VIDEO GAMES LITERACY

A THEORETICAL FRAMEWORK

Martijn van Zwieten

3435296

Utrecht University

Supervisor: Sybille Lammes

Second reader: Joost Raessens

I. TABLE OF CONTENTS

1. INTRODUCTION

As video games are increasingly accepted as a serious medium with artistic and educational merit next to being entertainment, so too has the amount of research trying to leverage video games for those purposes increased. A relatively recent subject of study in this area is video games literacy. Video games literacy refers to the idea that, not unlike written texts, video games are a medium within which someone can be trained to understand meanings as well as produce new meaning. While an increasing amount of scholars concerns themselves with the various dimensions of this concept, the resulting research is somewhat patchy, and researchers have yet to reach a concensus on video games literacy's relation to other forms of literacy, or even if literacy is applicable to something so unlike the subject of traditional literacy, the written text. These are exactly the kinds of questions this thesis will discuss and, where possible, answer in an effort to conceptualize a theoretical framework for gaming literacy that is able to both differentiate between and circumscribe all of the socio-cultural practices that are part of it. The resulting framework can be used to both structure new research into video games literacy as well as help build connections between previous inquiries into the subject matter.

This thesis is comprised of three parts. If we wish to talk about video games literacy at all, we will need to argue successfully that it can in fact be considered a from of literacy at all, and that there is a conceptual need for a special literacy that deals specifically with video games. The first part of this thesis will therefore examine traditional definitions of literacy in order to build a general framework of literacy to which we can compare and contrast gaming literacy. The second part of this paper will look at frameworks of literacy that have been proffered specifically with video games in mind. In the third part, I will combine the findings from the first two sections to establish a framework of video games literacy that is both grounded in traditional theories of literacy, and at the same time does justice to the medium specificity of video games. I will show how current research dealing with video games literacy fits into this framework, and how it can serve as a framework for future research as well.

2. DEFINING (VIDEO GAMES) LITERACY

The meaning of literacy is one that is hard to pin down. Different scholars from different fields approach the concept in different ways, and the result is a multitude of definitions. Although it is impossible to reconcile all these definitions into one all-encompassing theory of literacy, most definitions share the same core aspects, and certainly the same history. In this section, I will describe and discuss the major developments in the history of the field of literacy in order to establish a baseline on which to develop a framework for video games literacy specifically. This will allow us to regard and assess video games literacy in relation to traditional notions of literacy. I will then discuss the criticism leveled at proponents of video games literacy that literacy is too big, too rich a term for what they consider to be a simple combination of video games knowledge and skills, and argue that the concept of video games literacy is indeed a valid, and even needed concept. Finally, I will explain my preference for the term video games literacy over the other available alternatives.

2.1. What is literacy?

Although the concept of literacy and its various forms are a much discussed topic in contemporary educational and academic circles, the meaning we ascribe to it today was only cemented in the early 1970s. The word itself is a conjugation of 'literate', which finds its origins in the latin *literatus*, meaning 'one who knows the letters'. It is in this context that the word was first introduced in the late 1800s, serving as an antonym for the more established concept of *illiteracy*, which had been in use since the 1650s (Online Etymology Dictionary n.d. a; n.d. b). Being literate meant having access to the knowledge contained in all forms of written text, be they newspapers, books or pamphlets, and marked a definite advantage over those who were not. While not yet the educational ideal it is today, literacy here was primarily associated with the non-formal educational practice of teaching adults to read and write—to decode and encode written text (Lankshear and Knobel 2008). Literacy is still often defined primarily as the ability to read and write, and while this might seem to be the most succinct definition possible, it is also an increasingly problematic one. One reason for this is that it fails to take into consideration the subject of the text that is being written or read.[1] This can lead to the paradoxical situation where someone who can read a text yet does not understand

---

[1] Arguably, this problem is more prominent in contemporary developed countries, where the smaller percentage of illiterate people places the focus on the type text people read rather than the ability to read at all.

any of it is still technically literate (Newman 2005). This definition then, however concise, lacks the acknowledgement that the skills of reading and writing are not employed uniformly among different texts, and should always be considered in their respective contexts. Put simply, it falls short of explaining the full breadth of literacy as it is practiced in everyday life.

In the early 1970s, the same factors that led to literacy's prominence as an educational ideal simultaneously inspired a view of literacy that moved beyond a focus on abstracted skills, and instead looks to literacy as it is used in specific contexts. Among these societal processes, literacy theorists Colin Lankshear and Michele Knobel (2008) identify three main factors they think played a crucial role in the shaping of the concept of literacy. First, they point to the social impact of the work of Paolo Freire (1972, 1973). Freire's work dealt with literacy education for disenfranchised peasant groups in Brazil and Chile, which taught illiterate peasants not only how to read and write words that were important to their social situation, but also what they meant in that specific context. In Freire's approach, literacy is not just about learning how to read and write, but about how the world works as well. The second factor in the development of the contemporary understanding of literacy, according to Lankshear and Knobel (2008), is the perceived 'literacy crisis' of the early 1970s, heralded by the discovery of widespread adult illiteracy in the US. Concern soon snowballed to other Western countries, with government-ordered reports worldwide noting the critical importance of educational and pedagogical reform, in order to ensure a base level of what can be called functional literacy, which I will explain in more detail later on (Lankshear and Knobel 2008). Lastly, Lankshear and Knobel (2008) point to the increasing development and popularity of a sociocultural perspective within studies of language and the social sciences. Although these works form a broad spectrum of viewpoints, they share the idea that literacy is both more and more complex than the bottom-up skills of reading and writing (Newman 2005). Together, these factors facilitated an increased focus on literacy as an educational ideal, which at the same time moved away from 'reading and writing' towards a more socially and culturally grounded perspective with ample regard for the specific contexts in which literacy is practiced.

In the wake of this process, literacy theorists from various academic fields have proposed an increasing number of context-specific literacies, ranging from numeracy and geographic literacy to computer literacy (Newman 2005). Among these forms of literacy, the one common factor is the realization that in today's society, people need more than textual literacy to make sense of the world around them. Understanding contemporary media and forms of communication increasingly relies on visual and aural information as much it does on textual information. This multimodal aspect of media has led some theorists to conclude

that, rather than being literate in one medium or context, to really get ahead in school, career or life today, people need to be *multiliterate* (e.g. Newman 2005, Selber 2004). A similar notion is found in a collection of literacies sometimes termed 'new literacies', an umbrella term for various forms of literacy dealing with digital or 'new' media (Coiro, Knobel, Lankshear and Leu 2008, Lankshear and Knobel 2008a, 2008b). The common factor among these forms of literacy is a focus on understanding and using forms of communication through modes complementing or even replacing text. From this perspective, literacy becomes a way of understanding communication in all forms. Since all communication is in essence a way of transferring information, literacy then can be defined as the ability to decode and encode (context-specific) information.[2] In other words, literacy thus defined refers to *the ability to make sense of symbols used to codify and communicate information in a given context*.

The relation between the concept of literacy as it is used today and written text is thus no longer as self-evident as it used to be. Although the meaning of literacy has changed to reflect the changing priorities of media use in contemporary (Western) societies, it retains two important connotations that other terms such as adequacy, competence or capability lack. Literacy implies not just a set of skills and knowledge that are deemed important to get ahead in life; it also implies that teaching these skills should be an educational ideal. Traditional, textual literacy now falls somewhere within the scope of literacies, rather than circumscribing it. Most important is that the practices of any literacy are explained and understood in their context, rather than in abstraction. Likewise, any theoretical discussion of the term itself would do well to define beforehand which definition of literacy will be used, and in what context. In the next section I will use Gee's division between primary and secondary discourse to elaborate on this two-tiered context-specificity of literacy.

2.2. Literacy, secondary discourses and semiotic domains

In "What Is Literacy?", professor of literacy studies at linguistics James Paul Gee defines literacy in slightly different terms than I have introduced so far. According to Gee (1991), literacy is "control of secondary uses of language (i.e. uses of language in secondary discourses" (p. 6). This definition is a little less intuitive than the ones described above, and requires some explanation.

---

[2] Not to be confused with "information literacy", which denotes the ability of a person to function in an information society (Shapiro & Hughes 1996).

A discourse, in this definition, refers to "a socially accepted association among ways of using language, of thinking, and of acting that can be used to identify oneself as a member of a socially meaningful group or "social network" (Ibid.: 1). Put simply, a discourse is a way of conducting oneself within a given group according to the rules and customs within that group, and which only makes sense within the settings of that group. Discourses thus range from being a man or woman, a teacher or student to being a member of a club or association, or playing a certain sport, or, indeed, video games—all of which can of course be divided further into more specific subdiscourses (Ibid.). The first discourse any person is initiated into is that of our "socio-culturally determined ways of using our native language in face-to-face communication with intimates", with intimates being defined as the "primary socialization group as defined by the culture" (Ibid.: 5). Usually, this group refers to a person's (extended) family, but this can differ per culture. Gee refers to this "oral mode" as the "primary discourse" (Ibid.). Other discourses are developed in association with institutions outside of the primary socialization group, or secondary institutions, and are concordantly termed "secondary discourses" (Ibid.). Gee explains that these secondary discourses are developed in two different ways, namely through *acquisition* and *learning* (Ibid.: 3). Acquisition, in this context, is "a process of acquiring something subconsciously by exposure to models and a process of trial and error, without a process of formal teaching", and mainly benefits performance (Ibid.: 3). Learning, on the other hand, is defined in this context as "a process that involves conscious knowledge gained through teaching, though not necessarily from someone officially designated a teacher", and involves the building of meta-knowledge (Ibid). Together, these two processes lead to the mastery of a secondary discourse both in skill and in knowledge, enabling both performance and reflection.

While mastering these secondary discourses is done by building upon and extending our primary discourse, Gee notes that most of them require at some point the use of written or oral language that goes beyond that primary discourse, leading him to introduce a difference between primary and secondary uses of language—use of language in primary or secondary discourses. This finally brings him to the definition of literacy as control of secondary uses of language already mentioned above, which means that there are as many forms of literacy as there are secondary discourses. Defining literacy like this narrows down the scope of the "context" within which literacies are practiced to more or less predefined discourses. Unfortunately, this definition also leads us back to regarding literacy as pertaining to modes of language use, which I have already explained is a rather problematic assumption.

This problem is tackled by Gee himself in his more recent book *What Video Games Have to Teach Us About Learning and Literacy* (2003), where he uses the term "semiotic domain" instead of discourse. Similar to what I explained above, Gee argues that making sense of different media requires more than just decoding its meanings; it requires an understanding of the practices through which those meanings are produced and to which they refer. Moreover, he affirms the notion that most of today's media require an understanding of not just text, but other modalities as well. A semiotic domain, in this respect, is "any set of practices that recruits one or more modalities to communicate distinctive types of meanings", with "semiotic" referring to the way those meanings are codified into signs (Ibid.: 19).

These semiotic domains can be viewed in two ways: internally and externally. The internal view of a semiotic domain focuses on its content—what is and what is not typical content for a given domain—while the external view focuses on the social practices and relations typical for a domain's *affinity group*—the people associated with a given semiotic domain. Associated with these views is the realization that both are designed constructs, each created in its interaction with the other, and thus contain what Gee calls a *design grammar*. The internal and external design grammar of a semiotic domain are the principles and patterns in terms of which one can recognize what is and what is not acceptable or typical content and typical social practice and identity respectively (Ibid.: 28-29).

Being literate in this sense is the extent to which someone is able to operate within a semiotic domain's internal and external design grammars, and is able to understand the meanings created within that domain. It therefore defines a clear scope for the context in which literacy is practiced and in which it should also be examined, and provides a clear basis on which to define game literacy.

2.3. What is video games literacy?

Using Gee's definition of literacy, we can now refine our definition of video games literacy as *the extent to which someone is able to operate within the internal and external design grammars of the semiotic domain of video games, and is able to understand and create meanings within that domain*. This means that I take video games literacy to be concerned with learning *about* games rather than *through* games, where the latter generally considers 'game literacy' to be the collection of skills necessary to operate the game and access their

educational content (Pelletier 2005).[3] Following Gee, the semiotic domain of video games is regarded here as a collection of more specific subdomains like genres (e.g. first-person shooter or role-playing game) or platforms (e.g. PlayStation 3 or Xbox 360). Conversely, we can regard video games literacy as a subdomain of the more general media literacy (Gee 2003). However, there are still a number of issues that need to be resolved before we can settle on this definition. First, over the years theorists have proposed a number of models of competence at playing video games that can function as alternatives to video games literacy. Video games literacy's merits over these alternatives needs to be carefully examined. Second, there are a number of prefixes currently in use, such as game literacy, gaming literacy or ludoliteracy. While they all more or less refer to the same thing, there are subtle differences that are important to define and distinguish in order to know what is at stake. Third, even after we define what kind of literacy is being discussed, there needs to be an agreement on the type of games that are covered by that literacy. Video games are a broad medium, overlapping at points with other media or modes of representation, and without a clear scope the concept of video games literacy loses its explanatory power (Pelletier 2005).

2.3.1. Why literacy?

From a linguistic point of view, the value of a concept like video games literacy should now be clear. Yet, from a conceptual point of view, there are still those that doubt the necessity of such a thing as video games literacy, arguing that perhaps literacy is too specific a term to be connoted with something as far removed from written text as games (e.g. Pelletier 2005). At other times, as Gee (2003) points out, the issue seems to be mostly one of content (p. 37). The underlying assumption is that games are mere entertainment, and as such should not be connected to something as historically highly esteemed as literacy. After all, video games are often set in fantasy or science fiction worlds, have simplistic plots and even simpler modes of interaction. Yet, even if these assumptions were true—and I don't believe they are—video games are very much part of how we learn about the world around us, and shape how we come to see it and engage with it, just as books and, more recently, television do.[4] This in

---

[3] The importance of learning *about* games rather than merely *through* them is emphasized by Renee Hobbs in a 2010 white paper on digital literacies: "educators must not just teach *with* digital technologies, tools or games. To develop digital and media literacy competencies it is necessary to teach *about* media and technology, making active use of the practices of dialogue and Socratic questioning to promote critical thinking about the choices people make when consuming, creating and sharing messages" (Hobbs 2010: 27). Teaching through games has less to do with video game literacy than it has to do with competence in whatever content the game is used to convey.

[4] The sophistication of video game content is a hotly debated issue, and I firmly stand on the side of those who argue that games can and often do in fact present complex worlds, characters and issues. While such discussion lies outside of the scope of this thesis, see for example the articles in the *Well Played* books and journal, which

itself is not enough to deem video game practices the same as literacy practices on any level, however, and any alternatives deserve to be seriously considered before settling on the definition of literacy. To this end, I will now discuss a number of alternative concepts that describe more or less the same combination of content, practices and knowledge I have so far introduced as part of video games literacy.

First off, there is Jesper Juuls' (2003) concept of *repertoire*. In *Half-Real*, Juul introduces the idea of player repertoire as something that is called upon and expended during play:

> "though games may be different in structure, a player approaches every game with whatever repertoire of skills he or she has, and then improves these skills in the course of playing the game. To play a game is to improve your repertoire of skills, and the challenge of game design is to work with the skill set of the player through the game."
> (Ibid.: 5)

Juul's concept of repertoire thus refers primarily to a set of skills that, in the terms of Gee, is acquired (as opposed to learned) through repeated playing. Although this concept is valuable in its own right, its scope is much more limited than that of video games literacy, and thus cannot be used as a substitute. While certain skills are certainly needed to play almost any game, and especially to play them well, a concept like repertoire does not accommodate for the fact that video games have become an extremely rich medium, the full understanding of which oftentimes requires mastery of much more than mere gameplay skills. Also, at least in Juul's definition, repertoire is something that is only increased through playing more games, and does not take into account the ways information and knowledge about games are discussed and transferred outside of games. At most, repertoire could be regarded as the extent to which a player has mastered specific parts of the internal design grammar of the semiotic domain of video games.

Second, we might consider Mia Consalvo's (2007) concept of *gaming capital*. Gaming capital refers not just to the technical skills needed to play a game, or even play it well, but also to more general knowledge about games, the game industry and related subjects, and specifically to the social value of being knowledgeable about these things. Whereas Juul's repertoire is a relatively unchanging and static, if expanding, set of technical skills, gaming

---

deal with the deeper structures of games encountered through play (available online at <http://www.etc.cmu.edu/etcpress/book>.

capital "suggests a currency that is by necessity dynamic--changing over time, and across types of players or games" (Ibid.: 4). Because of its grander scope, more dynamic range and inclusion of social interactions, gaming capital comes much closer to being a replacement term for video games literacy than repertoire. There are still some values inherent in the concept of video games literacy, however, that gaming capital simply does not cover. For instance, although Consalvo argues that "depending on a player's social circle, [gaming] capital can be quite valuable in building a reputation", this is seen as a secondary value of gaming capital (Ibid.: 184). In video games literacy, on the other hand, the ability to participate in certain semiotic domains, even before we consider one's reputation within it, is the primary focus. Ultimately, gaming capital is a framework to understand video game knowledge as a form of currency, whereas video game s lets us understand how people understand and create meanings within a specific semiotic domain. Thus, while the two concepts overlap in some important areas, they simply cannot be regarded as interchangeable.

By rejecting both repertoire and gaming capital as viable substitutes for video games literacy, we are left with a handful of altogether less articulated alternatives to consider, such as proficiency or competency. The problem with any of these alternatives is precisely that they are too general and singularly focused on performance, and lack the ability to explain and understand the complex skills, knowledge and social interactions I have so far argued are an integral part of video game s. For this reason, I believe that video games literacy is not just a theoretically and practically useful concept, but also the only concept able to fully explain the role video game skills and knowledge play in the lives of many people.

2.3.2. Which literacy?
So far, my examination of video games literacy has been concerned mostly with the literacy part of the term. Yet, even among those who agree that such a term is needed, there is disagreement over what exactly the first part of the term should be. Do we talk about "video games literacy" or simply "games literacy"? Should it be "game" or "games"? Is there even a difference? To a certain extent, the decision to use one prefix over another is a matter of taste and subject definition. If we take literacy to be applicable any semiotic domain, and that such domains can contain any number of subdomains, then it makes sense that we can come up with multiple subtly different forms of literacy pertaining to the semiotic domain of video games. However, this also means that when using any of these terms it is extremely important to argue why the choice for one over another has been made, in order to make sure everyone

is talking about the same thing. To this end, I will discuss the most prevalent terms currently in circulation, and explain why I have chosen to use video games literacy over the alternatives.

The most general term in use is simply **game** or **games literacy** (e.g. Buckingham & Burn 2007, Parkington 2010, Zagalo 2010). This term follows the popular derivation of video games to simply games. However, if a starting point for video games literacy is that video games are a medium in their own right, which deserves to be considered on its own, then a term as broad as games literacy detracts from the concept's validity. Nothing about games literacy denotes that the term is only or even primarily concerned with video games. Are board games part of the semiotic domain that is the subject of games literacy? Games like tag? Even if it would be worth it to consider such a thing as a literacy pertaining to *all* forms of games—and I don't believe it is, seeing as how a large part of the explanatory power of literacy comes from its rootedness in contexts—it would be unwise to use such a general term when specifically discussing video games. If we take the first part of "x literacy" to be the first step in defining the scope of the literacy at hand, then clearly we have to do better than games literacy.[5]

Closely related to games literacy is **gaming literacy** (Zimmerman 2007), which takes its clues specifically from game design. Here, the focus is shifted from the object to the act of playing a game, or "gaming", a term which, as Zimmerman points out, can also signify "exploiting or taking clever advantage of something" (Ibid.: 25). Although this term shares the same problem as games literacy in the sense that it could refer to any and all games, and could therefore lose credibility as a useful theoretical framework, Zimmerman's grounding of the term in game design practices at least makes it implicit that the scope is limited to a specific kind of designed games, digital or not. Although I quite like the sound of the term, the casual inclusion of some, if not all, non-digital games makes it into somewhat of an umbrella term, and certainly too broad to be considered for the form of literacy I wish to discuss here.

One other interesting term that has been put forth is **ludoliteracy**. This term, introduced by Jose Zagal (2008, 2010), is based on the latin *ludus* for "play", and provides a connection to the seminal work of Johan Huizinga on the play element of culture, entitled *Homo Ludens*. While the term suggests a form of literacy pertaining to the ways people play in general, the rest of book *Ludoliteracy* in fact deals solely with video games, and is almost identical to the video games literacy I have so far described. In this sense, the term can be

---

[5] It could of course be used as shorthand for video games literacy, when everyone is aware of the subject at hand, but as a starting term it is relatively inaccurate compared to some of the alternatives.

rather misleading. The term itself seems to signify an interesting concept of literacy that could be applied across media to a form of interaction that is core to our human experience. Yet, this term is used to refer to a much more modest and demarcated—but therefore also more useful both theoretically and practically—form of literacy limited to a specific medium.

Another commonly used term, and the one I feel most accurately describes what we are talking about, is **video** or **computer game literacy**. Video game and computer game in this respect are used more or less as synonyms, and refer to any digital game. The reason I choose to use video game as opposed to computer game is because it is possible to take computer game to mean games played on a personal computer, thereby leaving out games played on home consoles like the Playstation 3 or Xbox 360. Video games, on the other hand, I take to mean any game powered by a computer, and played on a screen (Juul 2005: 1).

While only a slight difference, I prefer to use the pleural, video *games* literacy as opposed to video *game* literacy. As I have argued above, video games are a broad and diverse medium, which means that there is no such thing as *the* video game, and to refer to this form of literacy as video games literacy best reflects that realization. The term video games literacy, then, is the most useable and recognizable term for the literacy at hand: literacy pertaining to the semiotic domain of video games.

2.4. Conclusion

In this section I have sketched a rough outline of the evolution of literacy, and argued for the value of video games literacy. Literacy is no longer just the ability to read and write, insofar as it ever was, and instead refers to the mastery of secondary discourse, or semiotic domains other than one's mother tongue. Put simply, we might say video game literacy determines the extent to which someone is able to participate in and contribute to video game culture. In looking at comparable concepts that might be used instead of the laden term literacy, I have argued that none of the available alternatives are able to explain a person's ability to engage with video game culture as well as Gee's interpretation of literacy. I have also compared the different prefixes currently in use to refer to the semiotic domain of video games. Although all of them have strong and weak points, I have argued that video games literacy is, on the whole, the most pertinent and elegantly simple term available.

The next section will build on the definition of video games literacy proposed here, looking at current attempts to provide a model of video games literacy that is able to explain and contain the competencies that it circumscribes.

3. VIDEO GAMES LITERACY

In the previous section I have discussed how we might define video games literacy, both from a linguistic point of view as well as in contrast to traditional notions of literacy. With this definition in mind, I will now discuss the different theoretical models that are used to make sense of the practices we have so far only defined ontologically as being part of video games literacy. Like definitions, such models are numerous, and each comes with its own strong and weak points. In this section, I will discuss the three models that are used most: the read/write model, the so-called "three C's" model, and the functional/critical/rhetorical model. Each of these models has its own strong and weak points, and I will argue that a hybrid model that combines the strong points of the three C's model and the functional/critical/rhetorical model would be the most versatile and useful as a framework for analyzing video games literacy. Moreover, I will show how the resulting model can be used to categorize and catalogue the existing body of work dealing with video games literacy.

3.1. Reading/Writing

Even though we have established that even traditional literacy encompasses more than the skills of reading and writing taken in abstraction, and that the very existence of such a thing as video games literacy is based on the notion that literacy is much more than these two skills alone, the read-write dichotomy is still the analogy of choice for some video games literacy scholars (e.g. Alberti 2008, Burn 2007, Klopfer & Yoon 2005, Lieberman 2010). The basic idea behind this model is that in playing video games, children or students—as this model is most often found in educational contexts—have taught themselves how to "read" video games. "Reading", here, refers primarily to simply being able to play video games, although a dimension of understanding or interpretation is implied in some instances. In order for these students to become fully literate, all they have to do is acquire the ability to "write" video games, which they can do by learning how to create video games using video game creation programs (Burn 2007, Klopfer & Yoon 2005).

Although at first glance the read/write analogy seems to apply reasonably well to the medium of video games, there are three major limits to its usability. First of all, the close conceptual proximity to traditional literacy can make it hard to judge video games literacy on its own merits instead of comparing it to traditional ideas of written literacy. In "'Writing'

Computer Games: Game Literacy and New-Old Narratives" (2007), for instance, Andrew Burn presents a model of video games literacy that places heavy emphasis on the role of written text and narrative in designing video games. Game design, he argues, is comparable to traditional composition in the sense that it deals with a (design) grammar, develops conceptual awareness of narrative, and involves writing, either in the form of code or in the form of fan-created paratexts such as walkthroughs (Ibid.) While the first and last aspect are relatively unproblematic, the focus on narrative is one that seems forced as well as slightly antiquated. There is no rule that states that games should have a narrative at all, much less what its role should be in relation to the gameplay. Facebook games like FarmVille or Bejeweled are played by millions, but feature few to no narrative elements. By highlighting narrative as one of the most important aspects of game design, then, you limit the number and forms of video games you can examine. Burn's own acknowledgement that games are multimodal, and that narrative and ludic elements should be considered as complementary rather than mutually exclusive makes the focus on writing and narrative that much more odd. Ultimately, the model sketched by Burn might make sense in the context of the composition classroom, with an established focus on writing and narrative, but is too narrow to be effectively used to explain video games literacy practices outside of that particular context.

Second, the strict division between reading and writing has been critiqued in relation to the very medium that spawned it—written text—and is certainly problematized further when analyzed in relationship to video games. This argument is made by professor of English language John Alberti (2008), who argues that video games, because of their interactive nature, defy the kind of dichotomous split between author and audience dictated by the read/write analogy. According to Alberti, all texts are essentially a work in progress (Ibid.: 265). Although the physical artifact of the book has lulled us into a false belief of the "stable text", texts only truly exist in and through the act of their consumption, meaning that all texts are always constructed in a discursive and dialogic space that transcends the single locus of the physical copy. Where in written texts this manifests itself primarily in the sense of there being multiple possible readings of any one text, the very consumption of video games requires active input by its players, each of which thereby authors their own experience (Ibid.). In this way, Alberti argues, the matter of authority—who is the author of the video game experience—greatly complicates the traditional schism between reading and writing:

> "The inherent and inescapably interactive nature of gaming likewise complicates questions of
> who authors and authorizes meaning in a discourse community. Writers/creators of video

games necessarily anticipate players who are simultaneously readers and writers, co-authors whose decisions are inscribed within a certain horizon of possibilities but not predictability. From the perspective of print-based theories of literacy, gaming is an inherently dialogic discursive space, one that problematizes the distinction between "reading" and "writing," "process" and "product." (Ibid.: 266-7).

Although Alberti notes the difficulties in transcribing the read/write analogy to the medium of video games, it is interesting to note that, ultimately, his vision of video games literacy stays firmly rooted in the traditional literacy discourse: games are still "texts", and while he critiques simply applying a read/write model to video games, he still retains the notion that video games can be read and written in some form or another. This leaves the risk of analyzing video games literacy with the tools handed to us in traditional literacy discourses, which, as I have explained above, can be quite limiting.

The third problem with the read/write model of video games literacy is its inherent focus on performance and an understated role for the contexts in which people play, create and make sense out of video games. Both Freire and Gee have argued that the literacy skills of reading and writing only make sense when we take their context into consideration. Literacy practices, they both argue, are always rooted in cultural contexts, and it is exactly that cultural context that is pushed to the background when the main categories through which to understand literacy are as generalizing as "reading" and "writing". Other models do in fact reserve an explicit role for cultural contexts, and in doing so present a more flexible model for understanding video games literacy.

3.2. Three C's

A model with ample focus on cultural context is the so-called Three C's model, which proposes that literacies have a cultural, critical and a creative component. As Buckingham and Burn (2007) summarize with respect to literacy education, next to a set of practical skills, "it must […] entail a form of critical framing that enables learners to distance themselves from what they have learned, to account for its social and cultural location, and to critique and extend it" (p. 329). Next to an educational imperative, these aspects double as the main pillars of an analytical framework of video games literacy.

The cultural pillar foregrounds the fact that, as literacy scholars like Freire and Gee insist, literacy is always practiced in a specific social and cultural context. Like any medium, video games are a product of the cultures in which they are produced and consumed. As such,

there it should not be difficult to see why making sense of such a medium would rely heavily on being able to make sense of the cultural codes and references it contains.

The critical pillar can be taken to mean at least two different things, depending on what meaning of the word 'critical' is intended. Critical can be taken to mean necessary: it is in this spirit that Parkington (2010) likens critical literacy to a person's ability to access and decode a given medium (p. 73-4). Critical can also refer to criticism, whereby it takes on the meaning of being able to judge the quality and character of a work, a work in this case being a video game or a work somehow related to video games. In this way, "critical" implies a certain distance between the player and the game, a critical reflection on the ideas and conventions presented in and through the medium at hand. This is argued by Buckingham and Burn (2007), who make a distinction between this meaning of critical literacy and the meaning ascribed to it by Parkington, which they instead refer to as functional literacy. This division between functional and critical literacy has been in use in traditional literacy theory for some time, and certainly retains its use in video games literacy. While the next section will expand on the division between functional and critical literacy, for now it suffices to say that I define critical literacy as the ability to reflect on meanings and ideas presented in video games.

The creative pillar, finally, refers to the ability to recognize structures that give form to games, breaking them down to their core components, and ultimately being able to use those components to creatively contribute to the video games discourse. This can take the form of creating games, modifying them, or writing FAQ documents or fan fiction. As Parkington explains, making games or works relating to games "allows students to reflect upon their own relationship with games, the society surrounding games and to translate theories into realities that are within their frame of reference" (2010: 78). In other words, it allows them to make their knowledge of video games explicit in a way that is meaningful to them.

Of course, as Parkington mentions, these three aspects of video games literacy are hardly ever found in isolation, instead being interwoven in nearly every social practice within video games' semiotic domain. When we play games, we engage with its cultural contents, and do so to various degrees of creativity—think, for example, of the creative use of crops in *FarmVille* to create elaborate pictograms (figure 1), or the unconventional playstyle of TeamROOMBA, who use the game *Team Fortress 2* as the stage for their elaborate pranks.
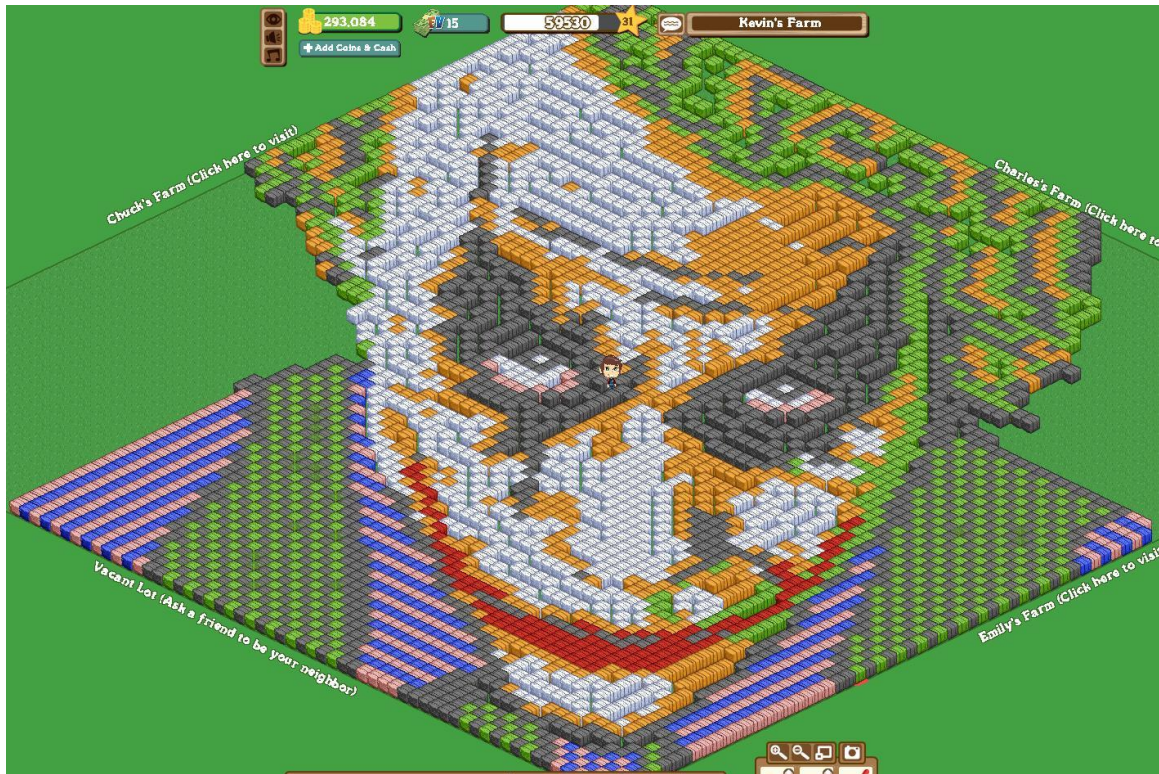
Figure 1. In-game items are used to create a facsimile of Heath Ledger's Joker within Farmville.

When discussing games as well, it is almost impossible to do so without touching on their cultural and creative aspects. Even if no new games are created in such critical discussions, the semiotic domain of video games is expanded and moves forward thanks to the insights gained from them. Creating new games or, as mentioned above, game-related instances such as walkthroughs or fan fiction, can be seen to lean on the critical and cultural pillar of literacy in the same way. As Parkington (2010) explains, we create such instances by "*critically* combining *cultural* resources available to us from a variety of sources in creative and 'transformative' ways" (p. 74). The three pillars of culture, critique and creativity are thus always found together, even if at times one is more pronounced than the others. All practices that flow from them in some way add to the original games and thereby to video game discourse as a whole.

Regardless of the inseparability of these three pillars, Nelson Zagalo (2010) criticizes research that has advocated this model in the last few years for favoring the cultural and critical aspects over the creative aspect. If students are to become truly video game literate, Zagalo argues, that imbalance needs to be addressed, preferably by putting more emphasis on video game design and creation in classrooms. As a start to countering this perceived imbalance, Zagalo suggests conflating the cultural and critical pillar, turning the 3-C's into a two-part model he terms Decode and Design. In doing so, however, Zagalo has essentially

17

reverted back to the read/write dichotomy, the inherent problems of which have already been discussed here.[6]

Another issue with this model is that the role for functional literacy is underemphasized at best. While Buckingham and Burn (2007) at least mention the difference between critical and functional literacy, the way functional literacy fits into the 3-C's model is left largely unexamined. Yet, considering the immense differences people experience in video game access and exposure, the ability to play (different kinds of) video games is a critical part of literacy. People with extensive experience with video games will be better even at a technical level in making sense of a given video game, and will probably quickly pick up that specific game's mechanics and control scheme. People with very limited experience, however, will most likely first have to physically master the technical interface, the controller, before they can even start to delve into the digital content. Someone's level of functional proficiency thus has a very direct link to one's ability to play, understand and make games, and should be an explicit part of any theory of video games literacy. By itself, then, the 3-C's model is not quite sufficient as a theoretical framework of video games literacy.

3.4. Functional, critical & rhetorical

The third and final model of video games literacy I will discuss here is the functional/critical/rhetorical model, sometimes referred to simply as the play/understand/make model. The two models I are very similar, and to an extent could even be said to be the same model. I will start with the simplest approach, and build on that to come to the model I believe is the most useful as a general framework for video games literacy research.

The three-way distinction between play/understand/make is suggested by José Zagal in his book *Ludoliteracy: Defining, Understanding and Supporting Games Education* (2010). Taking cues from the work of Gee, Zagal claims that video games literacy can be understood as 1) having the ability to play games, 2) having the ability to understand meanings with respect to games, and 3) having the ability to make games (p. 23). Like in the three-C's model, these pillars are hardly ever found separate. As Zagal explains, "[it] is arguable that playing precludes understanding, which in turn precludes making. However each part of games literacy is related to, influences, and is influenced by the others" (Ibid.: 23). Still, Zagal's work is one of the few to explicitly deal primarily with how people (can be taught to) understand meanings with respect to video games, which he argues happens in at least four

---

[6] This harks back to Stuart Hall's theory of encoding and decoding. (short expansion on encoding/decoding)

contexts: video games can be understood 1) as cultural artifacts, 2) in the context of other games, 3) in the context of technology, and 4) by way of their structure and components (p. 25-33).

Contrary to most authors I have so far discussed, Zagal's approach to games education is one of understanding games as thoroughly as possible, more than teaching students how to make them. For this reason alone, Zagal's work is extremely valuable. The other reason is that the three-fold heuristic covers a lot of the basics, in the sense that people who can play, understand and make games can certainly be said to be moderately video game literate at the very least. Yet, the details and finer mechanics of these three pillars of literacy are left mostly unexplored by Zagal, who chooses to focus primarily on the pillar of understanding. In order to further elaborate this model it is necessary to take a step back to a model that has been popular in dealing with traditional literacy.

I have already alluded to this model when discussing the three C's, introducing a distinction between functional and critical literacy as used by Buckingham and Burn. These two types of literacy roughly correspond to being able to play (functional) and understand (critical) video games. A third dimension that is often added is that of rhetorical literacy, meaning an understanding of the rhetoric, the *rules and mechanics* of video games. While this is comparable to Zagal's ability to make games, these three types of literacy combined sketch a more subtle picture of video games literacy than the purposely simple distinction between playing, understanding and making. Specifically, I would like to use Stuart Selber's (2004) appropriation of this model of literacy for computer literacy to build on and extend, in turn appropriating it for video games literacy. Selber delves deep into the intricacies of each type of literacy, and how they might overlap with the other two, while at the same time giving pointers on how they might be taught to those deemed illiterate. Moreover, I believe that Selber's translation of this traditional model of literacy to the more immediately interactive practice of computer use makes it a prime candidate to be used as a framework for video games literacy. I will here briefly introduce the basics of this view on literacy, explain how Selber's approach fits in, and how I believe this can be appropriated into a model of video games literacy, before going into a more in-depth analysis and construction of the finer details in the next section.

Functional literacy, in the work of Selber, is explained through the metaphor of "computers as tools", and supposes a subject position of "users of technology" (Ibid.: 25). Translated to video games, it delineates the extent to which players are able to gain access to the content of a video game, and thus includes both the physical manipulation of technology

(such as a computer or a video game controller) as well as basic knowledge of video game culture, without which enjoyment and understanding of the content can be difficult, if not impossible. Critical literacy is approached through the metaphor of "computers as cultural artifacts", and supposes a subject position of "questioners of technology" (Ibid.). Translated to video games, it relates to the extent to which players are able to recognize cultural and social conventions in video games in the four contexts described by Zagal. Rhetorical literacy, finally, is paired with the metaphor of "computers as hypertextual media" (Ibid.). This metaphor attests the recognition that most works rely on (re)combining elements of existing texts as much as they do on raw creativity, and that an ability to assert one's creativity through such recombination is a valuable skill in today's society. The subject position that is paired with this last category is that of "producers of technology". For our purposes, this can be translated to making video games, but also to ability to recognize rhetoric in a broader sense, such as the various power relations and ideologies that shape, and in turn are shaped by video games. It should not be a surprise that Selber, like Buckingham & Burn and Zagal, emphasizes the necessity of teaching students in all three pillars of literacy. Without this, he says, "students … will find it difficult to participate fully and meaningfully in technological activities" (Ibid.: 24). This sentiment is not lost in the translation of this model from computer use to video game use, where I would argue that all three pillars are indeed necessary if people are to fully understand, participate in and contribute to the semiotic domain of video games. This model then, keeping in mind the importance of culture as stressed by the 3-C's model, best captures the subtleties and nuances of the multi-faceted mastery of the semiotic domain of video games, and will function as the theoretical framework through which I will structure and categorize video games literacy research in the next part of this thesis.

3.5. Conclusion

In this section I have discussed the most used models through which video games literacy can be approached. I have argued that the simplicity of the read/write model restricts its usability for something as complex and inherently interactive as video games. Rather, a combination of the three C's model, with its emphasis on the role of culture, and the functional/critical/rhetorical model of Selber, makes what I believe to be the most versatile framework for understanding video games literacy currently at hand. It circumscribes both the technical abilities needed to play a game at all, as well as the understanding of cultural relations needed to appreciate (parts of) a game in a broader context, and the ability to trace

rhetoric and contribute meaningfully by creating new content. Exactly how all of these facets fit into the model outlined above will be the topic of the next section.

4. FRAMING VIDEO GAMES LITERACY

In the first section of this thesis, I explained that, following Gee, video games literacy is best defined as *the extent to which someone is able to operate within the internal and external design grammars of the semiotic domain of video games, and is able to understand and create meanings within that domain*. Within this definition, a distinction can be made between a performance aspect—skills that are acquired—and a meta-knowledge aspect—knowledge that is learned. In the second section, I outlined a model for analyzing and interpreting video games literacy based on three pillars: functional, critical and rhetorical literacy. Taken together, these aspects can be roughly summarized in the figure below.

VIDEO GAMES LITERACY			
Functional	**Critical**	**Rhetorical**	**Ext. des. gr.**
			Int. des. gr.
Performance → Meta-Knowledge			

Table 1. A schematic model of video games literacy.

As I have already explained, in practice it is virtually impossible to find any one of these aspects in isolation. Most literacy practices require a combination of functional, critical and rhetorical literacy, of technical performance and meta-knowledge and require insight into both the internal as well as the external design grammar of the semiotic domain of video games. Nevertheless, this model provides a framework through which all of these elements of video games literacy can be interpreted and connected. In this section, I will flesh out the three main pillars of video games literacy as introduced in the previous section in order to analyze their specific qualities as well as they ways in which they intersect one another, while at the same time establishing connections to existing research on video games literacy.

4.1. Functional video games literacy

In *Multiliteracies for a Digital Age*, Stuart Selber (2004) argues that functional literacy is commonly approached through the metaphor of the tool. This view of functional literacy is basically the same as the most basic approach to textual literacy as explained in chapter 1 in the sense that it has been used to tout the abstract skills like form and style as opposed to cultivating a culturally grounded understanding of the texts people are supposed to be able to read and write. Initially, however, functional literacy was meant as exactly that, a set of skills and knowledge that allow people to access a culture through the medium of written text (Ibid.: 33). It was only later that functional literacy was equated with an abstract set of skills, that can be used as easily as one might use a tool.

Regarding functional literacy or the medium it pertains to as a tool has both positive and negative effects, both of which delineate the parameters for how we understand functional literacy. One of the most obvious positive effects of regarding literacy as a tool is the sense of agency and control it can provide in relation to the technology at hand. Next to the ability to control technology, Selber recognizes 4 other parameters that define the extent to which someone can be said to be functionally literate. These parameters are not extensive, but they do touch on some of the most poignant aspects of technology use. Selber's parameters are as follows: someone who is functionally literate should be able to 1) use computers effectively in achieving educational goals, 2) understand the social conventions that determine computer use, 3) make use of the specialized discourses associated with computers, 4) effectively manage his or her online world, and 5) resolve technological impasses confidently and strategically. Translated to video games, these parameters can be said to prescribe that functional video games literacy means being able to 1) control video games effectively, 2) understand the social conventions of video games, 3) make use of the specialized discourses associated with video games, 4) effectively manage his or her online gaming habits, and 5) resolve gameplay impasses confidently and strategically.

4.1.1. Control
In the context of video games then, functional literacy at its most basic level can be said to be the extent to which people are able to access video game content by manipulating the necessary technology. In the case of casual games played on a PC, mobile phone or tablet, this will be relatively easy to most people, requiring only some simple touch controls or a mouse and perhaps some keys on a keyboard. In the case of dedicated home consoles and with games

that are considered to be "hard core", accessing video game content by way of the special controllers can be a daunting task. Even just on the level of hardware, manipulating such controllers requires a certain amount of dexterity and familiarity with the control scheme to do properly and to do well in most games. Things are even more complicated when we consider video game play across multiple consoles. Although most consoles use comparable controllers, the figure below illustrates the difficulty some players can have when prompted by a game to press the "X" button.

Figure 2. Four popular controllers with different locations for the "X" button.

When taken in tandem with games we find another level of understanding, as a lot of game genres share similar control schemes. For instance, most games will assign the "jump" function to the same button. In this sense, being familiar with certain video game genres can drastically shorten the learning curve when confronted with a new game in that genre. Or consider the fact that most top-level players of *World of Warcraft* (Blizzard 2004) have assigned an in-game function to almost every key on their keyboard in order to be as effective as possible when playing in coordination with others. To complicate things further, even the same controller can work differently across cultures. In Western games, the "X" and "O" button of the PlayStation controller are used in game menus to respectively confirm and cancel a selection. In Japan, where the console originates, X and O are culturally established symbols for "bad" and "good", and thus in Japanese games perform exactly opposite to what Western gamers might expect. All of these things and more can influence the sense of agency and control a person might feel in relation to video games.

4.1.2. Social conventions

The second parameter of functional literacy proposed by Selber (2004) is the ability to understand social conventions in relation to technology, which is very similar to the external design grammar identified by Gee (2003) as part of literacy's metastructure. The difference between the two is one of depth. Gee recognizes that understanding social conventions within a semiotic domain is an extremely important part of literacy; a part, I would argue, that runs through all three categories of Selber's framework, even if Selber himself only mentions it as a specific part of the functional literacy category. At the same time, Selber is right to point out that in order to be able to participate in and contribute to the practice of computer (or video game) use, at least some understanding of the social conventions associated with them is needed.

Regardless of the level on which we analyze social conventions in the semiotic domain of video games, a broad distinction can be made between social conventions *in* games and social conventions *surrounding* games. Take for example the practice of cheating. As Mia Consalvo (2007) explains in her book entitled *Cheating*, there can be a fine line between what is considered to be cheating, and what isn't. In some games, the use of some weapons that are plainly available in the game but that have been deemed by the community to be "imbalanced" or overpowered can be considered cheating, and can even be a cause for game leaders to kick players out of a game. Interestingly, even the use of walkthroughs or hints in single-player games is considered by some to be cheating, as external resources are used to finish or "beat" the game (Consalvo 2007). Other examples of social conventions are, for instance, knowing what language is acceptable in online environments, or knowing not to mention important plot points in games on online forums without marking them as "spoilers", so as not to inadvertently inform others who might want to experience the plot firsthand.

In short, the ability to understand social conventions simply means knowing what is proper conduct both in video games themselves, as well as in the subcultures and cultural practices surrounding them.

4.1.3 Specialized discourses

Like the previous parameter, the ability to use specialized discourse is also at the same time a critical part of the overarching metastructure of literacy, while being identified by Selber as an isolated function of only one part of literacy. The difference can be explained in the same way. Knowing what language to use in order to be understood by your peers is as much part of critical and rhetorical literacy as it is of functional literacy, but Selber is right in that some

ability to partake in the specialized discourses of video games is needed to gain access to the full breadth of video game culture, and on which a more extensive literacy can be built.

Specialized discourses in this case can refer to general jargon (e.g. PS3 instead of PlayStation 3; FPS instead of first-person shooter), "gamer" language (e.g. a weapon that is considered to be too strong is "imba", for imbalanced, or "OP" for overpowered; a player that has been expertly defeated by another is considered to have been "pwned", a derivation of "owned"), language use that is tied solely to certain games or game genres (e.g. a "tank" character in a role-playing game is a character that can draw the attention of a powerful enemy and take lot of damage so her teammates have an easier time attacking) and everything in between. When looking at specialized discourses from the perspective of critical and rhetorical literacy, this can be expanded to include specialized language used for instance by (new) media or video game theorists as well as game designers.

The extent to which someone has mastery over these different discourses effectively determines the level to which someone can penetrate and make sense of video game culture's artifacts, practices and conventions.

4.1.4. Gaming habits

According to Selber, this parameter entails the management of information people are confronted with in online environments, or in other words, people's information management habits. For video games, then, we might take this parameter to deal simply with gaming habits in the broadest sense of the word. This includes knowing where you can find information about games, but also how to manage any negative effects gaming habits might engender.

According to Christoph Klimmt (2009), there are three key negative effects that video games literacy should help ward off. Someone who is video game literate, Klimmt argues, should be 1) resilient to (automatic) game effects, 2) able to cope with social affordances to play (again or longer), and 3) able manage inertia effects of resources invested in playing. The first dimension accounts for the fact that games can have unintended negative effects on player's cognitive structures. A study by Jeanne Funk et al. (2006), for instance, indicates that people can experience extreme absorption while playing games, which can in turn lead to (negative) behavioral scripts being more readily internalized. Even without that risk, Funk notes that extreme absorption can trigger social losses such as the loss of time interacting with peers and significant others (2006: 10). Although being aware of negative effects stemming from game play might not negate them, Klimmt argues that it can help players deal with them more effectively. The second dimension is aimed at helping people deal with the social

pressure of others making claims on their time, such as when a player is asked to join a game, or when a player who is part of a clan is expected to play a game regardless of other responsibilities. Recognizing such pressure and gauging one's investment can help people refrain from excessive play. The third and final dimension recognized by Klimmt regards the investment players make in games in the form of both time and resources. Such investments, such as when a player has spent a lot of time creating a character in a role-playing game, can create a motivational inertia that will keep them playing, even in situations when they shouldn't. Knowing how to recognize and manage video game effects and habits such as those identified by Klimmt are an important part of being able to play video games responsibly.

4.1.5. Gameplay impasses

The last category identified by Selber within functional literacy is the ability to resolve impasses confidently and strategically. In the case of video games, we might translate that to being able to solve problems in video games confidently and strategically, or simply *being able to play well*. This ability comes closest to Juul's concept of repertoire, in that it deals with the skills that stack as a player gains more experience with video games and is thus able to recognize structures and tropes that let her deal with new problems more easily. Moreover, someone with a lot of experience has a better sense of what is and is not possible in games, even when confronted with a situation in which previously developed skills and knowledge are irrelevant.

This effect of functional literacy is corroborated by Justin Allan (2010), who did a preliminary study into video game self-efficacy. Defined as "an individual's belief in his or her ability to succeed at playing a video game", video game self-efficacy is both increased by and in turn engenders more play (Allan 2010: 32). This shows that knowing how to play a game is an important part of video games literacy, one that plays a crucial role in determining to what extent a person will seek out video games at all.

4.2. Critical video games literacy

If the analysis of functional literacy is based on the metaphor of the technology-as-tool, critical literacy is best approached through the metaphor of the technology-as-artifact. More so than functional literacy, critical literacy is based on an understanding of the cultural backgrounds and implications of technology. Selber explains:

"Imagined in artifactual terms, computers can be defamiliarized as inherently cultural in both origin and consumption. Their affordances disclose psychological and social preferences crafted in interpretive communities in which competing perspectives eventually decompose to singularly approved designs. Yet, in practice, computers are seen and understood across dynamic settings in ways that reveal multiple and contradictory uses. So the artifact metaphor evokes a double set of situated involvements that mark out the literacy landscape of computer technologies." (2004: 94-5)

In other words, cultural preconceptions inscribed in artifacts can differ from the culturally situated ways people use them, and being critically literate means understanding both the cultural ideas that inspire artifacts, the cultural contexts in which people use them, as well as the negotiations that happen in-between.

For Selber, this form of literacy has a very clear political goal. In his view, critical literacy allows people to "interrogates biases, power moves, and human implications", and—in the tradition of Freire—ultimately allows people to enact political and societal change (2004: 86). This political goal is reflected in the four parameters he proposes. According to Selber, a critically literate student is able to 1) scrutinize dominant perspectives that shape computer design cultures and their artifacts, 2) see use contexts as an inseparable aspect of computers that helps to contextualize and constitute them, 3) understand the institutional forces that shape computer use, and 4) scrutinize representations of computers in the public imagination.

A slightly different model of critical literacy is found in Zagal's (2010) four contexts of understanding games, which were briefly introduced in the previous section. According to Zagal, video games can be understood 1) as cultural artifacts, 2) in the context of other games, 3) in the context of technology, and 4) by way of their structure and components. The first context, games as cultural artifacts, acknowledges and foregrounds the fact that any artifact can only be fully understood in the context of human culture as a whole. As Zagal explains, we might for example look for cultural themes that are shared with other media, genres or subcultures. Understanding games in the context of other games means making sense of a game in relation to other games, as well as in relation to gaming conventions and mechanics. Understanding games in the context of technology means recognizing that the technology on and with which games are played have specific affordances that shape the possibilities and limits of games. The last context for understanding games as proposed by Zagal deals with the

structure and components of games. This can be seen as the first step to rhetorical literacy, insofar as it means looking at a game as a set of designed components and structures that together shape a player's experience.

While these two models share some overlap, they ultimately approach the subject of critical literacy from different angles, and neither can be substituted for the other. It might help to imagine both approaches as two axes that together make up a rough matrix that can be used to indicate the intersection between subject and context. As both Zagal and Selber readily admit that their models are not exhaustive, it follows that this matrix too is subject to expansion and enhancement.

Design cultures				
Use contexts				
Instit. Forces				
Public repr.				
	Cultural artifacts	**Other games**	**Technology**	**Structure**

Table 2. A matrix combining Selber's and Zagal's approaches to critical video games literacy.

4.2.1. Design cultures

This first parameter refers to "the practices and perspectives of the people who are responsible for designing and maintaining a computing infrastructure", or in this case, video games (Selber 2004: 106). A critically literate student, Selber says, is able to recognize and analyze the dominant perspectives embedded in technology that more often than not go un(der)examined. Although there are arguably as many design cultures as there are games, and charting even just the most important among them is well beyond the scope of this thesis, perhaps the most well known dominant perspective that runs through video game culture is that of the white male.

While recent reports indicate that the amount of women playing games (or, perhaps, will admit to playing games) has significantly increased (Entertainment Software Association 2011), the video game industry is still very much a culture of white men, and many if not most video games are a reflection of that culture. This is perhaps clearest when looking at the protagonists controlled by the player in single player games. Summarizing over a decade of research into gender portrayal in video games, Jansz and Martis (2007) conclude that video games favor white male protagonists, and that women, protagonist or not, were usually depicted in an oversexualized manner. Their own research indicates that while women may

now be more present in games than they have been in the past, strong female leads remain statistically underrepresented, and their looks hypersexualized (Ibid.: 146-7). For example, even though women have been serving in the military in most Western countries since the early seventies (http://en.wikipedia.org/wiki/Women_in_the_military), *Call of Duty: Black Ops II* (Treyarch 2012) will be the first ever military first-person shooter in a contemporary setting to feature female soldiers in multiplayer modes.

Similar dominant perspectives can be found in the technological contexts of video games as well. I have already pointed out that most video game controllers have looked relatively similar for almost 20 years before Nintendo introduced their motion controller for the Nintendo Wii. These controllers, together with a more family oriented line-up of games, opened the video game market to an audience that could now enjoy games without having to master difficult controls, instead using the Wii's easy-to-learn intuitive motion controls. In essence, Nintendo changed the dominant discourse of hardcore gaming to allow for the participation of more casual players.

4.2.2. Use contexts

Selber's second parameter within critical literacy "refers to the more immediate environments that help to situate and constitute [a computing infrastructure], such as courses, computer classroom spaces, and curricular environments" (2004: 111). In translating this parameter to video games literacy, the context will have to be somewhat broader than the one proposed by Selber. Rather than focusing solely on the use contexts of the video game classroom, as a direct transplant would demand, I propose that we take the parameter of use contexts to refer more generally to the *environments that help to situate and constitute video game culture*. This allows us to consider the context of the classroom as well as use contexts that are slightly more general, such as video games' paratextual industry.

Staying close to Selber's intentions for this parameter for a moment, the context of the classroom in relation to literacy is exactly the focus of Zagal's book *Ludoliteracy: Defining, Understanding and Supporting Games Education* (2010). In this book, Zagal explores the possibilities and challenges of teaching students about games. Most importantly, he looks at what students bring to video game classes in terms of background and experience, and how these things can be leveraged to inspire a more thorough understanding of video games. Among other things, Zagal finds that a student's prior experience with video games is a major determining factor in their standpoint vis-à-vis video games. He notes that while a very limited experience is a challenge that can be overcome with time and exposure to games,

students with a lot of experience can often be stubborn about their preconceptions, believing themselves to be experts on video games already. The trick for teachers is to find a way to engage both groups of students. According to Zagal, student understanding can be increased by making them think about video games as they play them, for example by using GameLog, where you can track your progress and insights for the games you are playing. Next to this, Zagal proposes that student engagement can be increased by making them feel that they can contribute to video game academia, for instance by incorporating their gained knowledge into projects such as the Game Ontology Project. Even if Zagal's book is only a first step into understanding how we might teach others to understand games, it does an excellent job at showing how the context of the classroom can influence and shape the actual learning.

Outside of the classroom, we might consider such use contexts as video game journalism, which is part of what Consalvo (2007) has called video games' paratextual industry. This industry creates "paratexts", texts with video games as their primary anchor such as manuals, guides, promotional materials and magazines. All of these help shape the discourse of video game culture. Video game journalism especially plays an important role, as it is expected to play an expert role in determining proper video game content, the difference between good and bad games, and what counts as video game culture in the first place. Being able to recognize the dominant discourses propagated through use contexts such as the ones described above is an important part of video games literacy.

4.2.3. Institutional forces
In Selber's framework, the parameter of institutional forces is an extension of the use contexts parameter, with the distinction between the two not always being a clear-cut one. Translated to video games literacy, this parameter refers to *the ability to understand the institutional forces that shape video game use*, and can actually be separated from use contexts a bit more clearly. First and foremost among such institutional forces we might consider the Entertainment Software Rating Board (ESRB), which provides age ratings for all games released in the US. The rating provided by this board carries significant weight, and companies will aim for specific ratings to the point of self-censorship. Also included in this parameter is the way intellectual property rights are enforced through constructions like Digital Rights Management (DRM) control technologies and the End User License Agreement (EULA). As an example of institutional forces at work that might be less overt than the ones previously mentioned, consider the military-entertainment complex. The military-entertainment complex is a cover term for the intricate relations between the (US)

military and the (US) entertainment industry, through which the military has strived to shape and control representations of the military in the public perception. Moving back into the area of academics for a moment, a university's very choice on whether or not to include a video game course or program in their curriculum can shape how people might feel about games as a medium worthy of academic analysis. All of these institutional forces and more have a direct influence on the discourse of video game culture, and knowing how to recognize such lines of influence is part of being critically literate.

4.2.4. Popular representations

The last of Selber's parameters of being critically literate entails the ability to scrutinize representations of computers in the public imagination. Translated to video games, then, this parameter refers to *the ability to scrutinize representations of video games and video game culture in the public imagination*. There are a number of preconceptions about video games that are perpetuated by popular media and news media alike, and part of being literate in video games is knowing how to recognize such narratives.

On his website, media scholar Henry Jenkins (n.d.) lists 8 common myths about video games that are routinely reinforced in the media. As he sees it, public perception of games includes the ideas that 1) video games lead to youth violence, 2) scientific research links violent gameplay with youth aggression, 3) games are primarily for kids, 4) games are played primarily by men, 5) games can be used to unknowingly train kids to become violent, 6) video games are not a meaningful from of expression, 7) playing games leads to social isolation, and 8) video game play is desensitizing. Jenkins explains that most of these myths are simply factually untrue, while others are highly contested in academic circles.

Next to news media, popular media also play a role in shaping public perception of video games. A striking example of how little some people know about video games, and how little they care to get it right, can be found in an episode of the police show *Life* (NBC 2007). In this particular episode, a hacker has stored a file on his Xbox 360, which can only be triggered by playing a game all the way through level 10. The first of two major misperceptions comes in the form of the actual game. The show uses images from Ubisoft's (2005) *Prince of Persia: Two Thrones*, but has placed texts over the images that suggest that instead of a complex game with a deep story, it is a game that is played in sequentially numbered levels, not unlike old arcade games. All we see of the game is the protagonist killing enemies, overlaid with a text that says either "You Have Died. Play Again?" or "You Win. Advance to Level [X]". In doing so, the show reduces a critically acclaimed video game

to nothing more than a series of kills, and effectively undermines the notion that video games are an adult medium with the ability to weave engaging narratives. The second misperception concerns video game players. When asked by the lead character if he thinks he can finish the game and unlock the hidden file, the first person to try his hand at the game answers, "Detective, I'm 30-years old, I live with my mother and I have a Captain Kirk costume in my closet". This is a particularly fitting example in the sense that it constructs a profile of video game players as male, socially isolated and either unsuccessful in life or having a severe Oedipus complex.

The examples given above, and countless more like them, have the power to influence public perception of video games, and being able to subject such representations to careful scrutiny is part of being critically literate.

4.3. Rhetorical video games literacy

For Selber, rhetorical literacy is intimately connected to interface design. Since most of his book centered on how people use and can learn to use computers, learning at the same time to recognize dominant perspectives, it is perhaps not surprising that his final form of literacy should focus on the ability to create interfaces that shape a user's interaction with said computers. The metaphor of choice for rhetorical literacy, as I have already mentioned, is that of the hypertext. Selber recognizes that, for a long time, literacy has favored a perspective on writing that sees it as creative production, with the writer being positioned as an absolute author. Building on the work of Johson-Eilola (1998), Selber asserts that we can oppose this production paradigm with a connection paradigm, where the focus lies not so much on production from nothing, but on reconstructing, rewriting and reorganizing existing texts in ways that are meaningful to audiences. Selber, like many other academics (e.g. Lessig 2008, Buckingham & Burn 2007, Vygotsky 1931), recognizes the increased importance for students to be able to be authors in today's highly interactive and social media environments.[7] In the context of computer literacy, Selber argues that such authorship requires an ability to recognize the persuasive, or rhetorical, elements in interfaces.

A rhetorically literate student, then, should be able to 1) understand that persuasion permeates interface design contexts in both implicit and explicit ways and that it always involves larger structures and forces (e.g. use contexts, ideology), 2) understand that interface

---

[7] The importance and impact of this paradigm shift on the concept of intellectual property rights is the focus of much of the works of Lawrence Lessig.

design problems are ill-defined problems whose solutions are representational arguments that have been arrived at through various deliberate activities, 3) articulate his or her interface design knowledge at a conscious level and subject their actions and practices to critical assessment, and 4) see interface design as a form of social versus technical action (Selber 2008: 146). Translated to video games, a rhetorically literate student can be expected to 1) understand that persuasion permeates game design contexts both implicitly and explicitly and will always involve larger structures and forces (e.g. use contexts, ideology), 2) understand that game design problems are ill-defined problems whose solutions are representational arguments that have been arrived at through various deliberate activities, 3) articulate her game design knowledge at a conscious level and subject her actions and practices to critical assessment, and 4) see game design as a form of social versus technical action.

4.3.1. Persuasion

The first parameter of rhetorical literacy identified by Selber deals with the persuasive qualities of any designed system, including games. Selber introduces three perspectives on persuasion from which the explicit and implicit persuasive qualities of a design can be studied, namely classic captology, symbolism and institutionalism.

Captology deals primarily with the explicit values that are coded into a design, i.e. how well can you convince your audience to do what you want them to do? For games, this boils down to the question of how to design your game so the player will know what to do or feel.[8] The use of "weenies", for example, objects that draw the attention and tell a player where to go, would fall under this category (Zagal 2010: 33).[9] A perfect example of this can be found in the recently released *Journey* (Thatgamecompany 2012). In the opening scene of the game, the player controls a character in a vast desert, and the only thing standing out as a point of interest is a pair of stone spikes on a nearby dune. As soon as the player reaches the top of the dune, the game's main goal (and weenie) is revealed: a giant mountain way off in the distance. Other elements that could be examined in this category are use of color to set a certain mood, or color schemes that differentiate friend and foe. An example of the latter can be found in *Killzone 3* (Guerilla Games 2011), where teams playing online are distinguished not just by character models, but also by the color of the electronics on their gear, which lights up red for the Helghan team, and blue for the ISA team. These examples are not exhaustive of

---

[8] In this sense it is not entirely unlike Ian Bogost's (2007) concept of procedural rhetoric.
[9] The term weenies was originally used to refer to tall structures in the Disney family parks which would serve as points of reference for the visiting public (Zagal 2010: 33).

course, and can be [complemented] by any elements that are designed to persuade a player to either do or feel something specific within the context of the game.

The symbolist perspective takes the focus away from game designers, and looks instead at how user preferences and worldviews shape their interpretation of texts, arguing that some persuading is essentially done to oneself. Approaching approach game design from this perspective means being able to keep in mind the audience that will be playing the game, and making sure that key elements are tailored to their expectations. It means making sure that the game elements are not only persuasive, but that they are *effective* at persuading as well. A very elegant interface design solution that might highlight the difference can be found in *Infamous 2* (Sucker Punch 2011). Most action games will have a moment early on in the game where they ask you to move the camera around using the right stick, in order to get familiar with the movement, as well as to be able to invert the vertical movement should you prefer to do so. This is a clear example of a persuasive game design element. What Infamous 2 does different, however, is that instead of asking the user to simply move the stick to see if the vertical movement is to their liking, it asks the user to "look up" and automatically maps the vertical movement according to the user's primary response. This goes beyond simple persuasive game design, and the designers clearly had the user's preferences in mind when they designed this moment in the game.

The institutionalist perspective deals primarily with ideology (Selber 2004: 149). Any of the examples of institutional forces that I have so far given can be examined here once more, this time with less of a focus on what they are doing and how they are doing it, looking instead at the underlying message, which might not always be immediately clear. If we look at the military-entertainment complex from this angle, for example, rather than merely acknowledging its influence on video games and other forms of entertainment, or even analyzing how it does so, from a rhetorical literacy perspective we can see that the ideology they are trying to sell is one of a glorified military (e.g. Turse 2008, Van Zwieten 2011).

Together, these three perspectives allow someone who is rhetorically literate to question the persuasive dimensions of video games.

4.3.2. Deliberation

The parameter of deliberation refers to the fact that design problems more often than not have a number of solutions, none of which can be said to be absolutely best. A rhetorically literate person knows this, and understands that choosing one solution over another can only be done by deliberately weighing the available options against a set of values. (Selber 2004: 152). The

same goes for game design, and we can consider this on two levels, namely technical and conceptual. First, there is the technical level, the level of code. Here the challenge is to find the most elegant way to code an element in order to end up with the most stable and easily manipulable game code as possible. Second, there is the conceptual level, where the choice is simply how to represent any one game element or mechanic, with no answer being either right or wrong. One such question might for example be how to deal with damage a player takes from enemy fire. In the past, such as in old first-person shooters like Wolfenstein 3D (id Software 1993) the design solution was to represent the player's health as a percentage. Reaching zero meant death, and health could usually be replenished by finding certain items. In contrast, the current generation of games favors a system where damage is represented more abstractly, either draining the screen of color or showing red flashes when the player takes damage, and player health regenerates automatically if the player manages to avoid damage for a set amount of time. Neither solution is better than the other; both designs simply favor different values.

An example of deliberation at work can be found in a study by Buckingham & Burn (2007) where they analyzed a number of games made by middle school students in a game design class. They relate how two of the students wanted to make a resource in their game hard to find. They ultimately settled on placing it in the bottom of lake, which meant that the player would have to perform a number of difficult maneuvers in order to acquire it (Buckinham & Burn 2007: 342-3). Being rhetorically literate means being able to recognize that game design choices like the examples above are the result of deliberation, and being able to imagine alternatives.

4.3.3. Reflection

Through this third parameter within rhetorical literacy, Selber seeks to encourage students to reflect not just on their product but also on their practices in order to increase their performance. Building on the work of John Smyth (1989), Selber suggests four stages of sequential action that can help make students gain insight into their own practices: describing, informing, confronting, and reconstructing. In the first stage, students are asked to create a narrative that describes their design practices; in the second stage, this narrative is broken down into the underlying theories and assumptions; in the third stage, students are asked to interrogate these theories and assumptions; the fourth stage has students use the knowledge and insights gained from the first three stages to improve their designs (Selber 2004: 160).

Here it once again becomes clear how integrated the three main pillars of literacy can be, as the first three stages identified by Selber to reflect on one's own practices can also be used to gain insight into the works of another. This can be illustrated by looking at the work of Buckingham and Burn (2007), who, in the early stages of the research mentioned above, asked their students to provide a narrative of video game elements like rules and resources, prompting young student Jack to provide the following explanation of the importance of rules:

> The reason games have to have rules is because if there wasn't rules in a game you couldn't have challenges and boundries (sic), limits too, and that would spoil the fun and cause you not to have anything to complete. Rules are needed for objectives because they are almost the same thing because they are both telling you to do or not to do something … People enjoy following rules because it creates suspense of trying not to lose the game by breaking the rule, and a lot of people like difficult challenges. For example, on a computer game, trying not to be seen and to sneak somewhere where you are rewarded with a prize. (Buckingham & Burn 2007: 335).

As Buckingham and Burn rightly point out, even this short narrative betrays a sophisticated understanding of the role and importance of rules. Seen through the lens of Selber's stages of reflection, this is a clear example of informing, where the student has gone beyond a narrative of what rules a game might have, examining instead the theories and assumptions underlying the very concept of game rules. Although the third and fourth stages of reflection were not actively sought out in Buckingham and Burn's research, the results of their work—or, should I say, the results of their students' work—show that reflection can be extremely valuable in the first stages of game design.

4.3.4. Social action

Selber's final parameter refers to the ability to see design as a form of social versus technical action. By this, Selber means that, besides a technical component, interface design also has a social component in the sense that it shapes everyday actions and, by extension, the social fabric of societies. The understanding of this dimension of design is complimented by an insistence on a form of activism that strives to correct any injustices that flow from interface design (Selber 2004: 161).

For video games, this parameter means that someone who is rhetorically literate should recognize that all games in some way or another either confirm or reject social norms, and that every design decision in this way is always also a social action. Consider for example the increasingly popular strategy of game designers of make us of "on-disc DLC". DLC, or downloadable content, is a way to increase the life span of video games by providing extra

game content—such as extra levels, characters or weapons—that can be downloaded for a minor fee, usually between 1 and 15 dollars. A recent trend has been for game designers to have such content ready on the disc, and having players "unlock" the content at a later point in time by activating DLC. This has started a discussion on whether or not game publishers should be able to demand extra money from consumers for content that was always-already intended to be part of the game. Regardless of the outcome of that discussion, the choice to separate between the main game and DLC is a power move intended to make consumers more dependent on the video game industry in an era where piracy is claimed to have great impact on video game revenue. In this sense, choosing the on-disc DLC strategy is a social action insofar as it shapes the social fabric of video game consumerism. Being rhetorically literate means being able to recognize the social actions enacted by video game developers and publishers, actions that help to shape the worldviews and social reality of those who play them.

In summary, rhetorical literacy concerns the ability to recognize game design as a praxis that includes persuasion, reflection, deliberation and social action. Although these elements are part of knowing how to design a game, actual game design has so far taken a backseat in favor of understanding its core elements. In Selber's defense, much of making a game is knowing how to do it. Yet, as more and more research deals with teaching students how to make games as part of a video games literacy curriculum, it would be unwise to overlook the final step from *knowing* how to make a game to actually *making* a game. Research by Buckingham and Burn (2007), Burn (2007), Squire (in Coiro et al. 2008) and Salen (2007), among others, suggests that courses in which students get to make their own games can be beneficial to their understanding of games. These approaches tend to favor a practical approach to game design rather than a theoretical one, and in that sense could be argued to favor acquisition of game design skills over learning them. They also show, however, that with the right questions, much of the students implicit knowledge can be made explicit, showing that a combination of theoretical training in rhetorical literacy combined with a practical component where students are encouraged to turn their knowledge into an actual game is most likely to inspire a full understanding of video game design.

4.4. Conclusion

In this section I have discussed how we might envision a model of video games literacy based on the three pillars of functional, critical and rhetorical literacy. Although in practice none of

the pillars is likely to be found in isolation, this division gives a rough framework through which to engage video games literacy, as well as through which to teach others to be video games literate. Functional video games literacy, I have argued, mostly concerns the ability to play video games (both on a technical level and on a gameplay level), the ability to participate at a base level in video game culture, as well as the ability to manage to some extent any negative social or psychological effects video game might engender. Critical literacy concerns a more abstract knowledge and insight into the workings of video games, and implies the ability to understand games as cultural artifacts. Specifically, it means being able to understand games in the contexts of other games, other media and culture in general, with specific regard for dominant perspectives in game design, game culture and the forces that shape them. Rhetorical literacy, finally, concerns the ability to recognize the rhetoric of video games both a technical and an ideological level, as well as the ability to leverage that rhetoric to make your own games.

Together, these three pillars allow for an understanding of video games literacy based on the technical proficiency at playing games, an understanding of video games' cultural backgrounds and influences, as well as insight into their rhetorical qualities. This specific combination makes up a framework of video games literacy that is able to analyze and explain all facets of the practices relating to the semiotic domain of video games. It can account for practices concerning both the semiotic domain's internal as well as external design grammars, and ncorporating both acts of learning and acts of acquisition. Moreover, this framework suggests the kind of capabilities we might look for in video game literates, and can serve to inspire curricula aimed at teaching students to be video games literate.

5. CONCLUSION

In this thesis, I have endeavored to produce a discussion of video games literacy that pays attention to both its roots in traditional literacy theory as well as its medium specificity that separates it from traditional as well as other forms of literacy. Following the work of James Paul Gee, I have argued that by envisioning literacy as the extent to which someone is able to partake in a secondary semiotic domain, we can use literacy to explain and investigate social practices revolving around much more than just written text. Building on this, video games literacy can be defined as *the extent to which someone is able to operate within the internal and external design grammars of the semiotic domain of video games, and is able to*

understand and create meanings within that domain, or more simply, the extent to which someone is able to engage with the various dimensions of video game culture.

I have argued that the best model with which to make sense of video game literacy practices combines the emphasis of cultural context found in the Three-C's model with the three-fold heuristic of functional, critical and rhetorical literacy advocated by Selber. I have endeavored to translate this model, originally designed for computer literacy, to video games literacy, fleshing out the kinds of skills, competencies, knowledge and insights we might expect from each category. Although most video game literacy practices require combinations all three categories of literacy proposed by this model, it nevertheless provides an overarching framework through which we might analyze and explain them.

Although I have given some examples throughout this thesis of skills or knowledge we might find within the categories of functional, critical or rhetorical literacy, these examples are anything but exhaustive. Future research will be needed to further expand and explicate this model in order to establish a framework of video game literacy that is able to connect individual video game literacy practices in all their specificity to the more general overarching theory I have outlined in this thesis. The model would also benefit from research into the best way to educate people in video games literacy, something the scope of this thesis did not allow me to examine. While I have argued that literacy is best acquired through both learning and acquisition, this answer merely paves the way to more specific questions that need to be answered before we can construct an informed video games literacy curriculum. What exactly do we want students to learn from the course? What skills do we want them to acquire? And in what order? What games would be best suited for this purpose? Answering these questions and more will greatly enhance the value of the model presented here.

In serving as an inspiration for new research, as well as a point of reference through which to contextualize research into specific parts of video game literacy, my hope is that the framework I have presented in this thesis can contribute to a fuller understanding of video games literacy.

REFERENCES

Alberti, John (2008). The Game of Reading and Writing: How Video Games Reframe Our Understanding of Literacy. *Computers and Composition*, 25(3), pp. 258-269.

Allan, Justin D. (2010). An Introduction to Video Game Self-Efficacy. Unpublished thesis. Available online from <http://csuchico-dspace.calstate.edu/handle/10211.4/257>.

Blizzard. (2004). *World of Warcraft*. Blizzard. [PC].

Bogost, Ian. (2007). *Persuasive Games: The Expressive Power of Video Games*. Cambridge, MA: MIT Press.

Buckingham, David and Andrew Burn (2007). Game Literacy in Theory and Practice. *Journal of Educational Multimedia and Hypermedia*, 16(3), pp. 323-349.

Burn, Andrew (2007). 'Writing' Computer Games: Game literacy and New-Old Narratives. *L1 – Educational Studies in Language and Literature*, 7(4), pp. 45-67.

Coiro, Julie, Michele Knobel, Colin Lankshear and Donald J. Leu, Jr. (eds) (2008). *The Handbook of Research on New Literacies*. Mahwah, NJ: Erlbaum.

Consalvo, Mia. (2007). Cheating: How to Gain Advantage in Video Games. Cambridge, MA: MIT Press.

Entertainment Software Association. (2011). Essential Facts About the Computer and Video Game Industry. Available online from <http://www.theesa.com/facts/pdfs/ESA_EF_2011.pdf>.

Freire, Paolo. (1972). *Pedagogy of the Oppressed*. Harmondsworth: Penguin.

-----. (1973). *Cultural Action for Freedom*. Harmondsworth: Penguin

Freire, Paolo and Donaldo Macedo. (1987). *Literacy: Reading the Word and the World*. South Hadley, MA: Bergin and Garvey.

Funk, Jeanne B., Margerat Chan, Jason Brouwer and Kathleen Curtiss (2006). A Biopsychosocial Analysis of the Video Game-playing Experience of Children and Adults in the United States, *Studies in Media & Information Literacy Education*, 6(3). Accessed July 3rd, 2010, from <http://www.utpjournals.com/simile/issue23/Funk1.html>.

Gee, James Paul. (1991). What is literacy?. In C. Mitchell and K. Weiler (eds) *Rewriting Literacy: Culture and the Discourse of the Other*, pp. 159-212. New York: Bergin and Garvey.

-----. (2003). *What Video Games Have to Teach Us About Games and Learning*. New York: Palgrave MacMillan.

Guerilla Games. (2011). *Killzone 3*. Sony Computer Entertainment. [PS3].

Hobbs, Renee. (2010). Digital and Media Literacy: A Plan of Action. *The Aspen Institute Communications and Society Program.*

id Software. (1993). *Wolfenstein 3D*. Apogee. [PC].

Jansz, Jeroen and Raynel G. Martis. (2007). The Lara Phenomenon: Powerful Female Characters in Video Games. *Sex Roles* 56(3-4), pp. 141-148.

Jenkins, Henry. (n.d.). Reality Bytes: Eight Myths About Video Games Debunked. *PBS.org*. Available online from <http://www.pbs.org/kcts/videogamerevolution/impact/myths.html>.

Johnson-Eilola, Johndan. (1998). Negative Spaces: From Production to Connection in In Composition. In T. Taylor and I. Ward (eds), *Literacy Theory in the Age of the Internet*, pp. 17-33. New York: Columbia UP.

Juul, Jesper. (2005). *Half-Real: Video Games between Real Rules and Fictional Worlds*. Cambridge, MA: MIT Press.

Klimmt, Christoph (2009). Key Dimensions of Contemporary Video Game Literacy: Towards a Normative Model of the Competent Digital Gamer, in *Eludamos*, 3(1). Accessed July 3rd, 2010, from <http://www.eludamos.org/index.php/eludamos/article/view/54/104>.

Klopfer, Eric and Susan Yoon. (2005). Developing Games and Simulations for Today and Tomorrow's Youth. *TechTrends* 9(3), pp. 33-41.

Lankshear, Colin and Michele Knobel (2008a). *New Literacies: Everyday Practices and Classroom Learning* (second edition). Maidenhead and New York: Open University Press.

Lankshear, Colin and Michele Knobel. (eds.) (2008b). *Digital Literacies: Concepts, Policies and Practices*. New York: Peter Lang.

Lessig, Lawrence. (2008). *Remix: Making Art and Commerce Thrive in the Hybrid Economy*. Penguin Press.

Lieberman, Max (2010). Four Ways to Teach with Video Games. Accessed July 3rd, 2010, from <http://currents.dwrl.utexas.edu/2010/lieberman_four-ways-to-teach-with-video-games>.

NBC. (2007). *Life*. NBC.

Newman, Michael. (2005). Definitions of Literacy and Their Consequences. In H. Luria, D.M. Seymour and T. Smoke (eds), *Language and Linguistics in Context: Readings and Applications for Teachers*, pp. 243-256. Mahwah, NJ: Erlbaum.

Online Etymology Dictionary. (n.d. a). *Literacy*. Accessed January 4th, 2012, from <http://www.etymonline.com/index.php?term=literacy>.

-----. (n.d. b). *Literate*. Accessed January 4th, 2012, from <http://www.etymonline.com/ index.php?term=literate>.

Parkington, Anthony. (2010). Game Literacy, Gaming Cultures and Media Education. *English Teaching: Practicing and Critique* 9(1), pp. 73-96.

Pelletier, Caroline. (2005). Studying Games in School: A Framework for Media Education. *Digital Games Research Association Proceedings*.

Salen, Katie (2007). Gaming Literacies: A Game Design Study in Action. *Journal of Educational Multimedia and Hypermedia*, 16(3), pp. 301-322.

Selber, Stuart A. (2004). *Multiliteracies for a Digital Age*. Carbondale, IL: Southern Illinois UP.

Shapiro, Jeremy and Shelley Hughes. (1996). Information Technology as a Liberal Art: Enlightenment proposals for a new curriculum. *Educom Review* 31(2), pp. 31-35.

Smyth, John. (1989). Developing and Sustaining Critical Reflection in Teacher Education. *Journal of Teacher Education* 40, pp. 2-9.

Sucker Punch. (2011). *Infamous 2*. Sony Computer Entertainment. [PS3].

Thatgamecompany. (2012). *Journey*. Sony Computer Entertainment. [PS3].

Treayarch. (2012). *Call of Duty: Black Ops II*. Activision. [PC, PS3 & Xbox 360].

Turse, Nick. (2008) *The Complex: How the Military Invades Our Everyday Lives*. New York: Metropolitan Books.

Ubisoft Montreal. (2005). *Prince of Persia: Two Thrones*. Ubisoft. [PC].

Vygotsky, L. S. (1931/1998). Imagination and Creativity in the Adolescent. In *The collected works of L.S. Vygotsky*, vol. 5, pp. 151-166.

Zagal, José P. (2008). A Framework for Games Literacy and Understanding Games. *Proceedings of the 2008 Conference on Future Play: Research, Play, Share*, pp. 33-40.

Zagal, José P. (2010). *Ludoliteracy: Defining, Understanding and Supporting Games Education*. Pittsburgh, PA: ETC Press.

Zagalo, Nelson. (2010). Creative Game Literacy: A Study of Interactive Media Based on Film Literacy Experience. *Scientific Journal of Media Literacy* 35(XVIII), pp. 61-67.

Zimmerman, Eric (2009) Gaming Literacy: Game Design as a Model for Literacy in the Twenty-First Century. In B. Perron and M. Wolf (eds), *The Video Game Theory Reader 2*, pp. 23-31. New York/London: Routledge.

Zwieten, Martijn van. (2011). Danger Close: Contesting Ideologies and Contemporary Military Conflict in First-Person Shooters. *Proceedings of Think Design Play: The Fifth International Conference of the Digital Research Association*.