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Playfully Adopting a Virtual Reality

A research into the way how play has manifested during the appropriation phase of the Oculus Rift

Richard Pesch

5481767

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First reader: dr. Stefan Werning

Second reader: dr. Imar de Vries

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Abstract

In the first quarter of 2016, the consumer version of the long-awaited head-mounted virtual reality display Oculus Rift was released. According to Mark Zuckerberg (2014), virtual reality will one day "become a part of daily life for billions of people." However, this technology is still in its appropriation phase, so it remains to be seen whether virtual reality is truly going to break through as a widespread technology. Originally, the Oculus Rift was designed specifically for video games. But when Facebook bought Oculus, Oculus made a statement that they wanted to transform the way people learn, share, and communicate and not just the way they play (Oculus VR 2014). Furthermore, Facebook wants to expand this virtual reality platform and create many other more serious virtual reality experiences as well. In our contemporary culture, however, playfulness has become a mainstream characteristic of our daily lives (Frissen et al. 2015, 9). "Playfulness not only characterizes leisure time (…), but also those domains that used to be serious", such as work, education, politics, and warfare (9). Thus, even if Facebook transforms the Oculus Rift into a platform for more serious experiences, play and playfulness might still be key aspects that characterize the appropriation of this novel technology.

The aim of this research is to investigate how the notion of play has manifested within various virtual reality experiences. A comparative textual analysis has been conducted on seven YouTube videos divided in three virtual reality categories: video games, communication platforms, and documentaries. Within this thesis, the four play types and two play attitudes, as defined by Caillois (1961), are used to analyse the various ways in which play occurs within these three different categories. The chosen YouTube videos both show what is happening on the screen as well as the user who is using the head-mounted display. This allows me to analyse the different levels on which affordances of play have manifested within these three categories. When there are play elements designed by the developers in the virtual environments a certain level of play on the Oculus Rift occurs and when the affordances of the Oculus Rift in the physical space elicit playful behaviour, play with the Oculus Rift occurs (de Lange 2010, 66).

Within the video game category the Oculus Rift is being used to play video games, which indicates how play on the Oculus Rift always occurs within this category (de Lange 2010, 66). However, within this category play with the Oculus Rift occurs as well. Both users and developers use the Oculus Rift as a playable material artifact by combining the affordances of various technological components in the physical space in order to create a vivid full-body experience that fosters the immersive experience. This fostering of the immersive experience goes hand in hand with the notion of mimicry and ilinx, because in both cases these affordances mimic the movements of the video game characters, while also

triggering multiple senses (Caillois 1961, 19-26). As represented within the YouTube videos of the communication and documentary categories, aspects of play are also designed within these virtual environments. By playfully mimicking and remediating aspects users are familiar with, ranging from mini-games to television and the virtual selfie, developers explore the potential of the Oculus Rift as a technology that can be used for communication and informative purposes. This leads to a certain level of play on the Oculus Rift in these categories as well. Not only do these playful aspects help users "to acquire specific skills and insights" (de Mul 2015, 341), research also shows that play can help users learn many important things (Resnick 2004, 3). These playful affordances provide ways for users to familiarize and get comfortable with the Oculus Rift being used for other aspects besides video games. When users are comfortable enough with a technology they start to, "more often than not", adapt and modify it according to their own needs and in ways often unforeseen by developers (Lauwaert 2009, 16; Dix 2007, 1). According to Dix (2007) we know at that point that "the technology has become the users' own" (1). This form of appropriation behavior already occurred within the video game category.

It is concluded that the appropriation phase of the Oculus Rift is being heavily influenced by various aspects of play. Play is a key characteristic that occurs during the appropriation phase of the Oculus Rift, helping to facilitate the technology's acceptance even within the categories that have a more serious purpose. Not only does it help developers and users explore the potential of this novel technology, sometimes by playfully combining it with other technologies, it also provides a certain aspect of familiarity which helps users to learn and get comfortable with the Oculus Rift as a technology suited for communication and informative purposes as well. This indicates how the notion of play has manifested during the appropriation phase of the Oculus Rift in two ways. By playing with the technology, both developers and users try to understand what this technology can do for their day-to-day lives. This indicates, just as Raessens (2014) argued, that play and digital technologies are closely linked in our contemporary media culture (104). The Oculus Rift, just as many other technologies, has enabled new forms of play (Raessens 2014, 103). During the appropriation phase of the Oculus Rift we find its source in the specifics of programming virtual environments, but also in the activities of interacting with these environments. As developers and users both seem to playfully appropriate the Oculus Rift, this novel technology is about to enter the domain of the ludification of our culture.

Key words: play; playfulness; appropriation; virtual reality; Oculus Rift; affordances;

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"Man plays only when he is in the full sense of the word a man, and he is only wholly Man when he is playing" – Friedrich Schiller (1954, 42).

1. An upcoming virtual reality platform

When Facebook bought Oculus for two billion dollars in 2014, Mark Zuckerberg, founder and CEO of Facebook, stated that one day virtual reality "will become a part of daily life for billions of people" (Zuckerberg 2014). With the release of the Oculus Rift as well as the HTC Vive in the first quarter of 2016, we are now one step closer to making this bold statement a reality. With the Oculus Rift and other head-mounted displays becoming publically available, immersive virtual reality might soon take over our living rooms just like video game consoles did in the nineties. While video games have already allowed us to become immersed in a virtual environment, the upcoming head-mounted displays will take this immersive experience to the next level. The technology behind virtual reality head-mounted displays simulates a three-dimensional environment "displayed in surround stereoscopic vision" (Brey 2005, 2034) and immerse the user completely in a computer-generated virtual environment. While many activities that we conduct in the physical world are now being transferred to virtual worlds (Steinicke and Bruder 2014, 66), it still remains to be seen whether virtual reality is truly going to break through as a widespread technology. Nevertheless, it seems that a new chapter in the long history of head-mounted displays is about to begin.

A head-mounted display, like the Oculus Rift, is a headset or helmet with a built-in display that is placed in front of the eyes of the user. In the sixties, Ivan Sutherland (1968) developed a head-mounted display that presented the user with a perspective image that changed according to the movements of the user (757). However, "due to the limited processing power of computers at that time, only very simple wireframe drawings could be displayed in real time" (Arth et al. 2015, 2). In the eighties, the development of virtual reality technologies and applications grew rapidly (Marks, Estevez, and Connor 2014, 42), which led to a hype regarding the term virtual reality in the beginning of the nineties (Mazuryk and Gervautz 1996, 3). Yet, these early virtual reality technologies were not as good as expected. There were sincere problems that made people consider these technologies to be low quality (Marks, Estevez, and Connor 2014, 42). It became painfully clear that the virtual reality systems in the nineties could not live up to the hype, which led to a decline of interest in virtual reality (42). Now, almost fifty years after Sutherland (1968) developed the first head-mounted display, virtual reality and its potential are being hyped up again.

The Oculus Rift was invented by Palmer Freeman Luckey, who launched the Oculus Rift project

through a Kickstarter[1] campaign in 2012, that raised nearly $2.5 million for the development of the head-mounted display (Avila and Bailey 2014, 103). Originally, the Oculus Rift was designed specifically for video games. But when Facebook bought Oculus, Oculus stated that they wanted to transform the way people learn, share, and communicate and not just the way they play (Oculus VR 2014). Even though Zuckerberg (2014) stated that Facebook will support Oculus in creating a unique gaming experience, their goal is to eventually expand this virtual reality platform. Facebook wants to create many other unique virtual experiences, such as "attending live events, taking remote classes, or visiting distant places" (Sun 2016). In our contemporary culture, however, playfulness has become a mainstream aspect of our daily lives (Frissen et al. 2015, 9). "Playfulness not only characterizes leisure time (…), but also those domains that used to be serious", such as work, education, politics, and warfare (9). Play and playfulness are often seen as modes of expression and being in the world (Sicart 2014, 2). They are key features for understanding the strongly mediated culture in which we live (Frissen et al. 2015, 21). Thus, even if Facebook transforms the Oculus Rift into a platform for more serious experiences, play and playfulness might still be key characteristics of the appropriation phase of this novel technology. Appropriation, in this case, "means that users integrate technology into their everyday practices, adapting and sometimes transforming its original design" (Schäfer 2011, 19-20). When Oculus released their first development kit, indie developers[2] and early adopters began to explore the possibilities of the technology to see what it could do for their daily lives. In this study I focus on this appropriation phase. The primary research question is: how does the notion of play manifest during the appropriation phase of the Oculus Rift?

To answer the main research question I will use several sub-questions. First, I want to provide insight into how the appropriation of the Oculus Rift can be understood and analysed through YouTube videos. I have chosen to study this phenomenon by analyzing YouTube videos of various virtual reality experiences, since I am interested in the appropriation of this technology by both developers and users. The chosen YouTube videos both show what is happening on the screen, such as the design of the virtual environments, as well as the person who is using the head-mounted display, which allows me to get insight into both perspectives. Within the methodology section in chapter 4 I elaborate further on the decision to analyse YouTube videos instead of, for example, conducting live observations of

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[1] Kickstarter is a crowdfunding platform that allows users to launch a project for which they need investment. At the same time, this platform also allows users to financially invest in projects in return for a reward.
[2] During the release of the first developement kit not many commercial companies were developing virtual reality applications. Because not many people had the Oculus Rift in their possession, thus it was simply not profitable for these companies to develop such applications.

appropriation behaviour. Secondly, after I have provided insight into the way appropriation can be understood and analysed through YouTube videos, I want to find out how the concept of play relates to the Oculus Rift. This sub-question is divided in two parts. I will look at how play manifests within different virtual reality experiences, these different experiences will also be further explained in the methodology section, and I also explore how play manifests on different levels. According to Michiel de Lange (2010), "our interactions with mobile media exist on four play levels": play on the mobile, play with the mobile, play through the mobile and play by the mobile (66). I propose that aspects of play can also occur on different levels with regards to the Oculus Rift. For example, aspects of play might occur as affordances within the design of virtual environments or during the use of the Oculus Rift and these environments. I use the YouTube videos to analyse how the virtual environments are designed in such a way by developers that they afford aspects of play, while I also look at how users playfully use the Oculus Rift and these virtual environments. By comparing how elements of play manifest on various levels within different virtual reality experiences, I provide a comprehensive overview of the aspect of play in the appropriation phase of this novel technology by developers and users. This should eventually provide me with enough information to answer the primary research question.

In the next chapter I first elaborate on the social and academic relevance of this research. Chapter three consists of the theoretical framework in which I primarily focus on the ambiguous concept of play. In chapter four, the methodological section, I explain how I conducted a comparative textual analysis of seven YouTube videos divided over three different virtual reality experiences. During this comparative textual analysis, I focused on the affordances that foster aspects of play, both those that are inherent to the virtual environment itself and those that manifest through the use of the Oculus Rift in the physical world. In this chapter I also provide an answer to the first sub-question by explaining how the appropriation behaviour of the Oculus Rift can be understood and analyzed through analyzing YouTube videos. The analysis in chapter five focuses on the three different virtual reality experiences to uncover how play has manifested in different ways and on different levels during the appropriation phase of the Oculus Rift. The findings indicate that aspects of play can be found within the virtual environments in each of the three virtual reality experiences. These playful affordances within the virtual environment often mimic and remediate aspects users are familiar with, which helps uses to learn and get comfortable with the Oculus Rift. Furthermore, in certain examples users and developers also play with the Oculus Rift, appropriating it according to their own needs in order to explore the potential of this technology. In chapter six I answer the primary research question and come to the conclusion that play is a key characteristic that appears within the appropriation phase of the Oculus

Rift, helping to facilitate the technology's acceptance. In this final chapter I also discuss the limitations of the research and provide ideas for further research.

2. Relevance

2.1 Social relevance

The release of multiple head-mounted displays in the first quarter of 2016 reinvigorated the hype surrounding virtual reality. These new technological paradigms are slowly gaining more attention in main stream media discourse. Within this popular discourse, however, a utopian view is prevalent. Many technology and news websites view the Oculus Rift as the next big thing (Hardawar 2016; Rubin 2016; Tweedie 2016). However, it might be a bit too early to proclaim the potential success of this novel technology. If it fails, it would not be the first time that virtual reality could not live up to the hype surrounding it. Nevertheless, this utopian view is not unusual, as "the new media, the internet, the personal computer, but also the mobile phone and wireless communication entered popular discourse in tandem with a rhetoric of promise which envisioned a brighter future" (Schäfer 2011, 25). Luckily, there are also journalists who are still questioning whether the Oculus Rift has any potential to become a widespread technology.

In January 2016, Stuart Dredge (2016) wrote an article for *The Guardian* in which he elaborated upon the potential usage of virtual reality. In the article Dredge (2016) wonders how mainstream this technology is truly going to be. According to Zuckerberg (2014), the Oculus Rift will be a platform for many experiences other than gaming. In the same line of thought, Ian Paul (2014) believes that the Oculus Rift has potential in almost all sectors of society, such as tourism, healthcare, architecture, and businesses. However, Dredge (2016) believes that this still has to be proven otherwise. Dredge (2016) claims that with the release of these head-mounted displays, we "will see a barrage of experimentation around" virtual reality, which will eventually allow us to have a better idea of whether this technology will be a hit or a flop. Research into the appropriation of the Oculus Rift will help to eliminate some of the ambiguities about the potential of this technology. This substantial information could also be of great value to the popular media discourse, since it provides new and substantiated insights.

2.2 Academic relevance

The Oculus Rift head-mounted display is still in its appropriation phase, but the virtual reality technology behind it is already being "used [for] many military, scientific, and industrial applications, ranging from training astronauts to designing automobiles" (Avila and Bailey 2014, 103). Experts have already studied

the potential of the Oculus Rift in different domains, such as psychology and computer science. A study conducted by Hunter G. Hoffman et al. (2014), for example, used the Oculus Rift during the treatment of a patient with severe electrical and flash burns (397). The authors concluded that the pain intensity and unpleasantness of the burns receded when the patient was immersed in virtual reality (400). Steinicke and Bruder (2014) conducted an experiment with the Oculus Rift in which they exposed a participant to an immersive virtual reality setup for 24 hours (66). They focus on "how human perception, behaviour, cognition, and motor system change over time in a fully isolated virtual world" (66). In the field of computer science, research has been conducted with the Oculus Rift to visualize scientific and engineering data (Marks, Estevez, and Connor 2014), while others have tried to "present methods for efficiently maintaining human head orientation" (LaValle et al. 2014, 187). In this study I conceptualize the Oculus Rift from a new media and game studies perspective to uncover how this novel technology is playfully appropriated. In doing so, I hope to provide insight into the Oculus Rift from a perspective that could help foster an understanding concerning the day-to-day use of this novel technology.

This research project draws on existing work regarding the interrelationship between technology[3] and play. Ever since the word 'ludic' became popular "to designate playful behaviour and artifacts, playfulness has become increasingly a mainstream characteristic of modern and postmodern culture" (Frissen et al. 2015, 9). However, in his book *Homo Ludens,* one of the most influential expositions of play, Johan Huizinga (1949) claims that there would not be much room for play in modern culture due to technological developments (199-200). Huizinga (1949) argues that technology and play would be incompatible, but this claim is debatable (Frissen et al. 2015, 21). Whether it is playfully texting using our mobile phones, playing video games or playful film narratives, "digital information and communication technologies have precisely enabled new forms of play" (Raessens 2014, 103). Playfulness has become a central aspect of our contemporary culture (Raessens 2014, 94). A striking example of this can be found in the popularity of video games. Yet, they are definitely "not the only manifestation of this ludification process" (94). Play also characterizes serious domains that were once considered the opposite of play, such as work, education, politics, and warfare (Frissen et al. 2015, 9; Raessens 2014, 94). Play has become a key feature for understanding our culture, which is, "deeply entrenched with digital technologies" (Frissen et al. 2015, 21). In his book *Why Study the Media*, Roger Silverstone (1999) argues that play is a central aspect of our media experience, "we find its source both in the specifics of genre and programming and in the activities of viewing and listening" (63). This indicates how the notion of play can manifest on different levels within our media experience. Raessens

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[3] In this thesis the term technology is used to refer to electronic and digital artifacts

(2014) even further states that the concept of play can "be used as a heuristic tool to shed new light on contemporary media culture" (96).

Within the field of media studies a ludic turn is present (Raessens 2014, 110). An example of this can be found in an article written by Erkki Huhtamo (2005), which argues that "the introduction of large-scale machine production [in the 19th century] was accompanied by an avalanche of different devices that provided amusement, including gameplay" (3). Huhtamo (2005) believes that these large-scale machines, with their limited interactive potential, were the foundations of electronic arcade games (3-4). Another example is a study conducted by Jane Webster and Joseph J. Martocchio (1992) which indicates that playfully interacting with a microcomputer has a positive effect on the mood, involvement, and satisfaction of the user (217). More recently, Frissen et al. (2015) created an anthology out of different articles that focus on the "complex relationship between play, media, and identity in contemporary culture" (10). The main focus of these articles, however, lies on "the role that digital information and communication technologies play in the ludification of personal and cultural identity" (10). An article within this anthology written by Daniel Cermak-Sassenrath (2015) explores the possibilities of playful interactions with the computer (93). In this article, the author draws the conclusion that interaction with the computer invites a form of play (107). In another article, Valerie Frissen (2015) analyses the Do-It-Yourself movement which has been, according to her, crucial in shaping digital technologies (149). This form of playing with technology has been an important incentive for technological transformation (150). Frissen (2015), however, focuses on the amateurs who create such a Do-It-Yourself movement. She compares their way of thinking with Claude Lévi-Strauss's theory of the savage mind (155). While the findings of both authors are interesting, they both focus on specific aspects of the relationship between technology and play. Finally, in his doctor of philosophy dissertation, Michiel de Lange (2010) argues that mobile media can shape identities in a playful way (23). He states that "our interactions with mobile media exist on four play levels": play on the mobile, play with the mobile, play through the mobile, and play by the mobile (66). However, instead of looking at how the Oculus Rift can shape identities, the focus in this study lies on how affordances of play have manifested within virtual environments, as designed by developers, which I will refer to as play on the Oculus Rift. Furthermore, I also focus on the affordances within the physical space that elicit playful interactions with the Oculus Rift and the virtual environments, which I refer to as play with the Oculus Rift. By focusing on the different ways play can manifest during the appropriation phase of this novel technology, this study provides a better understanding of the relationship between technology and play. By doing so I hope to contribute to the ludic turn that is present in the field of media studies.

3. Theoretical framework

In our contemporary media culture, the concept of play can be used as a heuristic tool to understand our strongly mediated daily lives (Frissen et al. 2015, 21; Raessens 2014, 96). According to Stefan Poser (2011) technology has always been playfully appropriated for leisure-time activities. One example Poser (2011) provides is the way DJs playfully manipulate turntables by adjusting the speed, scratching the tone, and letting the music of two turntables overlap. Poser (2011) states that "this use of a record player, which is foreign to the technology itself, is now so widespread that the devices have acquired an entirely new function that is put on display at regular DJ competitions". This example demonstrates how playful behaviour can have an impact on the appropriation of a technology. People explore the potential of a new technology by playing with it. In order to be able to understand the role of play in the appropriation of the Oculus Rift, an understanding of the complex and ambiguous concept of play is required. Point of departure for developing this understanding are the works of Johan Huizinga (1949) and Roger Caillois (1961). These are the most influential works concerning the concept of play. Furthermore, according to Frissen et al. (2015), the literature of these two authors "are useful tools for the analysis of the ludification of contemporary culture" (Frissen et al. 2015, 15). After discussing the concept of play I focus on the four different play types and two play attitudes that have been defined by Caillois (1961). Caillois's (1961) classification of play is used as the main framework for the analysis in this paper. This classification is useful for determining how play may manifest in various ways in the appropriation of the Oculus Rift.

3.1 The complexity of play

Johan Huizinga's (1949) book *Homo Ludens* is the first major and probably the most influential contribution to the study of play in culture. Even though the first edition of this book was published more than seven decades ago, the work remains "an inevitable point of reference for any 'serious' discussion of play" (Motte 2009, 26). As a result of Huizinga's (1949) grand ambition and scope, *Homo Ludens* is still an imposing work (Frissen et al. 2015, 12). Huizinga (1949) summarizes play as "a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is 'different' from 'ordinary life'" (28). According to Huizinga (1949), this spatial separation from ordinary life is "one of the most important characteristics of play" (19). Play happens within "a playground marked off beforehand either materially or ideally" of time and space (10). Within this playground, the player submits himself to rules in order to be subjected in a formally

defined experience (Egenfeldt-Nielsen, Smith, and Tosca 2013, 29). Even though Huizinga himself "did not label this bounded activity as taking place within a magic circle" (Copier 2009, 165), he did refer to the magic circle when he compared these playgrounds to different arenas (Huizinga 1949, 10). The concept of the magic circle was later appropriated to define what it means to play a game (Salen and Zimmerman 2004, 106-107). Play, in this view, "means setting oneself apart from the outside world and surrendering to a system that has no effect on anything which lies beyond the circle" (Egenfeldt-Nielsen, Smith, and Tosca 2013, 29). Even though Huizinga's work is seen as one of the most important works in the discussion of play, it has also been heavily criticized by other scholars due to its many contradictions and ambiguities (Caillois 1961; Frissen et al. 2015; Raessens 2014; Sicart 2014).

In his book *Man, Play and Games*, which was written as a critical response to *Homo Ludens,* French sociologist Roger Caillois (1961) builds critically on the theories of Huizinga. But Caillois (1961) also provides a definition of play himself. According to Caillois (1961), play is an activity which is essentially:

1. Free: in which playing is not obligatory; if it were, it would at once lose its attractive and joyous quality as diversion;

2. Separate: circumscribed within limits of space and time, defined and fixed in advance;

3. Uncertain: the course of which cannot be determined, nor the result attained beforehand, and some latitude for innovations being left to the player's initiative;

4. Unproductive: creating neither goods, nor wealth, nor new elements of any kind; and, except for the exchange of property among the players, ending in a situation identical to that prevailing at the beginning of the game;

5. Governed by rules: under conventions that suspend ordinary laws, and for the moment establish new legislation, which alone counts;

6. Make-belief: accompanied by a special awareness of a second reality or of a free unreality, as against real life (9-10).

The main point of Caillois's (1961) critique, however, focuses on how Huizinga deliberately omits "the description and classification of games themselves" (4), which prevents him from discussing play beyond general terms. According to Caillois (1961), Huizinga's "work is not a study of games, but an inquiry into the creative quality of the play principle in the domain of culture, and more precisely, of the spirit that rules certain kinds of games – those which are competitive" (4). As an elaboration of Huizinga's work Caillois (1961) defines a typology consisting of four different play types and two play attitudes which is

considered the true merit of his study (de Lange 2010, 50). These play types and attitudes are used as a primarily framework within the analysis to help identify how play manifests in different ways and on different levels during the appropriation of the Oculus Rift.

3.2 Caillois's classification of play

Caillois (1961) defines the four types of play as *agôn* (competition), *alea* (chance), *mimicry* (simulation), and *ilinx* (vertigo) (12). The category of agôn covers all play forms that are competitive, like football, chess, or a quiz show. Skills are an important aspect of agôn, since they determine whether the player will win or lose a certain game (14). Alea designates "all games that are based on a decision independent of the player, an outcome over which he has no control, and in which winning is the result of fate rather than triumphing over an adversary" (17). This category is all about games that include chance or luck, like dice games and lotteries (17). De Lange (2010) states that "contrary to real life, agôn and alea create an ideal condition of pure equality for the player, a 'level playing field'" (50). These two types of play are "an attempt to substitute perfect situations for the normal confusion of contemporary life, … one escapes the real world and creates another" (Caillois 1961, 19). "By contrast, both mimicry and ilinx are attempts to escape not the world, but oneself" (de Lange 2010, 50). The category of mimicry is all about make-believe or pretending (19). Caillois (1961) states that within this play form, "the subject makes believe or makes others believe that he is someone other than himself" (19). Winning is not an important aspect of mimicry, which ranges from theatre plays to imitation games of children. The final category ilinx focuses on types of play that "are based on the pursuit of vertigo and which consist of an attempt to momentarily destroy the stability of perception and inflict a kind of voluptuous panic upon an otherwise ludic mind" (23). Examples that fit within this category are rollercoaster rides, bungee jumping, and various other physical activities (24). It must be noted, however, that these four play types rarely exist in a pure state and are often found in combination with each other (de Lange 2010, 51; Lauwaert, Wachelder, and van de Walle 2007, 92).

Besides these four different types of play, "Caillois discerns two play attitudes: *paidia* and *ludus*" (Frissen et al. 2015, 15). Caillois (1961) places all forms of play on a continuum from paidia to ludus. On this continuum, paidia refers more to a form of playfulness in each of the four play types. It "refers to free play, improvisation, spontaneity and impulsiveness" (Raessens 2014, 102). Ludus, on the other hand, is structured according to explicit rules, which adds a form of discipline to the different types of play in order to enrich paidia (102). Ludus "should be regarded as complementary to and a refinement of" paidia (Lauwaert, Wachelder, and van de Walle 2007, 93). Figure 1 illustrates that the play attitudes

ludus and paidia occur in each of the four play types. However, Caillois (1961) argues that "vertigo and simulation are in principle and by nature in rebellion against every type of code, rule, and organization. Alea, on the contratry, like agôn calls for calculation and regulation (157). This indicates how "agôn and alea lean to the pole of ludus, while ilinx and mimicry tend towards paidia" (de Lange 2010, 50).

The Oculus Rift provides users with the ability to experience a virtual environment as if they are actually a part of it. This immersive feeling can, for example, be explored in a spontaneous way, as in freely exploring a virtual world, or in a more rule-governed way, as in playing a virtual reality video game. But by using this head-mounted display, users themselves can play with the Oculus Rift as well. By combining, for example, multiple technologies user can improvise, in a playful manner, new ways that could foster the immersive experience of the virtual environment. As is made clear in the analysis, this indicates how play with the Oculus Rift can occur. I argue that usages of the Oculus Rift as well as the design of the virtual environments are characterized by aspects of play. In the analysis I employ the play types and attitudes of Caillois (1961) to identify how play manifests in different ways and on different levels during the appropriation phase of this technology.

	AGŌN (Competition)	ALEA (Chance)	MIMICRY (Situation)	ILINX (Vertigo)
PAIDIA Tumult Agitation Immoderate laughter	Racing } not Wrestling } regulated Etc. } Athletics	Counting-out rhymes Heads or tails	Children's initiations Games of illusion Tag, Arms Masks, Disguises	Children "whirling" Horseback riding Swinging Waltzing
Kite-flying Solitaire Patience Crossword puzzles LUDUS	Boxing, Billiards Fencing, Checkers Football, Chess Contests, Sports in general	Betting Roulette Simple, complex, and continuing lotteries*	Theater, Spectacles in general	Velador Travelling carnivals Skiing Mountain climbing Tightrope walking

Figure 1: Caillois's classification of play (Caillois 1961, 36).

4. Method

In order to determine how play has manifested in various ways during the appropriation of the Oculus Rift, I conducted a comparative textual analysis on seven YouTube videos. According to Alan McKee (2001), a "textual analysis is a way for researchers to gather information about how human beings make sense of the world" (1). A textual analysis is an in-depth study that uses a text as a case study to better

understand a specific topic (Fernández-Vara 2014, 9). In a broader sense, a text within a textual analysis refers to a medium through which we can create meaning, such as film, a television program, a magazine, an advertisement, or a video game (McKee 2001, 1). McKee (2001) states that "by seeing the variety of ways in which it is possible to interpret reality, we also understand our own cultures better because we can start to see the limitations and advantages of our own sense-making practices" (1). However, there are many different forms of textual analysis (2). According to McKee (2000), "it's important to realize that different methodologies will produce different kinds of information – even if they are used for analysing similar questions" (2). A textual analysis is about sense-making practices and does not, for example, produce quantitative knowledge (Mckee, 2000, 118). Yet, by conducting a textual analysis I was able to gather information to interpreted the ways in which the Oculus Rift is being playfully appropriated. For the purpose of this study I employed a form of textual analysis that focuses on providing an understanding of the different ways play has manifested within three different virtual reality experiences.

I conducted a comparative textual analysis on three different virtual reality experiences for the Oculus Rift: video games, communication platforms, and documentaries. According to Steinicke and Bruder (2014), people will mainly use head-mounted displays, such as the Oculus Rift, for communication and entertainment purposes (66). Furthermore, Facebook and Oculus want to transform the way people learn, share, and communicate (Oculus VR 2014). I have chosen these three virtual reality experiences since they are closely related to these purposes. By focusing on three different virtual reality experience I can provide valuable insight into how aspects of play have manifested within different experiences. The video game experience can provide insight into the way how video games are playfully experienced on and with the Oculus Rift. The communication platform experience can provide insight into the way users playfully share and communicate within virtual reality. Finally, the documentary experience focuses on informative virtual reality environments that aim for a naturalistic representation of something that actually happened, for example, an experience that allows a user to get an idea of how it feels to be a Syrian refugee (Doc1, 0:01) [4]. This final experience can provide an understanding into the way how aspects of play relate themselves to an informative form of virtual

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[4] In this thesis I refer to multiple YouTube videos that showcase virtual reality experiences within different categories. I have created a separate list within my bibliography, chapter 7.1, in which I indicate the YouTube videos that have been used. I created my own indexing system in which I defined the videos that were used according to the category they belong to. Game3, for example, stands for video game three. When I refer to a YouTube video I provide the index name of the YouTube video and the exact time within the video I am referring to. For example (Game3, 0:50), means that I am referring to something in Game3 that happens 50 seconds into that video.

reality.

For this textual analysis I focused on YouTube videos that both show what is happening on the screen, such as the design of the virtual environments, as well as the person who is using the head-mounted display. These two important perspectives allow me to analyse and compare how developers designed playful affordances within the virtual environments as well as the way how users playfully appropriate the Oculus Rift during their use of this technology. The focus on YouTube videos, however, does not only provide me with an insight into these two important perspectives, it also allows me to make a comparison between playful appropriation behaviour within the three virtual reality experiences. Performing a textual analysis on YouTube videos enables me to analyse multiple virtual reality experiences which is, currently, difficult to achieve with actual live observations or by using the Oculus Rift myself. Conducting live observations of appropriation behaviour or using the Oculus Rift myself would bring more limitations to the research. Not only would setting up a corpus like that take more time, forcing me to do a closed reading on one or two virtual reality experiences, it would also heavily limit the amount of available virtual reality experiences that can be observed. For example, some of these virtual reality experiences that I will analyse through YouTube videos are using unique external technologies and attributes that are not widespread available yet, such as, the research project shown in Game3. These limitations would become a serious problem during a comparative research of various virtual reality experiences through live observations. The YouTube videos, on the other hand, illustrate both aspects that are important to answer the primary research question. These videos allow me to analyse both the playful affordances that are designed within the virtual environments as well as the affordances within the physical space that allow the user to playfully interact with these environments. This means that during this textual analysis I will not be looking at the actual textual qualities of the YouTube videos, such as focalization or perspective, but I will use the YouTube videos as evidence for inferring affordances that foster aspects of play, which allows me to interpret how the Oculus Rift is playfully appropriated. I will elaborate further on the terms affordances and appropriation, and how I can judge appropriation behaviour from YouTube videos, in the next chapter.

Within each of the three virtual reality experiences I will analyse two YouTube videos. The only exception is the video game category where I analyse three videos. This is due to the fact that I use two videos from the same uploader to strengthen an argument. I decided to focus on two videos within each of the three virtual reality experiences because, even though the seven YouTube videos show both what is happening on the screen as well as the user who is interacting with the Oculus Rift, I wanted to have one video from a more user's perspective and one video from the viewpoint of the developers. The

videos from the user's perspective, Game1, Game2, Social2, and Doc2, are uploaded by early adopters who taped their own reactions to and interactions with the Oculus Rift. These videos illustrate how users adapt and use the Oculus Rift according to their own needs. The videos from the viewpoint of the developers, Game3, Social1, and Doc1, focuses more on how developers envision the use of this novel technology. These videos include an interview with or a presentation from the developers in which they elaborate on the virtual reality experience they created. At the same time though, these videos also show someone who is using the virtual reality experience that has been developed. The focus on a video from a more of a user's perspective and a video from the viewpoint of the developers within each of the three virtual reality experiences ensures that I can get insight into the playful appropriation behaviour of both developers and users. Focusing the analysis on seven YouTube videos, spread over three different virtual reality experiences, will ensure that the research remains manageable while still providing substantiated insights into how play has manifested in different varieties. Furthermore, these seven videos allow me to take a comparative perspective to analyse how playful appropriation behaviour differs within three virtual reality experiences.

4.1 Affordance and appropriation

The YouTube videos will be used to analyse affordances that foster aspects of play within each of the three virtual reality experiences. The concept of affordances was coined by perceptual psychologist James J. Gibson (1986, 127) and has since been used by many scientists in different disciplines. According to Donald Norman (1988), for example, "the term affordances refers to the perceived and actual properties" that determine how an object can be used (9). In his book *Bastard Culture,* new media scholar Mirko Tobias Schäfer (2011) builds upon the work of Norman, stating that an "affordance describes the specificity of technology" (19). According to Schäfer (2011), an affordance consists of two characteristics, "the material aspects, or the specificity of an object or a technology, and the affordance imposed on it through the design" (19). The design of an object "describes the creation and shaping of artefacts" (19). It creates its own affordances, but it is also subject to the affordances of the used materials (19). Schäfer (2011) further states that the design affordances and the specific material qualities affect the act of appropriation (20), see Figure 2. Appropriation, in this case, "means that users integrate technology into their everyday practices, adapting and sometimes transforming its original design" (Schäfer 2011, 19-20). According to Dix (2007), "these improvisations and adaptations around technology are not a sign of failure, […] but show that the technology has been domesticated, that the users understand and are comfortable enough with the technology to use it in their own ways" (1).

When users have become comfortable enough they will, "more often than not," start to adapt or modify it according to their own needs and in ways often unforeseen by developers (Lauwaert 2009, 16; Dix 2007, 1). This appropriation behavior "is regarded as an important and positive phenomenon", because technology can always be improved (Dix 2007, 1).

As illustrated in Figure 2, the affordances, the design aspects, and the appropriation of a technology are interdependent (20). This model can be used to analyse the appropriation of the Oculus Rift. The appropriation of the Oculus Rift, however, consists of two parts. On the one hand, there are early adopters, which I refer to as developers, who design[5] and develop virtual reality experiences. These developers were able to design and develop content for the Oculus Rift after the release of the first development kit. This designing of virtual reality experiences for a novel technology can be seen as a form of explicit participation, which refers to appropriation by the developers (Schäfer 2011, 52). These developers had to become comfortable enough with the technology to find out how they could design convincing virtual reality experiences. This appropriation of the technology by developers indicate how they envision the use of the Oculus Rift. On the other hand, you have the early adopters, which I will refer to as users, who appropriate this technology by integrating it into their everyday practices, for example, by playing video games with it. Their response to and the way they use, adapt, or modify the material affordances of the Oculus Rift as well as the design affordances of the virtual environments, indicate how users appropriate this novel technology (Schäfer 2011, 20). Both aspects have to be taken into account when analysing the appropriation of the Oculus Rift.

Each video will be analysed to see whether affordances that foster aspects of play appear within the design of the virtual environments or during the use of this technology. During the analysis of the appropriation of developers the focus will lie on design affordances within the virtual environments, as represented in the YouTube videos, that stimulate aspects of Caillois' (1961) typology of play. Within the YouTube videos, for instance Social2, the design of the virtual environment is showed extensively. This allows me to focus on the way how developers playfully designed the virtual environments and focus on the playful interactions that are afforded to the users. By doing so I can analyse how various affordances, imposed on it through the design of the environment, stimulate playful behaviour such as, for example, ilinx (Caillois 1961, 23). I will analyse these virtual environments to see if they include affordances that stimulate a form of competition, chance or if they, for example, destroy the stability of perception. These playful affordances within the virtual environment stimulate a certain level of play on

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[5] It is important to note that during the research I will not focus on the actual design of the Oculus Rift itself. When I am talking about design aspects during the analysis I mean the affordances that are designed in the virtual environment by developers.

the Oculus Rift, as defined by de Lange (2010, 66). By comparing the playful aspects within the design of the different virtual reality experiences I can see how developers responded to the development kit of the Oculus Rift, and whether they playfully appropriated it or not. During the analysis I also focus on the appropriation of the Oculus Rift by users. The appropriation by users "is related to affordances, because the material characteristics and the design choices affect the act of appropriation" (Schäfer 2011, 20). Appropriation by users happens when these users "understand and are comfortable enough with the technology to use it in their own ways" (Dix 2007, 1). To analyse the appropriation behaviour of users, I focus on the affordances and interactions within the material space, as represented in the YouTube videos, that showcase how the user is using, adapting, or modifying the Oculus Rift according to his own needs. I will focus on the way users use, change, and adapt the Oculus Rift in a playful way in order to integrate this novel technology into their everyday practices, which can be seen as aspects of play with the Oculus Rift (De Lange 2010, 66). For example, users that are combining different technologies during their use of the Oculus Rift. I shall again analyse this appropriation behaviour according to the play typology of Caillois (1961) and see whether the use of the Oculus Rift can be linked to any of the various play types or attitudes. Eventually, when I have analysed both perspectives I can provide an insight into the way the Oculus Rift is being playfully appropriated by developers and users.

While not everything within the seven YouTube videos might be explicitly playful, I argue that the concept of play is a useful frame of reference to better understand the appropriation of this novel technology. As explained, the focus during the analysis of the videos lies on the usage practices, affordances, and design aspects that are directly related to aspects of play. This means that I focus neither on every affordance I encounter nor on the specific textual strategies of the YouTube videos. I only focus on patterns within each of these virtual reality experiences, either in the virtual environments or during the use of these virtual environments, that are in some way related to Caillois's (1961) typology of play. Furthermore, I am not able to discuss everything that is playful within each of the three categories. This means that, to keep this research manageable, I only focus on the most important patterns, with regards to the research question, that occur within the videos of each category. During the analysis I will compare these patterns of the three different virtual reality experiences, which provides enough information to answer the research question.
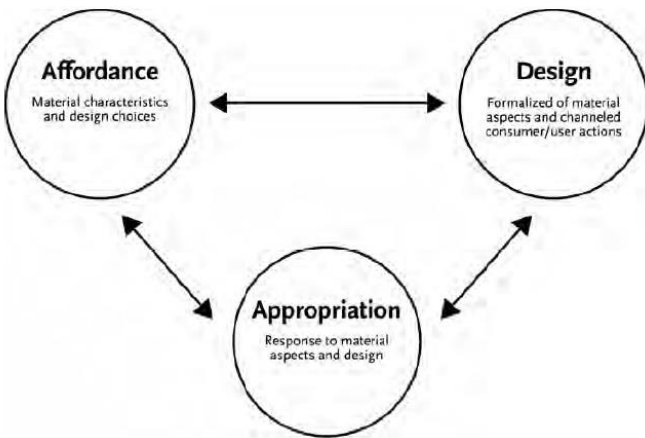
Figure 2: Affordance, appropriation, and design model (Schäfer 2011, 20).

5. Analysis .

5.1 Video games

Game researchers often use Caillois's (1961) concepts of ludus and paidia to distinguish between a game and play[6] (Frasca 1999). Since video games are defined by rules and often have an endpoint, the concept of ludus seems applicable to this medium. But, according to Miguel Sicart (2014), "games are, to a certain extent, a privileged form of play" (84). Thus, it should be noted that video games can entail aspects of paidia as well, even those defined by rules. An example of this is found in the virtual environment of Game3. Game3 is a video of the virtual reality experience called *Birdly* that has been specifically developed for the Oculus Rift. *Birdly* is a virtual reality experience that provides the user with a feeling of what it is like to fly like a bird through San Francisco. The video illustrates how the virtual reality experience is designed in such a way that it allows a certain form of free play (Game3, 2:18). There is not a clear goal and the user can freely and spontaneously explore the city from a bird's eye perspective. Caillois (1961) refers to this attitude of play, in which "free improvisation and carefree gaiety" are dominant, as paidia (13). The bird's eye perspective fosters the feeling of mimicry, since it imitates the viewpoint of a bird. This allows the user to become "an illusory character" that believes he is someone other than himself (19).

The feeling of mimicry within Game3 is amplified due to the attributes used in the material space. In the material space of this example, various technologies are specifically designed by the developers in order to intensify and create a vivid full-body experience. The person who is experiencing

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[6] According to Michiel de Lange (2010), "it should be noted that neither Huizinga nor Caillois oppose play and game like many game researchers do" because Dutch and French do not have distinct words for these terms (52).

Birdly is lying on a table that has some specific affordances to create a truly immersive[7] experience. This table combines rotation movement (Game3, 0:13), wind feedback (Game3, 1:57), using arms and hands to control the wings of the bird (Game3, 0:38), and smell feedback (Game3, 2:04) to make the experience more tangible, see Figure 3. Using a table on which the user must lie down constrains his ability to interact with the mediated layer. The user is, for example, not able to easily turn around and does not have the same range of vision that he would have if he were standing upright. However, in order for him to experience what it feels like to fly like a bird he temporarily accepts that he must lie down, which shows a type of play closely related to mimicry (Caillois 1961, 19). Furthermore, Caillois (1961) states that birds love games of vertigo, since "they let themselves fall like stones from a great height, then open their wings when they are only a few feet from the ground, thus giving the impression that they are going to be crushed" (25). The developers of *Birdly* have tried to mimic this ilinx experience through the affordances of the table. The table moves according to the movements of the bird in the virtual environment, which means that there are a lot of sensory alterations. When the user decides to go into a dive, the table rotates in such a way that it, in combination with the wind and the smell feedback, creates a dizzying confusion of the senses (Game3, 1:24). This "momentarily destroys the stability of perception and inflict a kind of voluptuous panic upon" the mind of the user, allowing him to pursuit a form of vertigo (Caillois 1961, 23).

Just like the developers in the Game3 video, the user in Game1 and Game2[8] wants to take the immersive experience of the Oculus Rift to the next level by playfully combining different commercial technological components within the physical space. In both videos, the person uses an Oculus Rift, a Cyberith Virtualizer[9] and the Wii mote controllers to interact with the virtual environment of the video games, see Figure 4. This combining of technologies is a form of free improvisation because he does not know whether there is a better way to accomplish this perfect form of immersion. There are no clear rules for doing so and it is spontaneous and impulsive, thus this combining of technologies tends towards paidia since it has "no predefined winning plot" (de Lange 2010, 168). However, if the user has defined a clear goal for himself, for example to become more immersed in the video game, this combining of technologies becomes a form of ludus (Frasca 1999). Combining the affordances of various technologies to create an immersive experience ensures that the experience of the virtual environment will change. Each of these technologies brings its own affordances in order to create a greater immersive

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[7] Immersion means the perception of being present in a virtual environment.
[8] Game1 and Game2 are two videos from the same user
[9] The Cyberith Virtualizer is a low-friction surface that enables the user to control the character in the video game with his own movements, such as walking, running, jumping, crouching and rotating.

experience. The specificity of the Oculus Rift ensures that the user sees the mediated layer everywhere he looks. The Cybernith Virtualizer affords the user the ability to interact with the virtual environment through his own movements. And using a Wii Mote allows the user, for example, to mimic the movement of shooting an arrow from a bow (Game1, 0:55). The affordances of these technologies combined will have a positive effect on how the user perceives the mediated layer. These affordances foster the believe of becoming an illusory character, while it also triggers multiple senses, which indicates how this setup in the physical space is related to the notion of mimicry and ilinx (Caillois 1961, 19-26).

This vivid full-body experience is also playfully communicated to the viewers of Game1 and Game2. At the beginning of these videos it immediately becomes clear that the user is dressed in almost the same way as the video game characters (Game1, 0:02; Game2, 0:28). In Game1 the user uses the same facial paint and goatee as the main video game character, while in Game2 he is wearing a camouflage pants, a military helmet, and even a bullet belt while he is playing a military shooter. Furthermore, the user also begins to behave like the main character. The user starts to mimic the movements of an attack and even screams like the character in the video game does (Game1, 1:24). Both videos clearly illustrate how the user disguises and "temporarily sheds his personality in order to feign another" (Caillois 1961, 19). According to Caillois (1961), the becoming of an illusory character, including behaving and pretending as such, is an aspect of mimicry (19). This form of mimicry, however, does not add to the user's own feeling of immersion, having other clothes on does not feel a lot different, but it serves more as a way of communicating with his viewers in a humorous way. It playfully represents the full-body experience that the user is trying to create to the viewers of these videos.

It appears that, within this video game category, play does not only occur on the Oculus Rift, but that both developers and users also play with the Oculus Rift. Within these video game experiences both developers and users playfully appropriate this technology by combining various other technologies and attributes within the material space. The Oculus Rift is being used as a playable material artifact that elicit playful practices (de Lange 2010, 66). The YouTube videos within this category indicate that developers and users of the Oculus Rift start to playfully use the technology in their own way in order to foster the immersive experience. According to Dix (2007), "these improvisations and adaptations around technology are not a sign of failure, […] but show that the technology has been domesticated, that the users understand and are comfortable enough with the technology to use it in their own ways" (1). Dix (2007), further states that this behavior occurs when "there is no existing tool for the task" (1). Even though Oculus used the slogan "step into the game" during their Kickstarter campaign (Oculus 2012),

the affordances of the Oculus Rift only display a three-dimensional environment in surround stereoscopic vision. The response of the developers and users to the material aspects of the Oculus Rift, as represented in the YouTube videos, indicate that they want to take the immersive experience to the next level. By combining various other technologies within the material space they modify and adapt the Oculus Rift in order to accomplish their personal needs, which is to create a vivid full-body experience. They customize the use of the Oculus Rift by playfully combining the affordance of various other technologies, which, as explained, fosters to the notion of mimicry and a sense of ilinx (Caillois 1961, 19-26). The developers and users explore the potential of the Oculus Rift as a video game technology by playing with it and this playful appropriation behavior is "an important sign of users' acceptance of technology" (Dix 2007, 1).

Figure 3: Birdly (Game3, 1:55).

Figure 4: Playing with the Oculus Rift by combining various technologies (Game1, 0:56).

5.3 Communication platform

Ever since Facebook bought Oculus back in 2014, people have been wondering how virtual reality can be used as a communication platform. Recently, during the F8 conference in San Francisco, Facebook provided an initial glimpse at how they envision a virtual reality social media platform. During this demonstration, Facebook CTO Mike Schroepfer puts on the Oculus Rift in order to communicate with a colleague in virtual reality, see Figure 5. Facebook's demonstration at the F8 conference illustrates how the virtual environment is designed in such a way that the virtual characters are not able to move in any direction, they are only able to look around and interact with each other. These interactions, however, are designed in such a way that they elicit play on the Oculus Rift. At one point, for example, Schroepfer and his colleague take a virtual selfie, which mimics something that many people are familiar with (Social1, 4:11). Implementing something like the virtual selfie demonstrates that a sense of humour has characterized the development of this application. It should be noted, however, that "neither Huizinga

nor Caillois say much about joking and humour as a distinctive feature of play" (de Lange 2010, 63). However, according to de Lange (2010), when it is spontaneous and a free expression, it "leans towards Caillois' paidia attitude" (63). As a type of play, however, it is "closest to Caillois' mimicry as illusory make-belief", since it is a form of pretending and reversing the ordinary (63). Other examples within Social1 related to mimicry are the affordances that allow the user to use pens to customize his avatar, for example, drawing a bowtie (Social1, 5:20) and putting on a mask to change the avatars appearance (Social1, 4:37). This shows how the developers implemented aspects of mimicry in the design of the virtual environment that allow users to virtually disguises and temporarily discard their "personality in order to feign another" (Caillois 1961, 19).

While Facebook has presented a short demo of what a communication platform could look like in virtual reality, *AltspaceVR* has already developed a virtual reality social network platform that runs on multiple head-mounted displays. *AltspaceVR* is a virtual reality experience that "wants to be the same kind of social network as Second Life, a place where people meet to play games or watch YouTube videos with each other" (Robertson 2015). Social2 is a video of a user interacting within the virtual environment of *AltspaceVR,* see Figure 6. Within *AltspaceVR* a teleport system allows the user to teleport to different rooms that all try to foster social interaction in their own way. There are specific rooms where people can, among other things, watch Netflix together, play Dungeons and Dragons, play air hockey, attend an art gallery, hold a business meeting, or find their way out of a maze (Frank 2016). These 'interaction enablers' are important aspects of fostering social interaction in online environments (Lee et al. 2001, 61). These rooms provide "a shared understanding of appropriate use and behaviour as well as a social interpretation of the cues in the environment", which plays an important role in social interaction within online spaces (Lee et al. 2001, 60). It provides users with a starting point for talking with random people, since it gives them topics to discuss.

The 'interaction enablers' designed in the various rooms are a form of playful remediation. According to Jay David Bolter and Richard Grusin (2000), remediation is a defining characteristic of digital media. Bolter and Grusin (2000) argue that digital media always incorporate aspects of an older medium, which they call remediation (45). One example of this remediation can be found in the different mini-games. These games have been incorporated into the environment of this virtual social media platform. The different mini-games can be linked to the different play types of Callois (1961), for instance, air hockey is a competitive game and fits within agôn (14), Dungeons and Dragons has both elements of change and competition in it, so it fits within agôn and alea (14-19), and the maze creates a sense of ilinx (23). However, *AltspaceVR* also has a room that looks like a mini theatre where people can

come together to watch YouTube or Netflix, which remediates an older medium inside virtual reality. This remediation is playful in a sense since it mimics the way people watch movies together. The theatre room affords the users to watch Netflix on a television screen inside a virtual environment. This means that the user looks at a screen inside a three-dimensional space that is in itself represented on a screen in front of the eyes of the user. This unnecessary layering of mediation can be seen as a sensory delusion, since it gives the user the impression as if he is actually watching television. This form of remediation can be understood as a type of ilinx because it destroys the stability of perception in order for the user to experience the pleasure of watching television together (Caillois 1961, 23). It also allows users to believe that they are really in a theatre watching a movie with friends, which indicates how this remediation also fosters a sense of mimicry.

Unlike the video game experiences, play with the Oculus Rift does not occur within the YouTube videos that showcase the communication platforms. While the user in Social2 does share his immediate response to the technology by taping it and uploading it on YouTube, which can be seen as a form of appropriation as well (Schäfer 2011, 20), he does not modify or adapt the Oculus Rift in a certain playful way. The user interacts with the virtual reality experience as intended by the developers. However, "users will, more often than not," adapt and modify technology after they have familiarized themselves with it (Lauwaert 2009, 16). Compared with the representation of the video game experiences on YouTube, this means that early adopters currently are more familiar in using the Oculus Rift as a gaming platform than to use it as a device to communicate with. Within the video game category both developers and users already adapt and modify the Oculus Rift as a playable material artifact in order to foster the immersive experience offered by those video games. However ,according to Poser (2011), technology is often customized for play activities and this is also happening with the Oculus Rift in the communication category. The developers of the communication experiences designed playful affordances within the virtual environments, which fosters a certain level of play on the Oculus Rift within this category as well. In doing so these developers explore the potential of the Oculus Rift as a communication device. The developers approach the virtual reality communication experiences as something playful by implementing affordances that mimic or remediate aspects people are familiar with, such as a virtual selfie or watching a movie together. These playful affordances that mimic or remediate different aspects provide a certain level of familiarity. Not only do these familiar aspects provide "a shared understanding of appropriate use and behavior", which fosters social interaction (Lee et al. 2001, 60), research shows that play activities can also help people learn many things (Resnick 2004, 3). These playful aspects can help users acquire specific skills and insights (de Mul 2015, 341).

These familiar aspects allow the user to playfully learn how to use the Oculus Rift as a communication device, which eventually has to make the user comfortable enough with the technology as a tool to communicate with. It appears that aspects of play are an important characteristic within this category to familiarize the users with the Oculus Rift. This playful appropriation behaviour of the developers can facilitate the technology's acceptance as a communication platform among users, because these playful affordances help users develop an understanding of the potential of the Oculus Rift as a communication technology.

Figure 5: Demonstration of Facebook Social VR Platform from both sides (Social1, 2:03).

Figure 6: Socializing in AltspaceVR (Social2, 1:42).

5.3 Documentaries

The videos within the documentary category aim for an informative and naturalistic representation of what it must feel like to be a Syrian refugee (Doc1, 0:25) or a victim of the terrorist attack on the World Trade Centre (Doc2, 2:16). While these virtual reality experiences may offend certain people, they seek to create empathy and understanding within users by letting them live out these tragic events. While the content within these examples are not meant to be explicitly playful, aspects of play can serve as a useful frame of reference to better understand them. In *Breathtaking Journey*, the experience depicted in the video Doc1, the developers have focused on creating an authentic setup within the material space, see Figure 7. The user must put on the Oculus Rift, including a headset and an oxygen mask, to become immersed in the virtual environment. Furthermore, the user needs to climb onto a few wooden pallets that have been set up in such a way that it recreates the back of a truck (Doc1, 0:04). The user will thereby not only receive audio-visual feedback through the Oculus Rift, but also a sort of haptic feedback through the wooden surface on which he or she is sitting. In order for the user to experience how it feels to be a Syrian refugee, he or she "presupposes the temporary acceptance [...] of a closed,

conventional, and, in certain respects, imaginary universe" (Caillois 1961, 19). The developers integrated the Oculus Rift within this experience by marking a playground with materials and creating a magic circle for experiencing *Breathtaking Journey* (Huizinga 1949, 10). According to Huizinga (1949), this spatial separation from ordinary life is "one of the most important characteristics of play" (19). To make this experience even more tangible, the developers playfully drop tangerines on the user when, in the virtual environment, the truck brakes and tangerines seem to fall down[10]. The developers playfully appropriate this novel technology to create an immersive experience that aims to be as authentic as possible. Just like the examples within the video game category, this playing with the Oculus Rift has to foster the immersive experience by providing a sort of haptic feedback. Fostering the immersive experience goes hand in hand with the notion of make believe because, both within the video game category as well as in the documentary category, technologies and materials are used to simulate the characteristics of the virtual environment. One user even said that it really felt like he was actually in the back of that truck (Doc1, 0:47). The fact that the user momentarily believed that he was actually a Syrian refugee traveling in the back of a truck indicates how Caillois's (1961) notion of mimicry relates to this experience.

According to the developers of *Breathtaking Journey,* this virtual reality experience should develop empathy for refugees (Doc1, 2:02). The developers have tried to accomplish this goal by designing the virtual environment of *Breathtaking Journey* in such a way that it creates a sense of authenticity. For example, the developers designed an affordance within the virtual environment that limits the movements of the user. The user can only look around and be as quiet as possible, but he or she cannot walk around to explore the virtual environment. This creates a playful subjective experience that simulates the powerlessness that a Syrian refugee must feel. This subjectivity contributes to the notion of mimicry, since it imitates how a Syrian refugee would experience the back of a truck (Caillois 1961 19-20). Therefore, this documentary experience really focuses on providing the physical and subjective situation that a Syrian refugee might encounter. These playful aspects can help users acquire specific skills and insights (de Mul 2015, 341), and in this case they provide insight into the migration crisis from a new perspective. A television documentary, on the other hand, would probably provide a much more macro-perspective, including the history or origins of the migration crisis. However, by virtue of focusing on the actual experience and the notion of mimicry (Caillois 1961, 19-20), which makes users believe that they are actually in the back of that truck, this virtual documentary experience is much more meaningful. One user even said that it changed the way she thought about the migration

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[10] The virtual tangerines can be seen in Doc1 at 0:54 and the tangerines that are dropped on the user can be seen at 1:12.

crisis (Doc1, 2:11).

The focus on mimicry to create empathy is also present in the virtual reality experience *08:46*, which is shown in video Doc2. This experience is highly controversial and has received much negative attention. The developers, however, created this experience so that people could "think about 9/11 from the victims' internal points of view … rather than the external, tele-visual point of view", which seems rather cold to them (Dillon 2015). This experience is controversial because the developers have tried to make it as authentic as possible. For instance, it mimics how the second plane hit the second World Trade Centre building (Doc2, 7:11), how virtual colleagues might have made panicked telephone calls (Doc2, 6:06), and how a virtual character jumps out of a window (Doc2, 9:22). Within the virtual environment, the user is afforded to walk and look around and also open doors. However, the user cannot escape the floor he is on, which creates a playful subject experience that mimics the powerlessness of the victims of 9/11. The simulation can end in only two ways; the user must either jump out of the window (Doc2, 11:39) or wait until the screen goes dark (Doc2, 9:52). Furthermore, the virtual environment is designed in such a way that it focuses on disorientation, see Figure 8. For example, the lights go dark and a great deal of smoke appears (Doc2, 3:45), which destroys the stability of perception. This creates "a kind of voluptuous panic" in the user and indicates how the notion of ilinx is present within this virtual environment (Caillois 1961, 23). This disorientation of the senses contributes to the authentic experience that the developers of *08:46* have tried to create. The affordances within this virtual environment create such an authentic experience that the user who is playing this simulation says things like "I am scared" and "I am on edge right now" (Doc2, 3:54; 6:23; 10:11). The user temporarily accepts this imaginary universe in order to become "an illusory character oneself" (Caillois 1961, 19). This provides an insight into this tragic event from a perspective not seen before.

The two virtual reality experiences within the documentary category illustrate, just as the examples of the previous two categories, how play has manifested in two ways during the appropriation phase of the Oculus Rift. During the appropriation phase of the Oculus Rift, as represented in the chosen YouTube videos, the developers designed virtual environments with playful affordances in them. This exploring of the technology by developers allows for a certain level of play on the Oculus Rift in each of the three categories. While it makes sense that play on the Oculus Rift happens within the video game category, since the technology in that case is used to play video games (de Lange 2010, 66), affordances of play within the virtual environments of the communication and documentary category serve an important purpose as well. Not only do aspects of play help users "to acquire specific skills and insights"

(de Mul 2015, 341), research also shows that play can help people learn many important things (Resnick 2004, 3). By playfully mimicking and remediating aspects users are familiar with, ranging from mini-games to television and the virtual selfie, developers provide ways for users to familiarize and get comfortable with the Oculus Rift being used for other aspects besides video games. Furthermore, by integrating aspects of play within the virtual environments, developers explore the potential of the Oculus Rift as a technology that can be used for communication and informative purposes in a playful way. Just as with other technologies (Poser 2011), the Oculus Rift is being customized for play activities even in the virtual reality experiences that have a more serious purpose.

When users are comfortable enough with the technology they will start to, "more often than not", adapt and modify it according to their own needs and in ways often unforeseen by developers (Lauwaert 2009, 16; Dix 2007, 1). This adapting and modifying of the Oculus Rift already occurred within the video game category in which both developers and users use the Oculus Rift as a playable material artifact that elicit playful practices (de Lange 2010, 66). This appropriation behavior "is regarded as an important and positive phenomenon", because technology can always be improved (Dix 2007, 1). Both developers and users within the video game category playfully adapt and modify the Oculus Rift, in a spontaneous and impulsive way, by combining the affordances of several technologies in order to accomplish their personal needs, which is to foster the immersive experience. According to Dix (2007) we know at this point that "the technology has become the users' own" (1). It appeared that, as represented in the YouTube videos, users still have to make the Oculus Rift their own within the communication and documentary categories. However, aspects of play within these categories provide users with a way to get comfortable with the Oculus Rift as a communication of informative technology.

Johan Huizinga's (1949) claim that there would not be much room for play in modern culture due to technological developments (199-200), is downright wrong. As represented in the YouTube videos, the aspect of play appears to be a key characteristic that occurs when developers and users are trying to make the technology their own. Within the appropriation phase of the Oculus Rift, aspects of play help to facilitate the technology's acceptance, even within the categories that have a more serious purpose. Not only do aspects of play help developers and users explore the potential of this novel technology by playing with it, it also provides a certain aspect of familiarity which helps users to learn and get comfortable with the Oculus Rift as a technology suited for communication and informative purposes as well. This indicates, just as Raessens (2014) argued, that play and digital technologies are closely linked in our contemporary media culture (104). The Oculus Rift, just as many other technologies, has enabled new forms of play (Raessens 2014, 103). We do not only find its source in the

specifics of programming virtual environments, but also in the activities of interacting with these environments. As developers and users both seem to playfully appropriate the Oculus Rift, this novel technology is about to enter the domain of the ludification of our culture.

Figure 7: Recreating the back of a truck to make the experience more tangible (Doc1, 0:32).

Figure 2: Creating a kind of voluptuous panic by destroying the stability of perception (Doc2, 3:53).

6. Conclusion

This research has provided insight into how play has manifested during the appropriation phase of the Oculus Rift by developers and users. To answer the primary research question, I have analysed seven YouTube videos divided over three different virtual reality categories. While not every aspect within these categories is explicitly playful, the concept of play has proven to be a useful frame of reference to better understand the appropriation phase of the Oculus Rift. While it makes sense that play on the Oculus Rift happens within the video game category, since the technology in that case is used to play video games (de Lange 2010, 66), play with the Oculus Rift happens within the video game category as well. Both users and developers playfully combine the affordances of technological components in the physical space in order to create a vivid full-body experience that fosters the immersive experience. This fostering of the immersive experience goes hand in hand with the notion of mimicry and ilinx, because in both cases these affordances mimic the movements of the video game characters, while also triggering multiple senses (Caillois 1961, 19-26). As represented within the YouTube videos of the communication and documentary categories, the developers also designed aspects of play within these virtual environments. By playfully mimicking and remediating aspects users are familiar with, ranging from mini-games to television and the virtual selfie, developers explore the potential of the Oculus Rift as a technology that can be used for communication and informative purposes. This leads to a certain level of play on the Oculus Rift in these categories as well. Not only do these playful aspects help users "to acquire specific skills and insights" (de Mul 2015, 341), research also shows that play can help users learn many important things (Resnick 2004, 3). These playful affordances provide ways for users to

familiarize and get comfortable with the Oculus Rift being used for other aspects besides video games. When users are comfortable enough with a technology they start to, "more often than not", adapt and modify it according to their own needs and in ways often unforeseen by developers (Lauwaert 2009, 16; Dix 2007, 1). According to Dix (2007) we know at that point that "the technology has become the users' own" (1). An example of this appropriation behavior by a user was illustrated in the YouTube videos within the video game category. One reason why the user within the video game category is playfully appropriating the Oculus Rift according to his own needs, while the users in the other categories are not, might be that the Oculus Rift originally was designed to play video games on, meaning that the user is already more comfortable with that idea. However, this is a speculation and requires further research.

Around seven decades ago Huizinga (1949) felt that there would not be much room for play in modern culture due to technological developments (199-200). Nowadays, however, this claim is being debated (Frissen et al. 2015, 21; Raessens 2014, 103). According to Raessens (2014), play and digital technologies are closely linked in our contemporary media culture (104). For example, technologies often have been customized for play time activities (Poser 2011). Whether it is playfully texting using our mobile phones, playing video games or playful film narratives, "digital information and communication technologies have precisely enabled new forms of play" (Raessens 2014, 103). As this study has indicated the relationship between play and the Oculus Rift are also heavily intertwined. The appropriation phase of the Oculus Rift is being heavily influenced by various aspects of play. Play is a key characteristic that occurs during the appropriation phase of the Oculus Rift, helping to facilitate the technology's acceptance. Not only does it help developers and users explore the potential of this novel technology, sometimes by playfully combining it with other technologies, it also provides a certain aspect of familiarity which helps users to learn and get comfortable with the Oculus Rift as a technology suited for communication and informative purposes as well. This indicates how the notion of play has manifested during the appropriation phase of the Oculus Rift in two ways. By playing with the technology, both developers and users try to understand what this technology can do for their day-to-day lives. It appears that play is a central aspect of our media experience (Silverstone 1999, 63). During the appropriation phase of the Oculus Rift we find its source in the specifics of programming virtual environments, but also in the activities of interacting with these environments. As represented in the YouTube videos, playing with the Oculus Rift provides insights into the potential of this novel technology, while it also facilitates the technology's acceptance. The Oculus Rift, just as many other technologies, has enabled new forms of play (Raessens 2014, 103).

Although this research has provided valuable insight into the way play has manifested during

the appropriation of the Oculus Rift, it also has some limitations. The concept of play is very complex and ambiguous. While I have referenced some of the most influential literature concerning the concept of play, such as that of Huizinga (1949) and Caillois (1961), their work has also been heavily criticized. Huizinga's work, for example, is criticized due to its many contradictions and ambiguities (Caillois 1961; Frissen et al. 2015; Raessens 2014; Sicart 2014). And while Caillois (1961) wrote *Man, Play and Games* as a critical response to *Homo Ludens,* his work has also been criticized, for instance, for the fact that Caillois argues that some combinations of various play types are improbable, if not impossible (Lauwaert, Wachelder, and van de Walle 2007, 92). Furthermore, Caillois also argues that play is unproductive, which is, according to de Lange (2010, 49), simply wrong. Even though Caillois's work has been criticized, "his typology of play remains a useful framework for the analysis of the ludification of contemporary culture" (Frissen et al. 2015, 15). Using another definition of play, however, would probably lead to a different result, which could be of great value to better understand the relationship between technology and play. Furthermore, in order to keep this study manageable, I decided to focus my comparative textual analysis on three categories. There are, however, also various other categories that I did not focus on due to the scope of this research. For example, there have been many extreme spatial experiences developed for the Oculus Rift, such as various rollercoaster rides. It would be interesting to observe whether the notion of play relates to these various other categories as well. Furthermore, textual analysis is a method that focuses on providing the most likely interpretations of a text (Mckee 2001, 118). While this research has provided valuable insight into the appropriation phase of the Oculus Rift based on the affordances that were represented within the YouTube videos, it is very likely that someone else would come to a different conclusion when trying to answer this particular research question. Because, according to Mckee (2001), "researchers will draw on their own knowledge" in order to provide the likely interpretations of the texts they analyse (118).This means that two researchers will never find the exact same answer to a research question based on a textual analysis (118).

Although we are witnessing a ludic turn in the field of media studies (Raessens 2014, 110), more research into the relationship between technology and play is needed. Further research should focus on other head-mounted displays, since it seems that head-mounted displays are in a phase of ongoing development at the moment. New devices such as the Microsoft HoloLens, PlayStation VR, and Magic Leap are slowly gaining more attention in main stream media discourse. Since play has become a key tool for understanding our strongly mediated culture (Frissen et al. 2015, 21), it will be interesting to observe whether play will manifest during the appropriation phase of these technologies as well. Future

research should then also include various other theories of play, which would help remove some of the ambiguities concerning the relationship between technology and play and contribute to the ludic turn that is present in the field of media studies.

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8. Plagiarism rules awareness statement

Universiteit Utrecht

Faculty of Humanities
Version September 2014

PLAGIARISM RULES AWARENESS STATEMENT

Fraud and Plagiarism
Scientific integrity is the foundation of academic life. Utrecht University considers any form of scientific deception to be an extremely serious infraction. Utrecht University therefore expects every student to be aware of, and to abide by, the norms and values regarding scientific integrity.

The most important forms of deception that affect this integrity are fraud and plagiarism. Plagiarism is the copying of another person's work without proper acknowledgement, and it is a form of fraud. The following is a detailed explanation of what is considered to be fraud and plagiarism, with a few concrete examples. Please note that this is not a comprehensive list!

If fraud or plagiarism is detected, the study programme's Examination Committee may decide to impose sanctions. The most serious sanction that the committee can impose is to submit a request to the Executive Board of the University to expel the student from the study programme.

Plagiarism
Plagiarism is the copying of another person's documents, ideas or lines of thought and presenting it as one's own work. You must always accurately indicate from whom you obtained ideas and insights, and you must constantly be aware of the difference between citing, paraphrasing and plagiarising. Students and staff must be very careful in citing sources; this concerns not only printed sources, but also information obtained from the Internet.

The following issues will always be considered to be plagiarism:
- cutting and pasting text from digital sources, such as an encyclopaedia or digital periodicals, without quotation marks and footnotes;
- cutting and pasting text from the Internet without quotation marks and footnotes;
- copying printed materials, such as books, magazines or encyclopaedias, without quotation marks or footnotes;
- including a translation of one of the sources named above without quotation marks or footnotes;
- paraphrasing (parts of) the texts listed above without proper references: paraphrasing must be marked as such, by expressly mentioning the original author in the text or in a footnote, so that you do not give the impression that it is your own idea;
- copying sound, video or test materials from others without references, and presenting it as one's own work;
- submitting work done previously by the student without reference to the original paper, and presenting it as original work done in the context of the course, without the express permission of the course lecturer;
- copying the work of another student and presenting it as one's own work. If this is done with the consent of the other student, then he or she is also complicit in the plagiarism;
- when one of the authors of a group paper commits plagiarism, then the other co-authors are also complicit in plagiarism if they could or should have known that the person was committing plagiarism;
- submitting papers acquired from a commercial institution, such as an Internet site with summaries or papers, that were written by another person, whether or not that other person received payment for the work.

The rules for plagiarism also apply to rough drafts of papers or (parts of) theses sent to a lecturer for feedback, to the extent that submitting rough drafts for feedback is mentioned in the course handbook or the thesis regulations.
The Education and Examination Regulations (Article 5.15) describe the formal procedure in case of suspicion of fraud and/or plagiarism, and the sanctions that can be imposed.

Ignorance of these rules is not an excuse. Each individual is responsible for their own behaviour. Utrecht University assumes that each student or staff member knows what fraud and plagiarism

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entail. For its part, Utrecht University works to ensure that students are informed of the principles of scientific practice, which are taught as early as possible in the curriculum, and that students are informed of the institution's criteria for fraud and plagiarism, so that every student knows which norms they must abide by.

I hereby declare that I have read and understood the above.
Name: Richard Pesch
Student number: 5481767
Date and signature: 17-06-2016   RPesch

Submit this form to your supervisor when you begin writing your Bachelor's final paper or your Master's thesis.

Failure to submit or sign this form does not mean that no sanctions can be imposed if it appears that plagiarism has been committed in the paper.