items for avatar decoration can be seen as one type of expressive equipment, from Goffman’s (1956) perspective. According to Goffman (1956, p. 15), appearance (as a type of expressive equipment) can provide us with

information about a performer's social status. For example, if a person wears a Rolex watch, the watch itself could imply something about the person's specific social status.

It is important to note, however, that from Goffman's (1956) point of view, this appearance usually does not function independently. In many cases, it depends on existing impressions (or even stereotypes) of roles in the broader social context. In other words, "when an actor takes on an established social role, usually he finds that a particular front has already been established for it" (Goffman, 1956, p. 17).

Social roles can be observed, for example, with doctors in hospitals with white coats or policeman with uniforms, in which both groups are expected to perform in a certain way (that is, as professional or authoritative). In these contexts, the white coats or uniforms are one type of expressive equipment – appearance. They can make the way a performer plays his or her role (as a doctor or a policeman) more convincing. For example, people tend to be convinced that a person with a white coat in a hospital has the ability to help someone wounded in a car accident. In this context, these established social roles as "social fronts" (Goffman, 1956, p. 17) have become a "collective representation" (Goffman, 1956, p. 17).

In a digital environment, valuable game items operate in a similar way. On the one hand, game items are able to provide information about a player's current social status *outside* the digital environment. For example, as Lehdonvirta (2009a) points out, "virtual wealth [such as valuable game items an avatar has] reflects to some extent the person's real income" (p. 64). This is because valuable game items that can be measured by real currency "can be seen as representations of status at a

financial level [...] They are also a visual sign that the user has the means to pay for unique goods” (Martin, 2008, p. 16).

On the other hand, game items can provide information linked to the social status and role of an avatar *inside* a specific digital environment. This perspective can be examined in two aspects. First, in some cases valuable game items (especially those extremely rare or expensive ones) equipping an avatar are able to communicate a higher social status for its owner (the player) in a digital environment. This can be observed in Lehdonvirta’s (2009a, p. 60) study, in which he points out that it is possible to tell whether a player is experienced or not, just by looking at his or her avatar’s possessions. In other words, experienced players who put in a lot of time and effort usually have avatars with many valuable game items. Those experienced players have higher social status in games and are able to “claim competence and authority in [game] forum discussions and debates touching on topics such as what constitutes legitimate play and how the game should be developed in the future” (Lehdonvirta, 2009a, p. 60). In other words, those players who own valuable game items for their avatars also feel a sense of superiority and obtain higher social status in games (Ho, 2007, pp. 78-79).

Second, it is possible to tell and distinguish the social role of a certain avatar (such as a priest or a warrior) by looking at types of game items (such as armour, weapons, clothes, and so on) equipping the avatar to form its appearance. For example, in *World of Warcraft*, a warrior avatar whose role is in charge of melee fights is therefore typically equipped with heavy weapons (such as hammers or axes), shield or plate armour. In contrast, a priest whose role is to heal and protect others is normally equipped with light weapons (such as staves) and cloth armour (such as

robes). In other words, game items are able to represent the specific social role (such as a priest or a warrior) and responding abilities and responsibilities (healing others or melee fights) of an avatar in the context of gameplay.

This perspective that sees game items create a link to pre-defined social roles of avatars in games is related to the concept of “social front” (Goffman, 1956, p. 17) discussed above. In this sense, the heavy weapons and armour of a warrior in *World of Warcraft* are just like the white coats of a doctor in ordinary life – they become an indicator of “an established social role” (Goffman, 1956, p. 17). However, while such roles are built upon by the “collective representation” (Goffman, 1956, p. 17) in ordinary life, in digital environments they are built upon by computational capacities, game design, and players’ collective gaming experiences.

As a result, valuable game items that indicate players’ or avatars’ specific social roles, are related to the concept of “social value” (Sheth et al., 1991, p. 161) of game items discussed earlier – “the perceived utility acquired from an alternative’s association with one or more specific social groups” (Sheth et al., 1991, p. 161). From this perspective, game items have social value because through them players are able to associate with certain social groups, whether in or out of a game. Players who obtain valuable game items by RMT reflect that they are in a social group in which people can afford to pay real money for valuable game items (Lehdonvirta, 2009a; Martin, 2008). Players who expend a lot of time and effort to obtain valuable game items become a social group of experienced players at the top of the hierarchy in games, with a sense of superiority (Ho, 2007; Lehdonvirta, 2009a). Players who own certain game items specific to the pre-designed class of avatars also form a social group in games (for example, a group of warriors in *World of Warcraft*).

Additionally, in some cases, players can use game items with social value in a more flexible way. This can be observed in Taylor's (2002a) study, in which she notices that avatars and game items are used "to signal group affiliation" (p. 41). As Taylor (2002a) notes: "avatars can become a way to opt into, or out of, a group. They can significantly signal affiliation through their color choices, bodies, accessories, and heads" (p. 46). In this context, game items with social value, such as accessories and heads, are used to link players with common interests together in games.

For example, the informal group members of vampires in *The Dreamscape* would "enjoy styling themselves with a gothic sensibility" (Taylor, 2002a, p. 46). Therefore, game items with dark colours have become the group members' favourites (Taylor, 2002a). Another case is the group of cat lovers, who "often signal their love of all things feline by wearing one of the handful of cat heads available" (Taylor, 2002a, p. 46). These cases correspond to Martin's (2008) suggestion that valuable game items "can serve as a common bond and a reason to get together with other users [...] they are able to bring people together into communities based on common interests and activities" (pp. 16-17).

It is also important to note that since game items are easily acquired and removed immediately, game items with social value can, in a way, make social connections in digital environments relatively more flexible. As Taylor (2002a) notes, players in *The Dreamscape* would change their heads (as a type of game item) "based on particular social situations [...] it is not unusual for a user to come upon a group wearing bunny heads [...] and decide to put one on to join in" (p. 46).

To sum up, in the social performances in digital environments, game items function as props, costumes, and expressive equipment to assist players to perform their online identities through avatars. The value of game items therefore lies in their capacity to facilitate such performances. Additionally, game items are able to provide some clues about the social status and social roles of the player who controls the in-game avatar, whether these clues are in or out of the game. Game items in this sense have social value that can flexibly associates players with certain social groups.

3.3 Spectacles in digital environments

We have already seen how avatars become surrogates enabling players to perform and construct their online identities in digital environments. Additionally, we have examined the roles of game items as props, costumes and expressive equipment that provide valuable ways for players to play with their online identities and connect to social groups. However, a question still remains: if players can be seen as performers, to whom do players present their identities?

In this section, I will examine and focus on the role of *audience* in digital performing environments, and how game items play a important role in this environment where a player is encouraged in his or her roles of “seeing and being seen” (Pearce, 2009, p. 59) as well as “having and being an audience” (Pearce, 2009, p. 59).

The role of audiences is always an important element in a performance. According to Abercrombie and Longhurst (1998): “audiences are groups of people before whom a performance of one kind or another takes place” (p. 40). In a traditional theatrical

performance, audiences constitute an essential role in a performance (Goffman, 1956). The role of audiences is so important that: “without an audience there is no performance, since they are the ones who make sense of the action” (Fernández-Vara, 2009, p. 2).

Although there seems to be a clear distinction between the role of performers and audiences in a traditional theatrical performance, this distinction becomes blurry in everyday life conceived as performative practice. As Denzin (2003) has pointed out: “we inhabit a performance-based, dramaturgical culture. The dividing line between performer and audience blurs, and culture itself becomes a dramatic performance” (p. 81). This perspective corresponds to Abercrombie and Longhurst’s (1998) research, in which they notice that “so deeply infused into everyday life is performance that we are unaware of it in ourselves or in others. Life is a constant performance; we are audience and performer at the same time; everybody is an audience all the time” (p. 73).

The everyday life performances within a media-drenched world of spectacle blur the distinction between performers and audiences. As Abercrombie and Longhurst (1998, p. 82) argue: “the pervasiveness of the media of communication” in a society “contributes to the presentation of the world as spectacle, as a set of performances” (Abercrombie and Longhurst, 1998, p. 82). As media innovations emerge, there is no way to distinguish between performers and audience in this kind of everyday life performance. As Pearce (2009) points out:

With its proliferation of personal web sites, blogs, photo sites, forums, and Web 2.0 applications such as YouTube and MySpace, as well as *online games and*

virtual worlds [my emphasis], the Internet is perhaps the largest stage in human history [...] where every participant is both performer and audience. (Pearce, 2009, p. 58)

If gaming culture is situated in this kind of everyday life performance, it is not surprising that players also act as both performers and audiences within digital performing environments. According to Pearce (2009): “online games and virtual worlds, with their fantasy narratives and roleplaying structures, are arguably the most dramatic instantiation of the digital stage [...] they are inherently performative spaces” (pp. 58-59). In these performative spaces, players are both actors and audiences, since “computing technology has erased the distinction between actor and audience [...] scenery and landscape, role and self” (Castronova, 2005, p. 11).

It is important to note, however, that the roles of players as both audiences and performers in games could be even more complicated. We can examine this from at least two perspectives. First, players are performers and audiences of *their own avatars* during the whole gameplay. As Westecott (2009) argues, “as a player I act, then watch the results of my action [of my avatar] on screen, always already audience to my own play practice” (p. 1). In this context, as Fernández-Vara (2009, p. 6) argues, a player:

[...] parallels both the audience of the theatre play, and of the interactor of software. The player is an active performer because she is also an interactor; but she is also the audience of the performance [...] The look-and-feel of the game and specific triggered events are also part of the experience of the player as spectator of her own interaction. (Fernández-Vara, 2009, p. 6)

This perspective is important in terms of how players construct their preferred online identities through avatars. This is because players perform through avatars in games when they are constructing them (as performers), while also watching the images of their avatars presented on the screen (as audiences). In this sense, players are both the performers and audiences of their own social performance. An example can be seen in Taylor's (2002a, p. 53) study, in which one participant tried out some new game items on the avatar. However, the participant somehow felt anxious and uncomfortable about the image of the avatar represented on the screen when the participant watched the avatar:

I remember wearing the Watson head for a while one day [...] I noticed I was feeling kind of anxious. The feeling didn't go away... I went afk [away from keyboard] for a few minutes but when I came back it was the same thing... and it got worse. I was sitting there at the keyboard actually feeling uncomfortable. I put the dragon head back on and I immediately noticed I felt much better. I have always thought, since the minute I put the head on, that the dragon head was "me". (Taylor, 2002a, p. 53)

In this case, the player constructs his or her online identity through trying out a different game item (head). During the whole process, the player actually plays both roles as a performer (who changes the avatar's head) and an audience (who watches the result of the image of the avatar).

Second, players are simultaneously performers and audiences to each other in digital environments that support multiplayer gameplay and interpersonal social

interactions.⁶⁹ As Filiciak (2003) has pointed out, in online games: “we can present our hyper-identity in the most imposing way [...] We watch them [other players] on the screen, but they see us there as well” (p. 101).

Through these two levels of simultaneous performance and spectatorship, players are able to construct and perform online identities, and watch *their own* social performances as well as those of *others*. This makes the whole multiuser digital environment into a space that encourages spectatorship. These environments are therefore similar to what Abercrombie and Longhurst (1998) describe as being: “conceived as spectacle [...] so are the people within it. People see others as performers and come to see themselves as performers. Everyone acts as if they are performers for an audience yet they are also an audience for others” (p. 99).⁷⁰

This kind of performing environment that encourages players to play as both performers and audiences can be commonly observed in many MMORPGs such as *World of Warcraft*. In *World of Warcraft*, players are able to create one or more avatars with a variety of characteristics such as races, classes and professions, as well as equipping their avatars with various game items obtained in the game. Players are able to see their avatars when they login, they are playing, even after they logout of the game.⁷¹ This demonstrates how players are both performers and audiences of their own avatars.

Additionally, *World of Warcraft* also supports players in the game “seeing and being

⁶⁹ In a way, these types of performances are supported and limited by game design (for instance the design of sociality) and platform capacity (such as server capacity and bandwidth).

⁷⁰ Abercrombie and Longhurst (1998, p. 99) originally describe the physical world with media drenching.

⁷¹ A player of *World of Warcraft* is able to look up his or her avatar online at the official website.

seen” (Pearce, 2009, p. 59) while “having and being an audience” (Pearce, 2009, p. 59). As described earlier, capital cities are like the centres of the game for players to engage in different types of in-game activities. Therefore, these cities are usually crowded with many players. These cities become like big stages with audiences for some players to present their online identities to others through avatars. This can be seen in Ducheneaut et al.’s (2006) study, mentioned earlier: “in fact it is not uncommon to see level 60 avatars, wearing powerful sets of armor and weapons, simply left standing by their players in front of the auction house for everyone to admire!” (p. 413). In another study by Klastrop and Tosca (2009), one *World of Warcraft* participant also describes that a valuable game item “was a good way to show [...] high ranking [...]” (Klastrop & Tosca, 2009, p. 13). Indeed, a player who plays the role of audience might inspect other players’ avatars (for instance, by clicking the in-game avatars to see their valuable game items) “to see what they [the avatar performers] are wearing that makes them look so awesome!” (Klastrop & Tosca, 2009, p. 12).

This phenomenon of impressing other players with game items in *World of Warcraft* suggests that the gaming experiences have become a method of social performance between players – one can show off valuable game items in front of others to create social distinction. In such performances, the player who shows the valuable game items becomes the performer, while the others who watch are the audience.

Since players are able to move freely in *World of Warcraft*, any players who like to show their avatars and game items can simply stand in front of the auction house in a capital city which is the most crowded. In this context, every player has the opportunity to become a performer, while every other player who passes by and

sees has the opportunity to become an audience of the performance. In this kind of performance, there are no longer clear distinctions between the roles of performers and audiences.

In this environment that encourages players to play as both performers and audiences, valuable game items also play a crucial role. As discussed above, the value of game items lies in their roles as props, costumes and expressive equipment in digital social performance. In the context of multiplayer environments, game items are still “essential to the construction of a player’s identity” (Ducheneaut et al., 2006, p. 413). This is mainly because other players in games “provide an audience, a sense of social presence, and a spectacle [...] without an audience of other players to whom these [valuable game] items could be displayed, the game would make little sense” (Ducheneaut et al., 2006, p. 413).

In this sense, the reason why game items are valuable is not only because they can be used to construct players’ online identities, but also, more importantly, they are *presented, displayed, and showcased* to others. Since valuable game items have “social value” (Sheth et al., 1991, p. 161) as discussed earlier, they can “create social distinctions between ‘haves’ and ‘have-nots’” (Lehdonvirta, 2009a, p. 188). That is, those who have valuable game items become different from those who do not. As a *World of Warcraft* player says: “its [*sic*] nice to have some [unique or beautiful] clothes to wear while your [*sic*] just being casual around a city or something, to just look different [from others]” (Klastrup & Tosca, 2009, p. 11).

The value of game items therefore lies in the way that they are displayed as desirable objects in front of audiences. This once again responds to one important feature of

game items: “interconnectivity” (Fairfield, 2005, p. 1053), which was discussed earlier. Game items are valuable in this context because other players’ experiences of them make them desirable and marketable (Fairfield, 2005, p. 1055).

In this sense, we can understand the role of valuable game items from the concept of “conspicuous consumption” (Veblen, 2009 [1899], p. 49). In Veblen’s (2009 [1899]) framework: “people can display their wealth through [...] the objects he or she possesses [...] People spend money on artifacts of consumption in order to give an indication of their wealth to other members of society” (Trigg, 2001, p. 101).

Valuable game items function in similar ways as conspicuous goods in Veblen’s (2009 [1899]) framework. In this context, valuable game items are not only as expressive equipment with clues about the social status and social roles of the player as discussed earlier. However, more importantly, valuable game items are the clues created and left by players purposefully in a display. Through the display of certain game items (such as rare accessories, powerful weapons or stylish clothes) in a social performance in front of others, a player makes a statement about his or her social status whether in or out of the game.

This perspective can be observed in Martin’s (2008) study, in which she argues that “consumption is conspicuous in *Second Life*” (Martin, 2008, p. 10). This is because game items in *Second Life*, such as clothing, vehicles, and even private dwellings, are visible and put on display to others to reveal the specific social status associated with these valuable game items (Martin, 2008, pp. 10-11). Therefore, as Martin (2008, p. 8) suggests: “through purchasing virtual goods, individuals can increase their apparent status”.

3.4 Summary

In this chapter, I have discussed the digital environments for social performances in which players construct and perform their preferred online identities through avatars and valuable game items. This framework is examined through several crucial elements: players, avatars, identities, game items, and the digital environments.

I first defined performance in digital environments and examined the differences between digital performances and traditional ones. Next, I focused on the relationships between players and their avatars. I argued that avatars, as the most important connection between players and a digital environment, have the potential to become the surrogates of players. This can be done when players further immerse themselves into a game by either projecting or introjecting their identities onto or into avatars.

In the second part of this chapter I focused on how players perform through avatars with valuable game items. By mainly drawing on the theoretical framework by Erving Goffman (1956) and other theorists, I illustrated the significant role of valuable game items play in the player-avatar social performance in digital environments.

Valuable game items are props, costumes and expressive equipment (Goffman, 1956, p. 13) to players, used to decorate avatars to assist players' in-game social performances. In this sense, game items have significant use value in the context of digital performing (Fernández-Vara, 2009). Game items are valuable for players'

'identity and self-expression' (Richins, 1994, p. 507). Game items also have "social value" (Sheth et al., 1991, p. 161) because players can use them to construct online identities around avatars and link to certain social status and roles, whether in or out of games.

Digital environments that support multiplayer social interactions have become spectacles that encourage players to give performances and watch others' performances. In such environments, the role between performers and audiences blurs. In such environments, the value of game items is generated through the process of showing as well as being gazed upon by other players. In other words, game items have the value for "conspicuous consumption" (Veblen, 2009 [1899], p. 49).

Aside from the aspect of social digital performance, players can have many other different complex social interactions within multiplayer digital environments. Through these interactions, players form groups that have the power to reinterpret or deny predesigned game rules and even create new rules for a game. These behaviours can potentially have an influence on valuable game items. Therefore, in the next chapter, I will focus on the influence of players as groups and how this affects the value of game items.

Chapter 4: The influence of player groups on game items

In this chapter, I mainly focus on the social aspects of how players as a group to form the power to affect valuable game items in digital environments. Throughout this chapter, many sociological theoretical frameworks are examined in the context of digital gaming in terms of valuable game items, including “institutional reality” (Searle, 1995, p. 38), “social world” (Shibutani, 1955, p. 565), “field” (Bourdieu, 1991) and “capital” (Bourdieu, 1986, p. 241), and the concept of the “gift” (Mauss, 2002 [1954]).

Through the social influence of player groups, game content – including game items and their value – is no longer completely controlled by game developers, but can be reinterpreted by players. This perspective corresponds to what Taylor (2007) suggests: that “players do not simply adopt the rules of the game as given but regularly create their own achievement paths and make sense of the frames of play in ways not always prescribed by the designers” (p. 113). In certain cases, players as a group do have the power to affect the role of valuable game items.

If we try to understand digital environments from this perspective, these digital environments are therefore not just playful spaces, but also environments full of social activities such as competitions, sharing and collective agreements, created and performed by players as a group. Although social interactions become possible

because of the design of sociality,⁷² these ‘above social’ activities are not directly derived from game design, but more from players’ previous knowledge and habits learned in the wider world. In this sense, the social interactions we will look at in this chapter are similar to “the second level of social interaction” in Salen and Zimmerman’s (2004, p. 462) framework. This kind of social interaction is “derived externally – social roles brought into the game from outside the magic circle” (Salen & Zimmerman, 2004, p. 462).

From this perspective, therefore, a digital environment such as a multiplayer online game functions as a platform for players to fulfil their desires (such as being better than others) as real humans. As Castronova (2005) argues: “everything that happens in a synthetic world is the consequence of the interaction of human minds, and our minds have things like Love, Property, Justice, Profit, War, and Exploration hard-wired into them” (p. 48).

Therefore, in the following sections I will examine how the forces at play of player groups from the non-gaming world act upon whole gaming environments. Such processes, as I will argue later on, have a significant influence on the value of game items.

In the following, I will first discuss some cases that demonstrate how players create their cohesion as a group. Then I will examine different social elements and how they affect the value of game items in games including: players’ collective agreements; the shared information in social worlds; competitive atmosphere among players; and collaboration. In a section on players’ collective agreements, I re-examine the case of

⁷² Please see more discussions in Chapter 2: sociality.

Diablo 2, and focus on how players form collective agreements in games regarding the value status of certain game items. In a section on shared information in social worlds, I discuss how the environment outside a game can have an influence on the value of game items. In addressing the competitive atmosphere among players, I examine how competitive gaming environments can affect players' perception of the value of game items. In the final section on collaboration, I discuss how players use in-game collaboration mechanics for their own purposes, instead of the gaming purposes intended by the game design. I also examine the meaning of game items as gifts in the context of social gaming.

4.1 The power of players

Again and again we found that activities based on often unconscious assumptions about player behavior had completely unexpected outcomes [...] It was clear that we [as game designers] were not in control. The more people we involved in something, the less in control we were. We could influence things, we could set up interesting situations, we could provide opportunities for things to happen, but we could not predict nor dictate the outcome.

(Morningstar & Farmer, 2008, p. 12)

Although game items are created and controlled by game design – as we have shown earlier in Chapter 2 – sometimes they can be out of the hands of game designers since they are used and given meaning by all players who participate in a game. In a persistent multiplayer environment, the social interactions between players form an important feature. Players chat, talk, trade, form guilds, participate in discussion

forums and so on, whether inside or outside a game. Through different kinds of social interactions, social forces are formed that can potentially and fundamentally change the features of a game. One important feature of a game – the game economy and the game items within it – can be affected or even created by these kinds of social forces.

In fact, it is not new that players are capable of affecting the game economy and even the value of game items in a game. In the early multi-player online virtual environment *Habitat*, players showed how they could have a significant influence on the economic system and the value of game items. In this game, players found a way to manipulate and take advantage of the different prices of game items in different vending machines, creating a large amount of virtual currency. This behaviour seriously affected the game economy, so that “the money supply had quintupled overnight” (Morningstar and Farmer, 2008, p. 15).

This is one of the reasons why Morningstar and Farmer (2008, p. 14) suggest that game designers should not trust players. According to Morningstar and Farmer (2008, p. 14), there are: “two levels of ‘virtuality’” controlled by game designers. The first level is the “infrastructure level” (Morningstar & Farmer, 2008, p. 14), which refers to: “the level of implementation where the laws that govern ‘reality’ have their genesis” (Morningstar & Farmer, 2008, p. 14). The second level is the: “‘experiential level,’ which is what the users see and interact with” (Morningstar & Farmer, 2008, p. 14). While Morningstar and Farmer (2008, p. 14) encourage game designers to “give control to the users” (Morningstar & Farmer, 2008, p. 14) in the experiential level, they also suggest designers should not trust players to access the infrastructure level, which could lead to serious consequences.

The example of *Habitat* reflects the mainstream assumption that players are usually selfish individuals who love to mess around in a game, whether socially or economically. Following this assumption, if game developers dare to let players take control of a whole game, this game would sink into a state of anarchy. Even in the field of game design, designers also suggest that players can make things get out of control. As Rollings and Adams (2003) suggest: “in a persistent world, you have thousands of people interacting in ways that you might not have anticipated” (p. 530).

Players do interact with each other in a way that game developers could not anticipate, but this does not necessarily result in a state of anarchy. Players are not only individuals, but can also form groups with powerful social normative forces. For example, in the massive multiplayer online game *Diablo 2*, the official game currency (gold) is not worth very much: as it is very easy to obtain. Consequently, players rarely use the official game currency for trading valuable game items. Instead, they started to use small valuable game items, such as rings, runes, gems and charms, as the common currency in trades (Ho, 2007, p. 53). In this way, players as a group have formed their own norms and produced a parallel economic system for their own purposes.

It is worth noting that *Diablo 2* is not the only game with an economic system developed by players on their own. In other online games such as *Phantasy Star Online* or *MU Online*, players also use certain game items as the common currency in their transactions, instead of the official currency designed by the game companies. Additionally, similar phenomena can be seen in another study by Lehdonvirta (2009a,

p. 151), in which he found that:

When *Habbo Hotel* [a digital environment] was first opened, it contained no currency that could be used in user-to-user transactions; all trade was barter. But after a while, a certain virtual plastic chair known as 'Plastyk' emerged as a de-facto currency [...] In the U.K. *Habbo Hotel*, a three-level currency system emerged: one 'Throne' equals approximately 34 'Club Sofas', and one Club Sofa equals approximately 'Rubber Ducks'. The exchange rates of the currency units naturally change as supply and demand fluctuate. (Lehdonvirta, 2009a, p. 151)

In these cases, players either reject the legitimate value of the official currency, or just pour value into certain game items they choose as the common currency that can be used in games. Although this kind of economic system created by players is not common to every MMO, this pattern does demonstrate the possibility and potential of social influences that players as a group can have on the value of game items.

In terms of value, the above cases also show something different from our earlier discussions in terms of the value of game items. As we have discussed in previous chapters, many factors can affect the value of game items. The value of game items is something generated through players' efforts, individual preferences, game design and mechanics, as well as the spectacle and performance environment in games. However, none of these factors can provide a sufficient explanation for how the value of certain game items (as the common currency) is generated in a game like *Diablo 2* or *Habbo Hotel*.

The cases mentioned above show that players, as groups of people instead of separate individuals, are capable of affecting the value of game items through the social interactions in games. Therefore, in this chapter, I argue that we need to reconsider how the social forces that are formed by player behaviours can have a significant influence on the value of game items.

4.2 Players' collective agreements

In the social sciences the things are what people think they are. Money is money, a word is a word, a cosmetic is a cosmetic, if and because somebody thinks they are.

(Hayek, 1948, p. 60)

The dollars in our pockets have value because we all expect everyone else to treat them as though they have value [...] Factually, and objectively, the dollar has no value whatsoever – you can't eat it, you can't write on it, you can't wear it. It's worthless in use. But in exchange, it is worth something [...]

(Castronova, 2006b, pp. 6-7)

Agreements can be one of the most important features in games. When players interact in a social environment, they need to agree to many things in order to make decisions in a game. In most cases, agreements are facilitated by the game design. However, sometimes players could collectively and spontaneously construct agreements. In the following, I will examine how the collective agreements by players in games can have the potential to affect the value of game items.

Players need to agree to many things in order to proceed in a game. First of all, before players can even enter into a game, they need to agree with End User License Agreements (EULA) and Terms of Service. In these agreements, a player must agree to obey the rules made by game companies. Within a game, players need to make many decisions through agreements in their gameplay. For example, a player needs to agree to let another player join his or her team to play together. In a transaction between two players, both parties need to agree on the content of the trade (including the price, the attributes of the game items and so on). In a big dungeon raid that involves dozens of players in a game such as *World of Warcraft*, players who participate need to agree what types of roles they play, such as who is in charge of healing, tanking or attacking, so that they can work as a team to be successful in a game.

In most cases in games, agreements are built and facilitated by game design. For example, as in the case shown above in Chapter 2, when two players trade with each other they need to use a player-to-player trading system in order to agree on the content of the transactions. A player not only needs to interact with other players but also with the game system, by clicking on the pop-up window 'yes' (agree) or 'no' (disagree) to make a decision during gameplay.

However, agreements can be more abstract than simply making a decision between yes and no. In some cases, players themselves can build agreements instead of game companies. For example, as we have already seen in the case of *Diablo 2*, instead of using the official currency (gold) designed by the system, players collectively chose to define their own universal currencies that are widely used by players in the game.

One of the most famous common currencies in *Diablo 2* was a ring called the ‘Stone of Jordan’ (SOJ). This ring was originally designed as a magic ring for players to strengthen the abilities of their avatars. SOJ is a useful game item with functional attributes such as improving avatars’ skills, increasing mana, and enhancing damage. However, aside from its functional attributes pre-designed by the game designers, the better known reputation of SOJ is that it was defined by players spontaneously as the most common currency, and was widely accepted and used in players’ transactions in this game for a long period of time (Diablo Wiki, n.d.).⁷³ In this case, players, as a group of people, collectively agreed to give and accept a value to SOJ beyond the control of game design.

Although SOJ’s role as a common currency in *Diablo 2* was not what game designers expected, it is still related to the context of game design. There are many possible reasons why players in *Diablo 2* chose the ring of SOJ as a common currency. First, the ring of SOJ is a relatively small item that occupies only one slot of a player’s inventory. Therefore, it is easy for players to carry many rings of SOJ with them (Ho, 2007, p. 53). In other words, the affordances of the SOJ make it convenient to carry and to trade. Second, the SOJ itself is also a functional game item that can benefit avatars’ abilities (such as by increasing mana and enhancing damage) (Ho, 2007, p. 54). Therefore, the design of SOJ as a functional ring also makes it functionally valuable to players. This value embedded in SOJ is recognised and perceived by players, and therefore could facilitate its status as a common currency.

⁷³ The status of SOJ as the common currency has been replaced by high level ‘Runes’ (another game item) in *Diablo 2* (Diablo Wiki, n.d.). This implies that players not only can collectively create a social rule but can also change it. However, this is still closely related to game design because a previous update enhance the significance of runes (Diablo Wiki, n.d.).

Although SOJ's basic attributes might make it easier to be endowed with a status of common currency, it is the players who made the final decision to give SOJ such a status. Unlike most agreements that happen on an individual scale between two players, or between a player and the computer system, the case of SOJ in *Diablo 2* happened at a bigger social level. In this context, players together rejected the legitimacy of the official currency created by the game designer, and they also collectively agreed that certain items (such as SOJ) they chose to become the common currencies. This collective agreement made sure that both buyers or sellers in that game recognised the legitimacy of the SOJ. In this sense, players are no longer separate individuals, but more like an emergent collective making social decisions, developing norms and imposing rules for players to follow in *Diablo 2*.

The fact that SOJ used to be a universal currency in *Diablo 2* has some important implications. First, it demonstrates the potential for players to reinterpret the original design of game items by game designers. Although the reasons for using SOJ as the common currency can still be related to game design, the way that players took advantage of these attributes to use it as a common currency in transactions is beyond the original designed purpose of this ring. In other words, game designers did not create these attributes to make this ring easy to be traded as a common currency.

Second, in this context, the case of SOJ also shows the potential of players to collectively endow this ring with a specific value out of game designers' control. As mentioned above, the original purpose of this ring was for players to strengthen the abilities of their avatars in games. In this sense, game designers gave the functional value to this ring and made it functionally valuable to players. However, once players

chose to use it as a universal currency in games instead of a functional game item, to some degree they converted its functional value into its exchange value. In this sense, players not only interpreted the original game design by themselves, they also collectively converted the original value of SOJ into a different form for economic activities in the game.

Third, this kind of collective endowment that saw SOJ become the common currency in *Diablo 2* became an unwritten rule that every player was forced to follow. In other words, the exchange value of SOJ as the common currency used to be a fundamental knowledge that was widely recognised and accepted by players in *Diablo 2* (Ho, 2007, pp. 53-54). This situation suggests a social force driven by players that not only endowed SOJ with an exchange value status, but also facilitated its *legitimacy* as a universal currency for everyone in the game to obey. To put it in another way, the collective agreement created by players not only gave, but also justified the exchange value of SOJ in *Diablo 2*. As one *Diablo 2* player comments on the use of SOJ as the common currency: “as more people started to use it, it became the de-facto standard” (bwarner, 2011). Nevertheless, the further question is: how?

The concept of “institutional reality” (Searle, 1995, p. 38) can provide us an insight for understanding the case of SOJ in *Diablo 2*. John Searle’s concept of institutional reality refers to many facts in a society that are socially constructed by people through collective agreements (Searle, 1995). In other words, the reason why some social facts are what they are (for instance, that cash is valuable) is because people’s collective beliefs in such facts make them that way. As Mosca (2011, p. 5) argues:

Social reality is the portion of our environment that is constituted by beliefs that

people do not recognize as beliefs. These beliefs constitute the social objects, immaterial things that cannot be amended by a single person, though they are created and maintained by the mind of persons (in the plural). (Mosca, 2011, p. 5)

Maybe the most obvious example to demonstrate how collective agreements work is *money*. According to Searle (1995, p. 32), the paper in someone's pocket is money only because people believe it is. He argues that: "if everybody always thinks that this sort of thing is money, and they use it as money and treat it as money, then it is money" (Searle, 1995, p. 32). In other words, the value of money exists and only exists when people collectively believe and use it. This is what Brey (2003, pp. 272-274) suggests:

There is nothing intrinsic about the green paper bills that are used as money that determines their nature as money. Only when people start representing (intentionally using, accepting, believing in) such bills as money, intuitively, does it become a fact that these bills are money [...] Thus, for an entity to be money, it is necessary and sufficient that it is accepted by a collective to be money. (Brey, 2003, pp. 272-274)

For a long period in *Diablo 2*, the ring of SOJ was the money widely accepted by players in this game. Players in this game refused to accept and chose not to use the official pre-determined money (gold), but *collectively* assigned the exchange value of money to SOJ, and therefore made it the universal currency. In this sense, this kind of value exists and only exists because players in this game collectively believe it, accept it and, of course, use it in transactions. The value of SOJ as money was an

institutional reality collectively constructed and accepted by players in this game.

In other words, in this context, the value of SOJ was not just created by players' efforts or personal preferences, nor by game design or the performing environment of games that we have discussed earlier. Instead, the value of SOJ was generated, assigned, and justified by the social force derived from players as a collective. In this sense, players as a group of people are able to spontaneously, collectively and socially make their own social norms and rules for everyone to follow in a game.

In summary, players have to agree on many things in order to proceed in a game.

Most of these agreements are created by game design and obtained at an individual level. However, in other cases, players make agreements spontaneously. In the case of SOJ in *Diablo 2*, players collectively used the ring of SOJ as the universal currency instead of the official gold within the game. The use of SOJ demonstrates the potential of players collectively creating, assigning, and justifying exchange value to an object in a social level that is outside the expectation of game designers. This process responds to the concept of "collective agreement" (Searle, 1995, p. 39), in which social facts are collectively constructed by people's agreements. The main reason why SOJ used to have such exchange value for transactions is because players collectively believed, accepted, and used it as the common currency. This case shows that the value of game items can be created and affected by the social force of players as a collective.

The value of game items is not only created by players in this way, but is also justified through the process of information sharing. In the following section, I will therefore discuss how players' information sharing behaviour around game items in social

worlds can affect the value of game items in digital environments.

4.3 The shared information in social worlds

[...] Playing videogames is not an activity undertaken in a vacuum but rather is one that is informed by and situated within the contexts of other players and their analyses and playing [...] via digital networks, magazines, fanzines or even word-of-mouth, these different performances, perspectives and insights are frequently and widely publicised [...] play is always and already located within a community-authored set of meanings, readings and interpretations and the collective knowledge of players, commentators, critics and fans alike who have contributed to this very public understanding and evaluation of the game through public performances, readings of previews, and reviews, for example.

(Newman, 2008, pp. 12-13)

Shared information is important among different types of games. Depending on the genre of a game, players might encounter a variety of challenges. One might find a monster too powerful to kill in a role-playing game such as *World of Warcraft*, while another could be repeatedly stuck in one specific level in *Candy Crush Saga*. When players face challenges like these, they could try hard on their own to play again and again, then finally, Google for information such as online strategy guides for that game.

There are actually many different types of online information around particular

games. There is information such as strategy guides, FAQs, walkthroughs, avatar skills, game maps and equipment details. Some are officially released by game developers, while others are unofficially facilitated by game communities. For example, a player of *World of Warcraft* could use the official *World of Warcraft* game guide website to search for basic in-game information about races, classes, professions, and so on (Blizzard Entertainment, n.d.-g). Alternatively, the player could use WoWWiki created by players to research detailed information about a specific epic weapon in *World of Warcraft*, such as 'Ashkandi, Greatsword of the Brotherhood', including its appearance, damage, history, and more (Wowwiki, n.d.-h). Additionally, players might seek information in games through personal communications. For instance, in the Korean MMO *Dungeon & Fighter*, players within the same guild can use their own guild chat channel to seek information about the game from their fellow guild members.

This kind of information sharing and accessing process has benefits for both players and game developers. For those who desperately seek information online, this shared information is helpful to solve their urgent challenges and problems in a game. On the other hand, for those who generate content online in a Web 2.0 site such as WoWWiki, they provide such information not only for enjoyment, but also empowerment, and building and maintaining relationships with others (Ritzer & Jurgenson, 2010). These dedicated players, in a way, are "prosumers" (Ritzer & Jurgenson, 2010, p. 13) of a game. For game companies, these prosumers not only provide free labour to solve other players' problems, but can also increase "the number of users through publicity and increasing visibility" (Ritzer & Jurgenson, 2010, p. 29).

The information provided online, whether it is a YouTube walkthrough video, a strategy guide for killing a monster, or a talent build for creating a powerful game character, eventually forms a type of “collective intelligence” (Jenkins, 2006; Lévy, 1999) or “collective knowledge” (Newman, 2008, p. 13) for a digital environment. According to Lévy (1999), collective intelligence is “a form of universally distributed intelligence, constantly enhanced, coordinated in real time, and resulting in effective mobilization of skills” (p. 13). In modern society, collective intelligence is as Jenkins (2006) has described: “[media] consumption has become a collective process [...] None of us can know everything; each of us knows something; and we can put the pieces together if we pool our resources and combine our skills” (p. 4). In the context of gaming culture, environments such as game forums or blogs that “are structured and designed to encourage gamers to share their insights and perspectives, giving rise to a collective knowledge [...]” (Newman, 2008, p. 42).

Through the collective process of sharing knowledge, a game and everything around it can form a social world. A social world is constituted by communication, symbolisation, discourses, activities, technologies and organisations (Strauss, 1978, p. 121). A social world is therefore “a universe of regularized mutual response” (Shibutani, 1955, p. 566), a “universes of discourse” (Strauss, 1978, p. 121), or “a culture area” (Shibutani, 1955, p. 566). The boundary of a social world is “set neither by territory nor by formal group membership but by the limits of effective communication” (Shibutani, 1955, p. 566).

According to Lehdonvirta (2010), the concept of a social world provides a better understanding than other similar concepts such as “virtual community” (Rheingold, 2000) for us to understand the essence of digital environments. In this context, the

social world of a digital environment such as *World of Warcraft* or *Second Life* is therefore not restricted to the digital environment. Instead, the social world of a game can expand and incorporate other environments outside the game such as its discussion forums, third-party websites, video streams, as well as other media platforms (Lehdonvirta, 2010).

If we combine the concepts of “social world” (Shibutani, 1955; Strauss, 1978), “collective intelligence” (Jenkins, 2006; Lévy, 1999), “collective knowledge” (Newman, 2008, p. 13), and “prosumers” (Ritzer & Jurgenson, 2010, p. 13), we are able to see the structure through which gaming information flows around a game. Information about a game can be created by prosumers – the most dedicated players within the social world of a game – which therefore forms the game’s collective knowledge. Other players, especially those who need help to solve problems or want to look deep into the game, are freely and conveniently able to access the information to enrich their knowledge about the game. This structure of sharing and accessing information, as I will argue, is crucial to understand how the value of game items is perceived and even strengthened.

Although game items are only a small portion of a whole game’s content, there is a variety of information around them. Information about game items, including their functions, appearances, price and value, is crucial when players intend to purchase them. In order to access the information they need, players might go through different channels such as an in-game auction chat channel, in-game market places, in-game auction systems, or other third-party RMT website, and so on (Ho, 2007, pp. 28-49). Additionally, game forums, game videos, or game wikis are also important information channels that provide information about the direct using experience of

other players of certain game items. This situation is quite similar to what Shin (2008) observes in Web 2.0 environments: “many people make buying decisions based on more specific and detailed information freely available via Web 2.0 through forum spaces where consumers can trade word-of-mouth information and browse product reviews by other consumers” (p. 442).

The information about game items flows smoothly as players share and access information about a game. This information sharing facilitates the mobilisation of game items as valuable objects used by players. We can illustrate this argument from three aspects. First, the “functional value” (Sheth et al., 1991, p. 160) of a game item – how it can benefit an avatar’s in-game performance – can be perceived by the players through the structure of information sharing. For example, players seeing the ‘Windforce’ bow in *Diablo 3* are able to see the functions of this bow, such as its damage, range, attack speed increase, ‘life steal’, and so on, by checking the data of this game item on the official *Diablo 3* website (Blizzard Entertainment, n.d.-e). Players can also obtain information on how to use Windforce to maximise one’s avatar’s performance in *Diablo 3* by looking at a post about ‘Windforce builds’ in the *Diablo 3* forum (Griever, n.d.). Certainly, one might also want to search YouTube videos to see how Windforce functions in other players’ experience of direct gameplay combating monsters.

Second, the “emotional value” (Sheth et al., 1991, p. 160) of a game item – how it can arouse players’ hedonistic feelings by dressing, equipping, customising, or decorating their in-game avatars – can also be perceived by the players through the structure of information sharing systems. For example, in *Dungeon & Fighter*, if a player wants to see how a specific beautiful game item looks, he or she can simply

'try it on' through the website that simulates how game items look when in-game avatars are equipped with them (uuu9, n.d.). Players can also find this kind of information about the aesthetic appearances of game items in *Dungeon & Fighter* in forum posts with pictures (boyu1123, 2013). Players might also share information about certain aesthetic game items in *Dungeon & Fighter* by making and uploading a video on websites showing their animations and effects (rangersonic1, 2010).

Finally, the most direct information regarding the monetary value of game items – prices – is also available to players through information sharing. Game items' price information can be available inside and outside a game, whether it is measured by real money or game money.

For instance, in a game such as *World of Warcraft*, a player can obtain information about the price of a specific game item through the online trading chat channel full of different prices for the same item provided by different sellers (Ho, 2007, p. 38). In games such as *Entropia Universe* or *Diablo 3*, players can obtain price information about game items through their in-game auction house system. Game items can be measured by real money in both games. In *Entropia Universe*, a game item in its auction house worth 100 PED is equal to USD\$10, while in *Diablo 3*, players could see exactly how much a game item costs in US dollars through its real money auction house.

Outside a game, players are also able to access the price information of game items through the third-party RMT website. In a third-party RMT website such as 8591, players are able to find a variety of price information on game items in different games, from *Diablo 3* to *World of Warcraft*, and many more (Addcn Technology, n.d.).

If a player searches for the name of a certain game item in 8591, there will be abundance of price information about that item provided by different sellers. Therefore, through comparing price information in different channels (auction chat channels, online auction systems and third-party websites), players are able to form a reasonable price perception of a game item, that is, the market price of it (Ho, 2007). This market price of a game item, to some degree, also reflects its exchange value.

Through the structure of information sharing, the information about game items (their functions, appearances, prices, and so on) is created, shared, and accessed by players. Through this process, players can learn about the value of a specific game item – how much it is worth and why it is worth that much.

However, the influence of these information sharing practices can be even greater than that. As mentioned above, this kind of information sharing driven by dedicated players or prosumers can potentially increase “the number of users through publicity and increasing visibility” (Ritzer & Jurgenson, 2010, p. 29). That is, the dedicated players’ information contributions, including comments, videos, forum posts and more, are actually free advertisements to appeal to potential new players to join the game. In a way, the social world of a game can be expanded through this sharing and accessing process.

If the social world of a game is expanded because of more new players, the value of the game items also increases. As we saw in Chapter 1, this is due to the way game items are “interconnected” (Fairfield, 2005, p. 1053) with network effects – that is, “the value of a product to one user depends on how many other users there are” (Shapiro & Varian, 1999, p. 13). Therefore, if more players participate in a game, the

more players can experience the valuable game items within it, and therefore the more valuable these game items will be.

Consequently, in this sense, information sharing not only helps players transparently perceive the value of game items, but also potentially reinforces or strengthens the value of game items. Through sharing and accessing information in or out of a game, players form active game communities, becoming a force that contributes to the value of game items.

Another relevant question is: why do players so urgently collect information about game items? Being more powerful than everyone else can be one important reason. This is particularly evident in a digital environment that encourages player versus player competition. In the following section, I will focus on the influence of competitive digital environments in terms of the value of game items.

4.4 Competitive atmosphere among players

In this section, I will examine the interplay between competitive practices and the resources of game items. As I will elaborate later on, this interplay has a profound influence on the value of game items.

In multiplayer player versus player (PVP) environments, competition is one of the most important incentives for players to play. For instance, in a car racing game such as *Real Racing 3*, players overtake each other in order to be the fastest. In *World of*

Warcraft, players fight against each other to defend the alliances they belong to.

In these environments, 'resources' refers to valuable game items including equipment, weapons, and game money that a player pursues and accumulates in a game. In some cases, resources can be obtained through competitions between players. For instance, in *Dungeon & Fighter*, players fight each other for 'Arena Seals' which they were able to exchange for high quality weapons in the game (DFO World Wiki, n.d.). In *Clash of Clans*, players raid each other's villages for resources such as gold, which they can strengthen their defensive abilities against other players (Clash of Clans wiki, n.d.). In *Counter Strike*, players have to defeat the opposing team in order to earn money to buy better guns and equipment (CounterStrike wiki, n.d.).

In these cases, we can see how competitions and resources are related to each other in certain games. In a competition, players who win obtain resources as rewards. These resources can once again strengthen players' in-game capacities to increase their chances of winning in the next competition. As Yoon (2008) notices: "game items [as resources] are assets decisively determining the outcome of [...] jousts between player-controlled characters, called PVP" (p. 12).

For some players, being stronger, richer, or earning higher status than others seems to be an important reason for playing a game that encourages competition. These types of players are typically identified as "killers" in Bartle's (2004a, p. 130) framework. According to Bartle (2004a): killers in games are "people who want to dominate others. The classic way is through attacking them or otherwise making life difficult for them, but it also can manifest in less overt fashion, such as politicking, rumor-mongering, pedanticism, or guilt-trip maternalism" (p. 130). This type of

player has also been identified in Yee's (2005a) study. He suggests: "players who score high on this subcomponent [competition] enjoy competing with other gamers on the battlefield or economy. They also enjoy the power that derives from beating or dominating other players" (Yee, 2005a).

The relationship between PVP competition and contestation over resources in a game has a further significance beyond the game's original purpose of winning matches. The competition and resources also define the power and hierarchies between players within a game. The purpose of playing in a game is not just about competing and pursuing resources preset by designers, but also gaining power and earning higher status than others. The competition to become better than others *through games* is the actual goal, instead of being better than others *in games*. As a player from *World of Warcraft* says in a study by Yee (2005b):

My primary goal is to be competitive in player vs. player combat [...] My desire to stay competitive drives me to want to level fast, min-max, and gain rare drops. Those things [game items as resources] in themselves aren't important to me, and I'd really rather it weren't important to the game, but if I intend to be competitive I've got to do the work to have the fun. (Yee, 2005b, p. 17)

The sense of superiority, achievement, satisfaction, or higher status derived from success of in-game competitions can be the most important reason for certain players to play a game. Such players actually use gaming as a way to satisfy human desires such as being more powerful than others. A gaming environment itself is no longer just a playful environment, but more like any other place in a society, such as schools or workplaces, where competition for resources exists at all times. This

perspective is shown in the study by Yee (2005b), in which one participant says:

People sometimes mention it's just a game and the point of it is to have fun, I reply that to me *being the best* [my emphasis] is most fun. I have always been extremely competitive [...] so i [sic] have been used to competition since birth. I am also a sportsman, i [sic] train Judo for a local club which pays me to keep training as long as I am winning. I have learned to find satisfaction in winning and love all games, board, sports and electronic games, because in all games u [sic] have winners and losers, when i [sic] win I have lots of fun. (Yee, 2005b, p. 17-18)

This statement also corresponds to Dibbell's (2006, pp. 6-7) perspective, in which he also suggests that as an experienced player:

I could see more clearly than ever what kept me and all the other players coming back: It was the same thing, more or less, that kept most of us going to our jobs each day, or going to school. It was a desire not to fall to the bottom of the social food chain, a desire to rise through the ranks, to achieve and acquire as a way of marking our status within the massive monkey troop that is human civilization. To own and not be owned. (Dibbell, 2006, pp. 6-7)

In this context, a competitive gaming environment can be analysed as a "field" (Bourdieu, 1991), while the valuable game items as resources can be examined as a type of "capital" (Bourdieu, 1986, 241). In Bourdieu's social framework, the concept of 'field' can be understood as:

[...] a structured space of positions in which the positions and their interrelations are determined by the distribution of different kinds of resources or 'capital' [...] A field is always the site of struggles in which individuals seek to maintain or alter the distribution of the form of capital specific to it. (Thompson, 1991, p. 14)

Capital or different kinds of resources can be understood as 'accumulated labor (in its materialized form or its "incorporated," embodied form) [original emphasis]' (Bourdieu, 1986, p. 241).

A competitive game and a field share something in common. In fact, Bourdieu and Wacquant (1992) use the analogy of a (card) game to explain the concept of field. When discussing the concept of field, Bourdieu and Wacquant (1992, p. 98) suggest:

We can indeed, with caution, compare a field to a game [...] Thus we have *stakes (enjeux)* which are for the most part the product of the competition between players. We have an *investment in the game, illusio* (from *ludus*, the game): players are taken in by the game, they oppose one another, sometimes with ferocity, only to the extent that they concur in their belief (*doxa*) in the game and its stakes [original emphasis]. (Bourdieu & Wacquant, 1992, p. 98)

While a field might work similarly to a game, what happens in gaming environments represents the elements that consist in a field. As we have seen so far, competitions and resources (or capital) are two important elements in both a field and a competitive game. Therefore, we can also examine the value of game items through the role of capital in a field. According to Bourdieu and Wacquant (1992, p. 98):

The value of a species of capital (e.g. knowledge of Greek or of integral calculus) hinges on the existence of a game, of a field in which this competency can be employed: a species of capital is what is efficacious in a given field, both as a weapon and as a stake of struggle, that which allows its possessors to wield a power, and influence. (Bourdieu & Wacquant, 1992, p. 98)

Capital that serves “as a weapon and as a stake of struggle” in a field (Bourdieu & Wacquant, 1992, p. 98) provides an important insight for understanding the value of game items. As mentioned above, valuable game items are resources in a game. Sometimes, game items operate as a necessary means to strengthen players’ competencies. At other times, game items operate as a goal or a reward for which players compete.

Malaby (2006) applies Bourdieu’s concept of capital, and identifies three types of capital in digital environments – market capital, social capital, and cultural capital (Malaby, 2006). According to Malaby: “by capital, I mean specifically a resource for action [...] market capital includes commodities and currency, social capital includes connections, and cultural capital⁷⁴ includes competencies, credentials, and artifacts” (Malaby, 2006, p. 146-148). These different types of capital can be “converted one into the other” (Malaby, 2006, p. 146).

In this framework, Malaby (2006, p. 150) argues that the use value of a game item lies in:

⁷⁴ Consalvo (2007) proposes the concept of “gaming capital” (Consalvo, 2007, p. 2) by reworking Bourdieu’s concept of cultural capital. According to her, the concept of gaming capital that involves players’ experience, knowledge, and skills “provides a key way to understand how individuals interact with games, information about games and the game industry, and other game players” (Consalvo, 2007, p. 4).

[...] what it allows you to do, whether as a marker of status, an element of in-game combat, or otherwise. This value, the product of the item's supply and demand, nonetheless can be exploited by those who acquire or make them for sale by the application of cultural capital in the form of competence [...] to acquire the item [...] That difference—that is, how much easier it is for someone to acquire or make an item more efficiently than a prospective buyer – is what the seller depends on to make a profit. (Malaby, 2006, p. 150)

In a competitive gaming environment, players compete for valuable game items that will then enhance the player's competence. From this perspective, game items are valuable because their use value, such as a useful enhancement in PVP combat, can be converted in to "cultural capital in the form of competence" (Malaby, 2006, p. 150). With high competence, players increase their chances of winning and therefore obtaining even more game items that can further enhance their competence for the following competitions. In this sense, the value of game items lies in their roles as both a goal and as a necessary means to gain a competitive edge. The power derived from valuable items is both the means and ends.⁷⁵

Aside from the environments that encourage player versus player competition, there is another type of environment that encourages players to play socially together and cooperate. In the following section, I will therefore examine such digital environments in which collaboration and gift giving plays an important role.

⁷⁵ Generating this kind of dynamic in fact serves the interests of the games companies.

4.5 Collaboration and gifts in social gaming

Collaboration is another important factor in the context of multiplayer environments, especially in so-called “social games” (Consalvo, 2011, p. 188), which are “shorthand for ‘games played using social networking platforms’” (Whitson & Dormann, 2011). Social gaming environments are digital environments that “typically feature a single player component, coupled with basic forms of multiplayer interaction embedded in the design” (Consalvo, 2011, p. 189). In such environments, one of the most important multiplayer interactions is *collaboration*, by which games can “foster positive relationships to enhance gameplay, such as giving gifts and helping one another develop game spaces” (Consalvo, 2011, p. 193). In this section, I will therefore examine the role of game items as gifts in such environments, and how this role created by game design is further reinterpreted by players for different social purposes in digital environments.

For certain players, instead of competing against one another, cooperating with each other is what motivates them to play games. These players are typically identified as “socializers” in Bartle’s (2004a, p. 130) framework. For socialiser players, “the greatest reward is interacting with other people, through the medium of the virtual world” (Bartle, 2004a, p. 130). More specifically, these players love to engage in activities such as “socializing – having an interest in helping and chatting with other players” (Yee, 2006a, p. 773) or “teamwork – deriving satisfaction from being part of a group effort” (Yee, 2006a, p. 773). These kinds of players tend to like in-game “collaboration, groups, and group achievements” (Yee, 2006a, p. 773).

In practice, socialisers might tend to engage in social games, whether they are “produced to run via the Facebook social network site” (Consalvo, 2011, p. 189) or played on mobile devices and connected by certain programs such as the “game centre service” on Apple’s iOS system (Apple Inc., n.d.). These social games share similar logic – players play and help each other in order to progress in the games.

This logic of social gaming can be observed in the Facebook game *Gourmet Ranch*. In this game, players can send cooked dishes as gifts to each other. Additionally, when players need to upgrade certain facilities (such as a boathouse), they need to ask friends to send them certain game items, such as oak plants or cloth sails, in order to proceed such upgrade (Playdemic, n.d.). In another Facebook game, *Criminal Case*, every action will cost a player certain energy points. When the player consumes all the energy points, the player has to wait until the energy points slowly recover (Pretty Simple, n.d.). Alternatively, the player can ask Facebook friends to send some energy points to help the player take action again. Moreover, after solving a crime (finishing a level), a player will need help from three friends to write the reports in order to proceed to the next case (level) (Criminal Case Support, n.d.). As these cases show, social games encourage players’ in-game collaboration to progress in such environments. In other words, without the collaboration between players, as Consalvo (2011) suggests, the in-game progress of players “would generally be difficult” (p. 189).

However, there are indeed other ways for players to progress in such environments without relying on anyone’s help – by paying real money instead. For example, in *Gourmet Ranch*, instead of asking for game items such as 5 oak plants, 5 cloth sails,

and 5 floats from other players in order to upgrade the boathouse in the game, one can choose to spend 12 GR cash (the virtual currency used in *Gourmet Ranch*, which is approximately USD\$2.50) to buy these game items for the upgrade. Therefore, players can easily perceive that collaboratively sending gifts to help one another is something with monetary value (for instance, saving me USD\$2.50 by sending me 5 oak plants, 5 cloth sails, and 5 floats as gifts).

For game companies this kind of in-game collaboration might have other useful purposes. One of these is to use collaboration as advertising, appealing to new players to join in. For example, in some Facebook social games. “while many gift requests go directly to players’ message notifications or appear within the game space itself, requests also often appear via Facebook wall postings” (Consalvo, 2011, p. 190).⁷⁶ Therefore, other non-players might join the game after seeing such posts. Therefore, the in-game collaboration could encourage players to ask for help or gifts from those who have not even played yet (Wohn, Lampe, Wash, Ellison, & Vitak, 2011, p. 5). As one Facebook participant explains:

I started getting into *Mafia Wars* probably two months ago, yeah. That was because of my sister. She kept sending me all this information and polluting my page [...] And then I just went on too because she needed more members so I just did it to shut her up... then I got hooked. (Wohn et al., 2011, p. 5)

As discussed earlier in Chapter 1, one significant feature of game items is that they are “interconnected” (Fairfield, 2005, p. 1053) with network externalities or network

⁷⁶ This function has been changed by Facebook, according to Consalvo (2011, p. 190): “now only friends who play the same games can see app postings for those particular games.”

effects– “the value of a product to one user depends on how many other users there are” (Shapiro & Varian, 1999, p. 13). In the case of social games, the game items themselves are used to create such network externalities or network effects. By using game items as “free advertising for games” (Consalvo, 2011, p. 190) to appeal to more new potential members to join the game, game companies therefore increase consumption. That is to say, the game item gifting encouraged by social game companies is an attempt to maximise their profits from players in social games.

As discussed so far, in the context of social gaming we can see two major functions of game items as gifts: they are either “exchanged to facilitate or enhance gameplay” (Consalvo, 2011, p. 190), or “they are often used (or the desire for a gift is used) as a marketing tool for the game itself” (Consalvo, 2011, p. 190). This kind of in-game collaboration, however, could also be reinterpreted by players for their own purposes.

First, sending gifts to each other not only functions as a way for players to progress in games, but also as a channel of communication between players. In this sense, social games have become a platform for players to use for “maintaining, initiating, and enhancing relationships” (Wohn et al., 2011, p. 1) through in-game collaboration such as helping others by sending them gifts.

Some Facebook players, according to Wohn et al. (2011), actually use the collaborative game design of helping each other or sending gifts as a means of communication. One participant in Wohn et al.’s (2011, p. 6) study describes such in-game collaboration actions as a subtle, indirect way of communicating with other online players:

You don't have to do it, so if you do, I think it's like a way saying you're interested in that person in a certain way. It's just like being kind, like holding a door open for somebody, you could just walk through and let it slam in their face or you could hold it open for them. (Wohn et al., 2011, p. 6)

For others, this kind of communication through sending gifts can be used to maintain their offline relationships. For example, one participant in Wohn et al.'s (2011) study said that she uses "the gifting feature in Facebook games as a means of keeping in touch with her sisters, who currently live in France" (p. 7). Another male player in Wohn et al.'s (2011) study also confesses that "he only played for the sake of his partner, and that he sends in-game gifts every now and then just for the sake of their offline relationship" (p. 8). In some cases, this kind of communication could even compete with other media communication channels. One interviewee explains that he "used these games as a means of communication instead of other communication channels (e.g. phone calls, emails)" (Wohn et al., 2011, p. 8). He said that, "[in] some of the other little goofy games like *Farmville*, *Farm Town*, I'll send invites or send people little gifts just to say 'Hey, thinking about you.' It doesn't cost anything [compared to other communication means] [...] I'm cheap" (Wohn et al., 2011, p. 8).

These above cases make social games less like games, and more like platforms for players to socially interact with each other through in-game collaboration, such as sending gifts. In these cases, these people play games and follow the rules designed by the game system (for instance, one can send in-game gifts to other players in order to get in-game progress), but reinterpret and use such in-game activities as sending gifts for non-gaming purposes, as communications or to maintain online or

offline relationships.

Additionally, since these in-game items are called and used as gifts, it is not surprising that players would apply the concepts around gifts in ordinary life to understand them in social games. Therefore, the way players send or receive game items as gifts can also be affected by the existing social or cultural tradition of sending or receiving physical gifts. There are therefore two features of game items in the context of social gaming: reciprocity and displaying power.

Sending gifts is essentially a reciprocal activity. People send gifts to others while expecting others sending gifts back to them too. This is, according to Consalvo (2011), “an often unspoken or assumed exchange relationship: friends send one another gifts in the expectation that they will receive them back” (p. 190). This reciprocity feature of gifts has already been identified by early anthropologists such as Mauss (2002 [1954]). To Mauss (2002 [1954]), there are no such things as *free gifts*, since there is an obligation to reciprocate them. In Mauss’ (2002 [1954]) framework, the process of sending and receiving gifts is “strictly compulsory” (Mauss, 2002 [1954], p. 7), because “exchanges and contracts take place in the form of presents [or gifts]; in theory these are voluntary, in reality they are given and reciprocated obligatorily” (Mauss, 2002 [1954], p. 3). Therefore, as Liszkiewicz (2010) comments, gifts in Mauss’ (2002 [1954]) framework “bind the giver and receiver in a loop of reciprocity. It is rude to refuse a gift, and ruder still to not return the kindness” (Liszkiewicz, (2010).

In the context of social gaming, Liszkiewicz (2010) identifies this kind of obligation, created by game mechanics such as sending game items as gifts, as ‘social obligation’.

In a social game such as *Farmville*, when players log into Facebook they “are

reminded that their neighbors have sent them gifts [...] In turn, they [players who have received gifts] are obligated to return the courtesies” (Liszkiewicz, 2010).

More specifically, the notification message when a gift arrives might display as such: “Here is a Pansies plant for your (Lil) Green Patch. Could you help me by sending a plant back? Together we can fight Global Warming!” (Losh, 2008, p. 350). This kind of message, which “includes a line such as ‘how about sending a ____ back to help me out?’”(Consalvo, 2011, p. 190), can in fact, “evoke in players a sense of guilt or obligation that they should be sending gifts to those who regularly send them what they request (or even what they don’t request, but simply receive)” (Consalvo, 2011, p. 190). As a result, as Losh (2008) argues: “giving another player certain kinds of ‘help’ in the form of advice or the donation of virtual objects [such as valuable game items] can be taken as an imposition” (pp. 346-347).

In such contexts, game items as gifts in social gaming environments do not only impose an obligation to players to regularly send them back and forth in individual level. Perhaps more importantly, game items as gifts also create an atmosphere of “mutual interdependence” (Consalvo, 2011, p. 191) in such environments. As Consalvo (2011) describes: “if a player does not have a critical mass of friends playing a particular game and it requires critical gifting, she will not be likely to succeed in the game – or keep playing it – at least for very long” (p. 191). Therefore, in order to progress in such games, players *have to* send game items as gifts to others regularly, not just out of goodwill, but more importantly, to contribute within a network of reciprocal obligation.

Mutual interdependence is therefore not only created by game design, but also

enacted by gift-giving in social or cultural traditions that have already been a longstanding practices in human society. Sending game items as gifts in social games is not just perceived as a game rule to follow, but also as a social or cultural convention to obey (for instance, when one receives something called a gift, no matter whether it is physical or digital, one should send something in return).

Additionally, sending game items as gifts not only creates a sense of obligation for receivers, but can also function as a way to display the power of the senders.

Conventionally, sending gifts also has the function of acquiring power. One of the most significant examples is the tradition of 'potlatch'. Potlatch is a form of cultural activity found in the tribes in the American Northwest (Mauss, 2002 [1954], p. 7).

According to Kosalka (1999), in a potlatch:

[...] there is an orgy of gift-giving by the person holding the event. The emphasis is on a display of luxury and excess. Being the recipient of a potlatch demands that one reciprocates and holds an even more lavish potlatch [...] The givers of the potlatch are urged to show a disdain for economic wealth to the point of destroying gifts in order that they will not be returned. (Kosalka, 1999)

Such a potlatch, according to according to Mauss (2002 [1954], p. 47):

[...] is a competition to see who is the richest and also the most madly extravagant. Everything is based upon the principles of antagonism and rivalry. The political status of individuals in the brotherhoods and clans, and ranks of all kinds, are gained in a "war of property", just as they are in real war. (Mauss, 2002 [1954], p. 47)

Gifts, in such contexts, therefore play a central role to present “rivalry and hostility” (Mauss, 2002 [1954], p. 8) to one’s enemy. Through giving, displaying and even destroying the gifts during the potlatch, the gifts operate “for the purpose of humiliating, challenging and obligating him [the rival]” (Bataille, 1997, p. 202). More importantly, through these gift activities one also “gains status, the recognition of superiority by their contemporaries” (Kosalka, 1999).

This process of gaining higher status through the potlatch fits well into Georges Bataille’s (1991) unique economic framework that centres on expenditure and excess. From his perspective:

[...] giving must become acquiring of power. Gift-giving has the virtue of surpassing of the subject who gives, but in exchange for the object given, the subject appropriates the surpassing: He regards his virtue, that which he had the capacity for, as an asset, as a power that he now possesses. (Bataille, 1991, p. 69)

Therefore, in this context, gifts have become a way to obtain certain social status or power. Through gift-giving, “the one who gives has actually acquired, in the other’s eyes, the power of giving or destroying” (Bataille, 1991, p. 69). The person therefore “obtains [...] a status, a power of expenditure and destruction” (Kosalka, 1999). As a result, this situation leads to “the paradox of the ‘gift’” (Bataille, 1991, p. 68) – that “by *giving* one is in fact *gaining* in prestige [*sic*] and societal power and status” [my emphasis] (Kosalka, 1999).

Similar situations can be observed in social gaming too. According to Consalvo (2011,

p. 190), the purpose of the potlatch tradition — “showing off how much you have, by giving it to others” (Consalvo, 2011, p. 190) – can also be served by the gifting activity in social games. This way of showing off or giving away game items as gifts to display higher status in social games is identified as the “potlatch approach” in Consalvo’s (2011, p. 190) study.

She illustrates her theory using examples such as *Farmville*, which enables advanced players to send more valuable game items (such as fruit trees) as gifts to others (Consalvo, 2011, p. 190). In this context, “the ability to send better gifts allows players to display their status within a game” (Consalvo, 2011, p. 190).

Additionally, such a potlatch approach can be even more meaningful in certain social games that encourage players to sacrifice *their own* valuable game items as gifts and send them to others.⁷⁷ For example, according to Consalvo (2011), a social game such as *Zoo Kingdom* “allows players to send friends animals they themselves have purchased – making the gift more of an actual sacrifice, investing more meaning in the process” (p. 190).

Moreover, in social gaming environments, players are typically able to visit a friend’s place. In order to do so, a player needs to click the friend’s picture in the friend bar that appears “as a row of profile pictures at the bottom of the screen” (Consalvo, 2011, p. 189). A friend’s place in social gaming is a “controllable (and visit-able) space as part of the game – whether it is a pirate ship, planet, garden or apartment” (Consalvo, 2011, p. 189). In such environments, players are able to decorate their

⁷⁷ According to Consalvo (2011, p. 190): “the vast majority of games let players send gifts that they do not actually possess.”

places with valuable game items they have obtained or purchased in games for others to visit. The visitors can therefore “see how friends are progressing in a game” (Consalvo, 2011, p. 189). For example, in *Chefville*, a player might see a friend’s place (as a restaurant) decorated with different stylish chairs, kitchen tools or plants (Zynga, n.d.). Typically, the richer a player is or the higher a level he or she has reached, the more valuable game items can be seen in his or her in-game place. This kind of in-game visiting therefore further allows players to display or show off their accumulated in-game wealth in their places, and invite others to appreciate them.

If we apply Bataille’s (1991) framework to understand the “potlatch approach” (Consalvo, 2011, p. 190) in social gaming, players are actually able to acquire power through the role of valuable game items as gifts in such a context. Players are able to display their in-game wealth by decorating their places with rare or attractive valuable game items for friends to visit – just as the givers demonstrate their wealth in a traditional potlatch. These in-game displays of wealth – including valuable game items – have therefore become a means of measuring players’ progress in a game, such as levels, rankings or possessions. In other words, valuable game items displayed in such context can reflect one’s status in social games.

Perhaps more importantly, players in some games mentioned above are able to give away their in-game items as gifts to others. By sending advanced game items or sacrificing valuable game items they have purchased, players demonstrate their in-game abilities and wealth. In this sense, this is similar to a traditional potlatch, at which the givers competitively send the most valuable gifts to their rivals and therefore make claims about the givers’ superiority. Consequently, valuable game items also help players to demonstrate their superiority in social gaming

environments.

In social games with a potlatch approach (Consalvo, 2011, p. 190), players in fact obtain power by demonstrating the giver's higher in-game status through the action of giving valuable game items as gifts. This responds to what Bataille (1991) has argued that: "[...] giving [gifts] must become acquiring a power [...] the power of giving or destroying" (p. 69). Therefore, as mentioned earlier, giving gifts is "in fact gaining in prestige [*sic*] and societal power and status", and earning the "recognition of superiority by their contemporaries" (Kosalka, 1999). Valuable game items, in this sense, become an important means for players to obtain power through in-game gifting.

Here, we return to the question how game items become valuable. First, game items are "valued as symbolic representations or reminders of interpersonal ties" (Richins, 1994, p. 507). They are valuable because of "the importance [...] in forming and symbolizing social relationships" (Richins, 1994, p. 507). This value can be observed in Wohn et al.'s (2011) study, in which game items as gifts are used for non-gaming purposes such as communicating with online friends as well as maintaining offline relationships. This perspective also responds to what Lehdonvirta (2009a, p. 65) has noticed in the social game *Habbo*:

[...] goods [such as game items] are also used in the performance of social relationships: virtual items are presented as gifts to other participants and used to pay for favours. This flow of virtual items can be seen as making visible the "ley lines" of social relationships, as well as reproducing and strengthening them. (Lehdonvirta, 2009a, p. 65)

Second, game items as gifts are valuable because players can naturally apply the convention of reciprocity into the action of gifting. Players as gift givers can therefore impose certain obligations on the receivers through valuable game items, and evoke their sense of guilt to send gifts back. Gift givers are able to *receive* valuable game items that can benefit their gameplay from others by *sending* some of these compulsory items first. Therefore, valuable game items become a means for imposing obligations on others, derived from the tradition of reciprocity.

Third, game items as gifts are valuable because they have become an important way for players to obtain social status and power in social gaming, which is related to the concept of “social value” (Sheth et al., 1991, p. 161). As discussed in Chapter 1, part of the social value of game items lies in creating a certain social distinction “between ‘haves’ and ‘have-nots’” (Lehdonvirta, 2009a, p. 188). This value in creating social distinction is further transformed and reinforced by the mechanism of gifting in social gaming. By displaying and sending valuable game items, the givers are therefore able to acquire higher social status, a sense of superiority, and power from this process. This indirect competition for power through gifting between players in social games is similar to what happens in a traditional potlatch, where power and status are obtained in “a ‘war of property’, just as they are in real war” (Mauss, 2002 [1954], p. 47).

4.6 Summary

In this chapter, I have discussed the influence of players as groups on valuable game

items in digital environments. By drawing on theoretical concepts mainly from sociology, I connected players' collective gaming experience to other social-cultural frameworks to understand the value of game items in digital environments. From this perspective, players can reinterpret, reject and even recreate game content pre-created by game design. As a group, players therefore have the power to affect game content including the meaning of valuable game items in digital environments.

In the cases of *Diablo 2* and *Habbo*, players created their own currencies in order to be able to trade within games, which was not anticipated by the game designers. In these cases, the existing meaning of value in these digital environments was rejected (the original game design economy system was abandoned) and recreated (by using specific game items as the currency of a new economic system). This new economic system, supported by ad hoc currencies defined by players on their own, forms a new norm that regulates how players should act and follow (for instance, if a player wants to buy or sell within such environments, he or she must use the ad hoc currencies, instead of the old ones created by game design).

As I have argued, this kind of rejection and redefinition of the value of items within a game is achieved through players' collective agreements. Players' collective beliefs socially construct the fact that *a specific game item is equal to a new currency unit*, and make this statement a social and institutional reality. In this context, the specific value of certain game items has been assigned and embedded by players collectively.

In order to form such collective beliefs, players have to communicate and let the information flow among them. This information flow is not limited to digital environments, but also happens outside them, such as in video websites, forums and

game wikis. All these information resources are facilitated by players' "collective knowledge" (Newman, 2008, p. 13), which further forms the "social world" (Shibutani, 1955; Strauss, 1978) of the digital environment. The information around a certain game item, including its in-game role and value, is hence widely spread and reconfirmed by all participants in the social world of a game.

In an environment that encourages player versus player competition, players fight each other for vital resources such as valuable game items. Players are able to use such environments to fulfil their need and desire to be powerful and dominate others. Under such circumstances, the competitive gaming environment has become like a "field" (Bourdieu, 1991) while resources including game items are turned into "capital" (Bourdieu, 1986, p. 241). The value of game items, therefore, lies in these roles for strengthening players' competences in such fields, and for being the goal for which players compete.

In a less competitive environment that encourages players' collaboration, game items are used as gifts to facilitate players' gameplay as well as appealing to new players to join in. Players, however, can reinterpret this main function and meaning of game items in this context, for their own purposes. First, sending game items as gifts has become a way for players to communicate and maintain relationships (Wohn et al., 2011). In this sense, game items are valuable because of their functions in forming and symbolising social relationships (Richins, 1994, p. 507). Second, valuable game items are perceived as gifts derived from the tradition of reciprocity. Game items are valuable in a sense because they can be used to impose obligations on others. Third, game items as gifts are valuable because players can obtain higher social status, a sense of superiority, and power through displaying and giving them to others. In this

context, game items have “social value” (Sheth et al., 1991, p. 161) that can create social distinction between those who own them and those who do not (Lehdonvirta, 2009a, p. 188).

Conclusion and discussion

In this section, I conclude this interdisciplinary study that focuses on the value of game items. I have discussed, analysed, and examined the main research question – *what are the roles of game items in digital environments that make them valuable?* – throughout the thesis. Game items are valuable because their distinctive roles in different contexts in digital environments involve both production and consumption processes. Game items can have diverse types of value within a specific context, while each value of game items can also be determined and affected by more than one factor derived from that context.

The interdisciplinary approach I applied in this thesis incorporated theoretical knowledge from media studies, economics, game design, performance studies and sociology. This was not only useful but necessary to understand the complicated relationships and interplays between value, game items, and their different contexts in play. In the following sections, I will demonstrate how the value of game items is created and affected by different factors discussed throughout this thesis.

The diverse values of valuable game items in different contexts

This thesis argues that valuable game items can play multiple roles in different contexts. They are products and assets traded by game companies and players; they

are codes and programs generated by game design and platforms; they provide props and costumes for players' in-game social performances; and they are cultural artefacts nominated by players as a group. These multiple roles, demonstrated in different chapters of this research project, in a sense, also imply the diversity of their values.

Chapter 1 began by dealing with some controversial issues around valuable game items. As I have argued, these issues regarding the ontological features of game items are partly responsible for common misunderstandings about how game items can be valuable to players. I argued that game items are objects (Bartle, 2004b, p. 2) that effectively exist in the same reality as other physical objects (Lehdonvirta, 2009a, p. 75). Game items should be understood both as codes created by game designers and as animated graphics accessed by players.

Valuable game items are directly acquired, used or decorated by players through avatars in a digital gaming environment. They can be either simulations of objects in the physical world (Brey, 2003) or objects inspired (Lehdonvirta, 2009b) by fictitious stories. They are the result of interplays between a platform's technological capacity and the cultural influences on both designers and players. They have been assistant tools or tradable possessions in different time periods. They have many important characteristics related to their value – they are cheap to reproduce; they are experience goods; they are interconnected with network effects; they are rivalrous and persistent (Fairfield, 2005; Shapiro & Varian, 1999).

The second part of Chapter 1 focused on the value of game items mainly from the perspective of economics. According to theories of consumption, game items can

have diverse values. They have functional value, emotional value, social value, value for representations of interpersonal ties, and value for identity and self-expression (Richins, 1994; Sheth et al., 1991). These different types of value, as demonstrated throughout this thesis, are generated and affected by many factors in different contexts in digital environments.

Within the discipline of economics, there are two theoretical approaches that explain how game items came to have value in digital environments – the labour theory of value and the subjective theory of value (Castronova, 2002; Hayek, 1948; Marx, 2007 [1867]; Menger, 2007 [1976]; Smith, 2007 [1776]). These two approaches, derived from classic and modern economics, have been picked up by the studies that focus on the value of game items.

On the one hand, the followers of the labour theory of value suggest that the value of game items is intrinsic and generated by players' efforts and time cost. In this context, a game item is mainly valuable because it represents the hard work of a player who might spend hundreds of hours developing or obtaining the item. Many important theoretical concepts such as "playbour" (Kücklich, 2005) and "creationist capitalism" (Boellstorff, 2008, p. 205) are closely related to this point of view. On the other hand, advocates of the subjective theory of value argue that the value of game items is something extrinsic, and determined by players' personal preferences. In this sense, a game item is valuable in a market because of players' personal preferences (Castronova, 2002, 2005, 2006a).

These two economic approaches provide useful insights for the studies following to understand how game items have become valuable to players. However, as I have

argued, these two approaches, on their own, still do not sufficiently explain how game items have become valuable in various complicated contexts of gameplay.

This is mainly because of the multiple roles of game items. To both game designers and players, they are not only products or goods for economic purposes, but also digital codes, animated graphics, useful tools, cultural artefacts, and so on. In other words, we should also understand how game items have become valuable from their very distinctive roles in different complicated contexts in digital environments. The reasons why game items are valuable involve how they are created, facilitated, and affected by game design, player behaviour, and players' influence as a group. I therefore examined the relationship between the role of game items and fundamental game mechanics, how players perform their online identities, and the influence of player groups in digital environments in three separate chapters.

In Chapter 2, I mainly focused on how the fundamental game mechanics created by game design affect the role of game items as valuable objects in digital environments. I identified several significant game mechanics, including systems of storage and exchange, functionality and aesthetics, artificial scarcity and randomness, and sociality. These mechanics created by game design, as I argued, construct rules and shape the digital environments in many ways, defining and restricting how players can use valuable game items. Moreover, these game mechanics are the most crucial elements that can affect the role of valuable game items in different contexts of gameplay.

These fundamental game mechanics can create certain dynamics that generate specific player experiences (Hunicke et al., 2004). These player experiences of

owning, managing and trading valuable game items, directly or indirectly, also have a significant influence on the value of those game items. Therefore, as I conclude in this chapter, game mechanics driven by the power of game design actually have the potential to generate or affect the diverse values of game items in games.

In Chapter 3, this thesis examined the role of game items from the perspective that digital environments are performing spaces, especially in the context of social performance mainly based on Erving Goffman's (1956) framework and Taylor's (2002a) study. I demonstrated how players construct and perform their preferred identities in digital environments through avatars and valuable game items.

This kind of online social performance has a further influence on gaming environments at both micro and macro level. In such environments, players construct their online identities through their in-game surrogates – avatars. Through avatars, players play the roles of both performers and audiences, watching how they and others represent online identities while being watched at the same time. Throughout this process, as I have argued, valuable game items play a crucial role benefiting the player-avatar social performance in digital environments as spectacle.

In this context, game items function as props, costumes, and expressive equipment that encourage and facilitate player-avatar social performance. Game items that can be decorated and manipulated by avatars are valuable because of their roles in the process of online social performance. Players can use them to change the appearance of their avatars to construct their preferred online identities. Game items can link to certain social status and roles, whether in or out of a game. They can be used to show off to others who do not own them and therefore create a social

distinction.

Chapter 4 examined how players as a group can influence the role of game items. Players act not just as separate individuals in this sense, but also in groups of people with real social power, and these groups can have a great influence on a digital environment collectively. In this sense, the role of game items is not just controlled by the game companies, but is more the result of different forms of negotiations between players and how they collectively define and use gaming environments.

Inevitably, the value of game items is also affected by the power of players as a group, especially in a multiplayer digital environment. The value of game items is therefore not only able to be strengthened, but can also be rejected, reinterpreted, or recreated out of players' collective needs or desires beyond the designers' control and expectations. After all, game items are produced to be used by players. In this sense, players have the final decision on the value of game items.

Throughout the exposition in this thesis, I concluded that game items are objects that are valuable due to their multiple roles in different contexts in digital environments. Therefore, the sources of value of game items are diverse. Game items are valuable because they represent players' efforts and time investments as well as their personal preferences in consumption. Game items are valuable because of certain mechanics created by game designers, whether intentionally or unwittingly. Game items are valuable for the reason that they help players to construct and perform their online identities in front of themselves and others. Game items are valuable because of the power of players as a group giving and justifying their value. Therefore, as I have argued, the value of game items, in many ways, highly depends

on the contexts and the specific roles of game items played within such contexts.

This argument seems to suggest that the value of game items is decided by several *separate* factors with no connections between each other. However, as I will discuss in the following section, these factors from different contexts actually interplay and interact with one another to generate, facilitate, and justify the role of game items as valuable objects in digital environments.

The hybrid value of valuable game items

The multiple roles of valuable game items in different contexts in digital environments are overlapping rather than separate. Game items can be both gaming tools and consumption goods at once, just as they can be used for performing online identities as well as for reflecting players' collective power.

As a result, the seemingly separate factors discussed in this thesis – economic consumption, game design and mechanics, performance and self-representations, and players' influence as groups – are in fact connected with each other and work together to create and affect the value of game items. In this sense, the value of a certain game item can be affected and determined by many different factors at once. The value of game items can be affected by both production and consumption, economic systems and social interactions, gaming and non-gaming cultures, and so on. In other words, the value of game items can be hybrid.

Perhaps the most evident connection is the way in which game design facilitates

players' in-game social performance. This is due to two important game mechanics: aesthetics and sociality. As discussed in Chapter 2, the mechanic of aesthetics makes game items customisable and attractive to players, while sociality facilitates players' social interactions within digital environments. Intentionally or unwittingly, these two game mechanics together also provide an opportunity for players to construct and perform their preferred online identities to others in multiplayer digital environments through customisable game items.

On the one hand, through the design of aesthetics, players are allowed to customise their avatars with attractive game items to construct their preferred online identities. On the other hand, due to the design of sociality, players have a theatrical stage in digital environments to give a performance to their audiences. The valuable game items equipping or dressing players' avatars can be shown off and put on display for others to appreciate.

Game design not only facilitates how players perform in digital environments, but also how they behave as a group. Three game mechanics discussed in Chapter 2 – functionality, artificial scarcity and sociality – together have a significant influence on the competitive atmosphere regarding game items as valuable objects, which I described in Chapter 4.

The design of functionality – using game items to strengthen the power of their avatars in games – makes game items crucial tools for players to succeed in the player versus player competitions. Meanwhile, the design of artificial scarcity – making valuable game items rare and available only to a few players – means such game items become precious rewards for the winner of a PVP competition. Sociality,

on the other hand, enables such competition between many players in games that focus on being powerful, getting precious rewards, and obtaining higher status than others, all through valuable game items.

Another game design element, 'systems of exchange' – design that allows players to exchange and trade game items with one another – also facilitate “collective knowledge” (Newman, 2008, p. 13) in terms of valuable game items. First, the design of systems of exchange not only makes game item transactions available in or out of a game, but also makes information about game items available. Players can use the different channels opened by systems of exchange when they are collecting information about certain game items, such as their market prices. Information about the value of a certain game item can therefore be shared, re-shared, and accessed by other players in the “social world” (Shibutani, 1955; Strauss, 1978) of a game.

These connections I have detailed all involve the ways in which game design enables players' gaming experience and interactions, in terms of the value of game items. It is worth noting, however, that game design cannot one-sidedly determine the value of game items as addressed throughout this thesis. Game design might open a door for players to present online identities or form a group, and therefore indirectly affect the roles of game items as valuable objects. However, game designers certainly cannot control and anticipate everything, such as how players use game items in their self-representations or how they collectively evaluate the value of certain game items. Therefore, conversely, in some cases, the way that players act in digital environments can also have a significant influence on game design itself, including valuable game items.

This thesis has described the influence of players' gameplay on game design in many cases outlined in earlier chapters. In the case of *World of Warcraft*, the place in front of the auction house in Ironforge was not originally designed by game developers as a place for players to showcase their rare and powerful game items, but it eventually has become such a place and is independently used by players for such performances (Ducheneaut et al., 2006, p. 413). In another case in *Diablo 2*, players rejected the official currency, gold, and instead chose another game item, the Stone of Jordan (SOJ), as the common currency widely used in transactions in this game.

In both these cases, we can still see how game design has provided opportunities for players to perform or engage in economic activities through valuable game items. Game design allows players who own valuable game items to *stand* in front of the auction house in Ironforge in *World of Warcraft*; game design also allows players in *Diablo 2* to *exchange* any game items with each other. However, perhaps more importantly, these two cases also demonstrate how these possibilities provided by game design are collectively used by players to create a unique meaning of their own for their in-game activities regarding valuable game items. This kind of collective power, driven by players, is crucial to generate and affect the value of game items as well.

As I have argued, the value of game items is facilitated by several factors such as economic consumption, game design, how players perform online identities, and the norms built by player groups. Through the discussion in this section, I also suggest that these factors can work together, creating significant interplays and interactions to affect how game items become valuable in digital environments. In other words,

these factors not only have their own independent influence on the value of game items, but perhaps more importantly, there will also be checks and balances between these influences when all act on the value of game items simultaneously.

Research contributions and implications

The value of this thesis itself has been demonstrated. This thesis examines how game items have become valuable because of their specific roles in different contexts in digital environments. Each of these contexts is complicated and unique, while each of them is still related to one another, as I have now demonstrated. In order to provide a comprehensive picture of how game items have become valuable, this thesis applies an interdisciplinary approach in researching, synthesising and presenting different theoretical frameworks in the discussions throughout the thesis. There are at least three main contributions to the discipline of game studies derived from this thesis.

First, this thesis has made an effort to bridge theoretical frameworks and theoretical concepts from different disciplines including economics, game design, sociology, and media and performance studies, applying them to the new discipline of game studies. This is mainly because game studies is still a developing field instead of a mature one. Game studies is a field at a crossroads that inevitably needs knowledge and theories from other disciplines to enrich and deepen its scale and scope. Throughout this interdisciplinary research project, theories from different disciplines in broader academic contexts are able to have conversations at the crossroads of game studies with a focus on the issues around valuable game items. In this sense, this thesis plays

an important role in contributing to the ongoing development of game studies.

Second, through its interdisciplinary approach, this thesis provides an alternative and creative perspective from which to understand how game items have become valuable in a complicated way. Throughout the thesis, I have addressed that it is the roles of game items in different contexts of digital gaming that make them valuable. The diverse and hybrid values of game items are examined from many different perspectives throughout this thesis. This thesis not only provides extensive explanations and enhances the applicability of two economic approaches – the labour theory of value and the subjective theory of value – but also demonstrates how other different factors including economic consumption, game design, players' performing behaviour and social power from player groups can together act upon the value of game items. Through the discussions in this thesis, we can see how the value of game items is similar to but different from the conventions of value for other objects. More importantly, we can also see how value in play is realised by the complex interplays between game designers, players and gaming cultures.

Third, through interdisciplinary discussions, this thesis therefore provides some useful and new insights to refocus and redefine the role of valuable game items in digital environments. For example, this thesis chooses to use the term 'game items' instead of 'virtual items' to avoid potential misunderstandings regarding the value of game items. This also helps us refocus on the role of game items as 'valuable items in different contexts of gameplay in gaming culture' instead of 'unreal objects in unserious and childish play in virtual worlds'. I have also renovated the concept of the "magic circle" (Huizinga, 1949, p. 10) to argue that although valuable game items are affected by both gaming culture and ordinary life, they are still different from any

other objects in everyday life. Additionally, I have identified and applied different theoretical perspectives to examine the potential relationships between game designers, players and the value of game items. These include significant game mechanics, avatars and players' in-game social performance, and the power dynamics of players in groups.

Therefore, as discussed throughout this thesis, I made many important arguments related to the understanding of game items and their value. Game items are not virtual, unreal, or imaginary objects that do not physically exist. Game items are not only products and goods produced to be sold; they are also multifaceted objects with multiple roles in different contexts. Game items are useful tools to assist players in their gameplay to enrich their gaming experiences. Game items are props, costumes and expressive equipment for players to express themselves in their preferred ways in their everyday digital lives. Game items are the products of the results of players' collective usage, representing certain norms built up by players themselves. All these attributes of valuable game items are vitally important for us to reconsider to understand how exactly they have become objects with significant value.

In terms of the gaming industry, the result of this research project will also be helpful for the future development of valuable game items. From my perspective, game developers should consider all elements that could potentially affect how the value of game items is generated when they produce a game item. For example, if a game company decides to sell a game item to players for real money (the primary market model), it should consider how to achieve a balance between the quantity of this game item, price, and other attributes discussed throughout this thesis. It is possible to create and sell a thousand copies for \$10 with no one buying the items; or just

create and sell ten copies for \$1,000 and sell them out. Different factors should be considered before deciding upon a quantity and setting a price. These factors might include functionality, aesthetics, artificial scarcity, benefits to players' self-expressions, the influences of player groups, or other factors presented in this thesis. Designing and selling game items for real money therefore can be a more complicated issue than we might previously have believed.

Additionally, since the value of game items is the result of the negotiation between the process of production (such as game design) and consumption (such as player behaviour), game developers have to consider players' points of view when they design valuable game items. For example, a seemingly powerful weapon might seem to be very functionally valuable to a game developer, but may be emotionally valueless to players due to its ugly appearance. A beautiful ring that seems to be very valuable to the game developers could end up unsaleable because it has no real practical function to assist players' gameplay. Something that looks unsaleable (for instance, ragged clothes) could attract a group of players who may purchase it in order to perform certain online identities.

Therefore, as I have argued throughout this thesis, it is important to reconsider game items as *game items themselves* instead of a new form of virtual products or unreal commodities. The value of game items is situated and always situated in play – whether it is gameplay, performing play, or social play.

The trends of valuable game items

In this section, the focus will be on the trends in the use of game items – how the roles of valuable game items are changing. Recently, there is a growing trend in the ‘primary market’ of game item trading – that is, game publishers directly selling game items to players (Lehdonvirta & Ernkvist, 2011, p. 12). According to market research, the primary market reached USD\$7.3 billion in 2010 (Reisinger, 2010) and grew to USD\$14.8 billion in 2012 (Bodimeade, 2013). This number is anticipated to surpass USD\$20 billion with the development of mobile gaming (Nayak, 2012).

This development has two important implications. First, it seems to suggest that game companies are becoming the controllers regarding valuable game item trading, instead of players.⁷⁸ This responds to the main argument in Chapter 2 of this thesis – that the production of games plays a crucial role in affecting the value of game items. In the primary market, such influences from game production can be even greater. For example, in *Dungeon Hunter 4*, players are not allowed to trade game items with each other. The only way players are able to own precious game items is to purchase them from the game company with non-negotiable price (real money).

Second, the rapid development of mobile gaming is having an influence on the dynamics of valuable game items. This can be due to the most important feature of mobile gaming– mobility – as players are able to carry their mobile devices for playing games everywhere and at any time. The mobility of mobile gaming might strengthen the sense of ownership even more for players, regarding game items created by systems of storage. In other words, although valuable game items are still stored on the game server, now they are also ready for players to access in their

⁷⁸ However, there are still some games that encourage secondary markets, such as *Second Life* and *Entropia Universe*.

pockets almost 24/7.

Another recent development in gaming and business is the trend of gamification. Typically, gamification refers to the adoption of gaming elements such as levelling up, rewards and quest-solving in services or software applications in the physical world. In other words, gamification is “the use of game design elements in non-game contexts” (Deterding, Dixon, Khaled, & Nacke, 2011, p. 10).

Gamification applications blur the distinction between gameplay and services. In a gamification location-based application such as *SCVNGR*, players are using a service such as ‘checking in’ to physical places and playing a game at once (SCVNGR, n.d.).

One of the most important implications of gamification in terms of valuable game items is that their role as in-game rewards in a traditional gaming environment could be replaced by the rewards in the physical world. In a traditional MMORPG such as *World of Warcraft*, players will obtain game items (such as a magic dagger) after they finish a quest in the game. In a gamification application such as *SCVNGR*, players might obtain a free burrito when they finish the challenge in a restaurant.

One might argue that a magic dagger and a burrito have nothing in common, but in fact they do. A traditional game item such as a magic dagger is valuable in the context of gaming first, and then this value can be converted into dollars through different channels, inside or outside a game. A physical reward in a gamified application has its value measured in dollars first, but has value in play too (for instance, earning a burrito means that the player has finished a certain game quest in this restaurant). In other words, the value of both traditional game items and

physical rewards in a gamified application are realised and situated in both digital and physical environments in a different order.

The last related trend I will discuss is the development of digital currencies. Currently, the development of Bitcoin – a peer-to-peer digital currency – has generated passionate discussion and concerns both publicly and academically. Bitcoin can be widely used and applied in different contexts of trading (The Bitcoin Foundation, n.d.), which provides some important insights for the future development of valuable game items.

One significant shortcoming in online gaming environments in terms of game items is that game items are typically non-transferable. When a game fails and is abandoned, no matter how valuable its game items have ever been, they will become useless and valueless (Ho, 2007, p. 12). Players are not able to bring their accumulated in-game items, money and assets from an old game to a new one (Ho, 2007, pp. 12-13). Players typically have to start from scratch when they are playing a new game, no matter how many valuable game items they have accumulated in previous games. As Castronova (2004, p. 197) describes:

Many worlds [digital environments], however, are designed so that users become deeply vested, not just emotionally and socially, but also financially. Hours of play/work are capitalized into virtual wealth with substantial real dollar values. Exit [from digital environments] can be very costly. (Castronova, 2004, p. 197)

At first glance, this does not seem to be a serious problem. However, it does become

problematic if game companies acknowledge the value of game items, and sell them to players with real money through an item mode, free-to-play model or microtransaction system (Ho, 2007; Lehdonvirta & Ernkvist, 2011; Lin & Sun, 2011; Wi, 2009), but provide no way for players to preserve or resell valuable game items when a game is gone or when players decide to play a new one.⁷⁹ This issue is therefore not only about how business models work in virtual economies, but also involves the ethics, justice, and rightfulness of such business models. This issue, once again, follows on from the arguments in Chapter 2 that game developers and companies have the main power to control valuable game items.

A united game currency that can be applied in universal games might solve this kind of problem. Recently, two united game currencies have been developed – Facebook credits and Tencent’s Q coin. Around 2010, Facebook launched a currency called: ‘Facebook credits’ – one US dollar for 10 credits, which can be used to buy game items in most games played on Facebook (Oates, 2009). However, players were not allowed to perform that transaction in reverse – selling game items for Facebook credits.⁸⁰

Similarly to Facebook credits, the Q coin issued by Tencent in China can be used by players – one CNY for one Q coin, to buy many in-game items in Tencent’s gaming platform (Baidu, n.d.). One important feature that differentiates the Q coin from

⁷⁹ In some cases, game developers do provide a way for players to transfer their in-game items to another game. When Facebook game *Restaurant City* closed in 2012, the developer automatically transferred players’ in-game cash to its new game: *The Sims Social* (triciaplayfish, 2012). However, this action is more like advertising a new game instead of preserving the valuable game items in the old game for players, since the company did not give players any other options to transfer these intangibles.

⁸⁰ This game currency, whose shortcomings included confusing conversions and pricing problems, ended in 2012 (BBC, 2012).

Facebook credits is that players are allowed to exchange their in-game money for Q coins – selling one Q coin for 10,000 game money, while selling 15,000 game money for one Q coin (Jinghua news, 2006). Additionally, Q coins are exchangeable, which means one player can sell Q coins to another with real money (Wang, 2008).

Therefore, players can fluently exchange Q coins, CNY and game money.⁸¹

The cases of Facebook credits and Tencent's Q coins provide us with some important ideas about the features of a united currency. A united game currency should have two characteristics – applicability and exchangeability. Applicability means that such currency can be used in any context of gameplay. A united game currency can be used to purchase a pet in game A, and it can also be used to buy a machine gun in game B, just as Facebook credits can be used in different types of Facebook social games.

Exchangeability allows players not only to exchange valuable game items with the united game currency, but also to exchange the united game currency for their local currency such as AUD, USD or CNY, and vice versa at certain rates (such as *Entropia Universe's* PEDs, or *Second Life's* Linden dollars).

There are some important implications for this kind of united game currency. First, it would allow the value of game items to be transparently measured by this currency decided by the market (that is, by players), instead of by game companies. Unlike the current popular business models where the value (price) of a certain game item is

⁸¹ Tencent, however, has decided to shut down the function that allows players to convert their in-game money into Q coins, and prohibits players trading Q coins with each other using real money (CNY). This could be because the features of Q coins could potentially impact the legal currency status of CNY and cause financial risks (Jfdaily, 2007).

decided arbitrarily by game companies, players can decide this value by themselves with an exchangeable united game currency depending on a game item's role in play.

Second, since the united game currency would allow players to convert the game items they own into a certain amount of united game currency, the value of game items is able to be preserved and made portable with players when they decide to start playing a new game in a whole new digital environment. Therefore, players are able to sell game items in any of their games using the united game currency, with which they are then able to buy game items in the new game to help their new start. Without any system of convertible value, game companies may effectively be breaching faith with their players.

Nonetheless, no matter what the future of gaming industry will be, one thing is certain: valuable game items, along with their controversial issues, will still remain in their applications in different contexts in gaming culture. We should always remember, however, where the diverse and hybrid value of game items comes from – the interplays between production and consumption, economic and social activities, as well as the impact of gaming from different types of play and the influence of non-gaming cultural practices.

References and Bibliography

5173. (2011). Valuable game item trading rankings (in Chinese). Retrieved June 3, 2013, from <http://games.qq.com/ntgame/5173/1205-1211.htm>
- Aarseth, E. (2002). The dungeon and the ivory tower: vive la difference ou liaison dangereuse? *Game Studies*, 2(1).
- Aarseth, E. (2003). Playing research: Methodological approaches to game analysis. In *Proceedings of the 5th International Digital Arts and Culture Conference (MelbourneDAC)* (pp.1–7). Melbourne, Australia.
- Aarseth, E. (2004). Genre trouble: Narrativism and the art of simulation. In N. Wardrip-Fruin & P. Harrigan (Eds.), *First person: New media as story, performance, and game* (pp. 45–55). Cambridge, MA: MIT Press.
- Aas, B. G., Meyerbroker, K., & Emmelkamp, P. M. G. (2010). Who am I-and if so, where? A Study on personality in virtual realities. *Journal of Virtual Worlds Research*, 2(5), 3-15.
- Abercrombie, N., & Longhurst, B. (1998). *Audiences: A sociological theory of performance and imagination*. London: Sage.
- Achterbosch, L., Pierce, R., & Simmons, G. (2008). Massively multiplayer online role-playing games: The past, present, and future. *ACM Computers in Entertainment*, 5(4), 1-33.
- Addcn Technology. (n.d.). 8591 real money trading website for game items (in Chinese). Retrieved October 13, 2013, from www.8591.com.tw
- Ager, A.; Loughry, M. (2004): Psychology and humanitarian assistance. *Journal of Humanitarian Assistance*. Retrieved October 13, 2013, from <http://sites.tufts.edu/jha/archives/80>
- Anarbaeva, S. M. (2012). Samarita Ibanez: An identity journey from first life to second. *Journal of Virtual Worlds Research*, 5(1), 1-14.

- Apple Daily. (2012). The most expensive game item in gaming history: Cost 500,000 NT (in Chinese). Retrieved June 5, 2013, from <http://www.appledaily.com.tw/appledaily/article/headline/20120130/33987834/>
- Apple Inc.. (n.d.). About game center. Retrieved November 8, 2013, from https://developer.apple.com/library/ios/documentation/NetworkingInternet/Conceptual/GameKit_Guide/Introduction/Introduction.html
- Arias, A. V. (2007). Life, liberty, and the pursuit of swords and armor: Regulating the theft of virtual goods. *Emory Law Journal*, 57(5), 1301-1346.
- Arnould, E. (1998). Daring consumer-oriented ethnography. In B. Stern (Ed.), *Representing consumers: Voices, views and visions* (pp. 85–126). London: Routledge.
- Ashton, D. (2010). Player, student, designer: Games design students and changing relationships with games. *Games and Culture*, 5(3), 256–277.
- Atlas, S. A. (2008). Inductive metanomics: Economic experiments in virtual worlds. *Journal of Virtual Worlds Research*, 1(1), 1-15.
- Azeharie, R., & Sharma, R. (2011). Design principles for doing business on Second Life: An immersive ethnographic study. *Journal of Virtual Worlds Research*, 3(3), 3-27.
- Babbie, E. (2009). *The practice of social research* (12th ed.). Belmont, CA: Wadsworth.
- Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: Measuring hedonic and utilitarian shopping value. *Journal of Consumer Research*, 20(4), 644–656.
- Baidu. (n.d.). Q coins (in Chinese). Retrieved January 10, 2014 from <http://baike.baidu.com/view/41010.htm?fromtitle=QQ%E5%B8%81&fromid=566947&type=syn>
- Banakou, D., & Chorianopoulos, K. (2010). The effects of avatars' gender and appearance on social behavior in online 3D virtual worlds. *Journal of Virtual Worlds Research*, 2(5), 3-16.

- Bargh, J. a., McKenna, K. Y. a., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the “true self” on the Internet. *Journal of Social Issues*, 58(1), 33–48.
- Barlow, J. P. (1996). A declaration of the independence of cyberspace. Retrieved May 5, 2013, from <https://projects.eff.org/~barlow/Declaration-Final.html>
- Barnes, S., & Mattsson, J. (2008). Brand value in virtual worlds: An axiological approach. *Journal of Electronic Commerce Research*, 9(3), 195-206.
- Bartle, R. (2004a). *Designing virtual worlds*. Indianapolis, IN: New Riders Publishing.
- Bartle, R. (2004b). Pitfalls of virtual property. *The Themis Group white paper*. Retrieved March 5, 2014, from <http://mud.co.uk/richard/povp.pdf>
- Bataille, G. (1991). *The accursed share: An essay on general economy vol. 1: Consumption*. New York, NY: Zone Books.
- Bataille, G. (1997). The gift of rivalry: ‘Potlatch’. In F. Botting & S. Wilson (Eds.), *The Bataille Reader* (pp. 199–209). Oxford: Blackwell Publishers.
- Bates, B. (2004). *Game design* (2nd ed.). Boston, MA: Thomson Course Technology PTR.
- BBC. (2012). Facebook scraps its own Credits currency for apps. Retrieved January 10, 2014 from <http://www.bbc.co.uk/news/technology-18519921>
- Becerra, E., & Stutts, M. A. (2008). Ugly duckling by day, super model by night: The influence of body image on the use of virtual worlds. *Journal of Virtual Worlds Research*, 1(2), 1-19.
- Begy, J., & Consalvo, M. (2011). Achievements, motivations and rewards in faunasphere. *Game Studies*, 11(1).
- Bell, M. W., Castronova, E., & Wagner, G. G. (2010). Virtual assisted self interviewing (VASI): An expansion of survey data collection methods to virtual worlds by means of VDCI. *Journal of Virtual Worlds Research*, 3(3), 1-19.
- Benedikt, M. (2000). Cyberspace: First step. In D. Bell & B. M. Kennedy (Eds.), *The cybercultures reader* (pp. 29–44). London: Routledge.

- Biever, C. (2004). Sales in virtual goods top \$100 million. Retrieved May 12, 2013, from <http://www.newscientist.com/article/dn6601#.Ukjl4ZHjk4>
- Bigl, B., & Stoppe, S. (Eds.). (2013). *Playing with virtuality: Theories and methods of computer game studies*. Frankfurt: Peter Lang International Academic Publishers.
- Bleumers, L., & Jacobs, A. (2010). Beyond being there: A grounded investigation of the value of virtual worlds for remote family interaction. *Journal of Virtual Worlds Research*, 3(2), 3-21.
- Bleumers, L., Naessens, K., & Jacobs, A. (2010). How to approach a many splendored thing: Proxy technology assessment as a methodological praxis to study virtual experience. *Journal of Virtual Worlds Research*, 3(1), 3-24.
- Blizzard Entertainment (n.d.-a). Auction house. Retrieved July 8, 2013, from <http://us.battle.net/d3/en/game/guide/items/auction-house>
- Blizzard Entertainment. (n.d.-b). Classic games. Retrieved June 6, 2013, from <http://us.blizzard.com/en-us/games/legacy/>
- Blizzard Entertainment. (n.d.-c). Playing with friends. Retrieved June 21, 2013, from <http://us.battle.net/d3/en/game/guide/gameplay/playing-with-friends>
- Blizzard Entertainment. (n.d.-d). The Paddle. Retrieved June 17, 2013, from <http://us.battle.net/d3/en/item/the-paddle>
- Blizzard Entertainment. (n.d.-e). Diablo 3: Windforce. Retrieved July 5, 2013, from <http://us.battle.net/d3/en/item/windforce>
- Blizzard Entertainment. (n.d.-f). Diablo 3: Pants. Retrieved July 5, 2013, from <http://eu.battle.net/d3/en/item/pox-faulds>
- Blizzard Entertainment. (n.d.-g). Game guide. Retrieved October 5, 2013, from <http://us.battle.net/wow/en/game/>
- Blizzard Entertainment. (2012). Diablo III launching May 15 – digital pre-sales now open. Retrieved July 5, 2013, from [http://us.battle.net/d3/en/blog/4612389/Diablo III Launching May 15 %E2%80%93 Digital Pre-Sales NOW OPEN-3 15 2012#blog](http://us.battle.net/d3/en/blog/4612389/Diablo%20III%20Launching%20May%2015%20-%E2%80%93%20Digital%20Pre-Sales%20NOW%20OPEN-3%2015%202012#blog)

- Bodimeade, M. (2013). 27 million virtual goods market users purchase through Facebook payments. Retrieved January 10, 2014, from <http://www.companiesandmarkets.com/News/Information-Technology/27-million-virtual-goods-market-users-purchase-through-Facebook-Payments/NI6730>
- Boellstorff, T. (2008). *Coming of age in second life: An anthropologist explores the virtually human*. Princeton, NJ: Princeton University Press.
- Boellstorff, T., Nardi, B., Pearce, C., & Taylor, T. L., Marcus G. E. (2012). *Ethnography and virtual worlds: A handbook of method*. Princeton, NJ: Princeton University Press.
- Bogost, I. (2008). The rhetoric of video games. In K. Salen (Ed.), *The ecology of games: Connecting youth, games, and learning* (pp. 117-140). Cambridge, MA: MIT Press.
- Bogost, I., & Montfort, N. (2007). New media as material constraint: An introduction to platform studies. In *Proceedings of the 1st International HASTAC Conference*. Durham, US.
- Bogost, I., & Montfort, N. (2009). Platform studies : Frequently questioned answers. In *Proceedings of Digital Arts and Culture Conference*. California, US.
- Boostrom Jr, R. E. (2008). The social construction of virtual reality and the stigmatized identity of the newbie. *Journal of Virtual Worlds Research*, 1(2), 1-19.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood.
- Bourdieu, P. (1991). *Language and symbolic power*. (J. B. Thompson, Ed.; G. Raymond & M. Adamson, Trans.). Cambridge: Polity Press.
- Bourdieu, P., & Wacquant, L. (1992). *An invitation to reflexive sociology*. Cambridge: Polity Press.
- boyu1123. (2013). A female character in Dungeon & Fighter wears the swimsuit (in Chinese). Retrieved January 10, 2014, from <http://forum.gamer.com.tw/C.php?bsn=09895&snA=42563&tnum=1>

- Bray, D. A., & Konsynski, B. R. (2007). Virtual worlds: Multi-disciplinary research opportunities. *ACM SIGMIS Database*, 38(4), 17-25.
- Brey, P. (2003). The social ontology of virtual environments. *American Journal of Economics and Sociology*, 62(1), 269-282.
- Burke, T. (2002). Rubicite breastplate priced to move, cheap: How virtual economies become real simulations. Retrieved April 30, 2015, from <http://www.swarthmore.edu/SocSci/tburke1/Rubicite%20Breastplate.pdf>
- bwarner. (2011). An answer to 'Why did Stone of Jordan ["SoJ's"] become the "currency" at one point in Diablo 2?' Retrieved October 5, 2013 from <http://gaming.stackexchange.com/questions/22688/why-did-stones-of-jordan-sojs-become-the-currency-at-one-point-in-diablo>
- Caillois, R. (1961). *Man, play, and games*. (M. Barash Trans.). New York, NY: The Free Press.
- Calleja, G. (2012): Erasing the Magic Circle. In J. R. Sageng, H. Fossheim, & T. M. Larsen (Eds.), *The Philosophy of Computer Games* (pp. 77–91). London: Springer Press.
- Carlson, R., & Corliss, J. (2011). Imagined commodities: Video game localization and mythologies of cultural difference. *Games and Culture*, 6(1), 61–82.
- Casino. (2007). L\$1/5 mins money chairs. Retrieved March 20, 2013, from <http://slmoney.blogspot.com.au/>
- Castronova, E. (2001). Virtual worlds: A first-hand account of market and society on the cyberian frontier. *CESifo Working Paper series, No. 618*, 1-40.
- Castronova, E. (2002). On virtual economies. *CESifo Working Paper series, No. 752*, 1-39.
- Castronova, E. (2003). Theory of the avatar. *CESifo Working Paper Series, No. 863*, 1-40.
- Castronova, E. (2004). The right to play. *New York Law School Law Review*, 49(1), 185–210.

- Castronova, E. (2005). *Synthetic worlds: The business and culture of online games*. Chicago, IL: The University of Chicago Press.
- Castronova, E. (2006a). A cost-benefit analysis of real-money trade in the products of synthetic economies. *info*, 8(6), 51-68.
- Castronova, E. (2006b). On the research value of large games: Natural experiments in norrath and camelot. *Games and Culture*, 1(2), 163-186.
- Castronova, E. (2007). *Exodus to the virtual world: How online fun is changing reality*. New York, NY: Palgrave Macmillan.
- Castronova, E. (2010). On money and magic. *Journal of Virtual Worlds Research*, 2(4), 3-6.
- Castronova, E., & Falk, M. (2009). Virtual worlds: Petri dishes, rat mazes, and supercolliders. *Games and Culture*, 4(4), 396–407.
- Causey, M. (2006). *Theatre and performance in digital culture: From simulation to embeddedness*. London: Routledge.
- Chambers, C. (2011). How virtual are virtual economies? An exploration into the legal, social and economic nature of virtual world economies. *Computer Law & Security Review*, 27(4), 377–384.
- Chambers-Jones, C. (2012). *Virtual economies and financial crime: Money laundering in cyberspace*. Cheltenham: Edward Elgar.
- Chesher, C. (1993). Colonizing virtual reality: Construction of the discourse of virtual reality, 1984-1992. *Cultronix*, 1(1).
- Chesher, C., & Costello, B. (2004). Why media scholars should not study computer games. *Media International Australia Incorporating Culture and Policy: Quarterly journal of media research and resources*, 110, 5–9.
- Chung, T. S. (2013). Table-top role playing game and creativity. *Thinking Skills and Creativity*, 8, 56–71.
- Clash of Clans wiki. (n.d.). Raids. Retrieved November 2, 2013, from <http://clashofclans.wikia.com/wiki/Raids>

- Consalvo, M. (2007). *Cheating: Gaining advantage in videogames*. Cambridge, MA: MIT Press.
- Consalvo, M. (2009). There is no magic circle. *Games and Culture*, 4(4), 408-417.
- Consalvo, M. (2011). Using your friends: Social mechanics in social games. In *Proceedings of the 6th International Conference on Foundations of Digital Games* (pp.188–195). Bordeaux, France.
- Consalvo, M., & Dutton, N. (2006). Game analysis: Developing a methodological toolkit for the qualitative study of games. *Game Studies*, 6(1).
- Cooper, R. (2007). *Alter ego: Avatars and their creators*. London: Chris Boot.
- Corliss, J. (2011). Introduction: The social science study of video games. *Games and Culture*, 6(1), 3–16.
- Corneliussen, H., & Rettberg, J. W. (2008). Introduction: "Orc professor LFG," or researching in Azeroth. In Corneliussen, H., & Rettberg, J. W. (Eds.), *Digital culture, play, and identity: A World of Warcraft reader* (pp. 1-16). Cambridge, MA: MIT Press.
- Costikyan, G. (1994). I Have No Words & I Must Design. *Interactive Fantasy*, 2. Retrieved May 12, 2013, from <http://www.costik.com/nowords.html>
- CounterStrike wiki. (n.d.) Money. Retrieved November 5, 2013, from <http://counterstrike.wikia.com/wiki/Money>
- Criminal Case Support. (n.d.). How do I unlock the next case? How do I get reports? Retrieved November 10, 2013, from <https://prettysimple.zendesk.com/entries/23580072-How-do-I-unlock-the-next-case-How-do-I-get-Reports->
- Curtis, P., & Nichols, D. (1993). MUDs grow up: Social virtual reality in the real world. *Xerox PARC*, 1–6.
- Dagorhir. (n.d.). The pre-history of Dagorhir. Retrieved July 7, 2013, from <http://www.dagorhir.com/dagorhir/history.htm>
- Dahlsveen, H., & de Sousa, C. C. (2013). Kromosomer-an experience in shared creative work and expression. *Journal of Virtual Worlds Research*, 6(2), 1-21.

- Daxxarri. (2013). Welcome to World of Warcraft—Basic movement and combat. Retrieved January 20, 2014, from [http://us.battle.net/wow/en/blog/10455963/Welcome to World of Warcraft %E2%80%94Basic Movement and Combat-7 25 2013](http://us.battle.net/wow/en/blog/10455963/Welcome%20to%20World%20of%20Warcraft%20-%20Basic%20Movement%20and%20Combat-7%2025%202013)
- De Andrade, N. N. G. (2009). Striking a balance between property and personality: The case of the Avatars. *Journal of Virtual Worlds Research*, 1(3), 3-53.
- De Paoli, S., & Kerr, A. (2010). We will always be one step ahead of them: A case study on the economy of cheating in MMORPGs. *Journal of Virtual Worlds Research*, 2(4), 3-25.
- Denzin, N. (2003). *Performance ethnography: Critical pedagogy and the politics of culture*. Thousand Oaks, CA: Sage.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness : Defining “Gamification” . In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9–15). Tampere, Finland.
- DFO World Wiki (n.d.). Fair Arena. Retrieved October 3, 2013, from [http://wiki.dfo-world.com/view/Fair Arena](http://wiki.dfo-world.com/view/Fair_Arena)
- Diablo Wiki. (n.d.). The Stone of Jordan. Retrieved October 3, 2013, from [http://diablo.gamepedia.com/The Stone of Jordan](http://diablo.gamepedia.com/The_Stone_of_Jordan)
- Diablowiki. (2011). Dupe. Retrieved January 8, 2014, from <http://www.diablowiki.net/Dupe>
- Dibbell, J. (2003). Black Snow Interactive and the World’s First Virtual Sweat Shop. Retrieved May 18, 2013, from <http://www.juliandibbell.com/texts/blacksnow.html>
- Dibbell, J. (2006). *Play money: Or, how I quit my day job and made millions trading virtual loot*. New York, NY: Basic Books.
- Du Gay, P., Hall, S., Janes, L., Mackay, H., & Negus., K. (1997). *Doing cultural studies: The story of the Sony Walkman*. London: Sage.

- Duan, C.-Z. (2012). Game developers arbitrarily modify games: Hundreds of players are helpless (in Chinese). *CardU News*. Retrieved March 10, 2013, from http://www.cardu.com.tw/news/detail.php?nt_pk=6&ns_pk=15440
- Ducheneaut, N., & Moore, R. J. (2004). The social side of gaming: A study of interaction patterns in a massively multiplayer online game. In *Proceedings of the ACM conference on Computer supported cooperative work* (pp. 360–369). Chicago, US.
- Ducheneaut, N., Wen, M.-H., Yee, N., & Wadley, G. (2009). Body and Mind : A Study of Avatar Personalization in Three Virtual Worlds. *Methods. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1151–1160). New York, US.
- Ducheneaut, N., Yee, N., Nickell, E., & Moore, R. J. (2006). Alone together?: Exploring the social dynamics of massively multiplayer online games. In *Proceedings of the SIGCHI conference on Human Factors in computing systems* (pp. 407–416). New York, US.
- Electronic Arts. (2013). Real Racing 3. Retrieved January 17, 2014, from <https://itunes.apple.com/us/app/real-racing-3/id556164008?mt=8>
- Electronic Arts. (n.d.). The Sims Social. Retrieved January 10, 2013, from <https://www.facebook.com/TheSimsSocial>
- Elliott, J., & Kruck, S. E. (2008). Help—somebody robbed my Second Life avatar! *Journal of Virtual Worlds Research*, 1(1), 1-11.
- Entropia Universe wiki. (n.d.). Entropia Universe planets. Retrieved July 5, 2013, from http://www.entropioplanets.com/wiki/Entropia_Universe#Entropia_Universe_Milestones
- Epstein, R. (1977). *The theory of gambling and statistical logic*. San Diego, CA: Academic Press
- Erlank, W. (2012). *Property in virtual worlds* (Doctoral thesis). Stellenbosch University, Africa.
- Fairfield, J. A. T. (2005). Virtual property. *Boston University Law Review*, 85(35), 1047-1102.

- Falk, J., & Davenport, G. (2004). Live role-playing games: Implications for pervasive gaming. In *Proceedings of the ICEC 2004 LNCS 3166* (pp. 127-138). Eindhoven, the Netherlands.
- Falk, M., Besemann, D. M., & Bosson, J. M. (2009). Payback of mining activities within Entropia Universe. *Journal of Virtual Worlds Research*, 2(3), 3-20.
- Fernández-Vara, C. (2009). Play's the thing: A framework to study videogames as performance. In *Proceedings of DiGRA 2009* (pp. 1-9). London, UK.
- Filiciak, M. (2003). Hyperidentities: Postmodern identity patterns in massively multiplayer online role-playing games. In M. Wolf & B. Perron (Eds.), *The Video Game Theory Reader* (pp. 87-102). London: Routledge.
- Fine, G. A. (1983). *Shared fantasy: Role-playing games as social worlds*. Chicago, IL: University of Chicago Press.
- Frasca, G. (1999). Ludology meets narratology: Similitude and differences between (video) games and narrative. *Parnasso*, 3, 365–371.
- Frasca, G. (2003). Simulation versus narrative: Introduction to ludology. In M. Wolf & B. Perron (Eds.), *The Video Game Theory Reader* (221–235). London: Routledge.
- Gazzard, A. (2011). Unlocking the gameworld: The rewards of space and time in videogames. *Game Studies*, 11(1).
- Gee, J. P. (2004). *What video games have to teach us about learning and literacy*. New York, NY: Palgrave Macmillan.
- Gee, J. P. (2008). Video games and embodiment. *Games and Culture*, 3(3-4), 253–263.
- Gibson, W. (1984). *Neuromancer*. New York, NY: Ace Books.
- Gilmore, A. (2009). China's new gold farm. *Journal of Virtual Worlds Research*, 2(4), 3-10.
- Goffman, E. (1956). *The presentation of self in everyday life*. Edinburgh: University of Edinburgh Social Sciences Research Centre.

- Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Boston, MA: Northeastern University press.
- Goggin, J. (2011). Playbour, farming and leisure. *Ephemera: Theory & Politics in Organization*, 11(4), 357-368.
- Gottschalk, S. (2010). The presentation of avatars in Second Life: Self and interaction in social virtual spaces. *Symbolic Interaction*, 33(4), 501–525.
- Griever. (n.d.). Windforce builds. Retrieved October 7, 2013, from <http://us.battle.net/d3/en/forum/topic/8568990471>
- Grimes, S. M. (2006). Online multiplayer games: A virtual space for intellectual property debates? *New Media & Society*, 8(6), 969–990.
- Grundy, D. (2008). The presence of stigma among users of the MMORPG RMT: A hypothetical case approach. *Games and Culture*, 3(2), 225-247.
- Guo, J., Chow, A., Gong, Z., & Sun, C. (2009). Virtual wealth realization in virtual and real worlds. In *Proceedings of the 9th International Conference on E-Business Engineering* (pp. 85-94). Macau, China.
- Guo, Y., & Barnes, S. (2007). Why people buy virtual items in virtual worlds with real money. *Database for Advances in Information Systems*, 38(4), 69–76.
- Guo, Y., & Barnes, S. (2009). Virtual item purchase behavior in virtual worlds: An exploratory investigation. *Electronic Commerce Research*, 9(1-2), 77–96.
- Ham, E. (2010). Rarity and Power: Balance in Collectible Object Games. *Game Studies*, 10(1).
- Hamari, J., & Lehdonvirta, V. (2010). Game design as marketing: How game mechanics create demand for virtual goods. *Journal of Business*, 5(1), 14–29.
- Hayek, F. A. (1948). *Individualism and economic order*. Chicago, IL: The University of Chicago Press.
- Heeks, R. (2008). Current analysis and future research agenda on “gold farming”: Real-world production in developing countries for the virtual economies of online games. *Development Informatics Working Paper Series, No. 32*, 1-85.

- Heeks, R. (2010). Understanding “gold farming” and real-money trading as the intersection of real and virtual economies. *Journal of Virtual Worlds Research*, 2(4), 3-27.
- hellwig. (2009). A comment on ‘Gamers plays debt by stealing virtual funds.’ Retrieved January 10, 2013, from <http://www.tomsguide.com/us/EVE-Online-Steal-Funds-Cash,news-4203.html>
- Helms, R., Giovacchini, E., Teigland, R., & Kohler, T. (2010). A design research approach to developing user innovation workshops in Second Life. *Journal of Virtual Worlds Research*, 3(1), 3-36.
- Henderson, L., Henderson, M., Grant, S., & Huang, H. (2010). What are users thinking in a virtual world lesson? Using stimulated recall interviews to report student cognition, and its triggers. *Journal of Virtual Worlds Research*, 3(1), 3-22.
- Hight, J. (2013) Diablo III auction house update. Retrieved January 5, 2014, from <http://us.battle.net/d3/en/blog/10974978/>
- Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: Emerging concepts, methods and propositions. *Journal of Marketing*, 46(3), 92–101.
- Ho, P.-I. (2005a). The culture of video games: A case study of SONY Playstation (In Chinese). *E-Soc Journal*, 49.
- Ho, P.-I. (2005b). The evaluation of design for role-playing web games: A case study of SKY BOOM (In Chinese). In *Proceedings of 2005 Digital Design Conference: The Academia and Industry Collaboration for Digital Content* (pp. 302–311). Taichung, Taiwan.
- Ho, P.-I. (2007). *Virtual item trade in massive multiplayer online role playing game (MMORPG): A case study of “Diablo II”* (Master thesis). National Chung Cheng University, Taiwan.
- Ho, P.-I. (2009). A new era of online games: The age without charge is coming soon. *E-Soc Journal*, 77.
- Ho, P.-I. A. (2014). The impact of game design in generating the value of virtual items. In D. Polson, A.-M. Cook, J. Velikovsky, & A. Brackin (Eds.), *Transmedia practice: A collective approach* (pp. 163–171). Oxford: Inter-Disciplinary Press.

- Holloway, D. (2008). SpaceJunky – Australian Second Life band doing well. Retrieved June 18, 2013, from <http://www.creativeshed.com/2008/01/spacejunky-australian-second-life-band-doing-well/>
- Horowitz, S. (2006). Competing Lockean claims to virtual property. *Harvard Journal of Law & Technology*, 20(2), 443–458.
- Huizinga, J. (1949). *Homo ludens: A study of the play-element in culture*. London, Boston, and Henley: Routledge & Kegan Paul.
- Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: A formal approach to game design and game research. In *Proceedings of the Challenges in Game AI Workshop, Nineteenth National Conference on Artificial Intelligence*. San Jose, US.
- IGDA. (2008). IGDA curriculum framework: The study of games and game development. Retrieved July 18, 2013, from <http://wiki.igda.org/images/e/ee/Igda2008cf.pdf>
- Jakobsson, M. (2011). The achievement machine: Understanding Xbox 360 achievements in gaming practices. *Game Studies*, 11(1).
- Jakobsson, M., & Taylor, T. L. (2003). The Sopranos Meets EverQuest. In *Proceedings of the 5th International Digital Arts and Culture Conference (MelbourneDAC)* (pp. 81-90). Melbourne, Australia.
- Järvinen, A. (2008). *Games without frontiers: Theories and methods for game studies and design* (Doctoral thesis). University of Tampere, Finland.
- Jenkins, H. (2006). *Convergence Culture: Where old and new media collide*. New York, NY: New York University Press.
- Jfdaily. (2007). Tencent is shutting down the exchange function from game money to Q coins. Retrieved January 10, 2014 from <http://tech.163.com/07/0309/07/394HGDTA000915BF.html>
- Jin, S.-A. A., & Bolebruch, J. (2009). Virtual commerce (V-Commerce) in Second Life: The roles of physical presence and brand-self connection. *Journal of Virtual Worlds Research*, 2(4), 3-12.

- Jinghua news. (2006). Q coins have become a universal currency on the Internet. The people's bank of China is concerning (in Chinese). Retrieved January 10, 2014 from http://news.xinhuanet.com/politics/2006-11/20/content_5351874.htm
- Jovanova, B., & Preteux, F. (2009). The role of interoperability in virtual worlds: Analysis of the specific cases of avatars. *Journal of Virtual Worlds Research*, 2(3), 3-19.
- Juul, J. (2005). *Half-real: Video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.
- Kafai, Y. B., Fields, D. A., & Cook, M. S. (2010). Your second selves: Player-designed avatars. *Games and Culture*, 5(1), 23-42.
- Keatinge, M. (2010). The expression and constraint of human agency within the massively multiplayer online games of World of Warcraft and Eve-Online: A comparative case study (Master thesis). National University of Ireland Maynooth, Ireland.
- Kieger, S. (2010). An exploration of entrepreneurship in massively multiplayer online role-playing games: Second Life and Entropia Universe. *Journal of Virtual Worlds Research*, 2(4), 3-32.
- Kirkpatrick, G. (2009). Controller, hand, screen aesthetic form in the computer game. *Games and Culture*, 4(2), 127–143.
- Kivikuru, U. (1998). Communication research: Is there such a thing? In *Proceedings of the XIII Nordic Conference on Mass Communication Research* (pp. 7-11). Jyväskylä, Finland.
- Klabbers, J. (2009). *The magic circle: Principles of gaming & simulation* (3rd & revised ed.). Rotterdam: Sense Publishers.
- Klastrup, L., & Tosca, S. (2009). "Because it just looks cool!" Fashion as character performance: The Case of WoW. *Journal of Virtual Worlds Research*, 1(3), 3-17.
- Klevjer, R. (2006). *What is the avatar? Fiction and embodiment in avatar-based singleplayer computer games* (Doctoral thesis). University of Bergen, Norway.

- Knorr, R. M., Bronack, S. C., Switzer, D. M., & Medford, L. F. (2011). Methodology of a novel virtual phenomenology interview technique. *Journal of Virtual Worlds Research, 3*(3), 3-23.
- Kock, N. (2008). E-collaboration and e-commerce in virtual worlds: The potential of Second Life and World of Warcraft. *International Journal of E-Collaboration, 4*(3), 1–13.
- Koles, B., & Nagy, P. (2012). Who is portrayed in Second Life: Dr. Jekyll or Mr. Hyde? The extent of congruence between real life and virtual identity. *Journal of Virtual Worlds Research, 5*(1), 1-17.
- Kosalka, D. L. R. (1999). Georges Bataille and the notion of gift. *Historian Underground: Making History Relevant For Life*. Retrieved December 5, 2013, from <http://www.sauer-thompson.com/essays/Bataille%20and%20the%20Notion%20of%20Gift.doc>
- Kosminsky, E. (2009). World of Warcraft: The viability of massively multiplayer online role-playing games as platforms for modeling and evaluating perfect competition. *Journal of Virtual Worlds Research, 2*(4), 3-16.
- Koster, R. (2013). *Theory of Fun for Game Design* (2nd ed.). Sebastopol, CA: O'Reilly Media.
- Kraemer, P. (2013). Do as we do, not as you think: The effect of group influence on individual choices in a virtual environment. *Journal of Virtual Worlds Research, 6*(1), 1-11.
- Kücklich, J. (2005). Precarious playbour: Modders and the digital games industry. *Fibreculture, 5*.
- Kwong, J. A. (2011). Getting the goods on virtual items: A fresh look at transactions in multi-user online environments. *William Mitchell Law Review, 37*(4), 1805-1838.
- Lanier, J. (2001). Virtually there. *Scientific American, 284*(4), 66–75.
- Lankoski, P. (2011). Player character engagement in computer games. *Games and Culture, 6*(4), 291–311.

- Lastowka, F. G., & Hunter, D. (2003). The laws of virtual worlds. *California Law Review*, 92(1), 1–73.
- Lastowka, G. (2009). Rules of play. *Games and Culture*, 4(4), 379–395.
- LeBlanc, M. (2006). Tools for creating dramatic game dynamics. In K. Salen & E. Zimmerman (Eds.), *The game design reader: A rules of play anthology* (pp. 438–459). Cambridge, MA: MIT Press.
- Lehdonvirta, M., Lehdonvirta, V., & Baba, A. (2011). Collecting conversations: Three approaches to obtaining user-to-user communications data from virtual environments. *Journal of Virtual Worlds Research*, 3(3), 3-22.
- Lehdonvirta, V. (2005a). Real-money trade of virtual assets: Ten different user perceptions. In *Proceedings of Digital Arts and Culture (DAC 2005)* (pp. 52-58). Copenhagen, Denmark.
- Lehdonvirta, V. (2005b). Virtual economics: Applying economics to the study of game worlds. In *Proceedings of the 2005 Conference on Future Play (Future Play 2005)*. Lansing, US.
- Lehdonvirta, V. (2009a). *Virtual consumption* (Doctoral thesis). Turku School of Economics, Finland.
- Lehdonvirta, V. (2009b). Virtual item sales as a revenue model: Identifying attributes that drive purchase decisions. *Electronic Commerce Research*, 9(1), 97–113.
- Lehdonvirta, V. (2010). Virtual worlds don't exist: Questioning the dichotomous approach in MMO studies. *Game Studies*, 10(1).
- Lehdonvirta, V., & Castronova, E. (2014). *Virtual economies: Design and analysis*. Cambridge, MA: MIT Press.
- Lehdonvirta, V., & Ernkvist, M. (2011). *Converting the virtual economy into development potential: Knowledge map of the virtual economy*. Washington, DC: World Bank.
- Lehdonvirta, V., & Virtanen, P. (2010). A new frontier in digital content policy: Case studies in the regulation of virtual goods and artificial scarcity. *Policy & Internet*, 2(3), 7-29.

- Lehdonvirta, V., Wilska, T., & Johnson, M. (2009). Virtual consumerism: Case Habbo Hotel. *Information Communication & Society*, 12(7), 1059–1079.
- Lehtiniemi, T. (2009). Measuring aggregate production in a virtual economy using log data. *Journal of Virtual Worlds Research*, 2(3), 3-21.
- Lehtiniemi, T., & Lehdonvirta., V. (2007). How big is the RMT market anyway? *Virtual Economy Research Network*. Retrieved December 5, 2013, from http://virtualeconomyresearchnetwork.wordpress.com/2007/03/02/how_big_is_the_rmt_market_anyw/
- Lemke, J. (2010). Lessons from Whyville: A hermeneutics for our mixed reality. *Games and Culture*, 5(2), 149–157.
- Leong, P., Joseph, S. R. H., & Boulay, R. (2010). Applying constant comparative and discourse analyses to virtual worlds research. *Journal of Virtual Worlds Research*, 3(1), 3-26.
- Lévy, P. (1998). *Becoming virtual: Reality in the digital age*. New York, NY: Plenum Trade.
- Lévy, P. (1999). *Collective intelligence: Mankind's emerging world in cyberspace. Challenges*. (R. Bononno Trans.). Cambridge, MA: Perseus Books.
- Lin, H., & Sun, C.-T. (2011). Cash trade in free-to-play online games. *Games and Culture*, 6(3), 270–287.
- Linden Lab. (2013). Infographic: 10 years of Second Life. Retrieved January 8, 2014, from <http://lindenlab.com/releases/infographic-10-years-of-second-life>
- Linden Lab. (n.d.). Second Life Marketplace. Retrieved January 5, 2012, from <https://marketplace.secondlife.com/>
- Linden, R. (n.d.). Controlling your avatar's appearance. Retrieved June 20, 2013, from <http://community.secondlife.com/t5/English-Knowledge-Base/Controlling-your-avatar-s-appearance/ta-p/700709>
- Linderoth, J. (2005). Animated game pieces: Avatars as roles, tools and props. In *Proceedings of Aesthetics of Play*. Bergen, Norway.

- LindeX. (n.d.). Sell L\$. Retrieved January 5, 2013, from <https://secondlife.com/my/lindex/sell.php?>
- Liszkiewicz, A. (2010). Cultivated play: Farmville. *Media Commons: A Digital Scholarly Network*. Retrieved December 5, 2013, from <http://www.berfrois.com/2010/10/cultivated-play-farmville/>
- Little, G. (1999). A manifesto for avatars. *Intertexts, Webs of Discourse: The Intertextuality of Science Studies*, 3(2).
- Locke, J. (2003). *Two treatises of government and a letter concerning toleration* (I. Shapiro, Ed.). New Haven, CT: Yale University Press. (Original work published 1690).
- Losh, E. (2008). In polite company: Rules of play in five Facebook games. In *Proceedings of the 2008 International Conference on Advances in Computer Entertainment Technology* (pp. 345–351). Yokohama, Japan.
- Lowood, H. (2006). Storyline, dance/music, or PvP?: Game movies and community players in World of Warcraft. *Games and Culture*, 1(4), 362–382.
- Ludlow, P., & Wallace, M. (2007). *The Second Life herald: The virtual tabloid that witnessed the dawn of the metaverse*. Cambridge, MA: MIT Press.
- MacInnes, I. (2006). Property rights, legal issues, and business models in virtual world communities. *Electronic Commerce Research*, 6(1), 39–56.
- Mackay, D. (2001). *The fantasy role-playing game: A new performing art*. Jefferson, NC: McFarland.
- Maclaran, P., Hogg, M. K., Catterall, M., & Kozinets, R. V. (2004). Gender, technology and computer-mediated communications in consumption-related online communities. In K. M. Ekström & H. Brembeck (Eds.), *Elusive Consumption* (pp. 145–171). London: Bloomsbury Academic.
- Malaby, T. (2006). Parlaying value: Capital in and beyond virtual worlds. *Games and Culture*, 1(2), 141–162.
- Malaby, T. M., & Burke, T. (2009). The short and happy life of interdisciplinarity in game studies. *Games and Culture*, 4(4), 323–330.

- Malone, K. L. (2009). Dragon kill points: The economics of power gamers. *Games and Culture*, 4(3), 296–316.
- Manninen, T., & Kujanpää, T. (2007). The value of virtual assets – The role of game characters in MMOGs. *International Journal of Business Science and Applied Management*, 2(1), 21-33.
- Maple Story Wiki. (n.d.). Free market. Retrieved June 15, 2013, from [http://maplestory.wikia.com/wiki/Free Market](http://maplestory.wikia.com/wiki/Free_Market)
- Marino, P. (2004). *3D game-based filmmaking: The art of machinima*. Scottsdale, AZ: Paraglyph.
- Martin, J. (2008). Consuming code: Use-value, exchange-value, and the role of virtual goods in Second Life. *Journal of Virtual Worlds Research*, 1(2), 1–21.
- Marx, K. (2007). *Capital: A critique of political economy, Vol. I – Part I, The process of capitalist production*. (F. Engels, Ed.) New York, NY: Cosimo. (Original work published 1867).
- Mauss, M. (2002). *The Gift The form and reason for exchange in archaic societies*. London: Routledge. (Original work published 1954).
- Mcgonigal, J. (2006). *This might be a game: Ubiquitous play and performance at the turn of the twenty-first century* (Doctoral thesis). University of California, US.
- McKee, H. A., & Porter, J. E. (2009). Playing a good game: Ethical issues in researching MMOGs and virtual worlds. *International Journal of Internet Research Ethics*, 2(1), 5–37.
- McLuhan, M. (1994). *Understanding media: The extensions of man*. Cambridge, MA: MIT Press. (Original work published 1964).
- McLuhan, M., & McLuhan, E. (1988). *Laws of media: The new science*. Toronto: University of Toronto Press.
- Meadows, M. (2007). *I, avatar: The culture and consequences of having a second life*. Berkeley, CA: New Riders.
- Medler, B. (2011). Player dossiers: Analyzing gameplay data as a reward. *Game Studies*, 11(1).

- Menger, C. (2007). *Principles of economics*. (J. Dingwall & B. F. Hoselitz Trans.). Auburn, AL: Ludwig von Mises Institute. (Original work published 1976).
- Messinger, P. R., Ge, X., Stroulia, E., Lyons, K., Smirnov, K., & Bone, M. (2008). On the relationship between my avatar and myself. *Journal of Virtual Worlds Research*, 1(2), 1-17.
- Messinger, P. R., Stroulia, E., & Lyons, K. (2008). A typology of virtual worlds: Historical overview and future directions. *Journal of Virtual Worlds Research*, 1(1), 1–18.
- MindArk. (2011). Entropia universe introduces citizenship and revenue sharing system with expected annual returns of up to 30%. Retrieved July 5, 2013, from <http://www.entropiauniverse.com/bulletin/buzz/2011/11/16/Calypto-Land-Lot-Deeds.xml>
- MindArk. (n.d.). Think future - Invest in your avatar! The depth of the virtual universe opens up unlimited opportunities for you. Retrieved January 5, 2014, from <http://account.entropiauniverse.com/account/deposits/>
- Minocha, S., Tran, M. Q., & Reeves, A. J. (2010). Conducting empirical research in virtual worlds: Experiences from two projects in Second Life. *Journal of Virtual Worlds Research*, 3(1), 3-21.
- Mitham, N. (2009). Virtual goods: good for business? *Journal of Virtual Worlds Research*, 2(4), 3-7.
- Monsen, L. (n.d.). How to use an iPhone touch screen. Retrieved January 5, 2014, from <http://cell-phones.toptenreviews.com/touch-screen/how-to-use-an-iphone-touch-screen.htm>
- Montfort, N., & Bogost, I. (2009). *Racing the beam: The Atari video computer system*. Cambridge, MA: MIT Press.
- Moore, C. (2011). Hats of affect: A study of affect, achievements and hats in team fortress 2. *Game Studies*, 11(1).
- Morningstar, C., & Farmer, F. R. (2008). The lessons of Lucasfilm's Habitat. *Journal of Virtual Worlds Research*, 1(1), 1–21.

- Morris, M., Leung, K., Ames, D., & Lickel, B. (1999). Views from inside and outside: Integrating emic and etic insights about culture and justice judgment. *Academy of Management Review*, 24(4), 781-796.
- Morrison, K. R., & Johnson, C. S. (2011). When what you have is who you are: Self-uncertainty leads individualists to see themselves in their possessions. *Personality and Social Psychology Bulletin*, 37(5), 639–651.
- Mosca, I. (2011). Just a cyberplace: The rules in videogames: Between ontology and epistemology. In *Proceedings of Think Design Play: The Fifth International Conference Of The Digital Research Association (Digra)* (pp. 1-18). Utrecht, the Netherlands.
- Mueller-Vollmer, K. (1985). Language, mind, and artifact: an outline of hermeneutic theory since enlightenment. In K. Mueller-Vollmer (Ed.), *The hermeneutics reader: Texts of the German tradition from the enlightenment to the present*. New York, NY: Continuum.
- Mulligan, J., & Patrovsky, B. (2003). *Developing online games: An insider's guide*. Indianapolis, IN: New Riders Publishing.
- Murray, J. H. (1997). *Hamlet on the holodeck: The future of narrative in cyberspace*. New York, NY: Free Press.
- Nayak, M. (2012). Next Wave of Asian Experts to U.S. May Be Virtual Goods. Retrieved December 15, 2013, from [http://www.nytimes.com/2012/10/05/technology/next-wave-of-asian-exports-to-us-may-be-virtual-goods.html? r=0#p\[Nclsbb\],h\[WPpab\]](http://www.nytimes.com/2012/10/05/technology/next-wave-of-asian-exports-to-us-may-be-virtual-goods.html? r=0#p[Nclsbb],h[WPpab])
- Newman, J. (2002). The myth of the ergodic videogame: Some thoughts on player-character relationships in videogames. *Game Studies*, 2(1).
- Newman, J. (2008). *Playing with videogames*. London and New York, NY: Routledge.
- Nexon. (n.d.). Banks system. Retrieved June 10, 2013, from <http://mabinogi.nexon.net/Guide/AdvancedGuide/System/1/004BR#>
- Niculescu, M., & Wu, D. (2011). When should software firms commercialize new products via freemium business models. *Working paper, Georgia Institute of*

- Technology. Retrieved December 5, 2013, from <http://misrc.umn.edu/wise/papers/3b-1.pdf>
- Nikolaou, I., Bettany, S., & Larsen, G. (2010). Brands and Consumption in Virtual Worlds. *Journal of Virtual Worlds Research*, 2(5), 3-15.
- Nojima, M. (2007). Pricing models and motivations for MMO play. In *Proceedings of DiGRA 2007: Situated Play* (pp. 672–681). Tokyo, Japan.
- Oates, J. (2009). How will sir pay? Facebook credits, that'll do nicely. Retrieved January 7, 2014 from http://www.theregister.co.uk/2009/06/03/facebook_payments/
- Oh, G., & Ryu, T. (2007). Game design on item-selling based payment model in Korean online games. In *Proceedings of DiGRA 2007: Situated Play* (pp. 650–657). Tokyo, Japan.
- Ondrejka, C. R. (2004). Escaping the gilded cage: User created content and building the metaverse. *New York Law School Law Review*, 49(1), 81–101.
- Osborne, E. W., & Schiller, S. Z. (2009). Order and creativity in virtual worlds. *Journal of Virtual Worlds Research*, 2(3), 3-16.
- Oxford Dictionaries. (n.d.). Definition of *value* in English. Retrieved June 12, 2013, from <http://oxforddictionaries.com/definition/english/value>
- Panzerleader. (2012). Combined weapons tables. Retrieved July 8, 2013, from <http://panzerleader.files.wordpress.com/2012/01/1e-weaponstable.jpg>
- Papagiannidis, S., & Bourlakis, M. (2010). Staging the new retail drama: At a metaverse near you! *Journal of Virtual Worlds Research*, 2(5), 3-17.
- Park, R. (1950). *Race and culture*. New York, NY: Free Press.
- Park, S. R., Nah, F. F.-H., DeWester, D., Eschenbrenner, B., & Jeon, S. (2008). Virtual world affordances: Enhancing brand value. *Journal of Virtual Worlds Research*, 1(2), 1-18.
- Passionate Basketball Online. (2013). Passionate Basketball Online opens new servers due to good comments from thousands of players (in Chinese).

Retrieved January 10, 2014, from

<http://www.gamebase.com.tw/news/topic/95799151/>

- Passman, M. H. (2008). Transactions of virtual items in virtual worlds. *Albany Law Journal of Science and Technology*, 18(1), 259-292.
- Paul, C. A. (2010a). Process, paratexts, and texts: Rhetorical analysis and virtual worlds. *Journal of Virtual Worlds Research*, 3(1), 3-17.
- Paul, C. A. (2010b). Welfare epics? The rhetoric of rewards in World of Warcraft. *Games and Culture*, 5(2), 158-176.
- Paul, C. A. (2011). Optimizing play: How theorycraft changes gameplay and design. *Game Studies*, 11(2).
- Pearce, C. (2009). *Communities of play: Emergent cultures in multiplayer games and virtual worlds*. Cambridge, MA: MIT Press.
- Peña, J., McGlone, M. S., & Sanchez, J. (2012). The cowl makes the monk: How avatar appearance and role labels affect cognition in virtual worlds. *Journal of Virtual Worlds Research*, 5(3), 1-16.
- Peshkin, A. (1985a). From title to title: The evolution of perspective in naturalistic inquiry. *Anthropology & Education Quarterly*, 16(3), 214–224.
- Peshkin, A. (1985b). Virtuous subjectivity: In the participant-observer's I's. In D. N. Berg & K. K. Smith (Eds.), *Exploring clinical methods for social research* (pp. 267–281). Newbury Park, CA: Sage.
- Petrovits, A., & Canossa, A. (2013). From M.C. Escher to Mass Effect: Impossible spaces and hyper-real worlds in video games. How can hyper-real worlds be designed and interpreted in a 2D, 2.5D and 3D virtual environment and how will this implementation affect the stereoscopic 3D video games. *The Italian Journal of Game Studies*, 1.
- Piekarski, W., & Thomas, B. (2002). ARQuake: The outdoor augmented reality gaming system. *Communications of the ACM*, 45(1), 36-38.
- Plafke, J. (2010). Entropia Universe virtual item sells for \$335,000 in real cash. Retrieved June 3, 2013, from <http://www.geekosystem.com/entropia-universe-item-sells-335000/>

- Playdemic. (n.d.). Gourmet Ranch. Retrieved November 8, 2013, from <https://apps.facebook.com/gourmetranch/>
- Polson, D. M. (2013). *The SCOOT experience: Games in place: Collaborative interventions in socio-spatial practices* (Doctoral thesis). Queensland University of Technology, Australia.
- Poncin, I., & Garnier, M. (2012). Avatar identification on a 3D commercial website: Gender issues. *Journal of Virtual Worlds Research*, 5(3), 1-20.
- Pope, T. (2012). Not just "another" love story. Retrieved June 20, 2013, from <https://www.youtube.com/watch?v=2y3F-PmFzqE>
- Pretty Simple. (n.d.). Criminal Case. Retrieved November 10, 2013, from <https://www.facebook.com/CriminalCaseGame>
- Quandt, T., & Kröger, S. (Eds.). (2014). *Multiplayer: The social aspects of digital gaming*. London: Routledge.
- rangersonic1. (2010). Dungeon & Fighter's game items and BGM (in Japanese). Retrieved January 10, 2014, from <https://www.youtube.com/watch?v=QMh3ID2jHIA>
- Rehak, B. (2003). Playing at Being. In M. Wolf and B. Perron (Eds.), *The Video Game Theory Reader* (pp. 103-127). London: Routledge.
- Reinhard, C. D. (2010). Interviews within experimental frameworks: How to make sense of sense-making in virtual worlds. *Journal of Virtual Worlds Research*, 3(1), 3-25.
- Reisinger, D. (2010). Virtual goods revenue to hit \$ 7.3 billion this year. Retrieved December 12, 2013, from http://news.cnet.com/8301-13506_3-20022780-17.html
- Rheingold, H. (2000). *The Virtual Community: Homesteading on the Electronic Frontier*. Cambridge, MA: MIT Press.
- Richins, M. L. (1994). Valuing things: The public and private meanings of possessions. *Journal of Consumer Research*, 21(3), 504-521.

- Ritzer, G., & Jurgenson, N. (2010). Production, consumption, prosumption: The nature of capitalism in the age of the digital 'prosumer'. *Journal of Consumer Culture*, 10(1), 13-36.
- Robinson, E. H. (2014). The aspatial economics of virtual worlds. *Journal of Virtual Worlds Research*, 7(1), 1-21.
- Robischon, N. (2007). Station exchange : Year One. Retrieved May 5, 2013, from <http://www.fredshouse.net/images/SOE%20Station%20Exchange%20White%20Paper%201.19.pdf>
- Rollings, A., & Adams, E. (2003). *Andrew Rollings and Ernest Adams on game design*. Indianapolis, IN: New Riders Publishing.
- Rong, L. (2012). Players of King of Kings 3 made a complaint (in Chinese). *The Liberty Times*. Retrieved March 10, 2013, from <http://www.libertytimes.com.tw/2012/new/feb/25/today-taipei7.htm>
- Rubin, A., & Babbie, E. (2008). *Research methods for social work* (7th ed.). Belmont, CA: Brooks/Cole.
- Ruvio, A. A., & Belk, R. W. (Eds.). (2013). *The Routledge companion to identity and consumption*. London and New York, NY: Routledge.
- Salazar, J. A. (2009). Analyzing social identity (re) production: Identity liminal events in MMORPGs. *Journal of Virtual Worlds Research*, 1(3), 3-22.
- Salen, K., & Zimmerman, E. (2004). *Rules of play: Game design fundamentals*. Cambridge, MA: MIT Press.
- Salen, K., & Zimmerman, E. (Eds.). (2006). *The Game Design Reader: A rules of play anthology*. Cambridge, MA: MIT Press.
- Sanchez, C. D. (2010). My second life as a cyber border crosser. *Journal of Virtual Worlds Research*, 2(5), 3-18.
- Satava, R. M. (1993). Virtual reality surgical simulator: The first steps. *Surgical Endoscopy*, 7(3), 203-205.
- Schechner, R. (2004). *Performance theory*. London and New York, NY: Routledge.

- Schechner, R. (2013). *Performance studies: An introduction* (3rd ed.). London and New York, NY: Routledge.
- Schmidt, F. (2007). Use your illusion: Immersion in parallel worlds. In F. von Borries, S. P. Walz, & M. Böttger (Eds.), *Space time play: Computer games, architecture and urbanism: The next level* (pp. 146-157). Berlin: Birkhäuser.
- Schramm, W., Riesman, D., & Bauer, R. (1959). The state of communication research: Comment. *The Public Opinion Quarterly*, 23(1), 6–17.
- SCVNGR. (n.d.). SCVNGR is a game about doing challenge at places. Retrieved January 5, 2014 from <http://www.scvngr.com/>
- Searle, J. (1995). *The construction of social reality*. New York, NY: Free Press.
- Seto, T. (2009). When is a game only a game: The taxation of virtual worlds. *University of Cincinnati Law Review*, 77(3), 1027-1052.
- Shapiro, C., & Varian, H. R. (1999). *Information rules: A strategic guide to the network economy*. Boston, MA: Harvard Business School Press.
- Sheldon, D. (2006). Claiming ownership, but getting owned: Contractual limitations on asserting property interests in virtual goods. *UCLA Law Review*, 54(3), 751-788.
- Shen, L. (2010). Who owns the virtual items? *Duke Law & Technology Review*, 11.
- Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, 22(2), 159–170.
- Shibutani, T. (1955). Reference groups as perspectives. *American Journal of Sociology*, 60(6), 562–569.
- Shin, D. H. (2008). Understanding purchasing behaviors in a virtual economy: Consumer behavior involving virtual currency in Web 2.0 communities. *Interacting with Computers*, 20(4-5), 433–446.
- Sicart, M. (2008). Defining Game Mechanics. *Game Studies*, 8(2).
- Silverman, M., & Simon, B. (2009). Discipline and dragon kill points in the online power game. *Games and Culture*, 4(4), 353-378.

- SL Shakespeare Company. (2008). Hamlet: Prince of Denmark. Retrieved June 18, 2013, from <http://slshakespeare.com/pages/current>
- Slater, D. (1997). *Comsumer Culture and Modernity*. Cambridge: Polity Press.
- Smith, A. (2007). *An inquiry into the nature and causes of the wealth of nations, Volume I*. New York, NY: Cosimo. (Original work published 1776).
- Smith, J. H. (2010). Trusting the avatar. *Games and Culture*, 5(3), 298–313.
- Spence, J. (2008). Demographics of virtual worlds. *Journal of Virtual Worlds Research*, 1(2), 1-45.
- Statista. (2013). Number of World of Warcraft subscribers from 1st quarter 2005 to 4th quarter 2013 (in millions). Retrieved January 8, 2014, from <http://www.statista.com/statistics/276601/number-of-world-of-warcraft-subscribers-by-quarter/>
- Steinar, K. (1996). *Interviews: An introduction to qualitative research interviewing*. London: Sage
- Strategywiki. (2010). Dungeon Fighter Online/walkthrough. Retrieved June 17, 2013, from http://strategywiki.org/wiki/Dungeon_Fighter_Online/Walkthrough
- Strauss, A. (1978). A social world perspective. *Studies In Symbolic Interaction*, 1(1), 119–128.
- Strikwerda, L. (2012). Theft of virtual items in online multiplayer computer games: An ontological and moral analysis. *Ethics and Information Technology*, 14(2), 89-97.
- Sung, Y., Moon, J. H., Kang, M., & Lin, J.-S. (2011). Actual self vs. avatar self: The effect of online social situation on self-expression. *Journal of Virtual Worlds Research*, 4(1), 3-21.
- Switzer, J., & Switzer, R. (2014). Taxation of virtual world economies: A review of the current status. *Journal of Virtual Worlds Research*, 7(1), 1-14.
- Takahashi, D. (2010). Insanity? Virtual space station auctioned off for \$330,000 in real money. Retrieved June 5, 2013,

from <http://venturebeat.com/2010/01/04/insanity-virtual-space-station-auctioned-off-for-330000-in-real-money/>

- Taylor, T. L. (2002a). Living digitally: Embodiment in virtual worlds. In R. Schroeder (Ed.), *The social life of avatars: Presence and interaction in shared virtual environments* (pp. 40-62). London: Springer-Verlag.
- Taylor, T. L. (2002b). "Whose game is this anyway?": Negotiating corporate ownership in a virtual world. In *Proceedings of Computer Games and Digital Cultures Conference* (pp. 227–242). Tampere, Finland.
- Taylor, T. L. (2003). Intentional bodies: Virtual environments and the designers who shape them. *International Journal of Engineering Education*, 19(1), 25–34.
- Taylor, T. L. (2004). The social design of virtual worlds: Constructing the user and community through code. In M. Consalvo, N. Baym, J. Hunsinger, K. B. Jensen, J. Logie, M. Murero, & L. R. Shade (Eds.), *Internet research annual volume 1: Selected papers from the Association of Internet Researchers conferences 2000-2002* (pp. 260-268). New York, NY: Peter Lang.
- Taylor, T. L. (2006). *Play between worlds: Exploring online game culture*. Cambridge, MA: MIT Press.
- Taylor, T. L. (2007). Pushing the borders: Player participation and game culture. In J. Karaganis (Ed.), *Structures of participation in digital culture* (pp. 112-130), New York, NY: Social Science Research Council.
- The Bitcoin Foundation. (n.d.). Bitcoin is an innovative payment network and a new kind of money. Retrieved February 3, 2014, from <https://bitcoin.org/en/>
- The Futurist. (2011). Virtual games bring currency to real life. Retrieved May 7, 2013, from <http://www.wfs.org/content/futurist/november-december-2011-vol-45-no-6/virtual-games-bring-currency-real-life>
- Thompson, J. B. (1991). Editor's introduction. In J. B. Thompson (Ed.), *Language and symbolic power* (pp. 1–31). Cambridge, Polity Press.

- Thompson, M., Nordin, A. I., & Cairns, P. (2012). Effect of touch-screen size on game immersion. In *Proceedings of 26th Annual BCS Interaction Specialist Group Conference on People and Computers* (pp. 280–285). Birmingham, UK.
- triciaplayfish.(2012). GOODBYE PARTY! Retrieved October 10, 2013, from <http://blog.restaurantcitygame.com/>
- Trigg, A. B. (2001). Veblen, Bourdieu, and conspicuous consumption. *Journal of Economic Issues*, 35(1), 99–115.
- Turkle, S. (1995). *Life on the screen: Identity in the age of the Internet*. New York, NY: Touchstone.
- Turkle, S. (2005). *The second self: Computers and the human spirit* (Twentieth Anniversary Ed.). Cambridge, MA: MIT Press.
- Tychsen, A., Hitchens, M., Brolund, T., & Kavakli, M. (2006). Live action role-playing games: Control, communication, storytelling, and MMORPG similarities. *Games and Culture*, 1(3), 252–275.
- uuu9. (n.d.). Dungeon & Fighter game item simulator (in Chinese). Retrieved October 10, 2013, from <http://dnf.uuu9.com/dnfcollections.shtml>
- Vaughn, K. (1978). John Locke and the labor theory of value. *Journal of Libertarian Studies*, 2(4), 311-326.
- Veblen, T. (2009). *The theory of the leisure class*. (M. Banta, Ed.). Oxford: Oxford university press. (Original work published 1899).
- Vicdan, H., & Ulusoy, E. (2008). Symbolic and experiential consumption of body in virtual worlds: From (dis) embodiment to symembodiment. *Journal of Virtual Worlds Research*, 1(2), 1-22.
- Waggoner, Z. (2009). *My avatar, my self: Identity in video role-playing games*. Jefferson, NC: McFarland.
- Wagner, M. (2007). Second Life sex business sells on eBay for \$ 50,000. Retrieved June 3, 2013, from <http://www.informationweek.com/second-life-sex-business-sells-on-ebay-f/198700237>

- Wang, Q. (2008). How to earn real money by trading Q coins (in Chinese). Retrieved January 10, 2014 from <http://weq1127.blog.163.com/blog/static/49127843200862405853946/>
- Wang, Q.-H., & Mayer-Schönberger, V. (2010). The monetary value of virtual goods: An exploratory study in MMORPGs. In *Proceedings of the 43rd Hawaii International Conference on System Sciences* (pp. 1-11). Hawaii, US.
- Wang, Q.-H., Mayer-Schönberger, V., & Yang, X. (2013). The determinants of monetary value of virtual goods: An empirical study for a cross-section of MMORPGs. *Information Systems Frontiers*, 15(3), 481–495.
- Warner, B. (2013). The most expensive domain names of all time. Retrieved January 8, 2014, from <http://www.celebritynetworth.com/articles/entertainment-articles/the-most-expensive-domain-names-of-all-time/>
- Westecott, E. (2009). The player character as performing object. In *Proceedings of DiGRA 2009* (pp. 1-6). London, UK.
- Whitson, J., & Dormann, C. (2011). Social gaming for change: Facebook unleashed. *First Monday*, 16(10). Retrieved December 5, 2013, from <http://firstmonday.org/ojs/index.php/fm/article/view/3578/3058>
- Wi, J. H. (2009). *Innovation and strategy of online games*. London: Imperial College Press.
- Wigert, B. G., de Vreede, G.-J., Boughzala, I., & Bououd, I. (2012). Collaboration in virtual worlds: The role of the facilitator. *Journal of Virtual Worlds Research*, 5(2), 1-18.
- Williams, D. (2005). Bridging the methodological divide in game research. *Simulation & Gaming*, 36(4), 1-17.
- Williams, D., Kennedy, T. L. M., & Moore, R. J. (2011). Behind the avatar: The patterns, practices, and functions of role playing in MMOs. *Games and Culture*, 6(2), 171-200.
- Williams, J. P., Hendricks, S. Q., & Winkler, W. K. (2006). Introduction: Fantasy games, gaming cultures, and social life. In J. P. Williams, S. Q. Hendricks, & W. K.

Winkler (Eds.), *Gaming as culture: Essays on reality, identity and experience in fantasy games* (pp. 1-18). Jefferson, NC: McFarland.

Williams, P., Nesbitt, K., Eidels, A., & Elliott, D. (2011). Balancing risk and reward to develop an optimal hot hand game. *Game Studies*, 11(1).

Wilson, L. (2003). Interactivity or interpassivity : A question of agency in digital play. In *Proceedings of the 5th International Digital Arts and Culture Conference (MelbourneDAC)*. Melbourne, Australia. Retrieved December 5, 2013, from <http://hypertext.rmit.edu.au/dac/papers/Wilson.pdf>

Wohn, D. Y., Lampe, C., Wash, R., Ellison, N., & Vitak, J. (2011). The “S” in social network games: Initiating, maintaining, and enhancing relationships. In *Proceedings of the 44th Hawaii International Conference on System Sciences* (pp. 1-10). Hawaii, US.

Woodruff, R. B. (1997). Customer value: The next source for competitive advantage. *Journal of the Academy of Marketing Science*, 25(2), 139–153.

Wowhead. (n.d.). Nefarian. Retrieved June 18, 2013, from <http://www.wowhead.com/npc=11583/nefarian>

Wowwiki. (n.d.-a). Honor rewards. Retrieved June 17, 2013, from http://www.wowwiki.com/Honor_reward

Wowwiki. (n.d.-b). Arena rewards. Retrieved June 17, 2013, from http://www.wowwiki.com/Arena_Rewards

Wowwiki. (n.d.-c). Roll. Retrieved June 18, 2013, from <http://www.wowwiki.com/Roll>

Wowwiki. (n.d.-d). Party. Retrieved June 18, 2013, from <http://www.wowwiki.com/Party>

Wowwiki. (n.d.-e). Capital. Retrieved June 18, 2013, from <http://www.wowwiki.com/Capital>

Wowwiki. (n.d.-f). Priest. Retrieved June 20, 2013, from <http://www.wowwiki.com/Priest>

- Wowwiki. (n.d.-g). Dancing. Retrieved July 7, 2013, from <http://www.wowwiki.com/Dancing>
- Wowwiki. (n.d.-h). Ashkandi, Greatsword of the Brotherhood. Retrieved October 7, 2013, from <http://www.wowwiki.com/Ashkandi, Greatsword of the Brotherhood>
- Wowwiki. (n.d.-i) Honor system (pre-2.0). Retrieved November 2, 2013, from [http://www.wowwiki.com/Honor system \(pre-2.0\)](http://www.wowwiki.com/Honor system (pre-2.0))
- Yamaguchi, H. (2004). An analysis of virtual currencies in online games. Retrieved December 5, 2013, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=544422
- Yanagisako, S. J. (2002). *Producing Culture and Capital: Family Firms in Italy*. Princeton, NJ: Princeton University Press.
- Yang, H.-E., Wu, C.-C., & Wang, K.-C. (2009). An empirical analysis of online game service satisfaction and loyalty. *Expert Systems with Applications*, 36(2), 1816-1825.
- Yee, N. (2005a). Motivations of play in MMORPGs. In *Proceedings of DiGRA 2005*. Vancouver, Canada.
- Yee, N. (2005b). Motivations of play in MMORPGs: Results from a factor analytic approach. *The Daedalus Project*. Retrieved December 5, 2013, from <http://www.nickyee.com/daedalus/motivations.pdf>
- Yee, N. (2006a). Motivations for play in online games. *Cyberpsychology & Behavior*, 9(6), 772–775.
- Yee, N. (2006b). The psychology of MMORPGs: Emotional investment, motivations, relationship formation, and problematic usage. In R. Schroeder & A. Axelsson (Eds.), *Avatars at work and play: Collaboration and interaction in shared virtual environments* (pp. 187-207). London: Springer-Verlag.
- Yee, N., & Bailenson, J. N. (2009). The difference between being and seeing: The relative contribution of self-perception and priming to behavioral changes via digital self-representation. *Media Psychology*, 12(2), 195-209.

Yoon, U. G. (2008). Real Money Trading in MMORPG Items From a Legal and Policy Perspective. *Journal of Korean Judicature*, 1, 418–477. Retrieved December 5, 2013, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1113327

Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *The Journal of Marketing*, 52(3), 2–22.

Zynga. (2009). Farmville. Retrieved July 15, 2013, from <https://www.facebook.com/FarmVille>

Zynga. (n.d.). ChefVille. Retrieved December 10, 2013, from <https://www.facebook.com/ChefVille>

Game Appendix

- Actoz Soft. (2009) *La Tale online*, iPlayer.
- Archetype Interactive. (1995) *Meridian 59*, The 3DO Company.
- Blizzard Entertainment. (2004). *World of Warcraft*, Blizzard Entertainment.
- Blizzard Entertainment. (2012). *Diablo 3*, Blizzard Entertainment.
- Blizzard North. (1996) *Diablo*, Blizzard Entertainment.
- Blizzard North. (2000) *Diablo 2*, Blizzard Entertainment.
- Blue Fang Games. (2011) *Zoo Kingdom*, Blue Fang Games.
- CCP Games. (2003) *EVE online*, CCP Games.
- devCAT. (2005) *Mabinogi*, Nexon Korea.
- EA Mobile and Firemonkeys Studios. (2011) *The Sims FreePlay*, Electronic Arts.
- Firemonkeys Studios. (2013) *Real Racing 3*, Electronic Arts.
- Fujitsu. (1995) *The Dreamscape*, CompuServ.
- Gameloft. (2013) *Dungeon Hunter 4*, Gameloft.
- Glu Games. (2013) *Blood & Glory 2: Legend*, Glu Games.
- Halfbrick Studios. (2010) *Fruit Ninja*, Halfbrick Studios.
- id Software. (1996) *Quake*, GT Interactive.
- IMVU Inc. (2004) *IMVU*, IMVU Inc.
- King. (2012) *Candy Crush Saga*, King.
- Lager Network Technologies. (2008) *King of Kings 3*, Lager Network Technologies.
- Linden Research, Inc. (2003) *Second Life*, Linden Research, Inc.
- Lucasfilm Games. (1986) *Habitat*, Quantum Link
- Microsoft. (2002) *Microsoft Flight Simulator*, Microsoft.

MindArk. (2003) *Entropia Universe*, MindArk.

Namco. (1980) *Pac-Man*, Namco.

NeoPle. (2006) *Dungeon & Fighter*, Nexon.

Nintendo EAD. (1985) *Super Mario Bros*, Nintendo.

Numedeon. (1999) *Whyville*, Numedeon.

Origin Systems. (1985) *Ultima IV: Quest of the Avatar*, Origin Systems.

Origin Systems. (1997) *Ultima Online*, Electronic Arts.

Playdemic. (2011) *Gourmet Ranch*, RockYou.

Playfish. (2009) *Restaurant City*, Electronic Arts.

Playfish. (2011) *The Sims Social*, Electronic Arts.

Pretty Simple. (2012) *Criminal Case*, Pretty Simple.

Slashkey. (2009) *Farm Town*, Slashkey.

Sonic Team. (2000) *Phantasy Star Online*, Sega.

Sony Online Entertainment. (1999) *Everquest*, Sony Online Entertainment.

Sony Online Entertainment. (2004) *Everquest II*, Sony Online Entertainment.

Stormfront Studios. (1991) *Neverwinter Nights*, Stormfront Studios.

Sulake Corporation. (2004) *Habbo*, Sulake Corporation.

Supercell. (2012) *Clash of Clans*, Supercell.

Tactical Studies Rules. (1974) *Dungeons & Dragons*, Tactical Studies Rules.

The9 Limited. (2013) *Passionate Basketball Online (熱血籃球 online)*, GameCyber Technology Limited.

UserJoy Entertainment Inc. (2011) *GodDragon Online*, UserJoy Entertainment Inc.

UserJoy Technology Co. (2012) *GodDragon Online*, UserJoy Technology Co.

Valve Corporation. (1999) *Counter-Strike*, Valve Corporation.

Valve Corporation. (2007) *Team Fortress 2*, Valve Corporation.

Webzen. (2003). *MU Online*, Webzen.

Webzen. (2011) *R2 online: Reign of Revolution*, Webzen.

Wemade. (2008) *Warriors of the Three Kingdoms*, International Games System Co.

Wizet. (2005) *MapleStory*, Gamania.

Zynga. (2008) *Mafia Wars*, Zynga.

Zynga. (2009) *FarmVille*, Zynga.

Zynga. (2012) *ChefVille*, Zynga.